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Eatsarapph: An implementation of E-commerce framework with route analytics

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Abstract

Aim: The study's goals are i) to create an online restaurant ordering system that uses an e-commerce framework and (ii) to develop a client-side application that displays restaurants according to the diner's preferences in terms of cuisine type.
Methodology: The correct steps of the System Development Life Cycle, including planning, analysis, design, implementation, and maintenance, were followed in this paper. The information was gathered by secretly watching patrons at various eateries.
Findings: Eatsarap is a mobile app developed digitally. It has been successfully planned and implemented that PH will be used. EatsarapPH was built on an e-commerce infrastructure to facilitate transactions between diners and eateries.
Implications/Novelty: The app makes life easier for diners and eateries by streamlining the ordering process, managing the menu, and processing payments online. This innovative layout benefits both diners and establishment owners.

Key Words: Online Ordering, Android Application, E-Commerce, Route Analytics

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INTRODUCTION

One of the most frequented types of businesses is restaurants. Customers will make dinner requests and wait for them, regardless of why they originally visited the restaurant. Customers unhappy with the services provided often complain, but this is to be expected.

Disappointment can have several causes, one of which is a delay in the server responding to requests or delivering food. A solution to the problem of late commitments may be at hand, thanks to technological progress (Bhargava et al. 2013; Visser 2016).

In the twenty-first century, technology has become perpetually state-of-the-art and standardized, with PCs and devices continually improving incrementally and adjusting to the ever-evolving modern world. Every aspect of modern life has been reorganized by innovation and the rise of information systems, and we have all come to rely heavily on these innovations and systems. To accommodate the needs of today's progressive society, data systems are now accessible to anyone with internet access. These days, information is just a click away, and almost anything can be bought online. Information systems have brought about a great deal of convenience and ease in our daily lives, so it should come as no surprise that they have also had a positive impact on business operations and are widely used and perceived as being used in a wide variety of ventures. Information Systems offer numerous advantages over traditional paper-based record-keeping methods, including increased security, greater privacy, and greater ease of use (Studymode.com 2012).

Internet and mobile application services gained potential commercial utilization for common needs as smartphone use spread. Some businesses that can greatly benefit from these innovations are those in the restaurant business. The developer of EatSarapPH: An Implementation of an Electronic Commerce Framework with Route Analytics proposed to create a mobile app using these resources. This app is designed to serve the needs of both diners and restaurants. Any restaurant can use this app to promote their business. The study's primary objective was to learn how to develop a mobile app to streamline the ordering and billing processes in restaurants, and the

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study's proponents set out to do just that. How can we design a mobile app that gives users complete information about local restaurants? How can an application be developed to satisfy the criteria laid out by the Software Quality Characteristics?

The study aims to accomplish the following: The goal of this project is to create a framework for e-commerce that can be used for online restaurant orders. This project aims to develop a mobile app that will allow users to browse restaurants according to their preferred cuisine type, then get additional information about those restaurants, such as their location, hours of operation, price range, and most popular items on the menu. Using ISO 9126, assess the app's features, usability, reliability, efficiency, maintainability, and portability.

LITERATURE REVIEW

As per Smith (2016), innovation is massively affecting the restaurant world. Actually, the National Restaurant Affiliation reports that more than 33% of customers say they are liable to utilize innovation related alternatives in a restaurant now contrasted with only two years prior. This demonstrates the considerable capability of taking advantage of innovation to enhance the eating background and in addition the eatery's main concern.

Clients are utilizing innovation to pay for their suppers with expanding recurrence. The Restaurant Affiliation found that near 33% of all eatery benefactors would want to utilize a cell phone application over a Visa, check card, or money to pay for their supper. For the individuals who still wish to pay utilizing a card, Square, Apple Pay, or comparable versatile installment alternatives permit servers to run the card at the table, expanding security for the eatery benefactor and enhancing the convenience of administration.

Today's restaurant benefactor is regularly in a rush. While relaxed clients will dependably exist, an expanding number of eatery supporters essentially require a dinner rapidly so they can proceed onward with their day. Utilizing innovation to request, for example, tablets at the table or cell phone applications on the client's telephone, can expand the productivity of the requesting procedure. It can likewise dispose of blunders because of a server who records the request mistakenly (Smith 2016).

Information Technology and the Internet have dramatically affected business operations. Organizations are taking extensive interests in e-trade applications however are unable to assess the achievement of their e-business frameworks. The Delone and Mclean (2004) Information Systems Success Model can be adjusted to the estimation difficulties of the new e-business world. The six measurements of the upgraded model are a miserly system for sorting out the e-business achievement measurements distinguished in the writing. Two case illustrations exhibit how the model can be utilized to direct the recognizable proof and determination of e-trade achievement measurements (Delone and Mclean 2004; Wartika et al. 2015; Azhani, Yusmarwati, and Pua 2015).

METHODOLOGY

This paper followed the proper System Development Life Cycle. It has five different phases namely; planning, analysis, design, implementation and maintenance. Each phase plays a vital role in the success of the development of the system. Planning was executed through process of observing something or someone carefully in order to gain valuable data.

During data gathering, the proponents ate in several restaurants to observe. The proponents discovered that most restaurants are still using a manual ordering and billing system. The proponents noticed that some menus don't have pictures or images which will aid them to make their orders accurately. The proponents need to ask the service crew the description of the food to help them realize on what they're purchasing. The proponents also notice that at 8pm, costumers began to increase in number, occupying the restaurants' main lobby and other areas as well.

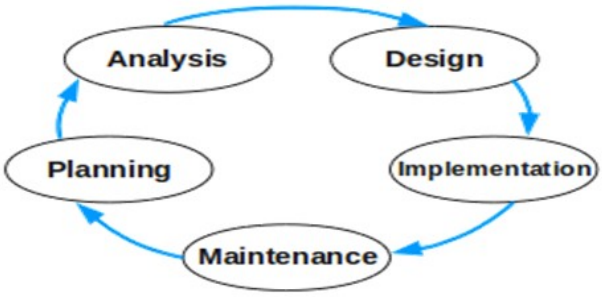

Figure 1. Software development life cycle

Analysis was executed based on problems encountered, the proponent came up with the following system requirements; the application has a log-in for clients and restaurants as well. The customers and restaurants are the target users of the application. The proponent will serve as the administrator of the application. Through the application, the customers can locate restaurants near him/her, the customers can also know how to get there. The restaurant owners can input their menu and prices and their best sellers as well in order for the customers to know everything about the restaurants. The customers can take order and view their billing on the application for the restaurant can view the order and how much the billing is of their customers. The customers can rate and leave comment on the restaurants they chose using the app for the restaurant can view what their costumers' comments are on their restaurants. Design was executed by creating a customer connectivity framework, restaurant connectivity framework and context diagram of the system.

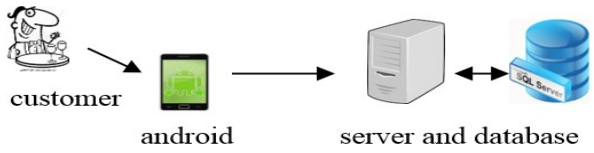

Figure 2. Customer connectivity framework

Figure 2 shows the connectivity framework for the customers. The customers will have to use android phone to access the application and it goes directly to server and database. With the use of android phones, customers can access restaurants, they can locate restaurants, choose from their menus, and can place comments and ratings and can order and pay online.

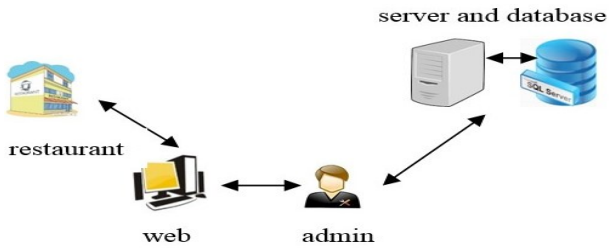

Figure 3. Restaurant connectivity framework

Figure 3 shows the connectivity framework of restaurants. Restaurants and admin will use web to access the application and go directly to server and database. With the use of web, restaurants can transact directly to the customers.

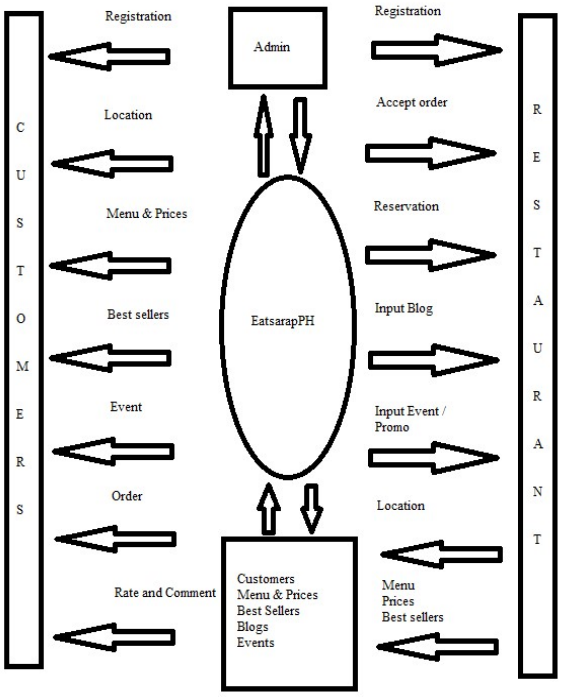

Figure 4. Context diagram

Figure 4 shows how EatsarapPH runs as an application. EatsarapPH will give the customers their registration in order to use the application. It also gives the location of the restaurants that the customer chose to dine in, it will also show the menu and prices of the restaurants they want to dine in. The customers can also know what the best sellers of a certain restaurant are. EatsarapPH will also become the order and billing system of the customers. It also serves as the business intelligence tool for the restaurants because each customer can rate and give comments to every restaurant. The restaurant owners can input blogs and events that are happening in their restaurants, they can also view the comments and feedbacks of the client. They can also view the rating of their restaurants. The restaurant owners can also view the order and billing of the customer who picks their restaurants to dine in. Restaurant owners can also register their restaurant to the EatsarapPH app. The owners can also put their menus and prices and their best sellers on the application.

Implementation was executed by doing a testing and testing plan for being able to know if the system is running smoothly. Figure 5 shows the test plan that the proponents used in implementing the system.

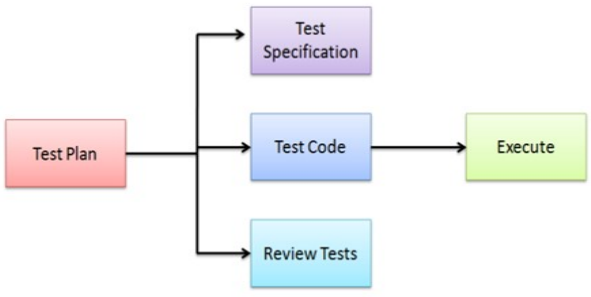

Figure 5. Software test plan

Maintenance was executed based on testing of the application during the operation. Eventually, corrective and adaptive maintenance will be done if the clients and restaurants will encounter innovation, new technology and bigger demand.

RESULTS AND DISCUSSION

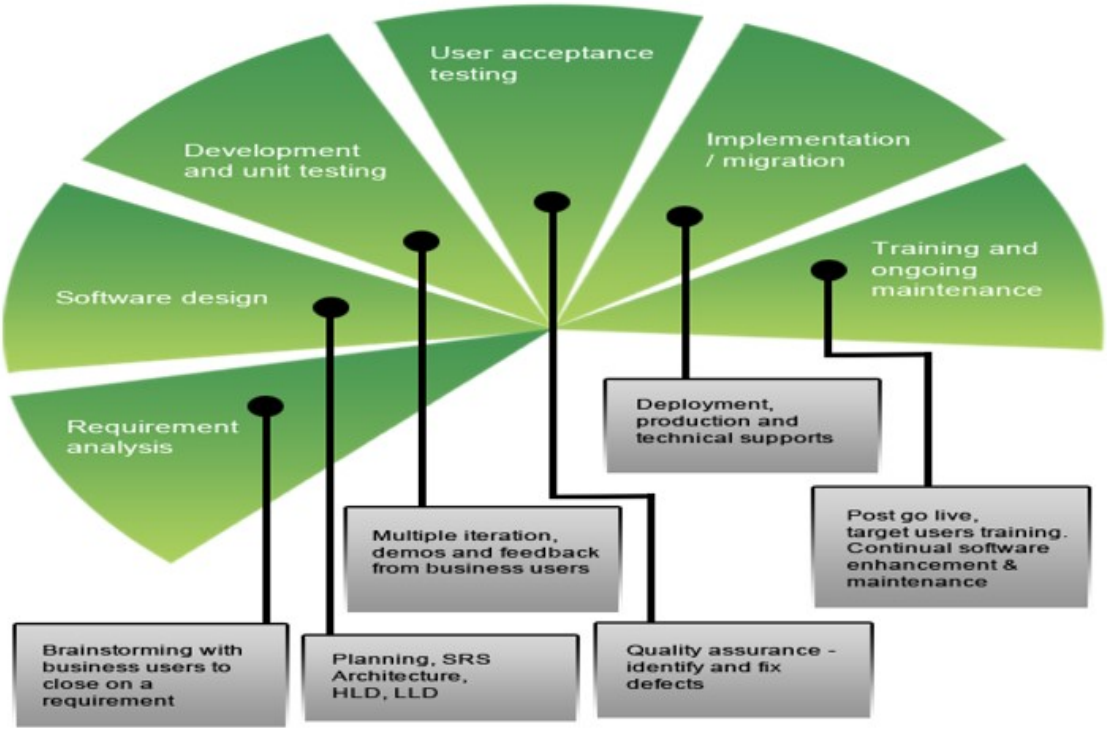

Figure 6. E-commerce framework

Figure 6 shows the e-commerce framework that is being used in making the application. The framework is used to answer the first objectives of the study. The framework has 6 phases that the proponent follows in order to create the application.

Requirement analysis phase was executed by conducting interview with some restaurant owners and customers to know what the needs to improve the restaurants dining are and what are the common problems they encountered. Knowing what modules are needed for the mobile application and what platform would be used in creating the mobile application.

Software Design was executed by using System Requirements Specification (SRS) architecture and High Level Design (HLD) in software designing phase. For the SRS architecture, the proponent used the following: Hardware Interface: Android or Smartphones with at least Lollipop 5.0 OS. Software Interface: Angular JS, SQLite databases, Adobe Photoshop and IDE with SDK and ADT installed in it. Communication Interface: Yahoo Mail or Google Mail. Memory Constraints: Android or smartphones have a built-in memory in Gigabytes (GB). The application would need about 256 MB.

Development and Unit Testing were executed by testing each module if it is doing what has to be done. It is done to find what the problems of the developed system are. If some problem arises, it takes a lot of time to fix it. It is also done to know the functionality of the system.

User Acceptance Testing was executed by testing the actual software by the customers and the restaurants. It is done to record and correct the defects of the software.

Implementation was executed by finally deploying EatsarapPH to give convenience to the customers and the restaurants enrolled in the application. In implementing EatsarapPH, proponent bought domain and web-hosting for the web application of EatsarapPH and published it on Google play for the android application. Restaurant owners will use the web application along with the administrator. Restaurant owners and administrator can log on the web using EatsarapPH.com while the customers will have to use smartphones or android phones to access EatsarapPH.

Training and Ongoing Maintenance was executed by training restaurant representatives and customers on how the EatsarapPH application works. Each representative of the restaurant undergoes a demonstration training to learn how to use the application. Representatives and customers were trained step by step on how to use EatsarapPH. Representatives were trained on a web-based application while the customers were trained on mobile application. For ongoing maintenance, the application administration always checks some issues about EatsarapPH.

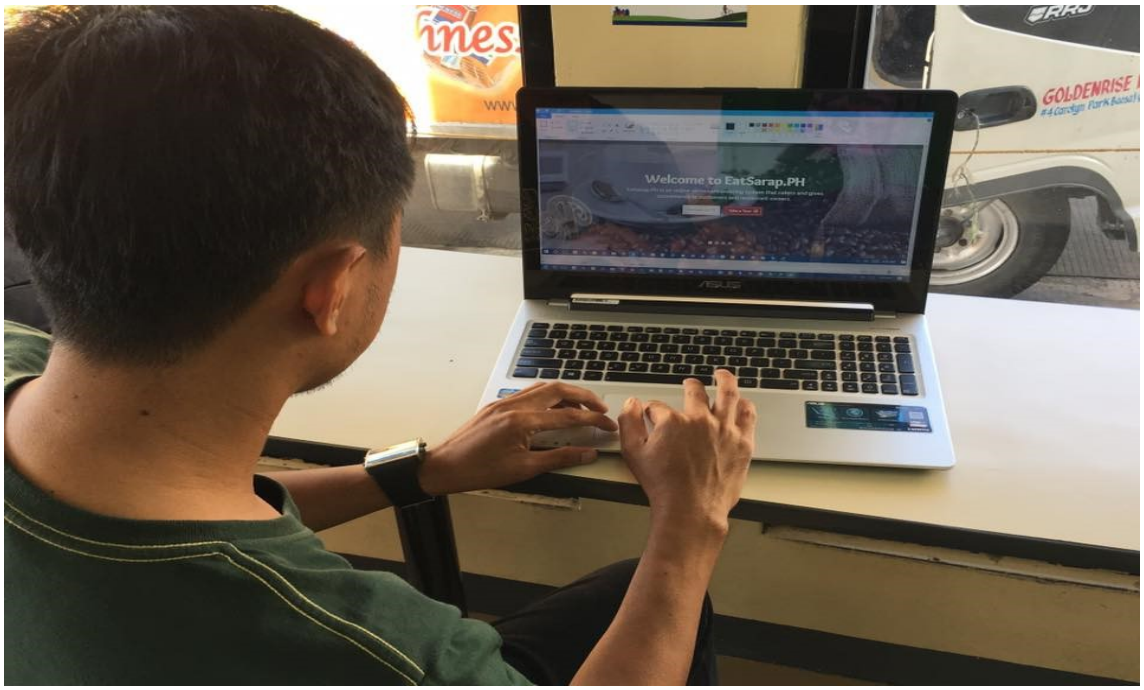

Figure 7. Screenshot training of restaurant representative

Figure 7 shows that a restaurant representative was trained to use the web application of EatsarapPH. Each restaurant representative was trained on how they can interact with each module of the application such as order placing, payment verification, creating events and promos, inputting blogs and replying to a comment. Restaurant representative was also trained on how to manage the control panel of the restaurant side especially on manipulating the menus and prices of the food offered by the restaurants.

The other objective of the study is to design an application that will allow clients to view restaurants based on the clients' desired specialties. To reach the second objective, I used analytics to answer all the questions in the second objective.

Route Analytics are used to know how to get to the desired restaurant. Route analytics analyze the routing protocols and structures. It is also a real-time and accurate discovery of routed networks.

For menus, prices and best sellers, restaurants will have to input all of it in their control panel in order to show to the customers. Restaurant will have to input their menus and prices and give a short description of the menu and a sample picture. For the best sellers of each restaurant, restaurants will have to put a check on the best sellers menu in their control panel in order to show the customers their best sellers.

Figure 8. Screenshot of map direction of certain restaurant

Figure 8 shows how to locate a certain restaurant that the customers want to dine in. The customer will have to input his/her current location for the route analytics will have to locate the current location and the restaurant location in order to show the path from customer's location to restaurant's location.

The last objective of the study is to evaluate the application using ISO 9126. The ISO 9126 is one of the notable quality guidelines accessible in programming building region. This standard which has been characterized by International Organization for Standardization (ISO) is utilized to assess the product item quality. The ISO 9126 is separated into three sections: outside measurements, inner measurements and quality being used (Niknejad 2011).

Table 1: Summary of software evaluation overall mean scores

Indicators	Overall Mean	Descriptive Meaning
Functionality	4.8	Excellent
Reliability	4.2	Very Good
Usability	4.5	Excellent
Efficiency	4.85	Excellent
Maintainability	4.65	Excellent
Portability	4.67	Excellent
Over All Mean	4.61	Excellent

Table 1 shows the summary of software evaluation overall mean scores. This was achieved by conducting a survey to assure if the application achieved its goal.

CONCLUSION, RECOMMENDATIONS AND IMPLICATIONS

In consideration of the objectives of the study and the results of the evaluation, the following conclusions were drawn: 1. With the use of e-commerce framework, EatsarapPH was done to give ease to customers and restaurants. In using the framework, proponent follows several phases in creating EatsarapPH: Requirement Analysis, Software Design, Development and Unit Testing, User Acceptance Testing, Implementation and Training and Ongoing Maintenance. With the use of e-commerce framework, EatsarapPH was done with 6 modules; Admin Module, Registration Module, Order Module, Event Module, Blog Module and Store Locator Module. 2. With the help of route analytics, locating a certain restaurant becomes easy to the customers. Showing of menus, prices and best sellers gives ease to customers to choose a food they want. With the use of the API of Google map locating a certain restaurant was made easy, all you have to do is to get the latitude and longitude of the customer's current location and get the latitude and longitude of the restaurant's location. 3. The overall mean score is 4.61 which is equivalent to excellent rating. Efficiency got the highest mean score which is 4.85. Functionality follows next; it got a mean score of 4.8 and a descriptive meaning of excellent. Portability and Maintainability got the third ranking and fourth with a mean score of both 4.67 and 4.65. Usability falls on the fifth ranking with a mean score of 4.5. Lastly Reliability has 4.2 mean score and is last in the list. The application gives convenience to customers and restaurants by eliminating ordering queue time, online menu is easier to manage and transaction can be done without any hassle.

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