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Volume 1 Number 2 of the Cebu Journal of Computer Studies contains the researches of students who are enrolled in the capstone projects. The researches have been presented in a panel of experts and have submitted for plagiarism and grammar test using Grammarly. The CJCS is a venue for publication of the capstone project and research outputs of the college. The editors encourage the submission of a variety of manuscripts: reports of research, as well as the capstone projects to be highlighted in this journal.

Cebu Journal *of* Computer Studies

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AQUANIC: A THIRD PARTY ONLINE SHOPPING WEBSITE

Clemente, Jeus Joshua A.
joshua@gmail.com
Hacker

Aying, Axel M.
axel@gmail.com
Hustler

Murillo, Angelyn
gelyn@gmail.com
Hipster

Abstract - This study entitled Aquanic is a web-based project which is made for remote shopping or shopping through Internet. As the technology is being advanced the way of life is changing accordingly. Now a days we can place the order for any thing from our home. There is no need to go the shop of the things we want. The order can be placed online through Internet. The payment, the confirmation of purchasing; we can do everything we want. Now we can think that how the days have been changed with time. People had to stand in rows to wait there terms to buy a particular thing from a popular shop. But what is happening now a days; we can extremely surprise that those things can be available on the doorstep in few hours. People had to suffer the rush of the market when they went for shopping. They used to think hundred times to buy any thing having the sufficient money for shopping. The problem was the rush; the quarrel at the time of buying the things. But the advancement of technology brought the new way for shopping. The way of shopping was completely changed with the coming of Internet Technology. People have to fill a simple form on the internet to place their order on any popular shop or shopping-mall for the thing they want to buy. Now they can place their order from the home. Ordering products for aquarium decoration and other products connected for that purpose is now made easy with just a click of the phone using the application "Aquanic" an online shopping website that focuses on selling that helps the customer in finding a right and a secure online shopping website for buying healthy and high-quality products that will use on Aquascaping.

Keywords – aquanic; online shopping; online purchasing; internet technology; aquascaping

INTRODUCTION

Retail has become an essential part of modern humanities evolution. From trading camels to ringing up customers. According to the Encyclopedic of Ancient History, "shopping" likely made up of purchasing needs; for the rich, cowrie shells or gold coins would have also been used on luxuries to attract visiting dignitaries. Even then, the biggest "retail" system of which people might have specific knowledge of containing the agora the Roman trading center where individual tradesmen would set up shop to offer their benefits. These benefits were carrying everything from the

days catch of fish or recently harvested vegetables to extraordinarily valuable purple dye. In the timely 1900s, shoppers used to visit their local corner stores. Mom and pop stores { still around today and containing a tiny business, usually family-owned with one single physical location { were especially favorite at the time. The most significant breakthrough in technology came with Frank Woolworths innovation of taking products from behind the counter and showing them on the shelves, so people could both hold and feel them, much like they do nowadays. At the origination of the last century, Great Britain had one of the most ground-breaking department stores in the world and even present elevators. In the 1930s, Self ridges attached public bathrooms to their stores, allowing shoppers to spend additional time shopping. These retailers were especially groundbreaking as they moved towards the experience individuals know today, where, walking to a store is a pleasurable all-day activity. Brick and Mortar businesses such as pet shops, aquascaping services, and Animal shops existed in the earliest vendor stalls in the first towns, where merchants brought their agricultural manufacture, clay pots, and handmade clothing to vend in a village market. Bricks and mortar businesses stay essential in the 2010s. All vast retailers in the 19th and the timing to mid-20th century began with a tinier brick and mortar existence, which increased as the businesses grew. A prime example of this is McDonald's, a company that started with one small restaurant and now has timely 35,000 restaurants in over 110 countries and plans to grow further; this shows the importance of having a physical existence. This physical existence, either of a retail shop, a customer assistance location with staff, where clients can go in person to ask questions about a product or service, or an assistance center or repair facility where customers can bring their products, has played a critical role in providing goods and services to consumers throughout history. Tom Shay, the head of the Pro Tools Solutions once said "Selling Value is Winning Back Customers." He believes that existing brick and mortar aftermarket stores already have enormous potential to take advantage of the changing times and re-claims customer in the increasingly competitive retail market. More importantly, said Shay, World Gallup Surveys indicate that Philippines place confidence in building businesses like Pet Shops and Aquascaping services, and recent research by the National Federation of Independent Business and American Express found that 94% of vendors said that building a brick and mortar store makes them feel good because of the advantages it has shown. Entrepreneurs love the idea of putting a physical store because it allows the vendor to open new lines of products and diversify the revenue streams without making a big hassle. Consumers also tend to environmental related services or products into homogeneous shopping baskets based on their perception. Pet Shops and Aquascaping services believe that having the brick and mortar stores are uniquely positioned to make a better selling relationship. Owners risk in building a brick and mortar store because they believe that it enables the customers to hold, see and feel the products they want. The bottom line, according to research is that when brick and mortar stores were attached by, consumers made additional frequent even accounting for an increase in merchandise returns and exchange due to the convenience of having a physical store. According to Tom Shay, having a brick and mortar retail store remains useful, especially for consumers immediate and timely needs that cannot be satisfied with long-term base services. It allows customers to pick up items in a physical store and gain information given by a knowledgeable sales associate who explains how a product works and what accessories are needed to enhance the product. Physical stores can also engage a face to face assistance and work out difficulties or return products that don't meet the expectation of the

customer. These personal in-teractions lead to customer retention, and in turn, good reviews come out. However, owners of physical stores stated that due to the high demand of technology having a brick and mortar store results to a loss of profits especially with a local business where it can only attract customers who come to the store. Due to the high demand for technology support are more likely to be associated with the online shopping mode. With the increasing and enhance means of accessing the web, its use and popularity also grew. Due to the problems encountered the fact allows the researchers to create a third party online shopping website which will help physical stores to broadcast and advertise their products all over the world. Online shopping has grown in fame over the years because people find it appropriate and easy to deal shop from the comfort of their home or office. The researchers will make a way using creating an online shopping website called Aquanic which will act as a third party for both the vendors and the customers where it will improve the development and profits of the owners. As researchers, who seek to help and learn, it is an achievement to be able to make a solution to develop the way on how owners will gain back the cost they spend in selling products and services by using today's high demand of technology and be able to prevent business bankruptcy and losing of profitable value. As well as to provide an essential long-run perspective on the issues that are faced on a day-to-day basis. People are hoping that the proposed system can make a difference in the world. Great leaders don't set out to be superior, but they set out to make a difference. It's never about the role instead it is always about the goal.

OBJECTIVES OF THE STUDY

The core objective of the study is to develop a system Aquanic: An online shopping website that focuses on selling that helps the customer in finding a right and a secure online shopping website for buying healthy and high-quality products that will use on Aquascaping.

Specific Objectives

Specifically, the system will be able to:

- allow the customers to save time, and to experience hassle-free shopping for their particular needs;
- show the available shops in Cebu; Shows the present items available;
- show tutorial videos as customer's guide;
- generate order receipt and tax receipt for customer's record; and,
- bring a safe delivery of the products and a secure cash on delivery transaction

The following would be part of the application's scope and limits.

Customer

- Register the required details of the items to be purchased
- Browse the presently available shops and their product
- Search specific categories

- View videos on how to perform professional maintenance

Shop

- Upload Items and Livestock
- Manage Pending Items and Livestock
- Create a Promo of their Items and Livestock Display their Sales Report and Tax Charges

Super Admin

- Manage Customers Account
- Manage Shops Account
- Manage Partnership Account
- Manage Orders
- Upload Tutorial Videos and Manage Tutorial Videos
- Generates Order and Tax Receipt

Limitation of the Study

- The system can only be use by the people who are living in Cebu;
- The system will be limited to customers who don't have Internet access;
- A customer is not allowed to return a livestock once it was delivered alive; and,
- Damaged materials are not refundable once it was received.

RESEARCH METHODOLOGY

Software Engineering Methodology

The system is developed following the Agile Methodology approach. An Agile methodology is an iterative approach to product development that is performed in a collaborative environment by self organizing teams. The methodology produces high quality software in a cost effective and timely manner to meet stakeholders changing needs.



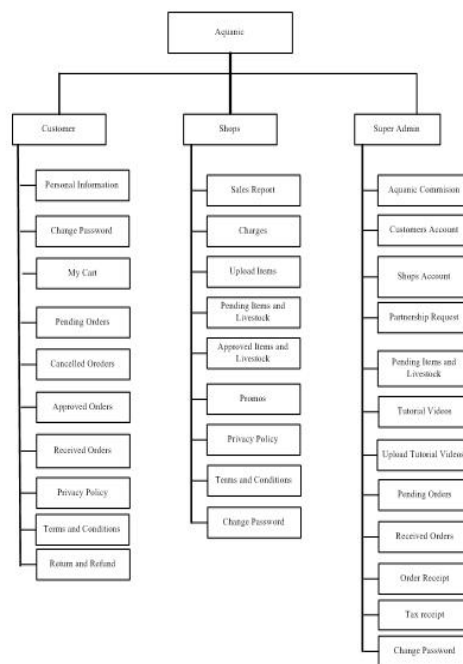
Figure 8: Agile Methodology

AGILE METHODOLOGY DIAGRAM

First, is the Requirements, this phase focuses on requirements that define the automated system/application in more detail with regard to inputs, processes, outputs, and interface. Second, is the Plan specification, the proponents planned on what and how will the system be implemented and designed. Third, is the Design specification, is the phase comes next after complying the software specification where planning the design of interfaces can easily be access by the user, also in this phase is where the initial creation of the software management plan and documentation where being made. Fourth, is the Development specification, the final creation of the design by developing each design and conduct the testing of the software to determine the possible errors before the implementation so that proponents can take actions to a possible solution in every error that might occur once the testing is being conducted. Fifth, after the designing, developing and testing process, the implementation of the system will follow, while the system is running the client will be able to see the condition of the system and that the uses of the system being implemented reaches the important phase of the client. Lastly, after all the phases being mentioned above, the performance of the system will be evaluated, and thus, the system will be eligible for deployment and ready to use for the certain client.

Functional Decomposition Diagram

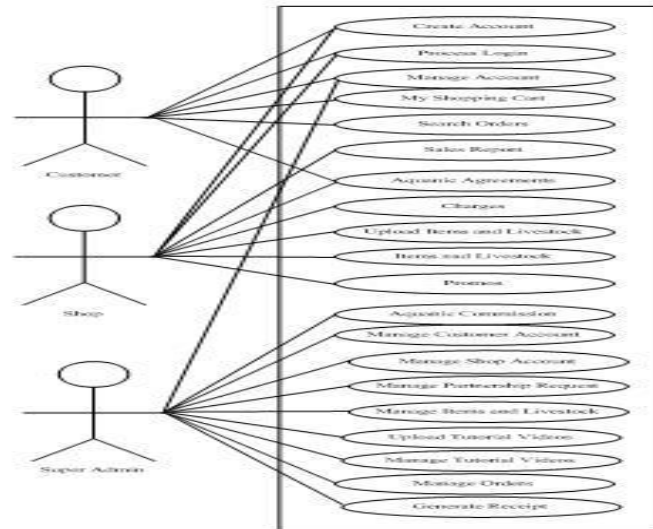
The functional decomposition diagram represents the breakdown of business process that the proposed system will do. The processes will mainly cover about the functions of users.



FUNCTIONAL DECOMPOSITION DIAGRAM

Use Case Diagram

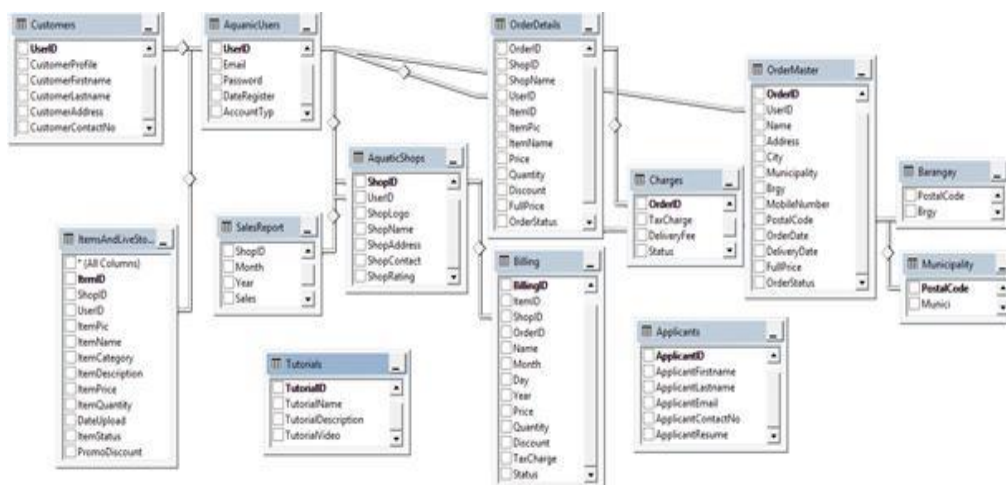
A use case diagram is a presentation of a user’s interaction with the system that shows the relationship between the user and the different use cases in which the user is involved.



MAIN USE CASE DIAGRAM

Database Design

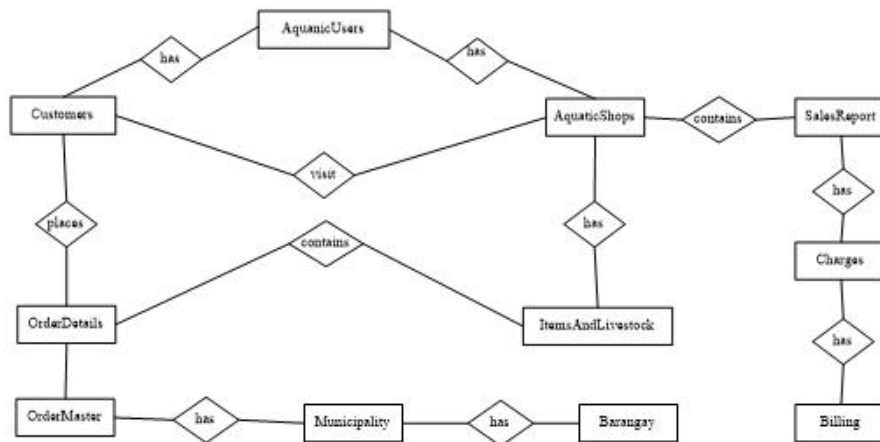
Database Design is the process of producing a detailed data model of a database. This data model contains all the needed logical and physical de-sign choices and physical storage parameters needed to generate a design in a data definition language, which can be used to create a database. A fully attributed data model contains detailed attributes for each entity.



DATABASE DESIGN DIAGRAM

Entity Relationship Diagram

An entity-relationship diagram (ERD) is a data modeling technique that graphically illustrates an information system’s entities and the relationships between those entities. An ERD is a conceptual and representational model of data used to represent the entity framework infrastructure.



ENTITY RELATIONSHIP DIAGRAM

Network Topology

Star topology is a network topology where each individual piece of a network is attached to a central node (often called a hub or switch). It is the most common setup wherein the attachment of these network pieces to the central component is visually represented in a form of star. The reason of using the star topology is to reduce the impact of a failure to a line in a way of connecting all existing systems to one central node or hub.



Figure 43: Star Network Topology

NETWORK DESIGN

CONCLUSION

The system is an online shopping website that focuses on selling, that helps the customer in finding a right and a secure online shopping website for buying healthy and high-quality products that will use on Aquascaping. Therefore, application helps the user to find the items they need in aquascaping.

RECOMMENDATIONS

The researchers have recommended the following:

- Since the application is new the admin must advertise the items on a brick and mortar stores.
- Further studies would be made for possible expansion of the application.

BIBLIOGRAPHY

- Chizoba, M. (2013, July 12). Convenience, bar-gains, and a few scams. Retrieved from Investopedia: <http://www.investopedia.com/articles/pf/08/buy-sell-online.aspx> 1msc658Sz
- Doll, J. (2012, February 14). Drunk online shopping will save this wretched economy. Retrieved from Village Voice.: <http://blogs.villagevoice.com/runninscared/2011/12/drunkonlineshoppingtrend.php>
- Online shopping in To-day's Economy. (2008, July 21). Retrieved from Milstone Insights.: <http://blog.milestoneinternet.com/education/>
- Online-shopping-in-today Press., A. (2011, November 29). Reports say "Cyber Monday" top online shopping day. Retrieved from New York(AP): <http://www.mail.com/business/economy/876350-reports-cyber-monday-top-online-shopping-day.html>
- Publishing., W. (2008, April 10). On-line Sales to Climb Despite Downbeat Economy, Hit 204B in '08. Retrieved from <http://www.marketingvox.com/online-sales-to-climb-despite-downbeat-economy-reach-204b-in-08-037937>
- Captera. (2017). Edbase. Retrieved from capterra.com: <https://www.capterra.com/p/167097/Edbase/>
- Rizal, J. P. (2017, September 24). Variables, and Operators. Retrieved from Introduction to C++ Programming: <http://www.programmingbasics.com>

ARTPHEUS: AN ONLINE AUCTION OF ARTWORKS

Regala, Ed Martell C.
Hacker
edmartellregala@gmail.com

Lagamo, Rhea Joy
Hustler
YumeJoy07@gmail.com

Jubay, Johncel
Hipster
Jctoong10@gmail.com

Abstract - This study entitled Artpheus is based on Online Auction for Artworks. It aims to help the artist to sell their artworks and bidders to find their ideal artworks they want with the help of technology. One of the problems encountered of the artist is that they had a hard time selling their artworks and mostly it spent a lot of time in the storage because selling their artworks didn't go well. For the bidders, it is also not easy for them to find the perfect artwork they looking for. They had a hard time to find it and to make a deal to the artist. Having that such kind of problem to sell and buy artworks for the artist and bidders. With the use of technology this will provide a web-based application for Artwork Auction in terms of selling and buying of artworks, help the bidders to know the information of artworks and maintain legit artworks for the sellers and buyers. This study aims to make a good online auction system that provides a great alternative of bidding policy for general people that save both time and money. The system Artpheus is designed to be user-friendly and to have features to provide improving process that can be easily use and understood by the users. This system is a well secured system for the security purposes of the user account and can maintain legit artworks and its information. It can also upload an artwork for bid. Generate report for List of artists within Cebu, Saleable items, Total Sales and to each seller. By this, the administrator can monitor the specific user that has an account on the report of the system. As to the proponents, creation of Artpheus system is a big help for both artist and bidders, specially to the artist who wanted to sell their artworks fast and hassle free.

Keywords – artpheus; online auction; artworks; bidders; artist

INTRODUCTION

The online auction system is a web application where all products are displayed in different categories and a customer can bid to the selected category wise product without facing any problem. The online auction system deals between sellers and bidders. It provides the users for sign up to this application and search for products, manages their accounts. Each customer will have their own account showing their username they have logged in. On the other hand, users can also see all product pages without having an access with their account. Signed up users will have

to log in first then they can upload products on the site from their account and can bid for other products which are not owned by them. Users can edit their profile and see their uploaded products and bided products. Administration panel can approve products, update products, delete products, delete user, update and delete all ongoing bids and can also see all the products, categories, users and bids. All bids have limited time to finish. After finishing the bids admin can notify the sellers and the bidders. This is a well secured system and can be easily operated. This is fully dynamic. There is nothing static here. The main aim of this web application is to make a good online system that provides a great alternative of bidding policy for general people that saves both time and money. (Sazzad and Mustasim, 2016) There are two kinds of Auction which are, business-to-person or person-to-person. Sellers of business-to-person bidding and selling sites have physical control of the products being offered and accepted payment for the goods. (Montaldo, 2018) In person-to-person auctions, personal sellers or small businesses offer their items for live auctions directly to consumer. Generally, the Seller has physical ownership of the merchandise. After Auction closes, the seller is responsible for dealing directly with the highest bidder to arrange for payment and delivery. Dealers may offer one item at a time of the same questions. There is a continuing data collection. Just like local auction there are dealers, bidders, winners and losers. Winners are expected to pay for what they bid on at the last result of auction, where the similarities between online and local auction end. The most critical aspect of successfully auction of artworks online is to know what they got before artists sell it. As in the bricks and mortar world of shops, shows, sales, and auctions, they must research the artist, the significance of their art, and have a reasonable idea of its desirability and value in marketplace. Necessary information about a work of art, its value, and the artist is essential to effective selling and must be translated into a compelling online auction presentation to position art for the best exposure and the most views and bids. Not knowing what they are selling can cause them to leave out relevant information when they list their art and consequently, reduce the number of people who see their art as well as contribute to its final selling price. Assuming they have researched their craft and know what they are selling, the following pointers will help them present facts in such a way as to make the best use of the online auction bottom line. Sellers who ask for too much money often fail to sell their art and, worse yet, dozens and sometimes hundreds of bidders watch it fail to sell. It makes the technique less desirable the next time it comes up for auction. Bidders remember it from its first appearance, think that it has problems or other undesirable characteristics, and either bid lower than they did the first time or not bid at all. The rise of new technology has improved everyone's life by bringing many convenience. Through the developing factors of technology in the society, it is commonly used by everyone and used for several factors in life. The art world takes a giant step forward by giving artist an online auction of artworks. An online auction is offering avenues for emerging artist, sellers and buyers. As trust and technology grow, so does the level of interest in this new way of buying art. Before the internet, the artworks will spend a lot of time in storage. The internet offers a very significant opportunity to expose the artworks to those who are interested. That is why we develop a system entitled Artpheus. The proposed system mainly provides the clients with the ease of bidding and selling of artworks, the artist can upload their artworks, sell an item for bid, has an on-line payment and it can also generate a report such as a list of items sold and the list of sellers and customers. This system will help the Artist to sell their artworks without a hassle, and it can help the buyers to find the ideal Artworks they want.

OBJECTIVES OF THE STUDY

The main objective of the study is to develop a mobile responsive web-based software for artworks auction.

Specific Objectives

The study specifically answers the following specific objectives:

1. To provide a web-based application for Artwork Auction in terms of:
 - Selling and buying of artworks;
 - Maintain legit artworks for seller and buyer; and
 - Maintain legit artworks information.
2. To improve the existing process of online auction in terms of:
 - Displaying of artwork information;
 - Payment;
 - Selling and buying of artworks;
 - Maintain legit artworks for seller and buyer; and
 - Maintain legit artwork information.
3. Generate reports detailing information regarding:
 - Saleable items;
 - Total sales of each seller;
 - List of artists within Cebu City; and
 - Total Sales.

Scope and Limitation of the Study

The scope of the study will focus on the development of online selling of artworks. This includes the significant functionalities that cater both artists and art collectors.

- Registration of artists and customers- Before bidding or buying the item, both artist and customers are required to register themselves.
- Uploading of artworks for sale or bid- Registered artists, collectors or customers may sell their items using the application. The items for sale will be uploaded on the webpage for the customers to see.
- Bid items- Sellers may upload items for bid and may set this item for bid for a specific period.
- Online Payment- Customers may choose their payment option, either through GCash, SmartMoney, PayMaya or cash on delivery.
- Generate reports- The application can generate reports such;
 - List of items sold.
 - List of sellers and customers.
 - Sales details.

However, there are also limitations of the study that is not covered on the development of an online selling of artworks such as:

- The system will not be accessed without a valid username and password;
- When an invalid password is entered a warning is given to the user that his account is going to get locked;
- The system cant be accessed with-out the use of internet; and
- The customer cant make transactions without an account.

METHODOLOGY

Software Engineering Methodology

A software development method-ology or system development methodology in software engineering is a framework that is used to structure, plan, and control the process of developing an information system. One of the methodologies software engineering used is Agile Software Development methodology. Agile hardware development refers to the development of specifications for devices that are intended to be manufactured. Agile processes are not limited to the world of software development. They can be applied in any other development also.



AGILE METHODOLOGY DIAGRAM

Agile Software Methodology Cycle

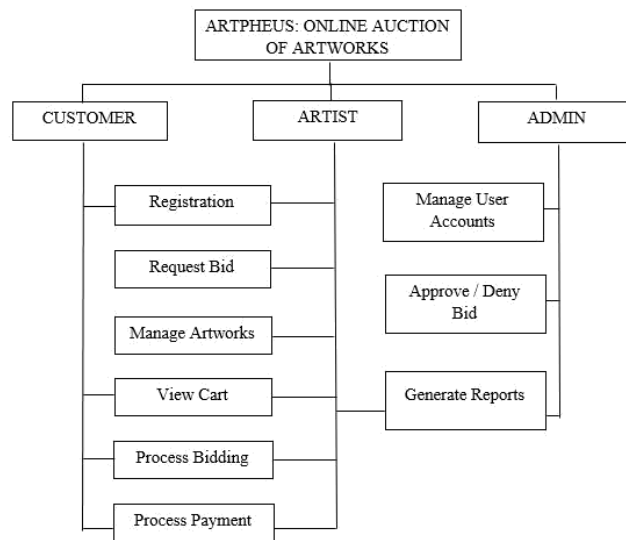
There are the phases of the Agile Soft-ware Methodology cycle. These phases do not always happen in order; sometimes they are exible and still evolving. Many of these phases occur in parallel.

- Planning: This phase is the funda-mental process of understanding why an infor-mation system should be built and determines how the project team will go about building the information system.

- Analysis: It is where the agile lifecycle begins it is where the proponents break down the deliverables in the high-level Project Charter into the more detailed business requirements. The team also needs to gather data to have a better understanding of how their system will be made. The data collected must be delicate and detailed.
- Design: The design is based on the requirements identified in the previous phase. The team needs to design what the product should look like until the completion of the system.
- Build: This phase is all about creating and testing the features and scheduling the reduplication for deployment. This iteration builds the foundation for the development, with tasks like finalizing contracts, preparing the environments, and funding.
- Testing: Once, the software is developed, it is tested to make sure the requirements are met by the client. During this phase, unit testing, integration testing, system testing, and acceptance testing are made.
- Evaluation: After testing, the product performance is then evaluated. The system will be eligible for deployment and ready to use for the certain client. It can come with a manual and instructions on how to use the product. However, deployment is not the end of the project. Once the client starts using the product, they might encounter maintenance, errors or bugs that the project team will need to x.

Functional Decomposition Diagram

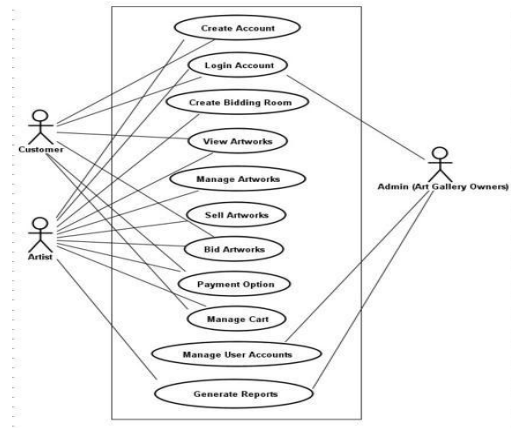
Functional decomposition corresponds to the various functional relationships as how the original complex business function was developed. It mainly focuses on how the overall functionality is developed and its interaction between various components.



FUNCTIONAL DECOMPOSITION DIAGRAM

Use Case Diagram

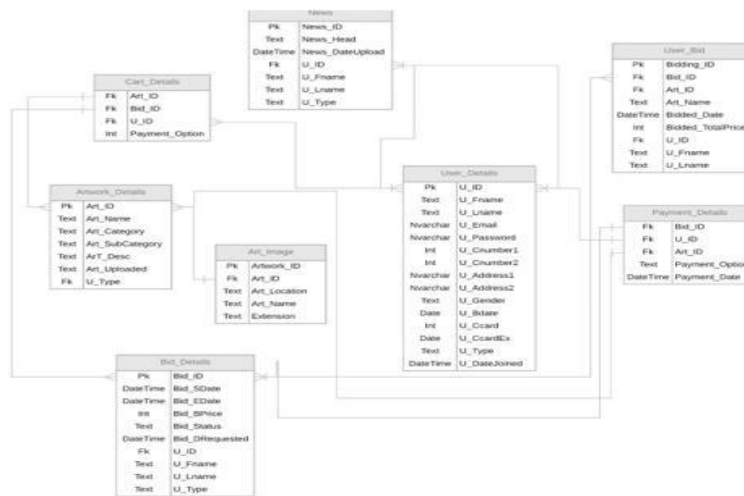
This section will give the overall overview of the system in terms of its functionalities and how the user and the bin in-teract with each other to meet the expected objectives.



MAIN USE CASE DIAGRAM

Database Design

The database design precedes directly from the data requirements that exist in the forms and reports of the proposed system. The database model has been normalized to ensure that database processing would be simple, efficient and less susceptible to problems during maintenance.

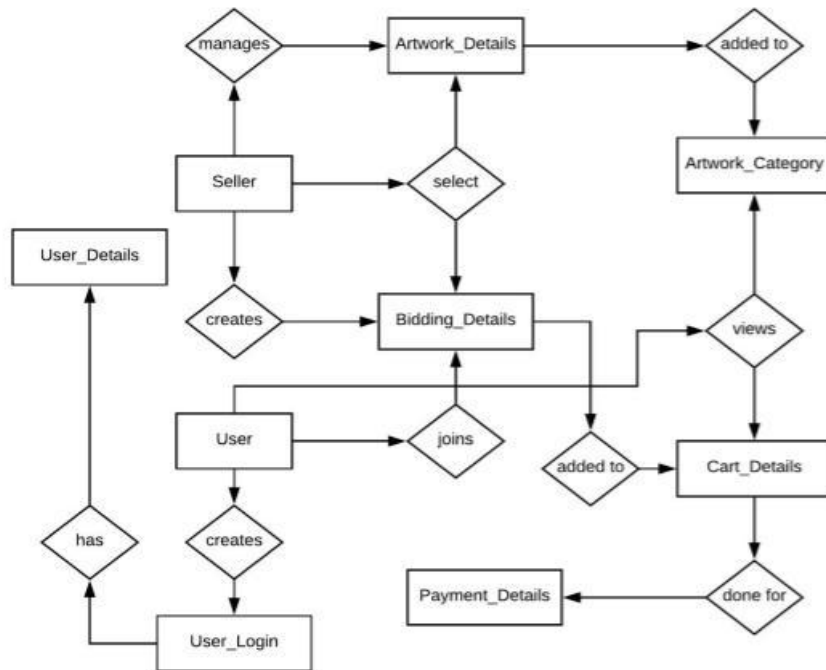


DATABASE DESIGN OF ARTPHEUS

Entity Relationship Diagram

The Entity Relationship Diagram illustrates the relationships between entities in a database. The three main components of an ERD are the following:

- The entity is a person, object, place or event to which data is collected;
- The relationship is the interactions between the entities; and
- The cardinality defines the relation between entities in terms of numbers as shown below:



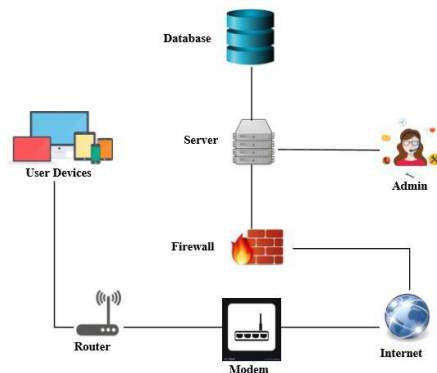
ENTITY RELATIONSHIP DIAGRAM

Network Design

Network design refers to the planning of the implementation of a computer network infrastructure. Network design is generally performed by network designers, engineers, IT administrators and other related staff. It is done before the implementation of a network infrastructure.

Network Model

Network model involves evaluating, understanding and scoping the network to be implemented. The whole network design is usually represented as a network diagram that serves as the blueprint for implementing the network physically.



NETWORK MODEL OF ARTPHEUS

Network Topology

A tree topology combines characteristics of linear bus and star topologies. It consists of groups of star configured workstations connected to a linear bus backbone cable. Tree topologies allow for the expansion of an existing network and enable schools to configure a network to meet their needs.

CONCLUSION

The research conducted shows that the users mostly strongly agree that system is important in bidding item. Furthermore, the users take between 5 days and 2 hours until the auction. The system created an environment for artist, admin and bidders as well to make faster transaction in terms of bidding artworks. The occurrence of the artist and bidders are highly given emphasis for the users to communicate. Thus, the system helps the target users in obtaining the needed artworks.

RECOMMENDATION

For further development of this study the use of newly existing technologies is highly recommended to have more flexible system likewise of having responsive framework to obtain better user experience.

BIBLIOGRAPHY

Artnet(2018)Retrieved from <https://www.artnet.com/pricedatabase>

Artspace(2018)Retrieved from <https://www..artspace.com>

- Chung, C. S (2015) Remedies for information asymmetry in online transaction: An investigation into the impact of web page signals on auction outcome. Ta iwan: Emerald Group Publishing Limited.
- Contemporary Art Auction(2018) Retrieved from <https://www.sothebys.com/en/departments/contemporary-art>
- Dholakia, U. M.(2013) The usefulness of bidders' reputation ratings to sellers in on line auctions. *Journal of Interactive Marketing*, 2-18.
- Dolpanya, K.; Land, L.P.W.; Dick, G. (2014, December 13). Antecedents of Suppliers Participation in Business -to-Government (B2G) Electronic Auction Markets: Thai B2G E-Auction Proceedings of SIG Globe
- Dev's First Annual Workshop. Retrieved from [http://www.globdev.org/files/26-Paper-Dolpanya-B2G e-auction Revised1.pdf](http://www.globdev.org/files/26-Paper-Dolpanya-B2G-e-auction-Revised1.pdf)
- Emiliani, M. L., and Stec, D. J. (2004). Aerospace parts suppliers' reaction to online reverse Auctions. *Supply Chain Management*, 139-153.
- Invaluable. (2016). Retrieved from <https://www.invaluable.com/>
- Ji, Chun Yeh; Kuo, Lun Hsiao; Wei, Ning Yang. (2015). A study of purchasing behavior in Taiwan's online auction websites: Effects of uncertainty and gender differences. Taiwan: Emerald Group Publishing Limited.
- Leon Gallery. (2018). Retrieved from <https://leon-gallery.com/>
- Montaldo, D. L. (2018, July 9). How Online Auctions Work. Retrieved from The Balance Everyday: <https://www.thebalanceeveryday.com/how-online-auctions-work-940780>
- Radhakrishnan, A., and Davis, S. (2014, August 31). Factors affecting supplier adoption of governmental reverse auctions : an exploratory case study". Retrieved from [http://tar.ipsitransactions.org/2005/January/Paper 2009.pdf](http://tar.ipsitransactions.org/2005/January/Paper%202009.pdf)
- Radhakrishnan, A., Davis, S., and Davis, B. (2013, March 26). Internet Journals. Retrieved from Factors affecting supplier adoption of governmental reverse auctions: an exploratory case study: [http://www.internetjournals.net/journals/tar/2005/January/Paper 2009.pdf](http://www.internetjournals.net/journals/tar/2005/January/Paper%202009.pdf)
- Sazzad, I., and Mustasim, B. (2016). Bid On: An Online Auction System

BYAHE: A WEB AND MOBILE-BASED COMMUTING APP

Luta, Elbert E.
Hacker
elbertluta@gmail.com

Padasas, Smilelight A.
Hustler
imesmypadasas@gmail.com

Herana, Christopher
Hipster
Toper2k5@gmail.com

Abstract - Commuting today is getting harder as time passes by due to the continuous rise of the population worldwide. It has always been a burden for the commuters, especially for those who are in the urban area, in finding or getting a ride on vehicles especially during rush hours of the day, along with the numerous commuters in the area due to the imbalance proportion of the commuters and available vehicles, wherein there is an inadequacy of transportations that they cannot accommodate the public commuters well. In Lapu-Lapu and Mandaue City, most of the population are commuters who ride on utility vehicles to go to work, school or other places they have to be. The current way of commuting in the locality is time-consuming, inefficient, and stressful for the citizens since it still gives the commuters a hard time to get a ride every time they have to go elsewhere. In regards to the problem, the re-searchers conducted this study to have a solution in today's commuting dilemma wherein it allows the passengers to reserve for seats on an avail-able vehicle for a ride around Lapu-Lapu and Mandaue City. It will lessen the time consumed for a commuter to look for vehicles to ride in and will give an efficient and comfortable life for both drivers and passengers all throughout the day without great effort and few difficulties. Byahe is a mobile and web-based application that will give sure and reliable ride each day because of its features that will allow the users to choose a vehicle that is available for a trip going to their desired destination more quickly and efficiently than before. The user has to select a place that they want and select the vehicle available for them to hop in, and reserve for a seat in a most effortless way to do, then they will no longer have to worry for a ride even in times of rush hours.

Keywords – byahe; commuters; commuting; transportation; utility vehicles

INTRODUCTION

Today, technology is present in most sectors, and its advancement has had a lot of impact in the quality of life. Every day, the world is moving forward with the progress of technology that people have developed continuously. New tools, applications, and inventions continually arise that change the way people live, communicate, learn, entertain, travel and so on. With today's fast-paced technology development, evolving the society and transforming the lives of people were

made more comfortable and simpler from struggling in many activities life is having in the world into making them achieve things without great effort and few difficulties. Technology plays the most significant and the most prominent role in the specific field of interest of Information Technology. It makes almost everything possible and is essential in making things work in its most accurate and efficient way. In the world today, and it is undeniable that as time passes by, people are getting dependent on the power of technology. One aspect that most of the people are involved every day as their activity is their commuting life which is part of their routine before, during, and after they end the day. As the population rises, public transportation worldwide bears a more substantial burden in many countries today, especially that there is more than seven billion number of people in the world (Kemp, 2017). Numerous places are having a problem in public commuting such as commuters crowd into a train going to a particular spot, having a standing position or ride on top of a train during rush hours, and the list goes on. Hence, the said scenarios often cause trouble in people's lives that subject to minor or major problems such as getting late or de-lays to work or school, getting red, worsening health conditions, cancelling of plans, engaging insights, or other cases that nobody wants to happen to him or her. According to the survey made by the Manila Times with the subject Filipinos Most Dissatisfied Commuters in Asia Pacific Region, commuting in the country is exhausting and time consuming regardless of what type of vehicle they are taking, may it be a car, train, van, jeepney, etc. and wherever they are going. Furthermore, two in five Filipinos answered that they have worse commuting experience than the year before. Another survey published in CNN Philippines of Ford Motor Company said that "three in ten Filipinos consider their commute as the worst part of their day." Out of the whole respondents, forty-three percent of them answered for an inconvenient commute (The Manila Times, 2016). There are many common problems that the people who commute on a daily basis know and understand far too well especially in riding an hour or a quite long journey in rush hour, (Proudfoot, 2016). Some of the commuting problems that occur in cities are waiting on the public transportation stops or stations for hours for a very long time and ends with frustrating delays and cancellations of trips, being forced to stand in a carriage and having no personal space due to lack of seats or actually getting a seat but a warm and uncomfortable one, racing and pushing for seats and eventually getting on the vehicle in a rush stuck behind some people with all their stuff, and the times when a ticket man comes around unexpectedly and their card or money were misplaced somewhere inside the bottom of their bag that causes the time of paying extra-long. In additional are inconsiderate passengers who do not have the thought of giving a seat for the ladies and elderly, heat strikes during the day, pollution, and so on. Here in the Philippines, commuters already experience stress even before starting the work in the office and school. In the most parts of the country that are civilized, particularly Lapulapu and Mandaue City. Some people are new to the place and still prefers public commuting or even those who are already staying in the City for so long but yet do not know the route for their destination. Hence, people get to spend and waste much of their time asking or perhaps guessing the destination of a particular vehicle and might lead them in the wrong direction they should have gone. Most of the population in Lapulapu and Mandaue City commuters are the ones who ride on utility vehicles to go to work, school or other places they have to be. The current way of commuting in the locality is time-consuming, inefficient, and stressful for the citizens since it still gives the commuters a hard time in getting a ride every time they have to go else-where. Byahe is significant in today's commuting dilemma

wherein it allows the passengers to reserve for seats on an available vehicle for a ride around Lapu-Lapu and Mandaue City. It will lessen the time consumed for a commuter to look for vehicles to ride on and will give an efficient and comfortable life for both drivers and passengers all throughout the day without great effort and few difficulties. Byahe is a mobile and web-based application that will give sure and reliable ride each day because of its features that will allow the users to choose a vehicle that is available for a trip going to their desired destination more quickly and efficiently than before. The user has to select a place that they want and select the vehicle available for them to hop in, and reserve for a seat in a most effortless way to do, then they will no longer have to worry for a ride even in the time of a rush hour.

OBJECTIVES OF THE STUDY

The main objective of this study is to design and develop a system that would help the commuters of Lapulapu and Mandaue City to have a faster and easier way of getting a ride in public utility vehicles available for a trip around the local areas.

Specific Objectives

Specifically, this study aims to:

- Evaluate the existing means of transportation of public utility vehicles particularly v-hires and shuttle buses in terms of:
 - Availability of Transport
 - Travel Time
 - Payment Process
 - Return of Revenue (for operator)
 - Safety
- Determine the problems encountered of the existing means of transportation of public utility vehicles particularly v-hires and shuttle buses in terms of:
 - Availability of Transport
 - Travel Time
 - Payment Process
 - Return of Revenue (for operator)
 - Safety
- Determine features for possible software solutions that would respond to the needs of the commuters.

Scope and Limitations of the Study

The scope of this study covers major functionalities namely:

- Registration
- Login Account
- Vehicle Seat Booking
 - Track/Location Details

- Availability and Fare Rate Details
- Driver Transaction Query
 - Open Booking
 - Seats Availability Update
 - Accept Booking
 - Account Balance Update
- Passenger Transaction Query
 - Account Balance
 - Update Booking
 - Rate Driver
- Operator Transaction Query
 - Register Driver
 - Register Vehicle
 - Check Account Balance
 - Monitor/Manage Accounts
- Admin Transaction Query
 - Release Earnings
 - Accounts Management
 - Reloading in E-wallet
 - Generate Reports

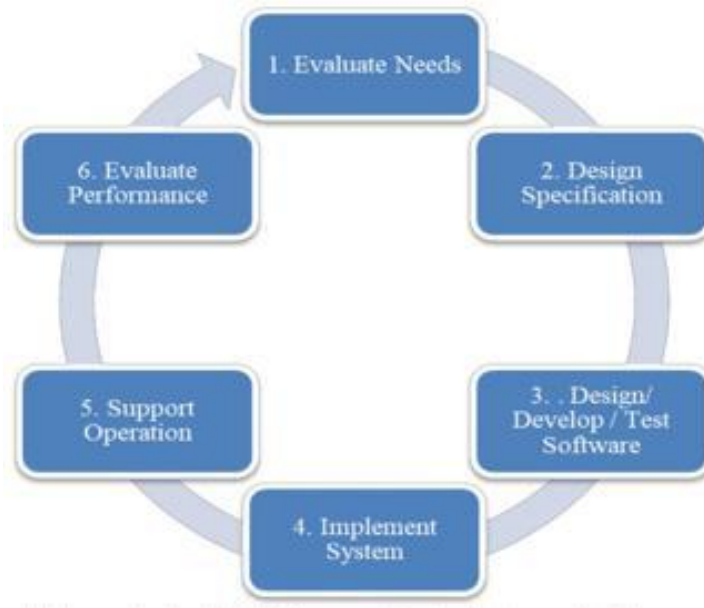
However, the system will not include the following areas:

- Reloading of users E-wallet must be done at Byahe Once on a cash basis only.
- Withdrawal of drivers commission must be made at Byahe once only.
- The system covers Lapulapu and Mandaue City only.
- Types of the vehicle are vans and shuttle buses only.
- The system is runnable in Windows 7 up and Android with Mobile Data/ WiFi Connection.

METHODOLOGY

Software Engineering Methodology

Software Development Methodology is a method in software engineering that is used to create the architecture, propose and control the process of developing software. Agile Software Methodology is the method to be used for the development process of this mobile and web application. It counts on the need for flexibility and implements a level of advantage into the implementation of the finished product. It emphasizes on making code understandable, frequent testing, and delivering functional parts of the application as soon as they are ready for deployment. The objective of Agile Software Methodology is to build upon small approved parts as the development progresses, as it contradicts to delivering the whole application at the end of the development phase.



AGILE METHODOLOGY DIAGRAM

First, the evaluation of needs. From the project proposal, the proponents thought of solutions on helping the commuters of Lapu-Lapu and Mandaue City to get a ride on vehicles efficiently by analyzing the requirements and specifications for the preliminary making of the project proposed by the proponents.

Second, the Design Specification. After complying the software specification, design specification comes where planning the design of the user interfaces. Software management plan and documentation were being made in this phase.

Third, to design /develop/test software- Creation and development of the design are made in this phase. The proponents conduct testing of the software to determine possible errors before the implementation to ready solutions for errors that might occur on testing.

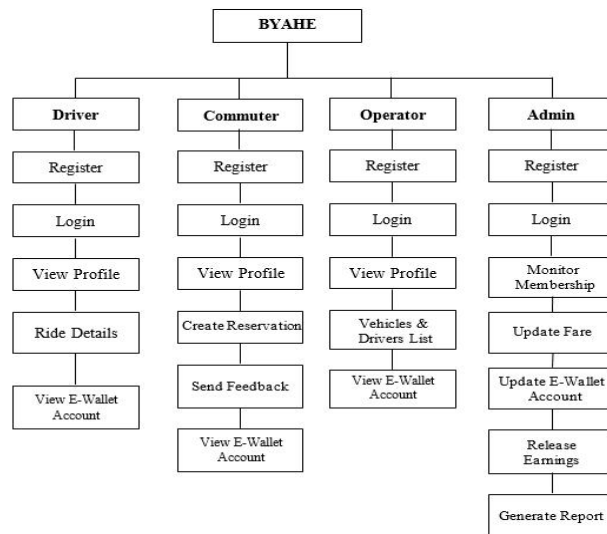
Fourth is to implement system. After designing and developing, implementation of the system takes phase. Several checking and consulting of the system to the proponents head are to be conducted during this time.

Fifth, the Support Operation. If there are lapses during the implementation, the proponents will come up to solutions for the system to have a good and successful deployment.

Lastly, to evaluate performance. After all the phases mentioned above, the system will be evaluated. When the system is found properly functional, it will be then eligible for deployment.

Functional Decomposition Diagram

The functional decomposition diagram represents the breakdown of business process that the proposed system will do. The processes will mainly cover about the functions of users.



FUNCTIONAL DECOMPOSITION DIAGRAM

Business Use Case

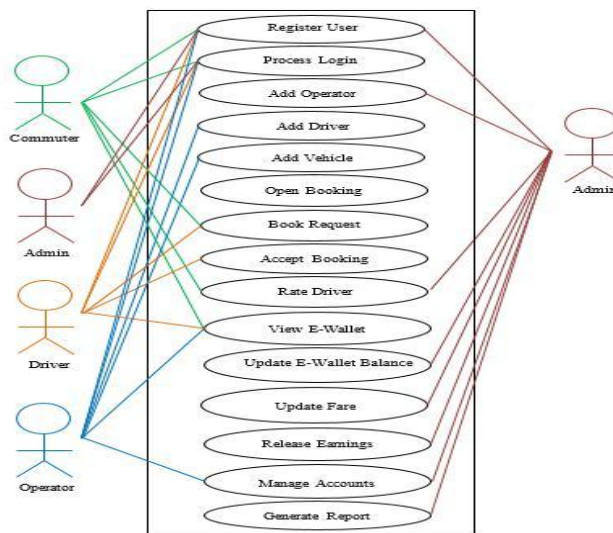
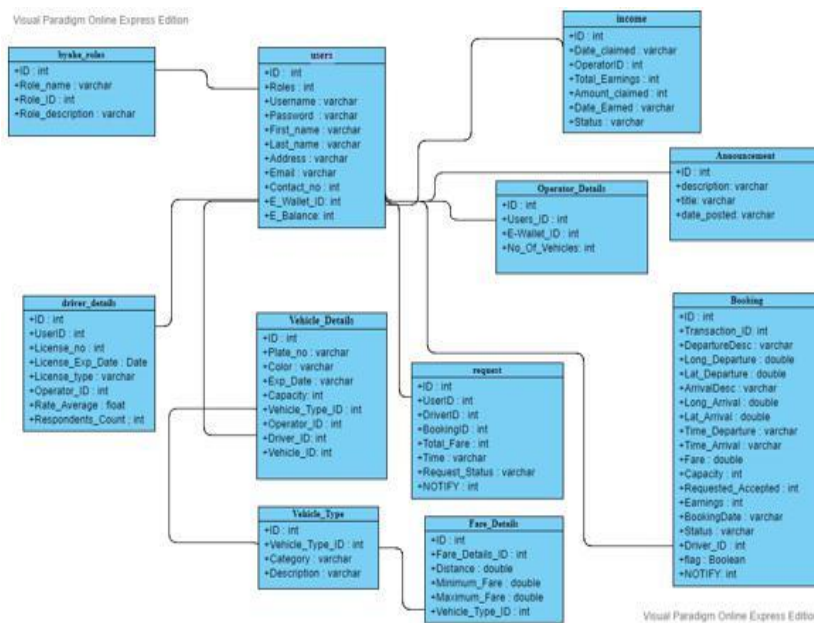


Figure 3: Business Use Case of Byahej

MAIN BUSINESS USE CASE

Database Design

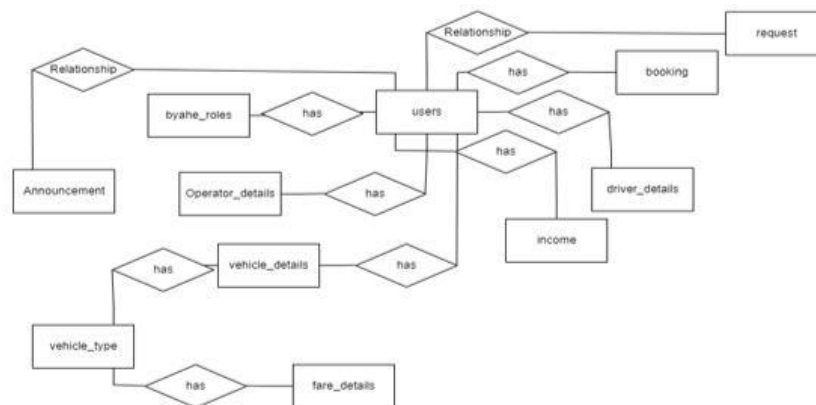
This is the organization of data according to a database model. The designer determines what data must be stored and how the data elements interrelate.



DATABASE DESIGN

Entity Relationship Diagram

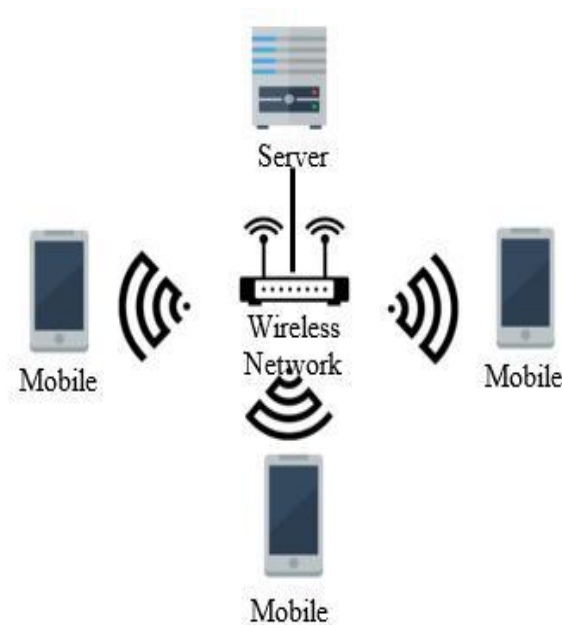
An entity relationship diagram (ERD) shows the relationships of entity sets stored in a database. An entity in this context is a component of data. In other words, ER diagrams illustrate the logical structure of databases.



ENTITY RELATIONSHIP DIAGRAM

Network Topology

Star topology is a network topology where each individual piece of a network is attached to a central node (often called a hub or switch). The attachment of these network pieces to the central components are visually represented in a form similar to a star.



NETWORK TOPOLOGY DIAGRAM

CONCLUSION

In the result of the interview and survey conducted by the proponents within Lapulapu and Mandaue City, it shows that the public commuters in the area are having problems in commuting particularly the availability of transport and the time they spent in getting a ride. Furthermore, the survey also shows that most of the respondents voted the feature of having capability of the system in reserving seats. The study then concludes that there is a need to deploy or implement an advanced way of commuting that will help the commuters of Lapulapu and Mandaue City to have a faster and easier way of getting a ride. Therefore, Byahe overcomes the problem areas met by the current system. The application gives sure and reliable ride each day because of its features that will allow the users to choose a vehicle that is available for a trip going to their desired destination more quickly and efficiently than before.

RECOMMENDATION

The proponents recommend to implement the Byahe app to help solve the current commuting problem in the community. All operators should secure permits to operate and must

undergo proper registration in using this application for safety and security of the commuters. The said communities have to adapt the modern technology and be more competitive in this technology era.

BIBLIOGRAPHY

AG, O. P. (2018). OBB Scotty. Retrieved from Play.google: [https://play.google.com/store/apps/details?id= de.hafas.android.oebb](https://play.google.com/store/apps/details?id=de.hafas.android.oebb)

Al-Maktari. (2016, April 4). The Acceptance of Online Booking System (OBS) Based on the Theory of Reasoned Action (TRA): A Case of Sana a University. Retrieved from R – earchgate.net: <https://www.researchgate.net/publication/268178229> The Acceptance Online Booking Systems OBS B -ased on the Theory of Reasoned Act ion TRA A Case of Sana'a University.

Angkas. (2018). Angkas. Retrieved from Play.google: [https://play.google.com/store/apps/details?id= com.angkas.passenger](https://play.google.com/store/apps/details?id=com.angkas.passenger)

Distance from Lapu Lapu to Mandaue. Retrieved September 18, 2018, from Distance calculator: Distance from Lapu-Lapu City to Mandaue City. (n.d.). Retrieved from distance calculator: <https://www.distancecalculator.net/from-lapu-lapu-city-to-mandaue-city>

Holdings, G. (2018). Grab. Retrieved from Play.google: [https://play.google.com/store/apps/details?id= com.grabtaxi.passenger](https://play.google.com/store/apps/details?id=com.grabtaxi.passenger)

Implication. (2018). Sakay.ph. Retrieved from play.google: [https://play.google.com/store/apps/details?id= com.byimplication.sakay -y&hl=en](https://play.google.com/store/apps/details?id=com.byimplication.sakay&hl=en)

Kemp, S. (2017, May 9). The world's population just passed 7.5 billion: Here are some fascinating facts. Retrieved from The Next Web: <https://thenextweb.com/contributors/2017/04/26/worlds-population-just-passed-7-5-billion-fascinating-facts-us/>.

Lai. (2016, November). Design and Security impact on consumers' intention to use single platform E-payment. Retrieved from Researchgate.net: <https://www.researchgate.net/publication/310625444> Design and Security impact on consumers' intention to use single platform Epayment

Narboneta, et al., (2016). A Study of Metro Manila's Public Transportation Sector: Implementing a Multimodal Public Transportation Route Planner. Asian Transport Studies. 460-477. 10.11175/eastsats.4.460.

Onlinepubs.trb.org. (n.d.). Retrieved from <http://onlinepubs.trb.org/Onlinepubs/trr/1988/1203/1203-007.pdf>

Population of Cities in Philippines. (2018). Retrieved from World Population Review: <http://worldpopulationreview.com/countries/philippines-population/cities/>

Proudfoot, J. (2016, June 21). 11 commuter problems that we know far too well. Retrieved from MarieClaire.co: <https://www.marieclaire.co.uk/life/travel/11-commuter-problems-that-we-know-all-too-well-5664>

SustainVU. (2018, April). Commuting and Transportation. Retrieved from Vanderbilt: <https://www.vanderbilt.edu/sustainvu/resources/greening-guides/sustainable-department-greening-guide/commuting-and-transportation/>

Technologies, U. (2018). Uber. Retrieved from Play.google: <https://play.google.com/store/apps/details?id=com.ubercab>

Times, T. M. (2016, May 30). Survey: Filipinos most dissatisfied commuters in Asia Pacific region. Retrieved from Manilatimes.net: <https://www.manilatimes.net/survey-filipinos-most-dissatisfied-commuters-in-asia-pacific-region/265026/>

Ye, X. Y. (2017). Exploration of Day-to-day Route Choice Models by a Virtual Experiment. Retrieved from Scencedirect: <https://www.sciencedirect.com/science/article/pii/S2352146517303162>

CAREHUB: A MOBILE-BASED MEDICATION MANAGEMENT SYSTEM

Abing, Neil Egbert
Hipster
neiLabing@yahoo.com

Jumao-as, Bryant S.
Hacker
kobesagarino@yahoo.com

Baquero, Bryle Justin A.
Hustler
brylee_baquero98@yahoo.com

Manatag, Igi S.
Hacker
igi.manatad@yahoo.com

Abstract - CareHub is a mobile-based medication management system; this mobile application offers faster access and response to medical transaction. This application provides on-line appointment scheduling like vaccination, check-up, immunization, and any other medical transactions, furthermore, it helps patients by reducing uncomfortable feeling when taking in line in hospitals or clinics when consulting a doctor, because waiting is a common phenomenon in the doctor's waiting room. Software Engineering Methodology was utilized to come up with the final application. The CareHub application can be entered using a username and password. The interface is very user-friendly, CareHub also keeps track all the prescription receipt that has given to a doctor, because some people for-gotten their prescription receipt where they have been placed. In some circumstances, the patient also forgot to take their medicines. Due to these common problems, the researchers will develop a mobile application that solves this kind of problems like having a notification that will remind them to take or to be aware their health information like: taking their medicine at time and recording their prescription receipt.

Keywords – carehub; medication; medication management system; check-up; consultation

INTRODUCTION

"Mobile phones have become more of a necessity rather than an accessory. Earlier people carried a mobile phone out for the purpose of talking to people. They found it a means to communicate with people but now, the demand (or application) of mobile phones has increased to such a high extent that it has emerged an important necessity for every-one to carry out their day to day activities. (Azoey, 2013). According to Ventra (2014), there were about 6.4 billion (free, paid, and ad supported) applications, that were downloaded in 2009 alone which generated

revenues of \$4.5 billion in the same year. Apple ruled this market with 2.5 billion downloads from its store in 2009. Later, other market players like Android, Google, and Nokia have started creating a marketplace for themselves in the mobile apps field with the emerging smart phone market. Mobile apps have fundamentally transformed nearly every aspect of our lives and touch everything and help in every aspect in our lives. Making life easier than what we think. People nowadays seek for a most convenient and easy access of information within the reach of our hands. Since the mobile app technology has come forward, its usage has the immense impact on the productivity of business organizations, an economy of the world and providing dozens of tools to communicate with the entire world within no time. Mobile applications are available in the shape of instant messaging apps, downloading apps, antivirus apps, cell phone monitoring apps and many others alike. Now people are using the technology based mobile applications to communicate from one end to another end of the world. In the modern age of Information and communication system, people are habituated to use computer and computer application. On top of this enormously growing iOS and Android device installed base, roughly 40 billion applications have already been downloaded from the App Store and Android Market. Particularly, consumers are separating their time accessing services on the Internet from PCs versus doing so on mobile devices from apps. On average, adult mobile users who have downloaded an app to their phone nearly doubled in the past 2 years rising from 22% in September 2009 to 38% in August 2011. The analysis also shows that people are devoting ever more time in mobile applications. Time spent in apps and the web, combined, has grown as users lead a more connected life. This progress though has been driven entirely by applications. The growth in time spent in mobile applications is slowing from above 23% between December 2010 and June 2011 to a little over 15% from June 2011 to December 2011. The growth is predominately being compelled by an increase in the number of sessions, as opposed to longer session lengths. Consumers are using their apps more frequently. Step by step Filipino developers are now emerging and venturing into tablet and mobile app development. (Fast-track IT Academy) Health care providers such as doctors and nurses are adopting the use of mobile apps in their pursuit of easing clinical communication between providers and patients as well as improve the management of hospital work-flows. Providers leverage mobile apps as a secure platform to manage and access important healthcare data without compromising the security of data. In the same that mobile apps allow providers to effectively streamline communication between patients, providers, and their caregivers and allows for 24/7 management of a patient's condition along with the ability to personalize healthcare per patient. In addition, mobile apps provide organizational incentives for adoption such as reduced costs in workflow management (Beaton, 2017). With this, the researchers will develop a mobile-based application for Healthcare, because mobile apps have been emerging, too Diseases, hospitals, health systems and most especially to doctors and patients. Patients are given prescription. Records of medicines like what doctors gave after the consultation might get lost. Another, health books are available, but at times, schedules and need vaccinations are not monitored. Another problem when in the modern hospital, medical care is a complicated process which involves doctors in a heavy schedule of patient rounds and also when a person visiting a hospital, the patients cannot guarantee that he/she can be accommodate quickly by the doctors or nurses due to many patients inline and also the shortage of doctors and nurses in a specific hospital. Furthermore, the researchers will develop a system that will enhance, assist and improve the medication system and that is CareHub, a mobile

app that manages the medication of the patient. CareHub helps the patients like hastens in medical transaction.

OBJECTIVES OF THE STUDY

In general, the main objective of this study is to develop a mobile-based medication management system that will help cater to the needs of the patients.

The system specifically aims to:

- Identify the problems encountered in medication, prescription monitoring, scheduling, and notifications.
- Offer faster access and response to personal health and medical information in terms of prescription, medication scheduling; and
- Provide a system that may easily be accessed through mobile phones.

Scope and Limitation

This study focuses on developing a mobile-based system. To identify the boundaries of this study, the researchers have determined the scope and limitation.

Scope

The system will cater to the following functionalities:

- User Administration
- Scheduling
 - Vaccination
 - Immunization
 - Consultation, etc.
- Prescription Maintenance
 - Recording of prescription
 - Viewing of prescription
- Notification
 - Medication
 - Schedule
 - Prescription
- Report Generation

Limitation

The system has the following limitations:

- The Care Hub will not provide the medicines but will receive prescription given by the doctor from which the user consulted.
- The system will not capable of billing and payment of doctor's fee.

- The system will cater out in the Philippines only.
- Requires internet connection and also the user must be computer literate.

METHODOLOGY

Software Engineering Methodology

The researchers used the Agile Development Methodology in the process of developing the system. The tool utilized the following steps/phases to come up with a worthwhile application.



AGILE DEVELOPMENT METHODOLOGY DIAGRAM

Requirements Analysis Phase. This phase focuses on requirements that define the automated system/application in more detail with regard to inputs, processes, outputs, and interfaces. During the Requirements Analysis Phase, the initial strategy for testing and implementation is also begun. In addition, the work planned for future phases is redefined, if necessary, based on information acquired during the Requirements Analysis Phase. The Requirements Analysis Phase ends with a review to determine readiness to proceed to further phases.

Planning/Conception-Initiation Phase. The phase consists of the concepts that would help in building the system. This includes the Business Model Canvas, the Gantt chart and the Functional Decomposition Diagram.

Planning Phase. This phase focuses on identifying problems and requirements of the system to be developed. The data gathered in the interview, survey and observation are being applied.

Designing Phase. This phase focuses on how the system would look and how to layout the functionalities as simple as possible so the users can easily understand the system. User-friendly UI is our main goal in the designing phase to promote easy to access content and service.

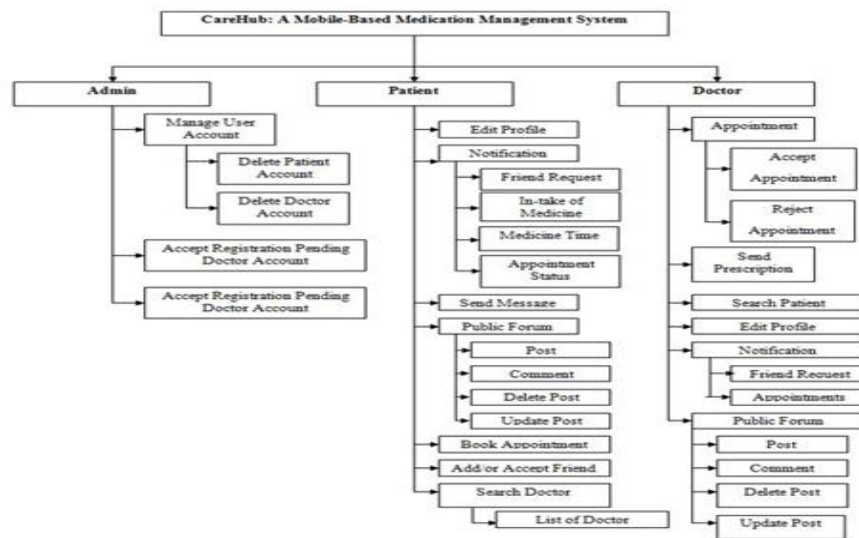
Developing Phase. In this phase, the proponents decide what language to use in developing the application. This is where the actual development was begun. Along this period, comments and suggestions from the adviser will always be considered.

Release Phase. This phase releases the system to let users test and experience, the system at this state will not be flawless and is considered as a beta release, bugs and system errors are expected and are listed down for future improvement.

Track and Monitor Phase. This phase identifies deep system errors and bugs, monitoring the systems stability and make sure everything is working. Once the system is done, this phase is conducted to evaluate the efficiency of the system and checks whether it meets the end-user requirements. Comments and suggestions are accepted and considered for the systems future development.

Functional Decomposition Diagram

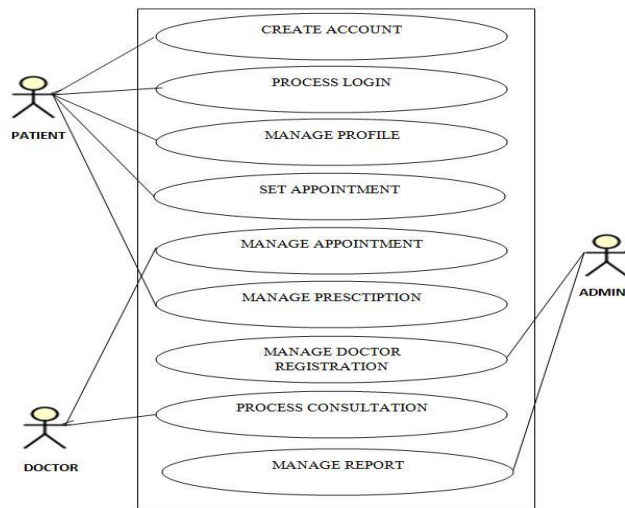
Functional decomposition diagram as represents the breakdown of business processes that the system does. The processes mainly cover about activities that the end user can perform within the system.



FUNCTIONAL DECOMPOSITION DIAGRAM

Use Case Diagram

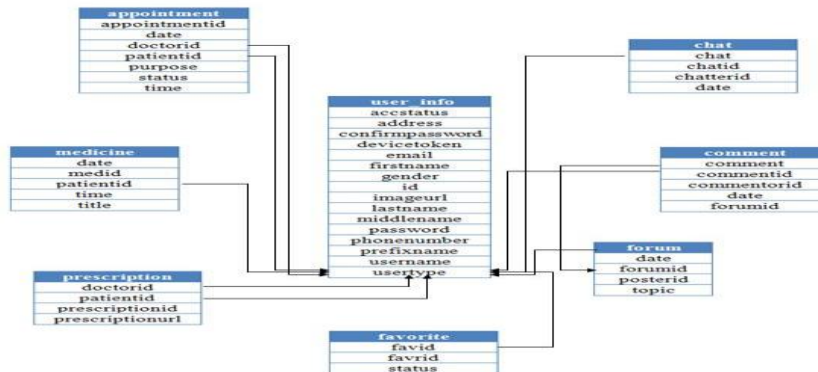
The figure below shows the proposed functionalities of CareHub for the patients who make their work easier and faster. This represents an interaction of all type of users in a system.



MAIN BUSINESS USE CASE DIAGRAM

Database Design

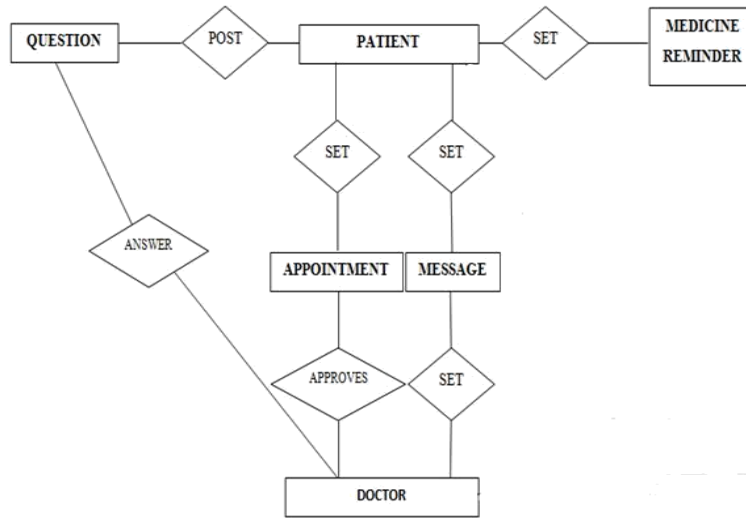
This section presents the database of the system. Database Design is the process of producing a detailed data model of a database. This data model contains all the needed logical, and physical design choices and physical storage parameters needed to generate a design in a data definition language, which can be used to create a database. A fully attributed data model contains detailed at-tributes for each entity.



DATABASE DESIGN DIAGRAM OF CAREHUB

Entity Relationship Diagram

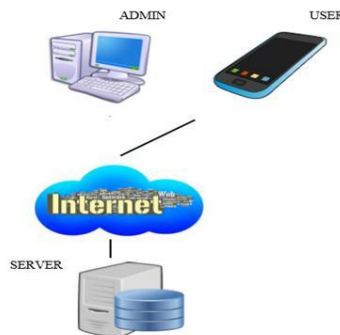
The Entity Relationship Diagram illustrates the relationship between entities in a database. Below is the ERD of CareHub.



ENTITY RELATIONSHIP DIAGRAM

Network Topology

The researchers utilized Star Topology in this study. Star Topology is a network topology where each individual piece of a network is attached to a central node (often called a hub or switch). It is the most common setup wherein the attachment of these network pieces to the central component is visually represented in a form of star. The reason of using the star topology is to reduce the impact of a failure to a line in a way of connecting all existing systems to one central node or hub.



NETWORK TOPOLOGY DESIGN

CONCLUSION

Thus, when creating a system, it should be user-friendly so that it can easily be accessed by common people who will use the system. The user-friendliness of the system came out in the interview with the users. The researchers have concluded that manual clinical transaction or health medication management is in need of a system that would help the patients keep track of all medical information like the record of prescription receipts and maintenance. Furthermore, patients and doctors do not have to deal with the manual process anymore because of CareHub. It also lessens the chance of missing a dose of medicine to be taken by the patient due to its reminder functionality.

RECOMMENDATION

The researchers have come up with the following recommendations: To become efficient and effective to their customers,

- the system should manage the medication of a patient;
- the doctor must monitor medical transactions;
- the system should be implemented to eliminate such problems and possible loss of records most especially;
- user must always check his/her notification since the system only notifies when they're online or when connected to Internet;
- the system should be capable to record and keep track of the medical prescription receipt of the patients given by the doctor after consultation; and
- that further studies be made as to online healthcare systems.

REFERENCES

- Adams, C. (2017, September 27). Top Cloud Data Security Risks, Threats, And Concerns. Retrieved from <https://blog.panoply.io>: <https://blog.panoply.io/top-cloud-security-threats-risks-and-concerns>
- Retrieved from <https://blog.panoply.io>: <https://blog.panoply.io/top-cloud-security-threats-risks-and-concerns>
- Buckley, J. (2015, 7 May). 7 Big Data Security Concerns. Retrieved from [tps://www.qubole.com](https://www.qubole.com)
- InfoSystem. Retrieved from Hyperlink InfoS-Retrieved from <https://www.scribd.com>: <https://www.scribd.com/doc/22648292/Chapter-system>
- Issa Khalil, Salah Buoktif, Abdallah Khreishah, Azeem Ahmad. (2013, April). Security Concerns in Cloud Computing. Re-trieved from <https://www.researchgate.net>:

EMOVERS: A SOFTWARE AS A SERVICE FOR TRUCKING SERVICES

Lucero, Jhunrey
Hacker
jhunreylucero@gmail.com

Tatlonghari, Chester M.
Hustler
chesterpearce@gmail.com

Longakit, Genalyn S.
Hipster
Genmarie432@gmail.com

Abstract - Moving services nowadays keeps on progressing as well as on how complicated they can find one that meets their demand and type of service. This has always been a pain for the people, specifically for those who are into businesses, supplies and transportation. Finding a categorized service takes quite a lot of time due to limited source of contacts that provide the services they wanted and finding sign boards nearby street is not much of a thing because of the trouble and hassle you'll have to face, wherein there will be times you got the contact of the service but they cannot accommodate the call or either the contact has not been updated. In Cebu City, we can find many troubled commuters and entrepreneurs whom are having a hard time delivering the supply or transporting for business areas. The people that requires into sup-plying, transferring and delivering do not have the upper hand of the access to these categorized ser-vices and still gives so much time to get a service they wanted at certain times. The researchers proposed this study to have a solution using an Agile Methodology wherein today's type of servicing that can be a better help to the people and it allows the customers to request a service within the area around of Cebu City. The hassle will be less and instead of looking the sign boards containing unsure contacts near the street it will be provided already in the application where the services you want can meet your demands without inserting much effort and difficulties. The researchers developed a study named EMovers, a mobile based application to help these people get their supplies delivered in no time, have towing in the middle of an emergency, and move house to house services. Implementing a GPS to track and have a secure way of transporting any supplies at ease. It will evaluate the effectiveness of transportation and marketing with the use of this mobile application. It allows the customer to save more time, allocated budget, hassle-free way of moving things and will take care of everything. The system will also provide categories of trucking services based on user needs and track the truck from the time of travel.

Keywords – emovers; towing; moving services; mobile-based application; gps

INTRODUCTION

Technology by any means has been a help to us people; it makes our work accomplished effortlessly and timely which is very manageable to have our jobs done fulfilled in no time. In our current generation, people tend to have difficulties especially on works corresponding with transportation, rental, and delivery. Having a hard time finding services that would meet our demands of transport making it complicated, trust issues are one of the factors, and if we want to have a security service, we inevitably look for those who are qualified enough. Finding yourself that applies to your kind of service you're looking for is rough. Nowadays people want to find ideas they would like to gain profit because having less would make us struggle and most people make out their own business that requires transporting the goods or the needs to attain satisfaction. According to Philip-pines Statistics Authority (PSA); Transportation, service, and communication shared 57.2% placed as the top contributor of growth in our country that proves to have a proper delivery of transported goods and other services that requires transportation is a great way to invest money (Bersales, 2018). There have been many ways that helped ease this problem, but still, people keep struggling these days, a customer delivery where he/she earned the trust of the one who needs the service but not all will have to attain this quality because of bad habits of transportation that disappoint the customer. Many factors could have contributed to this, including the country's ability to provide efficient transportation for renting good services (Rodrigue & Theo, 2017). Having many suppliers and people who cannot reach out for renting bus or truck services, thinking that many would like to demand the transporting of goods and supplies but few have access due to having a hard time finding one. They need a solution which makes it for people to browse any categorized services through a mobile application that is currently a must in our generation wherein every-body has access in their mobile phones and a satisfying privilege for them (Francisco, 2016). The measurement developed from previous related studies includes three dimensions which are service quality, information quality, and system quality (Br.Silalahi, 2017). In the transport service sectors the investment has been also one of the reasons that helps economic development as which to prior we developed E-Movers, it allows increased trucking services specialization and the productivity benefits that come as a result from the dear customers and users. It does this by making local transportation of goods and services between specialists firms that are cheaper. Convenient to the part of both parties, particularly in customer and company's coordinator side, thereby allowing both to obtain specialized inputs and privileges as well as our application can benefit too. Even though truck service producers make very narrow focused lines of goods and services, they can develop large enough volumes to achieve economies of scale being able to sell at great distances by the help of our application. They will not need to worry about speed/reliability since it will also be catered and will undergo right process for each services offered namely trucking, towing and delivery services. Think of the companies that employ these trucking services that are looking for customers or users where they can provide a ready to access kind of transportation services through our application that make it possible for the suppliers and customers to book quickly and reliably. And of course, these companies want access to as wide a pool of users where they can benefit labor talent based on the performance rating of theirs services provided on EMovers.

OBJECTIVES OF THE STUDY

The study aims to develop a mobile app that helps the customer in finding a right and secure trucking services according to their needs.

Specifically, the study aims to:

- Provide a secure trucking for delivery, towing, and transporting services.
- Prioritize nearest trucking service from user's location.
- Allow the customer to request a ride, namely: towing services, transport services, and delivery services.
- Use tools to monitor trucking service progress of delivery.
- Produce a report on feedbacks.

Scope of the Study

The study has the following scope:

Customer:

- Select specific categories for offered services Track ride request
- Manage ride request
- Display Drivers location
- Rate and Comment driver's performance
- Generate ride reports

Driver:

- Manage customer ride request.
- System commission accumulated.
- Generate ride reports

Admin:

- Manages users account extends to profiles.
- Manage Truck Registration.
- Manage System Commission.
- Generate ride reports.
- Generate system report.

Limitation of the Study

The study is limited to the following:

- Only registered users will be able to use our services.
- This application will only cater the area of Cebu City.
- Third party transportation companies without identified drivers are not allowed to have an account.

METHODOLOGY

Software Engineering Methodology

The technique that researchers have chosen to integrate their system is the agile model. They select this methodology to have a development phase that best suits their system timeline and performance rate.

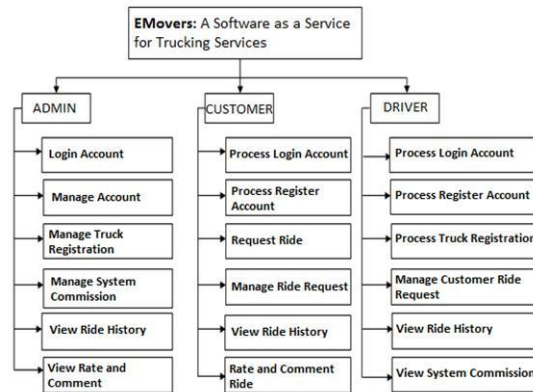


AGILE MODEL DIAGRAM

First, is the Requirements Phase, this phase focuses on requirements that define the automated system/application in more detail with regard to in-puts, processes, outputs, and interface. Second, is the Plan Specification Phase, the proponents planned on what and how will the system be implemented and designed. Third, is the Design Specification Phase, is the phase comes next after complying the software specification where planning the design of interfaces can easily be access by the user, also in this phase is where the initial creation of the software management plan and documentation where being made. Fourth, is the Development Specification Phase, the final creation of the design by developing each design and conduct the testing of the software to determine the possible errors before the implementation so that proponents can take actions to a possible solution in every error that might occur once the testing is being conducted. Fifth, after the designing, developing and testing process, the implementation of the system will follow, while the system is running the client will be able to see the condition of the system and that the uses of the system being implemented reaches the important phase of the client. Lastly, after all the phases being mentioned above, the performance of the system will be evaluated, and thus, the system will be eligible for deployment and ready to use for the certain client.

Functional Decomposition Diagram

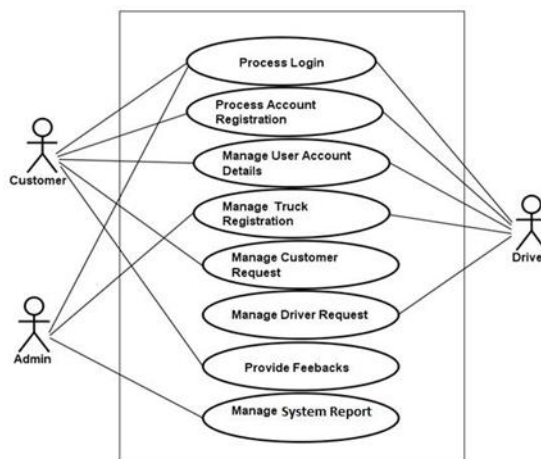
The functional decomposition diagram represents the breakdown of business process that the proposed system will do. The processes will mainly cover about the functions of users.



FUNCTIONAL DECOMPOSITION DIAGRAM OF EMOVERS

Use Case Diagram

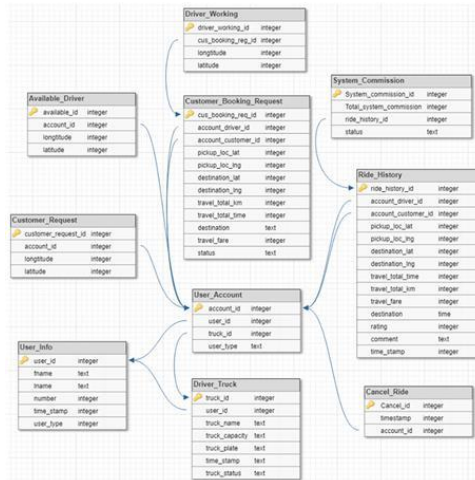
A use case diagram is a presentation of a user’s interaction with the system that shows the relationship between the user and the different use cases in which the user is involved.



EMOVERS' MAIN USE CASE DIAGRAM

Database Design

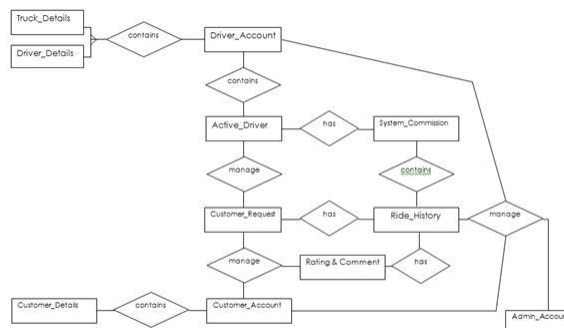
Database Design is the process of producing a detailed data model of a database. This data model contains all the needed logical and physical de-sign choices and physical storage parameters needed to generate a design in a data definition language, which can be used to create a database. A fully attributed data model contains detailed attributes for each entity.



DATABASE DESIGN FOR EMOVERS

Entity Relationship Diagram

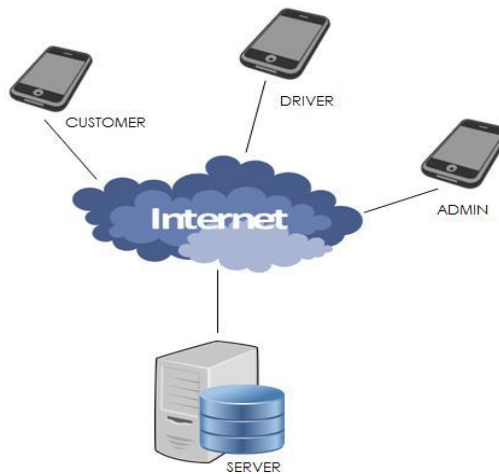
An entity-relationship diagram (ERD) is a data modeling technique that graphically illustrates an information system’s entities and the relationships between those entities. An ERD is a conceptual and representational model of data used to represent the entity framework infrastructure.



ENTITY RELATIONSHIP DIAGRAM FOR EMOVERS

Network Topology

Star topology is a network topology where each individual piece of a network is attached to a central node (often called a hub or switch). It is the most common setup wherein the attachment of these network pieces to the central component is visually represented in a form of star. The reason of using the star topology is to reduce the impact of a failure to a line in a way of connecting all existing systems to one central node or hub.



NETWORK TOPOLOGY DIAGRAM FOR EMOVERS

CONCLUSION

The system is a truck service provider for those users who are in need of categorized services, mainly; transport, delivery and towing. It helps our fellow drivers and customer which both parties gain benefits towards improving economic sales and productivity. Developing these categorized services within the range of Cebu Region requires ample data gathering hardware, software innovation and management coordination towards the drivers who will provide vehicles for such services. The researchers proposed technical solutions to develop an application that would provide the services needed by the customers. Therefore, an application helps the user to find the services they required.

RECOMMENDATION

The proponents will develop a system with real time tracking of the service in a mobile application through android. The proposed application is recommended for the customer and drivers to have a secure internet connection to access the mobile application. By promoting more categorized services and to expand throughout the nation.

BIBLIOGRAPHY

- Arango, R. (2014, November). trucking services and the quantification. Retrieved from www.sciencedirect.com: <https://www.sciencedirect.com/science/article/pii/S1366554514001586>
- Bersales, L. G. (2018, September 6). Total Approved Foreign Investments Reached PhP 30.9 billion in Q2 2018. Retrieved from psa.gov.ph: <https://psa.gov.ph/foreign-investments-press-releases>
- Bhuiyan, M. (2016, May 15). Prospects of a fashion designer and major challenges a fashion designer faces. Retrieved from www.linkedin.com: <https://www.linkedin.com/pulse/prospects-fashion-designer-major-challenges-faces-mushi-bhuiyan>
- Bonebrake, C., & Lori. (2014). Attacks on GPS Time. Retrieved from ieeexplore.ieee.org: <http://sci-hub.tw/https://ieeexplore.ieee.org/abstract/document/6837385>
- Br.Silalahi, S. L. (2017). Service Quality Analysis for Online Transportation Services. Retrieved from www.sciencedirect.com: <https://www.sciencedirect.com/science/article/pii/S1877050917329496>
- Capterra. (2017). Edbase. Retrieved from capterra.com: <https://www.capterra.com/p/167097/Edbase/>
- Ceder, A. (2013). scholarcom-mons.usf.edu. Retrieved from scholarcom-mons.usf.edu: <https://scholarcommons.usf.edu/jpt/vol16/iss2/1/>
- Dennis et al. (2010). System Analysis Design. John Wiley and Sons. USA: Don Fonley.
- Francisco, K. (2016, March 28). Creating sustainable transport systems: PH's progress so far. Retrieved from www.rappler.com: <https://www.rappler.com/science-nature/environment/127075-philippines-sustainable-transportation-strategy>
- Greenblatt, J. B. (2015, July 21). Automated Vehicles, On-Demand Mobility, and Environmental Impacts. Retrieved from link.springer.com: <https://link.springer.com/article/10.1007/s40518-015-0038-5>

EXCREAT: A WEB-BASED EDUCATIONAL ASSESSMENT

Tabon-tabon, John Chember M.
Hacker
Chember@gmail.com

Aliazon, Matt Allen
Hipster
Mattallen0419@gmail.com

Verdijo, Roberto C.
Hustler
Verdijo2017@gmail.com

Abstract - Assessment plays important role in learning process in higher education institutions. However, poorly designed exams can fail to achieve the intended learning outcomes of a specific course, which can also have a bad impact on the programs and educational institutes. One of the possible solutions is to standardize the examination based on educational taxonomies. With the recent technologies, the assessment approaches have been improved by automatically generating exams based on educational taxonomies, we implemented an online assessment server. Its purpose is to ease the students' examination process and to provide a transparent and objective evaluation that in line with the Course Intended Learning Outcomes. The solution we developed is a web application, written using PHP and Javascript. It uses MySQL as a database management system and Apache for the web server. Using the administration module, one can add or remove questions, question categories, can create tests and set its parameters (number of questions, time per question, IP addresses allowed to access the test). The administrator can also monitor the students during the test. The students can take the exam using mobile phones through hotspot via browser using the IP address of the host. The types of questions allowed are multiple choices with a single or multiple correct answers. After a student finishes a test, the grade is automatically displayed and there also is the possibility to review the questions and the correct answers.

Keywords – excreat; assessment; exam; course intended learning outcomes; evaluation; test

INTRODUCTION

Technology is already embracing in our society as teacher and developers produce products that improves education at a higher level. Educational software, machine learning, and AI are not just enhancing the field for students; they are changing up the role of the institution, creating philosophical shifts in approaches to teaching. With the presence of advance learning practices, traditional educational ways are expected to change in the next generation. Using E-learning in teaching nowadays is most common, especially in a college or in higher education. Providing an accessible introduction to teaching with technology, addresses the fundamental aspects of decision-making for a great beginning of e-learning, attracting on critical pedagogical principles

from contemporary learning theories approaches boundaries between the fields of higher education and educational technology (within the discipline of school), drawing on discourse from both areas. Assessment gives essential information about what students are learning and about the extent to which they are meeting the teaching goals. But the true power of assessment comes in also using it to give feedback to the students. (Center for Innovation in Research and Teaching) Improving the quality of learning in the courses involves not just determining to what extent students have mastered course content at the end of the course; improving the quality of learning also involves determining to what extent students are mastering content throughout the course. Assessment is an essential component of the teaching and learning cycle. Assessment for, assessment as and assessment of learning are approaches that enable teachers to gather evidence and make judgments about student achievement. Assessment of Learning is usually Summative and is mostly done at the end of a task while Assessment for Learning happens during the learning, often more than once, rather than at the end. (Satorre, 2015) In a traditional way of assessment, it generally refers to written testing, such as matching, true or false, multiple choice, fill in the blank, etc. And it must be completed within a specific amount of time. One drawback is that traditional assessment approaches are generally instructor centered, and that they measure performance against an empirical standard. (Meguid & Collins, 2017) The value of paper-based course evaluations versus online assessments has often been debated. The cons of traditional assessment:(1) Inaccessibility: Administering paper-based evaluations in class may exclude certain students from participating. Students who are absent from class, or who have impairments, may not be able to access or complete the evaluation. (2) Lengthy Process: It can take several months to complete the cycle from administering the forms to collecting and analyzing the results, to sharing reports and acting on the feedback obtained. As instructors do not receive results quickly, valuable time is lost in responding to student concerns and implementing possible course changes. (3) Non Eco-Friendly: A lot of paper is needlessly wasted in the traditional evaluation process. Wasting such a valuable environmental re-source often goes against the institution's 'green' initiatives and university-wide goals. (Explo-rance Inc., 2013) ExCreat: Web-based Education Assessment System will provide the solution for this concern. It can be accessed through laptops and mobile browser. It allows the teacher to create exams effortlessly and allow students to take. The exam will be checked automatically by the system as soon as the student submits it. It gives detailed information to both the teacher and student about the progress. It is also capable of creating Course Intended Learning Out-comes (CILO) for the teacher to ensure that the exams that will be created are in line with the objectives.

OBJECTIVES OF THE STUDY

ExCreat is created by the researchers to eliminate the usage of paper during examination and help the teachers in their field of work.

Specifically, ExCreat aims to:

- Align the assessment with the subject out-comes.
- Improve the assessment evaluation in terms of:
 - Creation of Examination

- Conduct Assessment
- Generate Results
- Provide a Web-Based System

Scope and Limitation of the Study

The system focuses on developing an application that helps the Professional Instructors in minimizing the task to be done, reproducing test papers and checking. It gives functionalities to the following entities:

Students

- Take Examination/Quiz
- View the Examination/Quiz History
- Manage the Account
- Generate Reports

Teachers

- Create an Examination/Quiz based on the intended outcomes
- Review created Examination/Quiz
- Create Course
- Create Course Intended Learning Outcome (CILO)
- Create Questions
- Evaluate Results
- Generate Reports

The study has the following limitations:

- It needs a Smartphone or laptop to operate via the web browser
- It will not allow the user to create its own Examination/Quiz
- It cannot solve connectivity issue
- It cannot generate its own Examination/Quiz

METHODOLOGY

In this chapter covers the methodology used in the study. The geographical area where the research conducted that will help to strengthen the project. The instrument used to collect the data, including methods implemented to maintain the validity and reliability of the project.

Software Engineering Methodology

Agile software development is a software development under which requirements and solutions evolve through the collaborative effort of self-organizing cross-functional teams. It advocates adaptive planning, evolutionary development, early delivery, and continuous

improvement, and it encourages rapid and flexible response to change. The Agile Development Value Proposition is portraying its difference from the other development cycle.



AGILE DEVELOPMENT DIAGRAM FOR EXCREAT

The proponents will apply the Agile Soft-ware Methodology in the system development. The following phases, namely:

Planning/Conception-Initiation Phase. Here is where the activities happened in the study during the planning/conception-initiation phase. The plans created during this stage helped the researchers to manage time, cost, quality, change, risk, and issues. In this section, the BMC, Program Workflow, Validation Board, Gantt chart and FDD used.

Designing Phase. This phase focuses on how the system would look and how to layout the functionalities as simple as possible so the users can easily understand the system. User-friendly UI is our primary goal in the designing phase to promote easy to access content and service.

Developing Phase. During this phase, everything that will be needed to implement the project is arranged. Potential suppliers or subcontractors are brought in; a schedule is made, materials and tools are ordered, instructions are given to the personnel and so forth. The development phase is complete when the implementation is ready to start. All matters must be clear for the parties that will carry out the application.

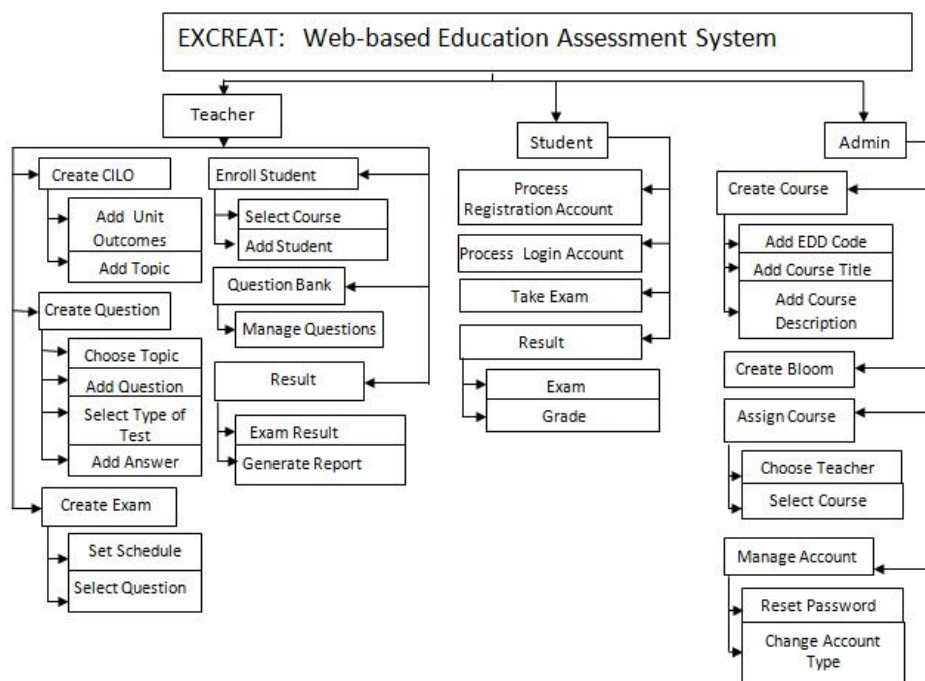
Quality Assurance/Testing. During this phase, the quality of the soft-ware is tested. The team's programmer fixed error and bugs to produce the best quality of the software. The group performs the design verification and production testing techniques to validate the quality of the program before deploying it to the actual environment.

Release Phase. This phase involves ongoing support for the software release. In other words, the team should keep the system running smoothly and shows users how to use it. The production phase ends when support has completed or when the release planned for retirement.

Feedback Phase. This phase is very concerned about observing and measuring actual project performance against the plan and fixing it if it varies. Variance from the procedure is considered the bad feedback of your software.

Functional Decomposition Diagram

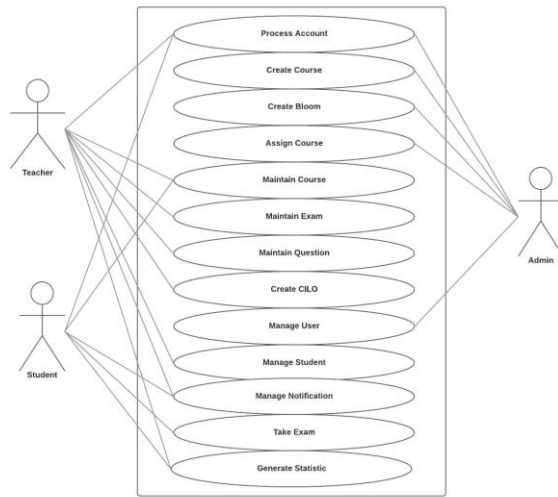
The Functional Decomposition Diagram (FDD) is a tool that depicts the hierarchy functions, processes, and sub process within an organization. This section describes the users of the system on a functional level which further advances the comprehension of the proponents, readers and possibly future researchers that may improve the current system.



FUNCTIONAL DECOMPOSITION DIAGRAM FOR EXCREAT

Use Case Diagram

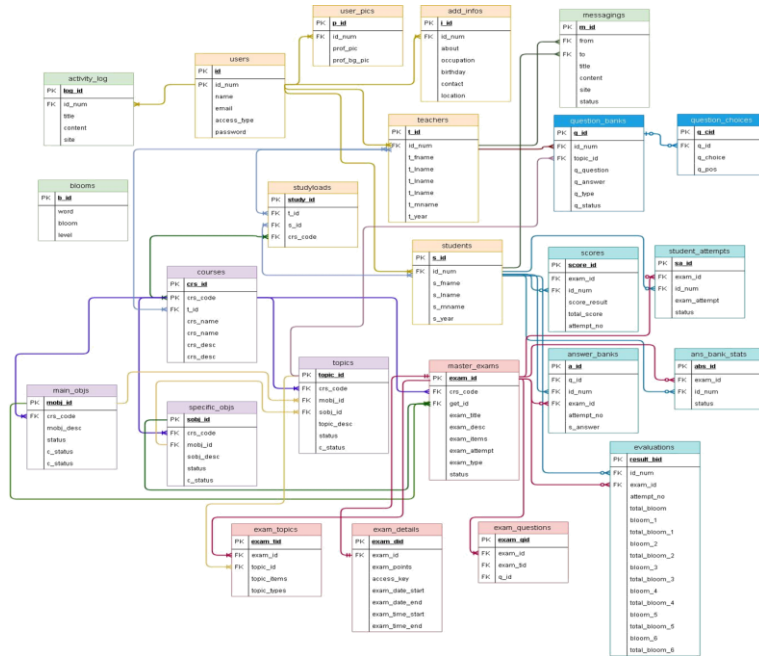
A use case diagram is a presentation of a user’s interaction with the system that shows the relationship between the user and the different use cases in which the user is involved. In this section, it shows the possible actions of the Admin, Users and the Maintenance or the assigned department who’s responsible for the reported issue by the users.



USE CASE DIAGRAM FOR EXCREAT

Database Design

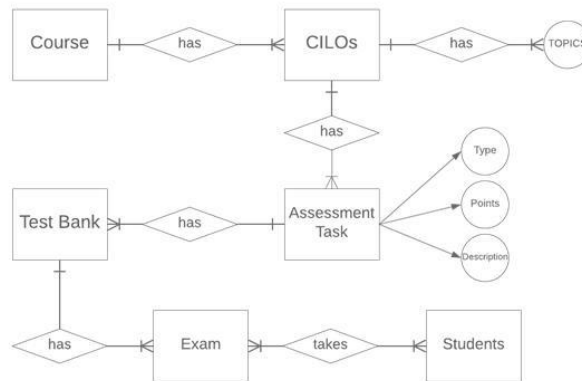
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DATABASE DESIGN DIAGRAM FOR EXCREAT

Entity Relationship Diagram

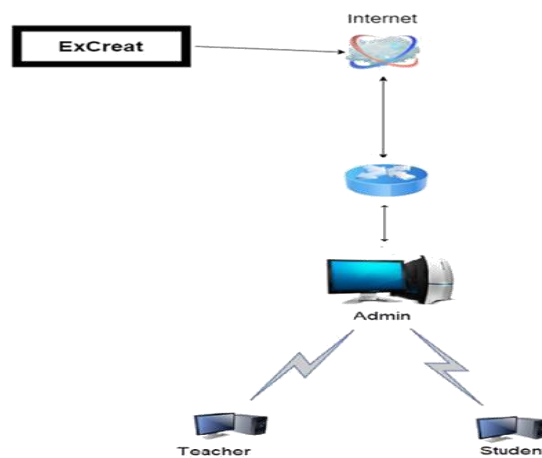
An entity-relationship diagram (ERD) is a data modeling technique that graphically illustrates an information system’s entities and the relationships between those entities. An ERD is a conceptual and representational model of data used to represent the entity framework infrastructure.



ENTITY RELATIONSHIP DIAGRAM FOR EXCREAT

Network Topology

Network Topology is the schematic description of a network arrangement, connecting various nodes (sender and receiver) through lines of connection.



NETWORK TOPOLOGY DESIGN FOR EXCREAT

CONCLUSION

Based on the findings of the study, the following conclusions are drawn:

The researchers conclude that the students should have enough knowledge and skills for the outcome of their assessment. The researchers conclude that the teachers should create an exam/quiz based on the intended learning outcomes in order to meet the curriculum outcome and to enhance student's capability. The researchers conclude that the system can articulate what a student should know or can do after completing a course or program. The researchers conclude that the system help to mold an outstanding student because it provides with a clear purpose to focus their learning e orts, typically for the purpose of moving forward, to have an achievement of larger, longer-term educational goals such as meeting course learning expectations.

RECOMMENDATION

Assessment is a critical step in the learning process. It determines whether or not the course's learning objectives have been met. The assessment system will provide the tools to develop, implement, manage, maintain and evaluate the efficiency of educational programs. Assessment helps students as well as it helps teachers. Frequent assessment allows teachers to see if their teaching has been effective Assessment also allows teachers to ensure students learn what they need to know in order to meet the course's learning objectives. An outcomes-based assessment provides a full detailed description of what a student must be able to do at the end of a course. If assessments are misaligned with learning objectives or instructional strategies, it can undermine both student motivation and learning. Consequently, students will not meet curriculum outcomes or the goals of their individualized programs. An assessment that based on intended learning outcome will continue to evolve into a venue for schools to prove educational quality and its resulting value to the marketplace. To effectively utilize learning outcomes assessment for accreditation and student development purposes, schools must innovate and adapt to changing expectations.

BIBLIOGRAPHY

- Abduljabbar; D.; &Omar; N:(2015; August) :Examquestionsclassificationbasedon Bloom0 staxonomycognitivelevelusingclassifierscombination : Journal of Theoretical and Applied Information Technology: Retrieved from research gate: net : https : ==www:researchgate:net=publication=282918840 exam questions classification based on Bloom taxonomy cognitive level using classifiers combination
- Amria et al. (2018). A Framework for Automatic Exam Generation based on Intended Learning Outcomes . Retrieved from scitepress.org: <http://www.scitepress.org/Papers/2018/67951/pdf/index.html>

Omar et al. (2012, October 17). Automated Analysis of Exam Questions According to Bloom's Taxonomy. Retrieved from science direct.com

Captera. (2017). Ed base. Retrieved from capterra.com: <https://www.capterra.com/p/167097/Edbase/>

Study Moose. (2014). The Contribution That Technology Can Make to the Assessment Process Essay. Retrieved from study-moose.com: <https://studymoose.com/the-contribution-that-technology-can-make-to-the-assessment-process-essay>

Koksal, D., & Ulum, O. (2018). Language assessment through Bloom's Taxonomy. Retrieved from jlls.org: <http://www.jlls.org/index.php/jlls/article/view/841>

Cox, J. (2015). Benefits of Technology in the Classroom. Retrieved from teachhub.com: <http://www.teachhub.com/benefits-technology-classroom>

MR_FINMAN: A MOBILE FINANCIAL MANAGER

Aleria, Blesselle Fatima M.
Hipster
Iambleselle17@gmail.com

Chua, Marian Nickie L.
Hustler
Chuanickie1998@gmail.com

Nadela, Hard Harry S.
Hacker
Hardharry248@gmail.com

Abstract - Personal financial management is a tool that people usually used. This tool includes planning, budgeting money and monitoring expenses. This study species the effectiveness of using this automated personal financial manager called, Mr. FinMan: A Mobile Financial Manager that will suits to everyone who is trying to plan and monitor their financial activities. In this, people will know how to have a financial security and how to effectively set a journey or objective from the present condition to their desired period of time. The proposed system will provide flexible and accurate result of data to the users. This automated personal financial manager will be a huge help to individuals not only in guiding their financial activities but also in giving them advices on how to discipline their money wisely. This system will analyze the data that has been inputted data by the user and will give accurate result to them. It will lessen the hassle that user gets in budgeting their money, such as conserving their time and energy. This is also a friendly user system that will help the user to easily understand the usage or the utilization of the system. Therefore, this study ensures the us-ability and functionality of Mr. FinMan towards the users. The mentioned details above will serve as a solution of the system to the most problem or concerns of people when it comes to handling their finances.

Keywords – finman; financial management; budgeting; personal financial manager; mobile financial manager

INTRODUCTION

Technology is progressing at an out-standing pace, and it is showing no mark of slowing down. Through the range of industries and markets, technology is helping today's individual to work smarter. Not solely people are working smarter as a global workforce, but they are also collaborating to become more productive in their workflow. Technology nowadays has become a powerful influence in a day to day life. And absolutely individuals cannot live without it. Today, it is a scarcity for somebody to leave the house with-out having a mobile phone or gadgets. And if it happens, then it would make them feel unsatisfied (Dylan, 2017). According to Chalmers, the capacities and providing people with new sophisticated ways of thinking is increased by the

technology. It is automating work that all people used to have to do for themselves painstakingly. It is taking stuff that had to do consciously and slowly and making it manifest quick and automatically (Briggs, 2016). The evolution of the mobile app has become more interesting in today's generation. The market for a mobile application is increasing rapidly. And to be expected, the developer's population of the mobile app has a big blast, and the total number of mobile apps in the market has turn become more pioneering and progressive (Cakismail, 2018). In these modern days, a lot of start-up companies and industries are applying mobile apps for their business to boost their businesses and to make the customers more interested. Trades and industries expand mobile apps based on their users or customers; they can choose whether the development of iPhone app, Android app, Blackberry app, Windows apps, or all (Solanki, 2018). Thousands of applications are available for the convenience of user by supporting both website and mobile platforms. And with these numerous options, searching for the apps that are there to make life a little bit easy is rather difficult. These tiny virtual tools in the form of apps can deliberately help to solve some real-life problems and what else do need more from an app (Fromdev, 2017). And one of the real-life problems of people nowadays is managing their money. Though budgeting is one of the effective ways of managing money, many people are still avoiding it because they thought that it would be an additional work. Most of them are budgeting their money, but they cannot bear out in the end. It becomes a problem too, especially those who have work and businesses to mind or to take care. And, they have hard times in tracking their expenses and assuring that they manage and use their money wisely (Financial Web, 2018). Many people experience budgeting problems when they try to keep track of the money that they spend. And there are 3 common budgeting problems; variable expense, tracking expense and category expense. When budgeting, one of the most common strategies is to have a breakdown of every expense into a specific category. It allows individuals to know and determine how much they spend for a day or time. However, one of the most problems is deciding the exact amount of money to allocate in each category. Determining categories are the most important and will be challenging for anyone who is trying to come up with a budget (Financial Web, 2018). Planning and budgeting are time-consuming. Some take around six months to complete it and ends up with irrelevant data by the time plan is executed. In the recent survey by PwC (Pricewaterhouse Coopers), over seventy percent of responding organizations take over two months to finish the planning and budgeting process (PwC, 2015). The Enhancing Financial Capability and Inclusion in the Philippines of the new World Bank survey for Demand-side Assessment, it revealed that about 6 of 10 Filipinos (fifty-nine percent) says they plan in spending the money they earn or receive. There is forty-two percent of those who do not plan their spending (conducted from February to September 2014), compared to fifty percent of those who budget their expenses says that after paying for their expenditures, they still have money left (World Bank, 2015). A 2015 World Bank survey found that 23 million adult Filipinos were short of cash for basic needs. Out of that number, a whopping ninety-four borrowed money from family, friends, or money lenders to cover their living expenses. Having long-term financial security starts with saving. Unfortunately, only four in every 10 Filipinos have savings. According to a study by the Global Aging Institute and Pru Life UK, there are 9 out of 10 working Filipinos are worried about being short of money when they retire (World Bank, 2015). According to the World Population Review of 2018, Cebu got the 7th rank of the largest city in the Philippines with 798,634 of the population. And because of the rising number, it also increases the number of

families who have a problem with budgeting, planning and managing their expenses. Many of them are having hard times on how to manage their income effectively. They might ask themselves how to plan, budget, manage and track all their expenditures, especially their savings (World Population Review, 2018). As cited by <https://searcherp.techtar-get.com>, a financial management system is a software and method that an organization uses to manage its expenditures, income, and possessions with the objectives of ensuring sustainability and utilizing revenues. According to Brian Kates, the Director of Finance and Operations at Intrinsic School, he said that people always make sure there are tight financial controls so that whenever the user bought something, it goes through an exact process and the required approvals are permanently recorded and tracked. Having all the information controlled by one system like Procurify that make things easier for other people. Budgeting is time-consuming that may take weeks or months to finish. When breaking down the budget into different categories, the challenge will be the allocation of the exact amount of money. Also, Filipinos were spending their money not more on for basic needs. And research proves it that almost one hundred percent of the Filipinos end up borrowing or lending money to cover their living expenses and there were only less than fifty percent of Filipinos who have savings. The proponents came up with the idea to make a solution to these problems and proposed a project named, Mr. FinMan: A Mobile Financial Manager. Mr. FinMan is an intelligent, personal Financial Manager that will help the users to budget money more wisely by setting budget plan, notifying monthly bills, managing debts, setting goals, notify if already out of budget, able to track and record expenses by category, gives overview where the money spent to and automatically analyze where the user saves more money. Hence, it is an all in one mobile financial manager. Mr. FinMan will provide financial flexibility and stability for the users by letting them gain knowledge by dividing his/her budget to some needs. Hence, giving them an edge on spending effectively and sufficiently. Mr. FinMan plays a role as a personal Financial Manager to users. It enables to record all expenditures and identifies to what category it belongs. In every entry of expenses, Mr. FinMan will automatically deduct it from the user's budget and save it as an expense. The user will also be charged by the billers of monthly bills and its due dates. Mr. FinMan will automatically notify the user on or three days before the due dates. The user can also ask Mr. FinMan to identify the monthly payment of debts by just setting the amount and the number of months it is payable. Mr. FinMan will monitor the user about its monthly payment of debts. Once the user confirms that he/she is already paid, Mr. FinMan will automatically save it as an expense and deduct it from the user's budget. Otherwise, Mr. FinMan will keep on reminding the user until it gets paid. Mr. FinMan also keeps the user's history of expenditures and showing it graphically to the user for a more comprehensive analysis of records about the user's budget activities and identifies what category the user saves more money. It also allows the user to set savings. Mr. FinMan also provide default priorities of budget by showing the categories of users' necessities. Lastly, Mr. FinMan can generate reports of previous transaction for the users and list of accounts for the admin.

OBJECTIVE OF THE STUDY

This study aims to develop a mobile application called Mr. FinMan: A Mobile Financial Manager. This study is for the people who want to budget their money wisely.

Specifically, the study aims to:

- To assess the current process of budgeting money;
- To determine the problems of the current process of budgeting money;
- To propose an application for budgeting money;
- To ease the creation and maintaining of a detailed budget; and
- To lessen the burden of monitoring expenses and regularly updating a budget.

Scope and Limitation of the Study

The following is the scope of the study:

USER (CLIENT)

- Set income;
- Set a budget plan;
- Set savings;
- Set priorities;
- Manage expenses;
- Manage debts;
- Manage goals;
- View bills;
- View distribution of expenses in chart;
- View transaction list;
- Can be notified of the bills' due dates;
- Can be notified if the expenses exceed the allocated budget;
- Set budget by preferred period; and
- Generate transaction report.

USER (BILLER)

- Charge the user client of its bills; and
- Manage user clients' bills.

USER (ADMIN)

- Maintain client users' accounts; and
- Generate list of users.

The system is bounded by the following limitations:

- The application needs an Internet connection to enable to work; and
- It is only available on an Android phone.

METHODOLOGY

This chapter incorporates the concepts, generalization or judgments, methodologies and others. Those that were covered by this chapter helps to adapt the information that is suitable and complementary to the present study.

Software Engineering Methodology

Agile software development is a method of creating a process that foresees the need for flexibility and builds a level of pragmatism to the delivery of the finished product. Agile software development focuses on continuing the code simple, testing often, and delivering functional bits of the application as soon as they're ready. It fundamentally incorporates iteration and the continuous feedback that it provides to successively re ne the de-livery of a software system.



Figure 1: Agile Software Methodology Cycle

AGILE DEVELOPMENT DIAGRAM

Planning - it is where the functionalities, de-sign, and scope of the system planned. This part is also the process of planning which the steps and methods used for the development of the system. In this phase, the proponents create the user stories and distribute the tasks to a specific member and identify the due dates of each module.

Data Gathering - it is the part where it gathers data or information from the clients. It also consists of possible problems and the feasibility of the system. In this phase, the proponents were gathering information that may help to improve their application from their project adviser and to the possible users of the application.

Analysis - this is where the data are being analyzed to prove and check the data that gathered. In this phase, the proponents were analyzing the possible data may store in the database. The construction of Use Cases and other diagrams made in this phase.

Development - this part is the creation of the system. This phase is where the gathered data or information and the method implemented, it includes the planning process and the drafting of the system and forming it completed. In this phase, the proponents applied the database design and the Use Cases that were made by the proponents during the Analysis Phase.

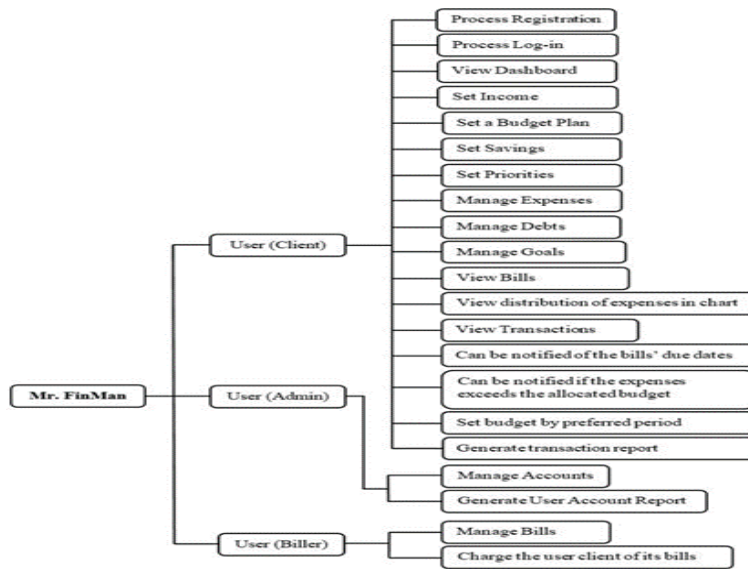
Test Runs - this is the part of testing the functionalities of the system, including the de-bugging and error tracing of the codes. This phase is also the part of editing and updating changes in the system. The proponents were identifying the modules and functionalities that need to achieve and check if the application already meets it.

System Finalization - it is where the proponents finalize the system, including the functionalities and the design. It is also the preparation for releasing the system or deploying it. In this phase, the proponents check that the bugs and errors fixed by the proponents. Deployment - this is the part of releasing or deploying the system to the internet or the World Wide Web (WWW) and for the initial launching of the system. In this phase, the proponents will deploy the application once the finalization has done.

Additions and Editions - it is the part where the expected bugs from deployment are checked, edited and added by the proponents. In this phase, the proponents will fix the expected bugs after the deployment.

Functional Decomposition Diagram

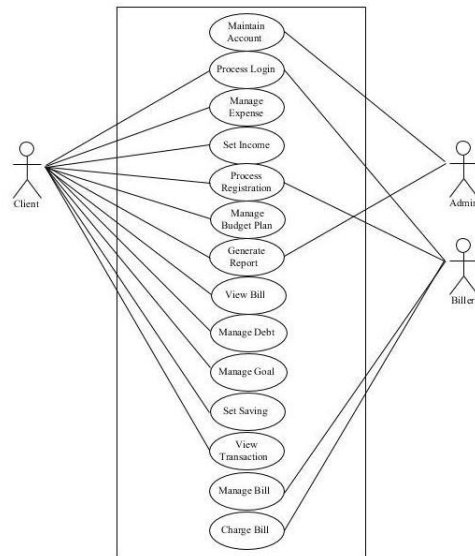
The figure below shows the capabilities of the proposed application that can be used to solve problems and help in the development of the application.



FUNCTIONAL DECOMPOSITION DIAGRAM

Use Case Diagram

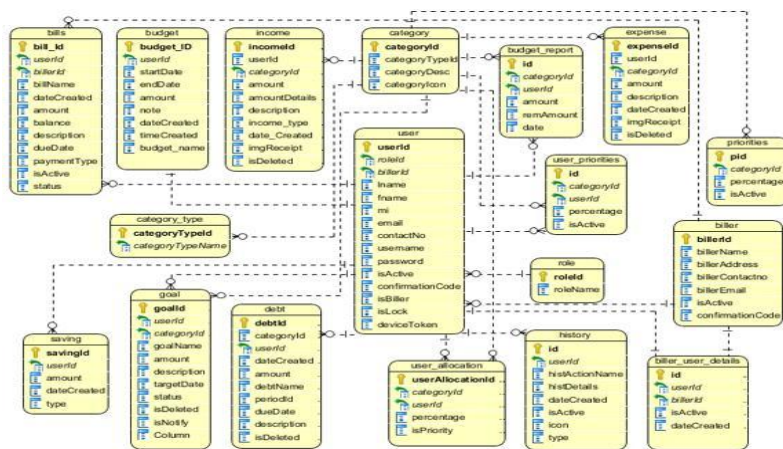
This section shows the relationships among the actors and Use Cases within the Mr. FinMan: A Mobile Financial Manager and how it works to meet the expected objectives of this study.



MAIN USE CASE DIAGRAM OF MR_FINMAN

Database Design

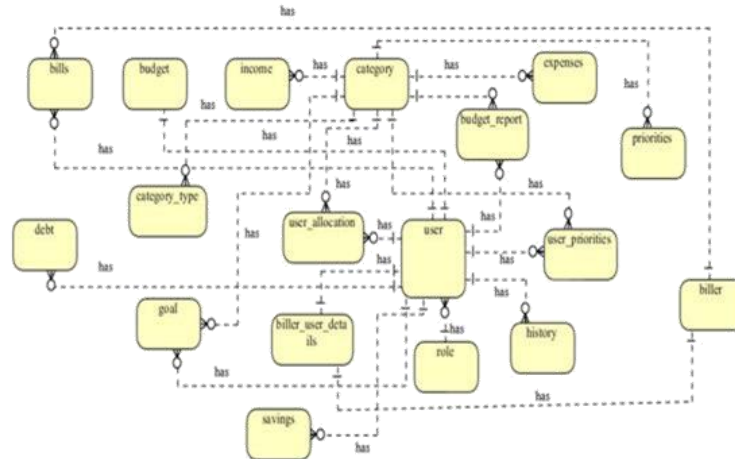
The database design comes first from the data requirements that exist in the forms and reports of the proposed application.



DATABASE DESIGN OF MR_FINMAN

Entity Relationship Diagram

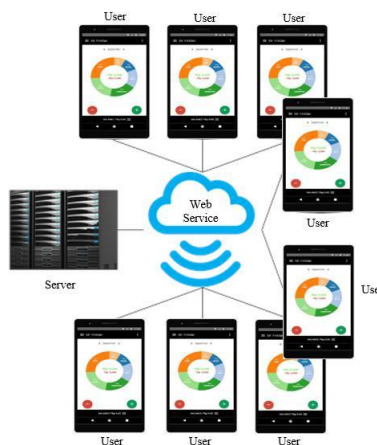
Entity Relationship Diagram is a tool used to get a comprehensive view of the system used and how the proponents organized the flow. The data models have been normalized to make sure that the database processing would be fast and easy, efficient and less prone to problems during maintenance.



ENTITY RELATIONSHIP DIAGRAM OF MR_FINMAN

Network Topology

Network Topology of Mr. FinMan: A Mobile Financial Manager. It defines the way different nodes are placed and interconnected with each other, and it refers to the physical or logical layout of a network. Alternatively, the network topology may describe how the data transfer between these nodes.



NETWORK TOPOLOGY DIAGRAM OF MR_FINMAN

CONCLUSION

The conclusion of this study based on the gathered information are the following:

- There are 6 out of 10 Filipinos says that they plan in spending their money they earn or receive. And there are 50% of Filipinos says that they still have money left after paying their expenditures.
- The percentage of Filipinos who were lending money from their family, friends, or money lenders also increases.
- Managing finances is one of the concerns of some individuals in today's world.
- Manual budgeting is time consuming especially to those who are busy in their works and they don't have enough time to budget their finances.
- Having hard times in tracking expenses and prioritizing it helps people to easily identify their necessities.
- Automating manual budgeting process will be useful to all the people who wants to budget and manage their money wisely.

RECOMMENDATIONS

In view of the findings derived from this study and the conclusions arrive from them, the following are some of the recommendations for people who were budgeting. They are mainly related to strategies that can be implemented by the researchers to ensure the success of automating the process in budgeting.

- Must know the importance of budgeting in their lives. They need to be aware of their financial status and how will they manage their money wisely.
- Parents, students, employees or anyone who wants to budget their money must be disciplined in spending their money.
- Proper financial management leads to a responsible manner to achieve financial independence.
- Spending less is a good start in saving more so that people won't end up in lending or borrowing money from other people.
- Providing precise data or information.

BIBLIOGRAPHY

Lengwell, Dean; Wedrig, Don. (2013). *Managing Software Requirements: A Use Case Approach*

M. Abdouli, W.B.A. Karaa, H.B. Ghezala. (2016). *Survey of works that transform Requirements into UML Diagrams*

W.B. A. Karaa, Z. B. Azzouz, A. Singh, N. Dey, A. S. Ashour, H. B. Ghazala. (2016). *Automatic Builder of Class Diagram (ABCD): an Application of UML Generation From Functional Requirements. Journal of Software Practice and Experience Internet*

1 Money (expense tracker, money manager, budget. Retrieved from <https://play.google.com/apps/details?id=org.pixelrush.monyeiq>

3 Most Common Budgeting Problems. Retrieved from <https://www.nweb.com/financial-planning/3-most-common-budgeting-problems.html>

AndroMoney. Retrieved from <https://play.google.com/store/apps/details?id=com.kpmoney.android>

Business Model Canvas. Retrieved from <https://strategyzer.com/canvas/business-model-canvas>

Briggs, Saga. (2016). 6 Ways Digital Media Impacts the Brain. Retrieved from <https://www.opencolleges.edu.au/informed/-features/5-ways-digital-media-impacts-brain/>

Apps Market Research. Retrieved from <https://electronicsshadow.org/mobile-phone-apps-market-research.html>

FREED (FARES, RENTALS AND EVENTS EXPENSE DIVIDER)

Amit, Heherson A.
Hacker
cocokamit@gmail.com

Otarra, Amado R. IV
Hustler
otarraamado@gmail.com

Capangpangan, Ivan R.
Hipster
Capangpangan.Ivan24@gmail.com

Abstract - This study entitled FREED (Fares, Rentals, Events Expense Divider) is based on the impact of splitting the expenses when it comes to fares, rentals, and events throughout personal biases. This time line aims to determine the various effects of splitting the expenses on different events. It also aims to improve the skills and strategies of the specific people who want to save money by splitting the cost with the use of technology. One of the problems encountered by the people is that they want to divide the expense of their fares, rentals, or events, but does not have an avenue where they could invite people to do such activity. Having that such kind of problem encountered, gives a lot of headache on how you could find a way on how to solve the problem of splitting the cost or amount equally either with your family, friends, relatives or another person who has the same plan that wanted to happen. With the use of the technology, this enhances the way of saving their money by split-ting the overall cost equally with another person interested in the plan created. Also, this study aims to provide recommendations on the further development of splitting the expenses by using the technology that will be handled by the users. This system uses a descriptive-analytic design that attempts to describe and evaluate the effects of system implementation to the users who will be using the system. The system FREED is designed to be user-friendly and to have features necessary to provide such a simplified process that can be easily understood by the users. This system has a code validation for the registration for account security purposes and has automatic calculation of the expenses that wanted to be divided equally by creating a plan. The system also has a report activity to report users who plan to have a malicious or unnecessary activity they wanted to happen while using the system. By this, the administrator can monitor the specific user that has a record on the reported activity. As to the proponents, creation of the FREED (Fares; Rentals & Events Expense Divider) system is a big help for the persons especially to those who wanted to fulfill their plans while saving money by splitting the expenses.

Keywords – freed; expense divider; splitting; fares; rentals

INTRODUCTION

Technology nowadays can create short-cuts to make tasks a lot easier and more efficient than ever. It is also a problem-solver since it was discovered and developed throughout the years. And they are not only limited to its use regarding communication and self-utilizing services. Wireless technology is also considered one of the most crucial and common technologies which can be used in many applications or systems. The development of technology is getting faster and faster. A hundred fifteen years ago, the first flight was made possible by the Wright brothers. Sixty six years later, they successfully launched their first rocket to the moon. In 1963, they had their very first programmable computer Z1, made by a German named Kon-rad Zuse. Ten years later, they invented the first mobile phone from Motorola. Going back to the world-changing invention of the Internet in 1983. People were very excited to use this technology because of its un-limited potential for the future improvement of human lives. They were prepared to share pieces of information all over the earth. Then in 2008, Android was created. Mobile phones are slowly starting to become a suitable thing. And now, websites are starting to become second in line regarding usage frequency. Android is slowly replacing websites on its place as a medium for making applications to further step-up the lives and solve more problems that they currently have or that are yet to exist. Technology is an enormous contributor to the society in all sorts of forms through its systematic methods and techniques applied to the agriculture, businesses, industry, and even our daily lives. Without technology, human lives would never have improved regarding affordability, portability, efficiency, and effectiveness of all things. But there is one problem that these advanced technologies just cannot get rid of money problems. Money is the thing that makes the world go around. It is one of the most-used media of exchange in all parts of the globe. Money in all itself is worthless, while a human being is priceless. But what is a human without money? A study on Manila, Philippines, on March 2015 states that barely 18 percent of Filipinos viewed themselves as increasing financially while other rest of the designated residents said they are "suffering" concerning financial assurance. The global research discovered that 52 percent of Filipinos reach being struggling concerning economic prosperity, while 30 percent are suffering difficulty. It also meant that adversity is more common amongst Filipino provincial natives (35 percent) than the ones who live in municipal areas (24 percent) (Diola, 2015). Millions of households have been forced to the edge of scarcity because of increasing existence values and deteriorating salaries, a new report advises. The hike in living costs has been pushed by rising rates of goods and services, the study found (Jones, 2017). Splitting the bill for meals, utilities, rent, movies, and everything in between was a consistent pain point throughout these relationships (Robinson, 2017). People imagine that they can recognize everything but, besides education, recognition, and dozens of parties, it is not simple to identify who paid what, to whom, when and to maintain a record of returns. In short, people neglect - some are more amnesic than others - and this seldom happens in an extraordinary environment. People end up losing the overview on rent management, expenses and all the small costs that are added here and there (Michele, 2016). People of all ages and races would always want to save money for whatever reason, no matter how big or small it is. Because sooner or later, that summed up money would be used to buy things that would be worth the effort of saving. It could be used in emergencies to save a life, it could be used for big events, or it could also be used for lifetime investments. There are various techniques

to save money, like providing a little more discipline to not acquire things that are not really need, to not buy valuable items while there is a better choice of purchasing an inexpensive one without jeopardizing the quality or could ordinarily save a sensible amount of money in the savings account or bank accounts. Although saving money is not as easy as it seems. There are just too many attractive and tempting things in life that make people pull out that cash from their pockets or swipe those credit cards, to be able to get the things that they want. It may be foods, the latest gadgets, cool things that make someone happy, or even the daily fares to usual destinations would always make things seem a little harder to achieve such a goal. Another thing that is making things more difficult to save money is that some people would prefer a more comfortable way of living at the cost of spending more money. So, it leaves with these choices: The cheap one with bad quality, the expensive one with high quality, and the one in the middle of both. Despite all that, impossible things are now made possible with the help of the fast-paced, rising, and integrated technology in our generation. Being able to live a more comfortable and simple life while being able to save money is now achievable. The researchers have given a task to develop a system FREED: Fares; Rentals & Events Expense Divider. That is to make a sure way to be able to help young adults, elderly, commuters, travelers, and frugal people save a higher amount of money by sharing a certain bill with other people, may it be with a single person or a group of people.

OBJECTIVES OF THE STUDY

The core objective of the study is to develop a mobile application system that helps people minimize expenses for hotel or room accommodation, car rentals, planned trips and, fare.

Specifically, the study aims to:

- Provide a Mobile App that allows the sharing equal computation of expenses in terms of:
 - Car rental and hotel or room accommodation;
 - Transportation expenses;
 - Planned trips; and
 - Events.
- Improve account security in terms of: 2.1. Email Verification;
 - Code Verification; and
 - Account Security Question.
- Improve the process of computation and sharing expenses/plans and events in terms of:
 - Notification/Reminder; and
 - Monitoring.
- Generate reports detailing user's transactions regarding:
 - Send complains;
 - Plans information;
 - User list; and
 - Monitor Activity Log

Scope and Limitation of the Study

The system, FREED will uphold all sets of functionalities upon its due completion, comprising the primary scope of the system: Manage User Accounts - Users can edit and update their accounts. Creating or Posting of Plans - Users can post an event where nearby users can see such a plan. Posting a plan also includes the category of the event, primary contact information of the poster, a small description of the plan, the total amount to be accumulated, the required number of people to join the plan, the current number of people who has agreed to join the plan, the amount each person should pay, and the deadline for the plan. The user who posted the plan has the choice to not join such activity. Join Plans - Nearby users can join any type of plan/activity posted. They will be able to see the basic contact information for the 'Poster' in case of further inquiries or other concerns. Monitor Plans - The 'Poster' and the 'Joiner' can monitor the status of a plan. But the 'Poster' can only make changes or minor adjustments of a certain plan and can delete his/her created plan. Real-Time Computation of Expense means the total amount will automatically be divided accordingly to the agreed amount per individual every time another person joins or leaves the event plan. Rate Plan – this plan is where the joiner can rate the plan right after the organized plan is finished. Generate Complains means the can report another user whether they encounter issue or problems regarding with the plan created.

The system is bounded by the following limitations:

- The application can only run through Android devices
- The minimum version is Marshmallow (version 6.0)
- The application is only accessible online
- Plans cannot exceed one hundred (100), participants
- If the plan is not settled after the set end date, it will be disabled and removed
- The created plan that reaches the maximum limit of people will automatically lock two days prior to the set end date.

METHODOLOGY

Software Engineering Methodology

Agile software development is a methodology for the productive process that anticipates the demand for flexibility and utilizes a level of pragmatism to the distribution of the finished product. Agile software development focuses on keeping the code simple, testing frequently, and delivering functional bits of the application as soon as they are ready. It fundamentally incorporates iteration and the continuous feedback that it provides to re ne and deliver a software system successively. The development of this process model has a combination of iterative and incremental process models and focuses on user satisfaction, delivery of working software product. The developers are provided with its iterations. After the proposal is accepted, the first event in each sprint is the analysis where the proponents started o with ideas forming a definite plan with additional detailing. The entire system will be defined in each phase of development. The next phase is where the member specialized in designing the front-end along with the third phase which is the development of the system that covers the refinement and back-end coding. The testing phase

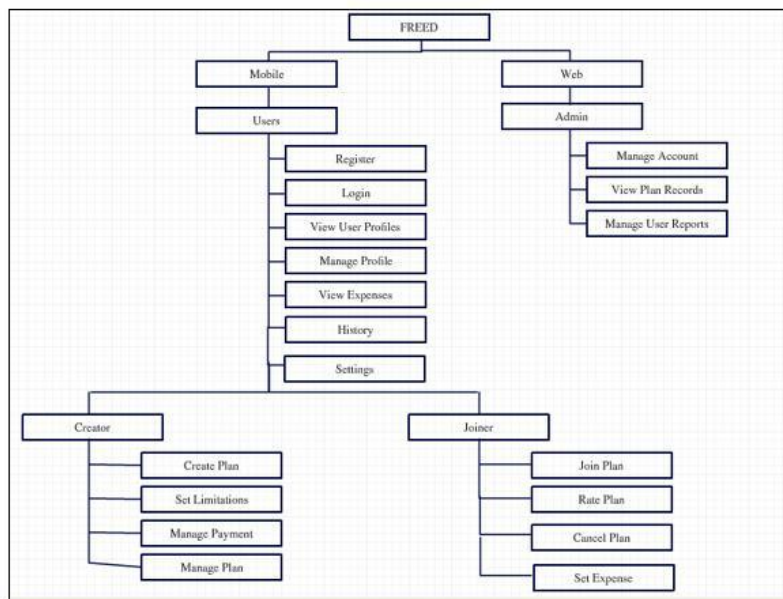
is where the tester thoroughly tests for bug and errors and manages the additional features in the system. Once every test can be passed without error and the feedback is successfully achieved, the system is sent to be implemented or for launching.



AGILE METHODOLOGY DIAGRAM OF FREED

Functional Decomposition Diagram

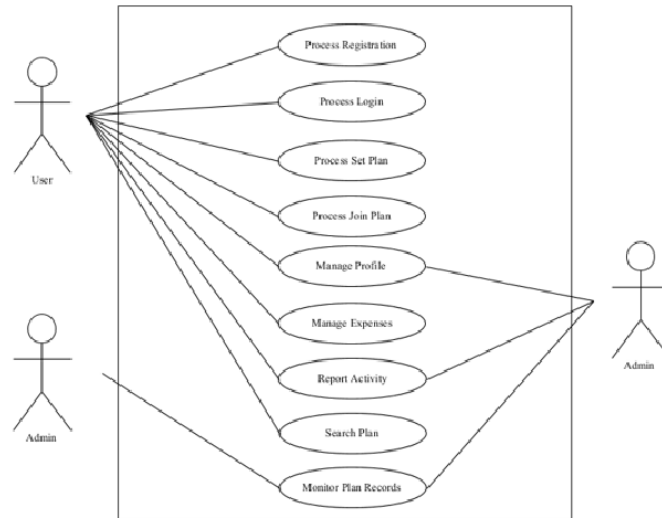
Functional decomposition corresponds various multiple relationships as how the original complex business function generated. It concentrates the overall functionality developed its interaction between different components.



FUNCTIONAL DECOMPOSITION DIAGRAM OF FREED

Business Use Case

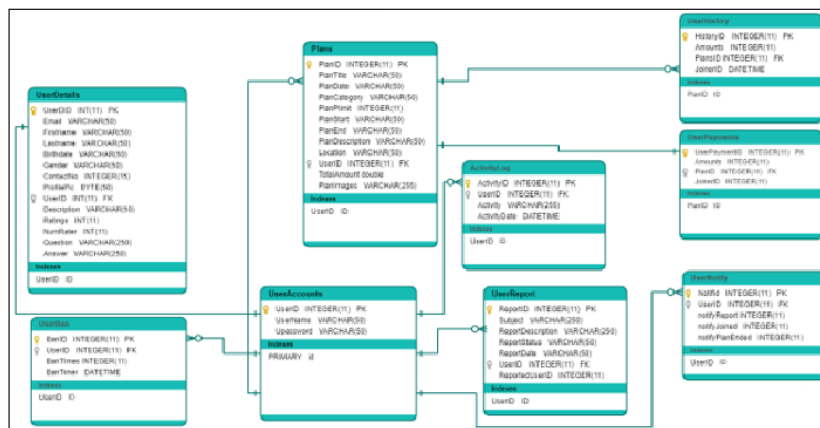
This part shows the proposed functionalities of FREED. It will represent an interaction between the android phone users and the administrator of the system.



MAIN BUSINESS USE CASE DIAGRAM OF FREED

Database Design

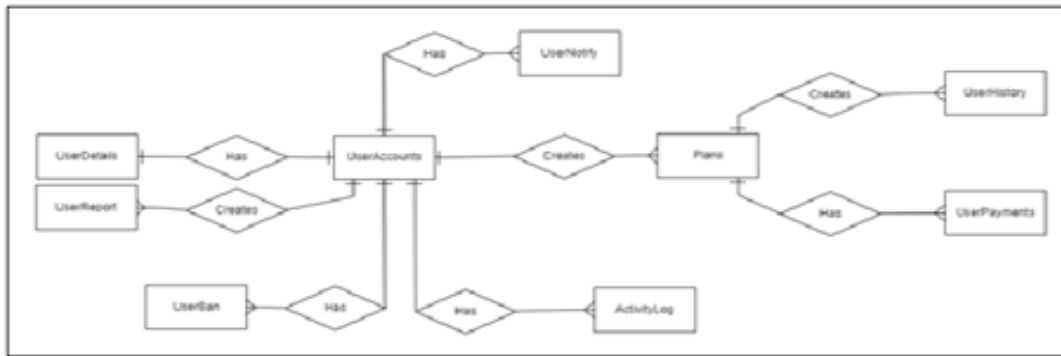
The database design precedes directly from the data requirements that exist in the forms and reports of the proposed system. The database model has been normalized to ensure that database processing would be simple, efficient and less susceptible to problems during maintenance.



DATABASE DESIGN OF FREED

Entity Relationship Diagram

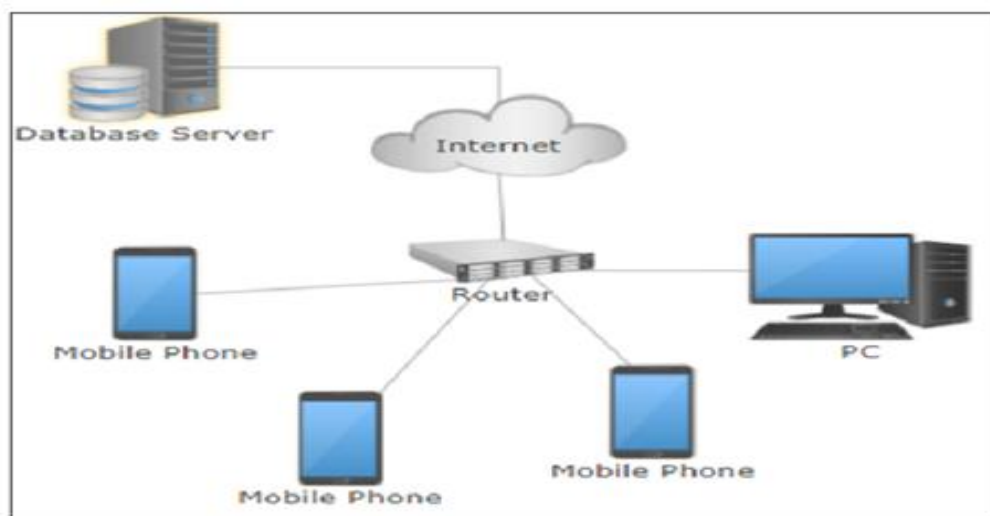
It is a tool used to get a comprehensive view of the system used and organized. The entity relationship diagram shows the relationships of entity sets stored in a database. An entity in this context is a component of data.



ENTITY RELATIONSHIP DIAGRAM OF FREED

Network Topology

A tree topology unites properties of linear bus and star topologies. It consists of groups of star-configured workstations correlated to a linear bus backbone cable. Tree topologies allow extension of an actual network and enable establishments to configure a network to satisfy their needs.



NETWORK TOPOLOGY DIAGRAM OF FREED

CONCLUSION

Everyone that spends his/her own money in this current financial era could say that these days are quite a pain in the wallet, most especially with the whopping 2.85 percent inflation rate during the year 2017, followed by the staggering 2.13 percent inflation rate in 2018. Using an online process and transaction helps reduce the burden of traditional ways experienced by many. To implement this set of process, a new online application which provides registration for Travelers, Commuters, Boarders, Apartment/Space Owners, Car Owners, and other types of business owners, to invite other users to divide in order to minimize the expenses throughout the plan created. By developing this application, it requires both mobile phone and web integration. The cooperation and participation of numerous users are significant to maintain the application's viability and usability.

RECOMMENDATIONS

Users are highly recommended to have the following:

- Stable internet connection;
- An account in order to access this application's features;
- Android version 8.0 (Oreo) or higher;
- Valid email address and;
- Valid cellphone number; and
- Read the Terms and Conditions.

BIBLIOGRAPHY

Journal

Diola, C. (2015). 8 in 10 Filipinos 'struggling, suffering' financially. *The Philippine Star*.

Greg, H. (2015). Seven Lessons Learned from Designing Check Splitting. *Medium*.

Sundukovskiy, A. (2015). *SPLIT-BILL PAYMENT SYSTEM*. A Dissertation.

Michele. (2016). Manage your expenses with your roommates. *Tricount blog*.

Murray, A. (2016). How Technology Is Changing Work and Organizations. *Researchgate*.

Campbell, R., & Jones, A. (2017). Millions of families pushed to brink of poverty by rising living costs, report warns. *Home News*.

Hagerman, A. (2017). Sharing Expenses In a Relationship. *Financial Coach*.

Keane, A. (2017). When restaurant bills get split, things get tricky, so this may help. News.com.au

Robinson, M. (2017). I never fight with roommates over bills because of this genius expense-splitting app. Business Insider.

Mate, A. (2018). A New Way To Delegate And Split Expenses. Fintech UX Case Study.

Ramnarace, C. (2018). How Couples can split their money and bills to be fair. Hermoney.

Settembre, J. (2018). How do you split costs when you're living with your significant other. Marketwatch.

Online Sources

Poletto, S. (2012, April 12). Billr.Me. Retrieved from itunes apple:
<https://itunes.apple.com/us/app/billr-bill-splitting-at-table/id501889312?ls=1&mt=8>

Oliver. (2012, September 3). Play.Google. Retrieved from GooglePlay:
<https://play.google.com/store/apps/details?id=oworld.co.splitexpenses>

Ivstam, J. (2012, November 12). Cost Split. Retrieved from itunes:
<https://itunes.apple.com/us/app/cost-split/id524132764?mt=8>

Caspar, W. (2012, November 13). kittysplit. Retrieved from kittysplit:
<https://www.kittysplit.com/en/>

Wichmann, R. (2013, March 19). splittr.io. Retrieved from itunes:
<https://itunes.apple.com/ph/app/splittr-expense-splitting/id588332804?mt=8>

Jersch, N. (2015, July 17). Splid.app. Retrieved from itunes:
<https://itunes.apple.com/sg/app/splid-split-group-bills/id991473495?mt=8>

Fallon, J. (2015, November 24). tricount. Retrieved from tricount.com:
<https://play.google.com/store/apps/details?id=com.tribab.tricount.android>

Splitify. (2016, February 17). Retrieved from splitifyapp: <https://play.google.com/store/apps/details?id=com.splitifyapp.android.splitify>

GATEKEEPER: A VEHICLE MONITORING SYSTEM OF UCLM USING IoT AND IMAGE PROCESSING

Degala, Virly B.
Hipster
virlydegaz@gmail.com

Sabac, Cristy G.
Hipster
cristysabac28@gmail.com

Subelario, Joseph Earl V.
Hacker
subelario@gmail.com

Ybanez, James Dominic J.
Hustler
Jdy121098@gmail.com

Abstract - Technological advances in Artificial Intelligence and Digital Image Processing has made possible the development of AI-driven machines that can automate manual labor. For example, AI technology has been integrated into modern machines like factory mass production machines and smart driving AI. Inspired by these innovations, this study GateKeeper is aimed at using these technological advances to improve the current vehicle keeping system of UCLM (sticker system) by taking video input and analyzing them using AI and image processing in real time: extracting license plate text information from vehicles and storing image and data records into the system's database, with the overseeing of a human. This system could prove to be beneficial to UCLM as it can lighten the burdens of human sentries at the vehicle entrances by doing the work for them and just having the humans as sentry for small error corrections. The system is made through the use of Software Engineering Methodology.

Keywords – gatekeeper; vehicle monitoring; IoT; image processing; AI driven machines

INTRODUCTION

Technology nowadays changes rapidly. Mostly, people are using modern technology to do various activities. Lives have become more convenient and enjoyable. The recent development of technology has made it possible for us to lead more comfortable lives. Today, computers are one of the important things we are using. They have helped a lot in compiling a lot data and they are able to provide and retrieve information so quickly, so they have increased the pace of our work. Through the computer technology, we can cater for the need of quantity and quality of products required in daily life. Moreover, it has brought a lot of flexibility. Truly, technology had made life easier. In this modern and fast paced world, security is one mostly important than ever. It is now

one of the fastest growing industries in the world today. Almost every day one hears about damages or losses occurring due to security lapses or a lack of security on the news. Even the term security is not just limited to physical security these days. It includes things that are unseen but tremendously valuable things. Eventually, the schools have been deeply affected by the economic, political, and social conditions of our time, and have been ex-posed to many undesirable events and behaviors such as violence, sabotage, kidnapping, carnap-ping, hijacking and the like. In a traditional checking of vehicles that will enter at University of Cebu Lapu-Lapu and Mandaue (UCLM), the Civil Security Unit (CSU) will confirm if the vehicle or the driver has the vehicle pass sticker which will indicate that the vehicle is registered and will grant passage to the driver. On the other hand, administrators vehicles will automatically be granted passage. In the case of visitors, the CSU will ask them which department they have an appointment with and will the said department for confirmation. This system of vehicle checking has its flaws as observed by the proponents. First, vehicle pass stickers can be duplicated and attach to unregistered vehicles for illegal entrance. Second, the vehicle logs are inputted on a paper log book, which is inefficient and not secure since CSU will have to manually input every vehicle that goes inside the premises; the said log books can be damaged easily by natural elements and have tendencies to be lost. GateKeeper: A Vehicle Monitoring System of UCLM using IoT and Image Processing provides the solution with these problems. It is a system that can extract information regarding vehicle by analyzing the images of the vehicle automatically and providing more detailed information about it. It may remove the vehicle pass sticker, but it will improve the monitoring of registered vehicles in entering the school premises. Vehicle logs will be more organized and easy to access when needed. It also contributes and plays as a great role for a reliable, accurate, accessible, and effective system that cater of the needs of the clients as well as the valid customers.

OBJECTIVES OF THE STUDY

The primary objective of this study is to organize, save, design and develop an Automatic Gatekeeper application.

Specifically, the study aims to:

- To provide a specific Desktop application that automatically detects a vehicle wanting to enter the premises.
 - Detect plate number.
 - Detect vehicle manufacturer.
 - Identify if the vehicle was registered.
- To be able to allow passage for the registered vehicles automatically.
- To be able to alert the operator if the vehicle is unregistered.

Scope and Limitation of the Study

The researchers formulated the scope and limitations of this project to identify the boundaries of the study. It has the following functionalities:

- Process vehicle registration;
- Detect vehicles near the spot of the camera;
- Open the gate if the vehicle gets recognized as registered; and
- Provide vehicle login/ logout time sheet.

The study has the following limitations:

- May have difficulty identifying customized vehicles;
- The system will not accept a hand-written/computerize plate number;
- The system cannot recognize duplicate plate numbers;
- The system will not detect the vehicle owner;
- The posted staff will call the respective department in case of a visiting vehicle/driver; and
- In case of school events, each department should provide a list of visitors to be checked and con rm by the gate keeper personnel during the said event.

METHODOLOGY

This section covers the methodology used in the study and other technical specification that will help to strengthen the study. It also covers methods and diagrams that will be shown for the better understanding about the study, and describe the materials used to implement GateKeeper that will meet the requirement of objectives of the study.

Research Environment

This examination was directed in UCLM situated at A.C Cortes Ave., Looc, Mandaue City, Cebu Philippines. Vehicles enter the premises via gate 3. The researchers, upon observing how the vehicle pass process is being done, proposed the system GateKeeper. The researches envision the system help to the already existing system as an upgrade to the manual way of vehicle entrance monitoring since the system is automated, it would provide faster service to the drivers, and ease to the personnel.



RESEARCH ENVIRONMENT

On April 1, 1964, a gathering of young fellows with vision and premonition, impelled by philanthropic thought processes to help shape the good and scholarly existence of the adolescent, grouped themselves to frame an instructive organization where they established UCLM. After every one of the battles that Atty. Augusto Go had experienced he make develop and moves understudies to complete instructions. (Perez, 2018)

Software Engineering Methodology

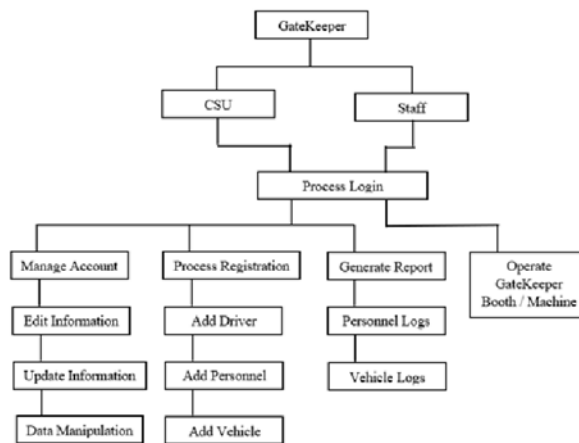
The proposed system will use a technique to supply software program with the flexibility, and this is referred to as Agile Software Development. It is a group of software development techniques in which necessities and solutions evolve thru collaboration between self-organizing, cross-functional teams. It promotes adaptive planning, evolutionary development, early delivery, continuous improvement, and encourages speedy and flexible response to change.



AGILE METHODOLOGY DIAGRAM OF GATEKEEPER

Functional Decomposition Diagram

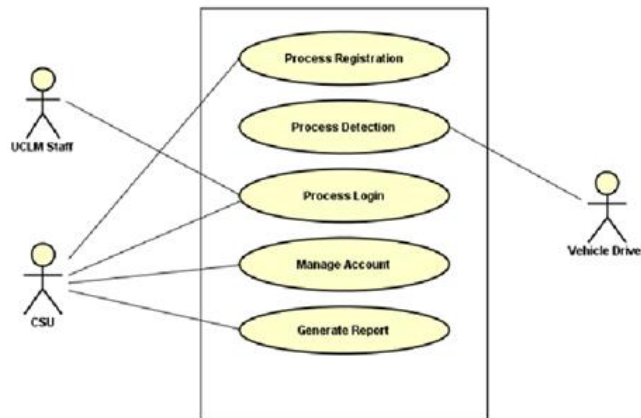
The figure below shows the functionalities supported by the Gate Keeper. The proposed system aims to the following functionalities:



FUNCTIONAL DECOMPOSITION DIAGRAM OF GATEKEEPER

Business Use Case Diagram

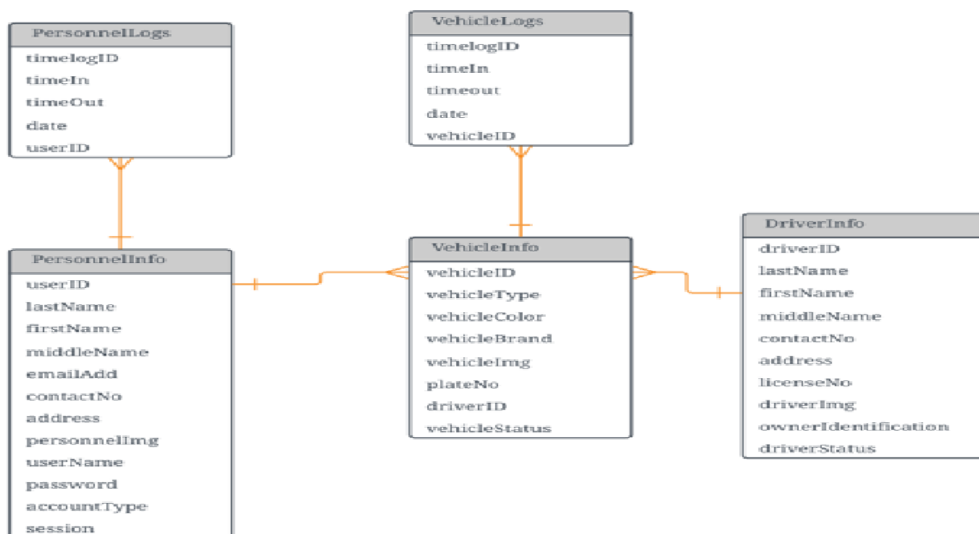
Below is the main business use case diagram of GATEKEEPER.



MAIN BUSINESS USE CASE DIAGRAM OF GATEKEEPER

Database Design

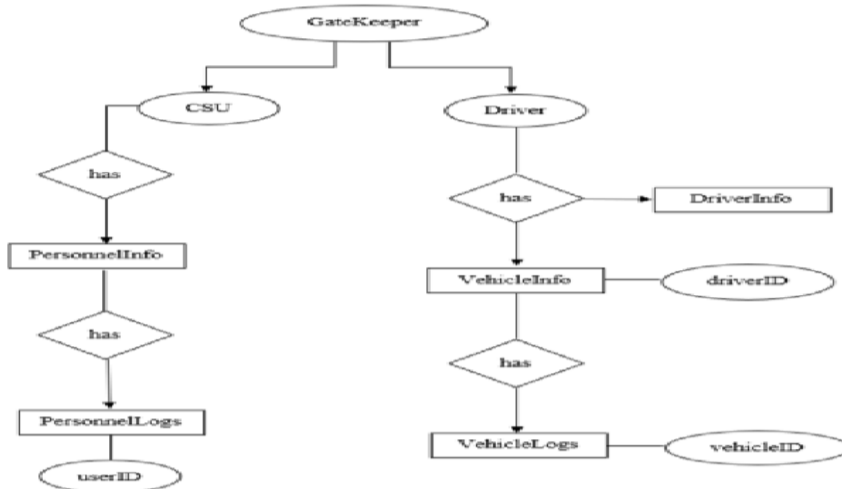
This illustrates the logical data model contains all the needed logical and physical choices and physical storage parameters needed to generate a design in a data definition language, which can then be used to create a database for proposed system GateKeeper.



DATABASE DESIGN OF GATEKEEPER

Entity Relationship Diagram

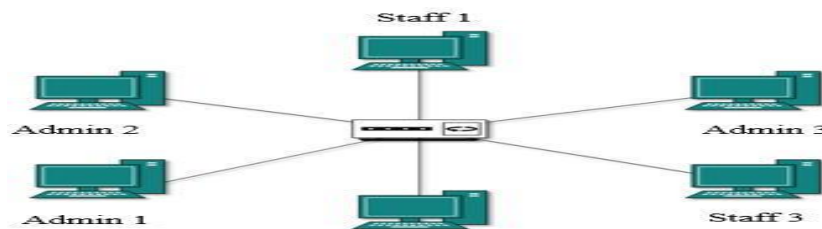
Below is the Entity Relationship Diagram of GateKeeper.



ENTITY RELATIONSHIP DIAGRAM OF GATEKEEPER

Network Topology

A network topology is the association of a network, along with its nodes and connecting lines. There are two approaches of defining community geometry: the physical topology and the logical (or signal) topology. The physical topology of a network is the real geometric design of workstations. (Telecom ABC , 2018) The appropriate network topology for the proposed system is star topology because this topology works in a rather specific manner and has a good pattern. Such as the case of star topology in which all nodes are individually connected to a central connection point, like a hub or a switch. It takes more cable than the other topologies, but the benefit is that if a cable fails, only one node will be brought down. All traffic emanates from the hub of the star. The central website is in control of all the nodes connected to it. The central hub is normally fast, self-contained computer and is accountable for routing all traffic to different nodes. The foremost blessings of a star network are that one malfunctioning node does no longer affect the relaxation of the network.



NETWORK TOPOLOGY OF GATEKEEPER

CONCLUSION

Based on the testing results of the study using miniature models and mock license plates, the system GateKeeper is able to attain its initial objectives: to provide a desktop application that automatically detects inbound and out-bound vehicles to and from the test premise, read its license plate and manufacturer, and log its entry and exit. Although the results are positive, the system will still be in open source and can be downloaded by everyone for the purpose of improving GateKeeper's algorithm and design.

RECOMMENDATIONS

Based on the findings and conclusions of the study, here are several recommendations to be considered:

- The system Gatekeeper should be in open source state, since it is not perfect and would still need improvements.
- The system should be used for mock tests in the target area (UCLM) with the permission of the UCLM CSU and the involved departments that are in charge of the vehicle loggings.
- Further study should be made done for this system in order to achieve the most optimal algorithm for the system to be fully usable in the future.

REFERENCES

- Building security. (2017). <https://www.buildingsecurity.com/importance-of-the-security-industry>.
- Chaudhuri. (2017). Optical character recognition systems for different languages with soft computing. <https://www.researchgate.net/profile/Arindam-Chaudhuri2/publication/321518201-Optical-Character-Recognition-Systems-for-Different-Languages-with-Soft-Computing/links/5a5122e20f7e9bbc10543023/Optical-Character-Recognition-Systems-for-Different-Languages-wi>.
- Eikvil, L. (2018). Optical character recognition. <https://www.nr.no/~eikvil/OCR.pdf>.
- Eocortex. (2018). <http://eocortex.com/en/software-for-ip-cameras/video-analytics-plugins/license-plate-recognition.html>.
- Garage, E. (2015). Introduction to image processing. <http://www.engineersgarage.com/articles/image-processing-tutorial-applications>.
- Leonardo. (2018). <http://www.leonardocompany.com/en/-/elsag-targhe>.

HOMEOWNER: A WEB BASED APPLICATION

Boragay, John Vincent
Hacker
boragayjohnvincent@gmail.com

Mirasol, Queeny
Hustler
queeny@gmail.com

Duetiz, Carla Jane B.
Hipster
janecarladuetiz@gmail.com

Abstract - The Researchers developed a study named Homeowner Association Management System, it is based to help homeowners to pay their monthly dues and reserve amenities online, and the administrators to monitor the system. It will evaluate the effectiveness of online payment and reservation with the use of this web application. The System Homeowner Association Management System allows the homeowners to save more time, hassle-free way of paying monthly dues and reserving amenities. Homeowner Association Management System will be a useful device to the subdivisions and condominiums and benefits not only the homeowners but also the administrators who have the access of the application from their offices. The application is made applying the software engineering methodology processes.

Keywords – hams; homeowners; management system; amenities reservation; online payment

INTRODUCTION

Technology is inescapable. It pervades every facet of our life. From how people work, play and live their lives, technology has created a revolution that will grow for as long as humans continue to advance in their capabilities. As the days, months and years go by, technology just gets better and better. What was once the latest and greatest yesterday, is old hat today. The bottom line is, technology does not wait for you and if your organization is not keeping up with it, you will surely be left in the dust by one of your competitors. (Axis Technical group, 2018) Having to pay manually, every now and then, one of those bills slips your mind and you get socked with a late-payment fee. According to a 2016 survey by financial technology firm Fiserv, more than a third of consumers, or 35 percent of the respondents, paid a bill late in the previous 12 months, and 65 percent had a late fee. Online bill payment, a service offered by many banks and credit unions, makes it easier to organize and pay your bills, and avoid extra charges. In addition to the convenience of paying bills from your own computer or mobile day or night, all those paper bills, notices, and statements tend to pile up, and they need to be stored somewhere. Eventually you will have to shred many of them before you discard them. Electronic versions do not take up any space except on your computer hard drive. (Sheehey & Lee, 2016) Organizations are currently in a race

in enhancing their capabilities to survive the competition in this new century global market. To be more efficient and highly effective in meeting the markets successive fluctuations, organizations attempts to advance their agility level to improve their decision making. In an effort in achieving this, modern organization, have concerned with a cycle of progressive investment in and adoptive new management information system components. (Karim, 2015) Outside of homeowners' own unit, it is worth finding out what they are allowed to use and must bear part of the expense for. One of the perks of owning a home in a planned development is the right to use the development's common elements or areas. For example, you might enjoy a nice workout in the common fitness room, or a refreshing swim in the common pool. And the best part is that someone else ordinarily maintains these amenities. Home-owners themselves have said that they have limited access to most of the amenities to which areas or elements are actually open for every homeowner's use is not always straightforward. A homeowner's right to use a particular common element, and whether a homeowner has any maintenance responsibilities for the common element, depends on the rules governing the development and the type of common element in question. In most developments, detailed information about the common elements is found in the development's governing documents. These normally include the Declaration of Covenants, Conditions, Restrictions and Easements the articles and bylaws of the homeowner's association (HOA), and any separate rules and regulations. The type and location of the common elements are also described on the development's plat or map. (Ross, 2018) Homeowners have said that reservation of amenities are done manually, thus, it does not provide homeowner clear view of amenities' availability and does not allow homeowners to book directly and pay and get confirmed automatically. A proper on-line reservation system must, at the least be able to perform these two tasks as they are core to providing good services. Without proper reservation system cannot automatically ensure that reservations can only be received when you have availability cannot get all the information required during the reservation process so homeowners have to waste time asking for more information. With the abovementioned scenarios, the researchers will develop the Homeowner Association Management System. This is a web-based application that manages all the transactions in a subdivision or any private gated residential community.

OBJECTIVES OF THE STUDY

Technology gives comfort in every work, thus people of cyber generation is having a higher demand for hustle free and efficient services. The general objective of this study is to design and develop a user-friendly web-based and mobile application Homeowner Association Management system that improves member services and enhances social, administrative and financial operations for homeowner associations. In general, the proposed application aims to provide and deliver its objectives.

Specifically, the study aims to:

- Display latest announcements and news of the HOA;
- Process Registration/Log-in;
- Online payment of monthly due;
- Online billing;

- Post questions and Comments;
- Reserve Amenities;
- Cancel reservation to a certain time period before the reservation date;
- Update members' information;
- Process Maintenance and Records;
- Send Notification;
- Process Homeowner and Property Information System;
- Process Homeowners' News;
- Record Amenities; and
- Generate Reports on Paid and Unpaid bills

They study has the following limitations:

- The application system is dependent to internet connection;
- Only members of the subdivision Homeowner association could register;
- Only registered member could use the online application; and
- The system does not solve network signal problem.

METHODOLOGY

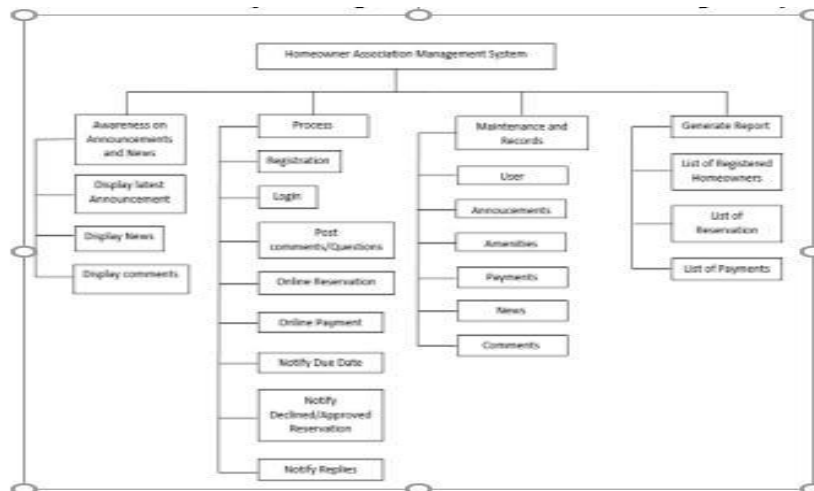
Agile Software Development is a lightweight software engineering framework that promotes iterative development team constant communication, and tightly-knit teams. Agile methodology is an alternative to traditional project management, typically used in software development. It helps the members respond to unpredictability through incremental, iterative work cadences known as sprints. Agile methodologies are an alternative to the waterfall or traditional sequential growth (Agile Methodology, 2013).



AGILE METHODOLOGY DIAGRAM OF HAMS

Functional Decomposition Diagram

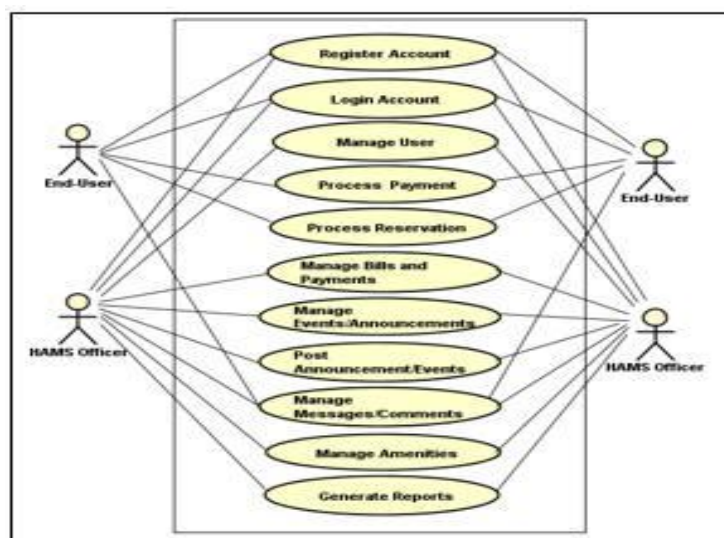
The functional decomposition diagram of Homeowner Association Management System:



FUNCTIONAL DECOMPOSITION DIAGRAM

Use Case Diagram

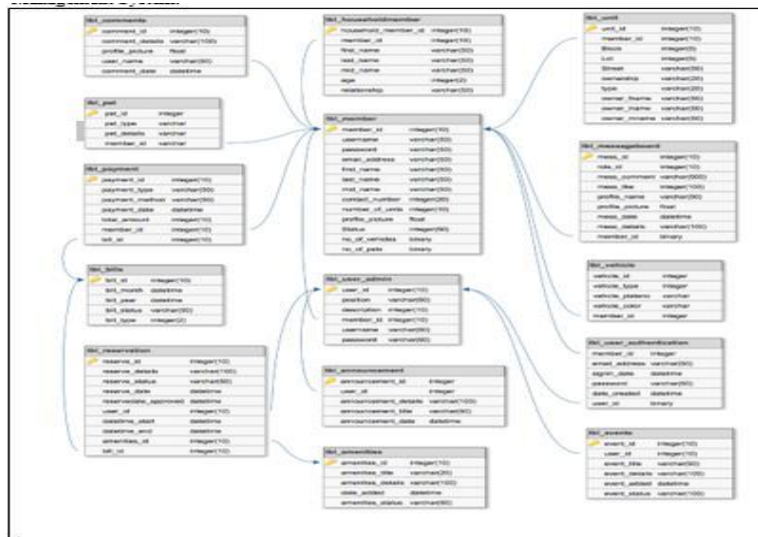
Eliciting functional requirements can rely on the construction of a use case. Use case captures all the possible ways the user and system can interact that result in the user achieving the goal. It also captures all the things that can go wrong along the way that prevents the user from achieving the goal.



MAIN BUSINESS USE CASE OF HAMS

Database Design

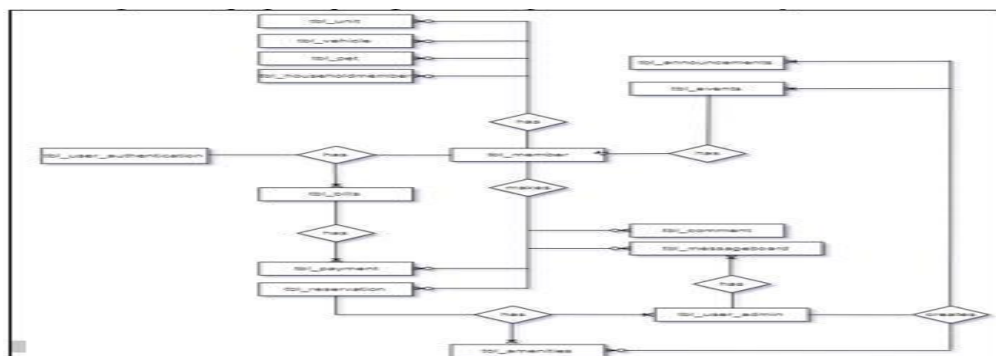
The database design illustrates the logical data model that contains all the needed material choices and storage parameters are necessary to generate a design in a data definition language, which can be used to create the database for proposed system Homeowner Association Management System.



DATABASE DESIGN OF HAMS

Entity Relationship Diagram

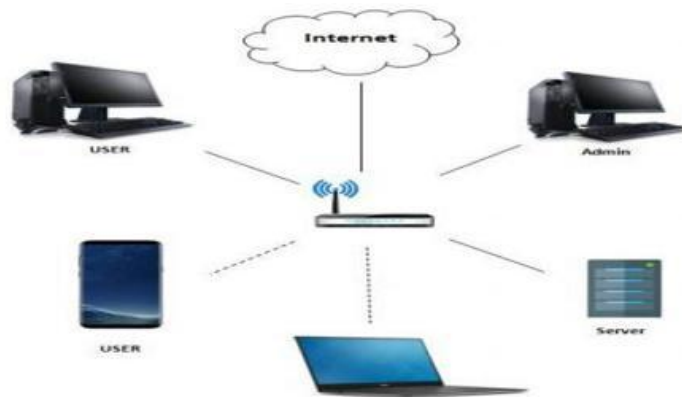
The database design illustrates the logical data model that contains all the needed material choices and storage parameters are necessary to generate a design in a data definition language, which can be used to create the database for proposed system Homeowner Association Management System.



ENTITY RELATIONSHIP DIAGRAM OF HAMS

Network Topology

The network topology is the arrangement of the various elements like links and nodes of a computer network. The network topology is a topological structure of a system and depicted physically or logically.



NETWORK TOPOLOGY OF HAMS

CONCLUSION

The main idea of the survey was to find out the current billing system, payment and reservation system of the HOA. The number of respondents who answered the survey is enough for analysis to be more comprehensive. The result of the survey shows that both members and officers find it very convenient to have an online payment, reservation and billing system. Also, the result shows that dissemination of announcement could be even more effective if it is done online where members of the association can access the website given there is internet connection, any-time and anywhere. All of the members and the officers have said that convenience and fast transaction speed are two main factors why respondents would prefer and choose online payment. Technical problems and vulnerability to cyber criminals are main pros of online payment.

RECOMMENDATION

The proponents of this system would gladly recommend this study to be utilized in every subdivision and gated-community. And to the future researchers who came up with a similar idea as this the proponents would like to recommend improvisation of the system to satisfy demands.

BIBLIOGRAPHY

Axis Technical Group, (2014, October) The Importance Of Keeping Up With Tech-nology In The Workplace retrieved from <http://www.axistechnical.com/the-importance-of-keeping-up-with-technology-in-the-workplace>

Beth Ross, (2018) Homeowners' Use and Responsibility for Common Areas re-trieved from <https://www.nolo.com/legal-encyclopedia/homeowners-association/hoa-common-areas{rules-restriction-use.html>

Capterra Inc. (2018) HOA Software 2018 Re-view of the Most Popular Systems. Retrieved from <https://www.capterra.com/hoa-software>

Community Association Institute. (2006). An Introduction to Community Association Living. Alexandria, VA

CommunityAssociationInstitute. (2016). Community Association in the United States. Retrieved from, , <https://www.caionline.org/AboutCommunityAssociations/Pages/StatisticalInformation.aspx>

Compass, V. (2013, August 5). Visual Compass. Retrieved August 1, 2017, from [vcwebdesign.com: http://vcwebdesign.com/uncategorized/what-agile-methodology-whydo-we-use-it/](http://vcwebdesign.com/uncategorized/what-agile-methodology-whydo-we-use-it/)

Eric J. Remington(2018, April 4), Best Practices For Homeowner Association Directors and Boards. Retrieved from <https://www.wardandsmith.com/articles/best-practices-for-homeowner-association-directors-and-boards>

IKO Community Management (2016, July 14) Retrieved from <https://www.ikocommunitymanagement.com/blog/13-statistics-about-hoa-communities-thatll-make-you-proud>

Journal of Community & Applied Social Psychology J. Community Appl. Soc. Psychol. (2011)

Published online in Wiley Online Library ([wi-leyonlinelibrary.com](http://wileyonlinelibrary.com)) DOI: 10.1002/casp.1132

Kelsey Sheehy, Jeanne Lee, (2016, September 3) Online bill pay: what it is and why you should use it retrieved from <https://www.csmonitor.com/Business/Saving-Money/2016/0903/Online-bill-pay-what-it-is-and-why-you-should-use-it>

Legunsen, Owolabi, Lindee, Chris, Lloyd, Kevin, Matcovschi, Radu, Morin, Benjamin, Shaw, Sam, Smith, Kirk, Trantham, Patrick, Yancey, Chris. (2010) Software Project

Management Plan. \Team SoftwareProcess". Retrieved from <https://www.scribd.com/document/97701142/Hotel-Reservation-System-Analysisand-design>