

Online Automotive Services Information System (OASIS)

by

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Dissertation submitted in partial fulfillment of
the requirements for the
Bachelor of Technology (Hons)
(Business Information System)

May 2014

University Teknologi PETRONAS

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CERTIFICATION OF APPROVAL

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16876

A project dissertation submitted to the
Business Information System Programme
Universiti Teknologi PETRONAS
In partial fulfillment of the requirements for the
BACHELOR OF TECHNOLOGY (Hons)
(Business Information System)

Approved by,

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UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

May 2014

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

IQAH ZUBAIDAH BINTI OSMAN

ACKNOWLEDGEMENT

Assalamualaikum, thank to Allah S.W.T for giving me strength in solving all the challenge in this final year project and I also would like to express my deepest appreciation and gratitude to the following people in helping me completing the whole final year project.

First of all, I would like to offer my sincere gratitude to my supervisor, Mr Khairul Shafee Kalid who has guided and assisted me throughout my final year project with patience and knowledge whilst allowing me to work in my own way. Although with a tight schedule as a lecturer, however, he still offers his valuable time to assisting me in completing the whole project even after the office hour. It has been such a great opportunity to be given the trust to proceed with my project proposed that have been presented in the competition. Same goes to my co-supervisor, Mr Mohamad Radzi Zainol who has help me a lot in finishing my final year project.

Besides that, I would like to thank all the parties and friends who willing to assist me in completing the research survey and system evaluation. These responses helped me to acquire as much data and information as much as possible. Additionally, I would like to thank the merchant who willing to spend their valuable time in answering my interview question on spot.

Other than that, I would like to thank my parents for giving me the moral support along the completion of my final year project. Without their support, I would not make it this far in completing the whole final year project.

ABSTRACT

Workshop have started to use technology (computer, database, system, web application and also mobile application) as a way to store or retrieve all the information for their customer (car owner). It is important for workshop to understand their customers better. However, workshop owner do not have a platform to make a car services process done smoothly. The platform will store all the information that car owner really needs to make car services appointment process done and stored properly. The aim of this project is to develop a web-based system that can facilitate the car services information to the car owner and at the same time to build the customer relationship with the workshop. The system is called Online Automotive Services Information System (OASIS). The functionality of OASIS is to provide service information about the car services, the important dates such as insurance and road tax, the cost that occur, and workshop owner can always maintain and keep update with their regular car owner. Informal interviews and survey has been conducted with the workshop owner and also the car owner. Analysis and design models such as use case diagram, activity diagram, and context diagram was developed. A working prototype of OASIS already developed and tested based on the gathered user requirements. The end product as the result of development phase is a web-based system named oasis.t15.org/index.php

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CHAPTER 1: INTRODUCTION

1.0 Introduction

1.1 Background of Study

According to the research by Hazman, A., R. (2012) the total number of registered vehicles on Malaysian roads has passed 21.25 million units in 2012 and it keep increasing by 20 percent every year. By this on average a typical household would have at least two cars, because of this a car service is an important.

Every car needs to be serviced so that it can always be in a good condition. There are two type of services, major and minor. A car owner tends to services their car at their preferred workshop. It is due to several factor such as the location of the workshop, the suitable charge cost and good services from the workshop mechanic. Now a days, workshop has to use information technology to store, retrieve, or provide information of their customer. With this it can create a strong customer relationship between the car owner and workshop. Workshops normally have a lot of competitor, with all offer the same services. One way to attract the car owner is make they feel very comfortable and give a good services by given all relevant information that they needs. All that cannot be happen manually, its need to be stored. The information need always to be update, have a backup, can viewed past history of the car services and the most important thing is, it can be access anywhere.

The main purpose of this project is to develop a web based information system that can act as a platform for car owner to obtain all the related information about a car services. It also can be one of the communication platform between car owner and workshop. The added value in this project is to maintain a good relationship with the car owner, the workshop need to properly handle car owner problem, give a reasonable price, and give full information about their car services process. Regularly car services not just can prevent the accident from happen but also can minimize the cost for the next servicing.

1.2 Problem Statement

The main problem, is a lack of the information system platform. This platform act to retrieve information about car problem and details of services maintenance that car owner need. There are many question that car owner should know about their car, especially on how to maintain a car so it's always in a good condition. Example of the question is, when the car need to be services is it right after a specific number of miles (follow the manual copy that being written by the workshop from the previous service) or do a services whenever the car have a problem. All this become a problem because lack of the information platform between car owner and workshop.

Secondly, the lack of communication platform involve between car owner and workshop mechanic. Workshop needs to learn how to understanding the user behaviour, and also their reaction and feedback toward a workshop. All this important to avoid miscommunication regarding the offered services. With the proper communication platform a good customer relationship can be create between workshop and car owner.

Lastly, car owner always forget on what need to be change during the car service. There are many question in their mind on how to do this and how to do that. There is a high possibility that they might forget about this during the service time. With this kind of problem, they need a platform that can keep them alert by notify them and can also make a note to the workshop.

So the researcher conclude that there are 3 major problem from two different perceptive:

- 1.Car owner unable to remember about their car services appointment
- 2.Workshop owner have a difficulty to keep track of car services history of their regular customer
- 3.Lack of platform to share services information between car owner and workshop owner

1.3 Aims & Objectives

The main objective of this project is develop a web based system that can enhance communication between the workshop mechanic and car owner. This system can connected the workshop and car owner with the same information about the car services. Below are the 4 three main objective in this project:

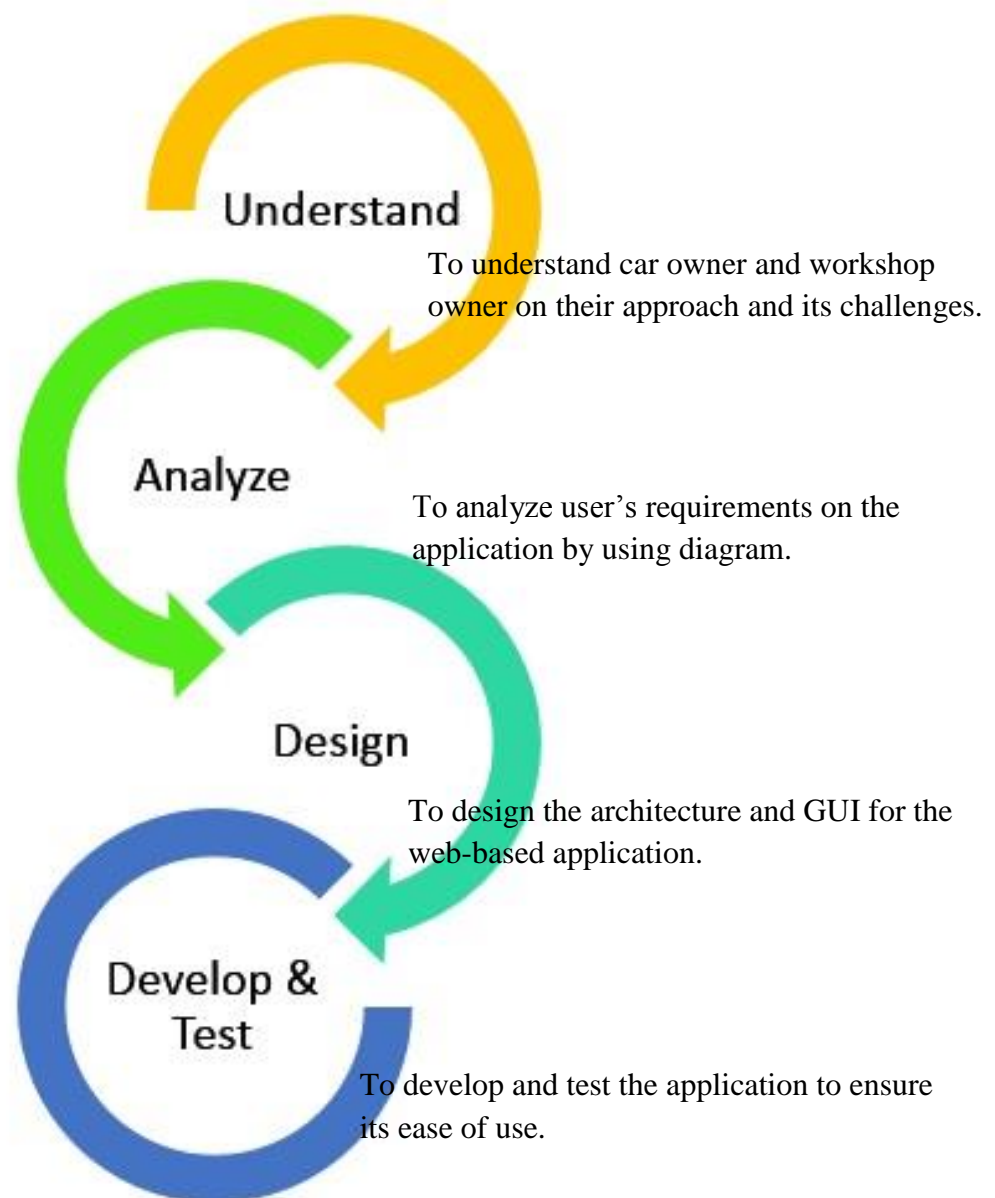


Figure 1: Aims & Objectives of OASIS

1.4 Scope of Study

This system will be implemented to create a strong customer relationship and computerized system that dedicated in retrieving all information between workshop and car owner. The scope of the system will focus on three things:

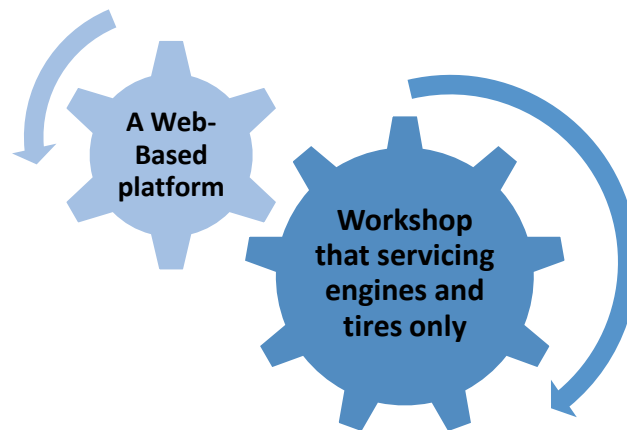


Figure 2: Scope of the study

Figure 2 shows the three main scopes of the project. The information to be displayed in the system such as the date of service, what type of service, the estimation cost, appointment details of car service, the note about car problem and past history about the car services. There is a wide scope in the automotive servicing, but in this project, OASIS just will be focusing on the engine and tire workshop. And all this will be develop using the web based system.

1.5 Feasibility of Study

Before starting the initial phase of the study, the feasibility study is required in order to ensure that the study is possible and smoothen the development cycle of the study. It is being separate into 5 categorize as below:

Technical Feasibility

From the technical point of view, the study is feasible. The technical part of the study occur in the implementation phase in the SDLC where the study is expected to developed a web-based system for car owner and workshop.

Economic Feasibility

It is expected that development cost for the project will be low. If neglect the development cost of the programmer, there is no cost occur because the web-based used an open source platform.

Organizational Feasibility

In the pre-research, the study shows that there is some weakness that not necessary to be included in the system. However, there is an increasing trends of using smart phone application in the world so, web-based application have many of limitation and disadvantage. Therefore, the limitation of the system will be covered in the future work of this project.

Scope Feasibility

The scope that is being listed out is possible to be achieved by the researcher. The scope of research is cover only in web-based platform and focus on the Malaysia. Besides that, the users need to register into system before they can used it.

Time Feasibility

Researcher initially will collect the data from various source before start the analysis phase which will not take for more than 1 month. The analysis phase can be done through the interview, observation and survey. Research on the past work can be done easily through Internet Search.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction of Automotive Industry

From the 1896, the first car was introduced and its make automotive industry has gradually become the most important industry in the world. Automotive industry is combination of many other industries such as mechanical industry, chemical industry, services industry, electrical and electronic industry and others (Fu, 2006), all this industries has been encouraged by many of the governments for economic and employment purposed.

The Automotive industry involved in designing, developing, marketing, manufacturing and also selling of the motor vehicles. In the recent 20 years, Japan and Chinese monopoly the automotive industry and it's growing very fast in market. The major development countries hit by the global economic crisis from 2008, but Chinese automotive still increased their sales about 14 million in 2010 (Center & Association, 2009). The automotive production of Chinese compared with Japan and U.S is showed in figure 1.

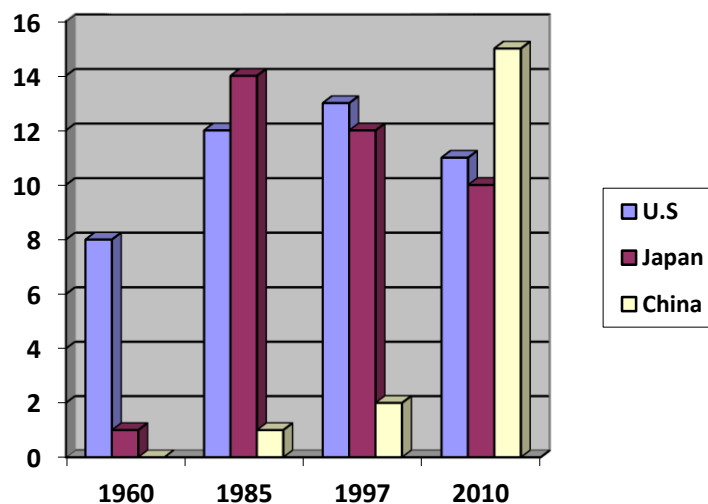


Figure 3: The automotive productions in different countries in certain years

The history of the automobile industry is a history of management methods improvement. The new method that brings to the world is origin from the Europe automobiles with Craft manufacturing; the U.S. dominated this industry for more than half centuries by Mass production (Ningbing Wang, 2011). In addition Ningbing Wang (2011) also mention that the development of automobile industry in the world and a large number of automakers coexist at the same time but just a few of them hi the large scale in the world. According to the research shown that almost all big automobile companies in the world have built their branches in China, but Chinese domestic companies are the fastest ones in terms of development and innovation. The most importance factor that bring China as the leader in automotive industry is by quality control and ascend system in flexible auto production in term of automotive services maintenance (Wang, 2011; Bao, Y., Zhou, N., & Zhu, Z., 2012).

Many of the supplier in automotive industry development come from the United States, Europe, Japan or China. But now a day's Malaysia become a developing country that increases their production in the automotive industry. According to the Bakar (2006), since the first national car that is Proton Saga being develop in 1985 Malaysia has obtained much recognition regionally and internationally for its achievements in the automotive industry. Malaysian automotive industry was able to achieve the highest car production in history when Malaysia produces almost half a million units of car in 2002 (Bakar, M. R., 2006).

Emphasis on the customer's need in the automotive industry, the cost of the Malaysia car are still affordable in all aspect, compared with the export car. There are many reasons such as, high tax of the export car, high cost in servicing and maintaining and the most crucial factor is in the oil fuel cost (Hamzah, 2012). With these reason most of the customer in Malaysia prefer to buy local car. According to Andy (2011), customer services are the most important factor to be considered. Because of that, maintaining the customers is a crucial issue that the industry must address (Kun-His, 2012). This indicates that maintaining a good customer relationship with the customer. Moreover Kun-His, 2012 state that the service quality and customer satisfaction of the automotive industry is directly related to customer loyalty toward the industry.

2.2 Important of Automotive Services

Automotive industry not just selling and distributing the motor vehicles but also need to consider on how to maintain after sales services. Mechanical automotive repair and maintenance services is expected to be the leading systems segment in 2012 (Lauderdale, 2008). Based on the research from Nicolas (2010), the automotive industry needs to be focusing more in repairing and maintaining the automotive so it can minimize the accident from happen. According to statistics provided by the National Highway Traffic Safety Administration, someone will involve in a car accident every 10 seconds. In almost every accident, somebody acted negligently, and could have avoided the accident by exercising more caution. One of the most important precautions that car owner can take is regularly perform engine maintenance. Regularly change the oil, and keep tires properly inflated to avoid sudden car failure (Wattle & York, 2014).

The automotive services and maintenance need to be properly check because the modem automotive services bay was contains many numerous expensive pieces of every equipment that designed to the effective automotive servicing (Rogers et. al, 2012). A car that not maintained adequately can lead to an accident. Furthermore, in Rogers's research, automotive services have some areas that required diligent and regular attention. Most probably that need to be done at the automotive services bay.

According to Gale (2014), the overall performance of the automotive services maintenance increase because of the sophistication of all area in the automotive design that being mixed with the automotive mechanics. All this happen because of the awareness of the automotive performance, which facilitated the diagnosis of problem and to improvise the importance of the automotive services using technology.

2.3 Use of IT in Automotive Services

Technology dimension keep moving by many information being retrieve using the online system. Today, with information technology (IT), people can change and make everything. In the business of automotive services and maintenance, IT is one of the important factor that need to be implemented. Workshop and car owners can make IT as a platform for them to interact through system. According to Laura (2010), the advantage for the global automotive market is by using the latest advancements in IT.

To improve the company profitability and create a good customer relationship online information system need to be applying in all sectors of industries. It the same things need to be applied to the automotive industry. Common platform such as internet and personal computer need to be used in automotive services (David, Michael and Todd, 2005). Some example of the use of IT in automotive workshop is WIFI. The impact of the use of WIFI in workshop make the car owner feel very convenience. It's because smart phone and tables can connect to such alternative access network technologies, which use local coverage and can operate in frequencies that may not be exclusively by one network operator. With WIFI in workshop, car owner can do work and access to social network without bother the mechanic.

The use of IT in automotive services needs to be embedded in the workshop system to make the information and application easy to be access. According to Colson et. al. (2008), when the system being created properly it can make customer retrieve all the information from the automotive company accurately. With this car owner feel more convenience and they can retrieve all the information need in the fastest and easier way. Not just car owner get the advantage but also the workshop.

2.4 The Use of IT to Support Customer Service in Workshop

The main objective of every organization is to maximize the profit and reduce the cost (Tiwari, 2013). Customer satisfaction with products or services in the organization is important to build the customer relationship quality (Klee, 1997). Customer plays important roles in organizational process (Lee & Ritzman, 2005). Building the relationship with the customer, in other words mean deliver the great value over the competitor will create the customer bonding and lock the customer from jump to other company (Agbor, 2011).

Car owner satisfaction toward a workshop is the most important to increase the profit of the workshop. The high value of satisfaction should be added to workshop by implement the IT services. According to Chen and Aritejo (2008) the high quality of the customer satisfaction should be contemplated by the workshop to sustain profitability in a highly competitive scenario. According to research that being conduct by Gopalakrishnan, D., Sharma, M. & Kumar, S.(2009), there is two factor that affecting customer satisfaction; services quality and product quality.

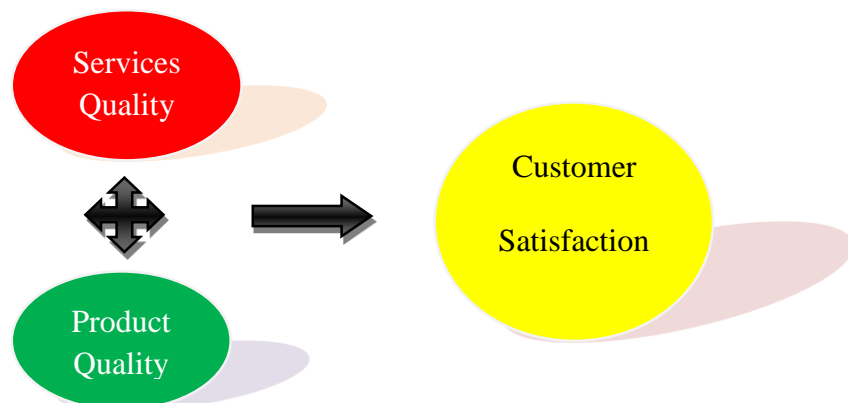


Figure 4: Factor that effect customer satisfaction

As per the important study conducted by M/s JD Power, product quality (i.e Problem Experience has just 25 percent effect customer's satisfaction) while the services quality (i.e Total of remaining factor) has almost 75 percent impact. This can be conclude that services quality has a higher impact on the overall customer satisfaction than the product quality.

2.5 Related Work of Application that Supports Customer Service

This section introduces the related work of this study. The related work is divided into two sections. The first section focuses on application on mobile platform and the second on web based application.

2.5.1 Mobile Application

There are three mobile applications being reviewed: The World Automotive Services, The DML Automotive and Prestige Car Service. Two of these applications (The World Automotive Services and The DML Automotive) are on the IOS platform but Prestige Car Service is on the Android platform.

2.5.1.1 The World Automotive Services

The World Automotive Services is a mobile application on IOS platform. It offers the automotive repair including repair services and towing service. Some of the functionality features include coupon reward system. Based on the reviews, this application will allow users to post about their experience, GPS enabled directions, a sharing feature that allows user to share the application with iPhone use. The category of this application is lifestyle and it gets a 4+ rating from the user. But, the drawback of this application is just compatible with the iPhone, iPad and iPod touch. Figure 5 shows the home page of The World Automotive Services app.

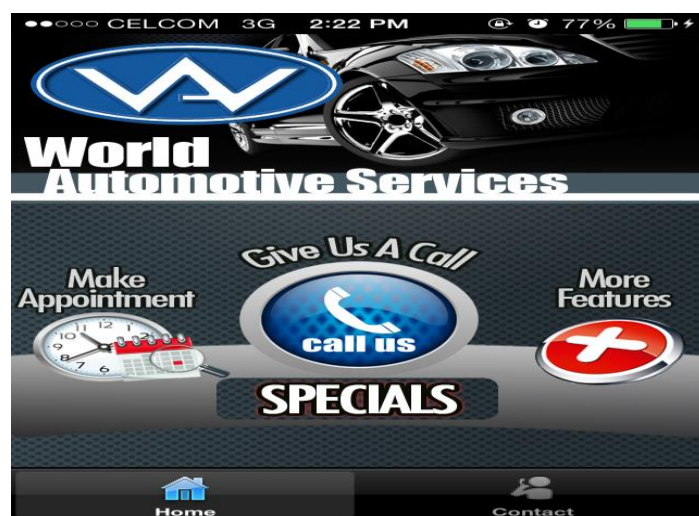


Figure 5: The World Automotive Services

2.5.1.2 The DML Automotive

This application also in an IOS platform. The DML Automotive is a mobile application that can perform as reminder for car repair service. With this car owner will always alert of the services date. The appointment of the car service also can be set from this application. The category of this application is utilities with services the customer need now a days. The rating for DML Automotive is 4+ and this application also have the same drawback with The World Automotive Services, which this application is just compatible with the iPhone, iPad and iPod touch. Figure 6 shown the home page of The DML Automotive.

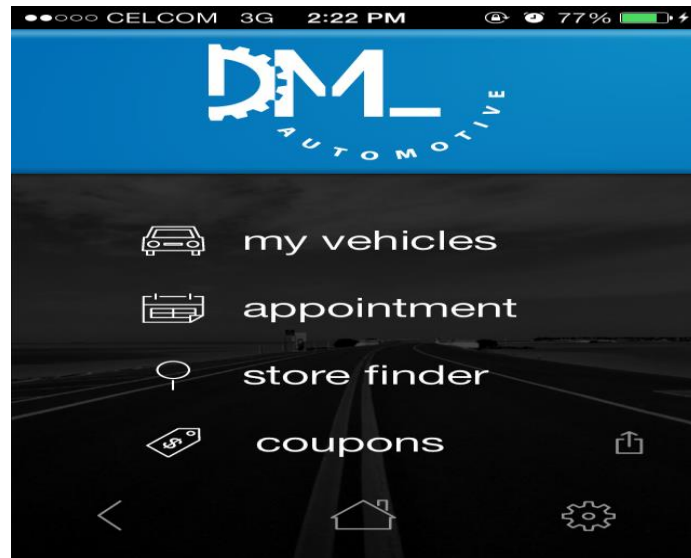


Figure 6: The DML Automotive

2.5.1.3 Prestige Car Service

Prestige Car Service is a mobile app on the Android platform. The function of this application is to book and manage car service reservations. The booking can be made in this application or also by phone call. Based on the review, this application lacks information compared to applications on the iOS platform and is just used for booking purposes. This application is also just compatible on the Android platform. The rating for this application is 3+. Figure 7 shows the home page of the Prestige Car Service.



Figure 7: Prestige Car Service

2.5.2 Web Based Application

There are two web based apps being reviewed: Tuffy Tyre and Auto Service and The Curry's Auto Service. Two of these web based apps not available in Malaysia.

2.5.2.1 Tuffy Tyre and Auto Service

This web based providing the car services, muffler repair and services, brake repair and services and many more. This web based being retrieve in 2014. Website link: <http://www.tuffy.com/tuffy-auto-service-centers/service-your-vehicle-at-tuffy-car-repair.html>. Based on the reviews, this application is interesting will a lot of functionality. But the drawback of this web based are first, it cannot set a service appointment. Second, cannot viewed the past history of service and not available in Malaysia. Figure 8 shown the home page of Tuffy Tyre and Auto Service.

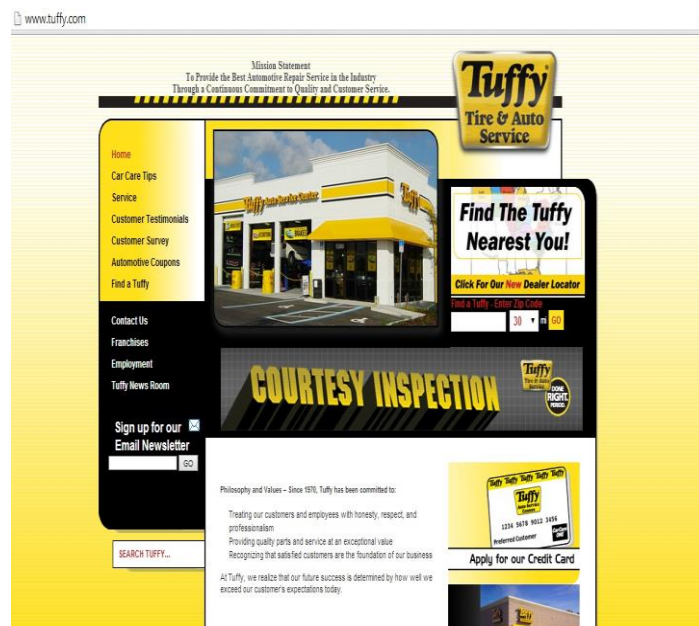


Figure 8: Tuffy Tyre and Auto Service

2.5.2.2 The Curry's Auto Service

The Curry's Auto services provide all repairs at home. This web based apps offer services such as brake services, tire rotation, wheel alignments, suspension services, and etc. The year of retrieve is in 2014. Website link: <http://www.currysauto.com/> . This application a bit lack of functionality compared to Tuffy Tire and Auto Service. The drawback of The Curry's Auto also the same with Tuffy Tire and Auto Service. And it also not available in Malaysia. Figure 9 shown the home page of The Curry's Auto Service.



Figure 9: The Curry's Auto Service

The comparison between the Automotive Service Mobile Application and also Automotive Service using web based are first, mobile application has a limited functionality but the interface is simple and not to complex. Second, mobile apps also just can be stored within its own operating system platform. Example The DML Automotive can be stored just using the IOS platform.

CHAPTER 3: METHODOLOGY

3.0 Methodology

In the process of gathering the information needed and to solve the problem that occur between workshop and car owner, an effective visual reporting web base system of the OASIS have been introduced. These data consist of current situation and also experience (historical data). All of the data collected already be translated into online visual display which can be easily shown to the respective customers. The development of the OASIS allowed customers to monitor and obtain the reporting of the update information about their automotive services and others importance information that customers want to take note.

The development of OASIS using the phase in agile system development method. In developing this project the time constraint is really important without sacrificing its quality. Agile method in developing an iterative, that means the whole system being developed iteratively part by part. Initial prototype of the web base system being produced and iteratively presented to the customers in a form of table information that will link directly to the workshop.

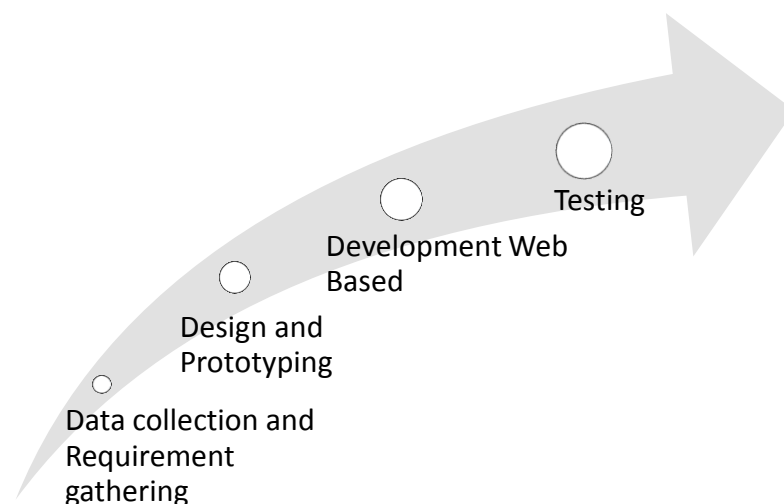


Figure 10: The Methodology Phase in the OASIS

Table 1: The current project activity

Objective	Methods
<p>1. Understand</p> <p>To understand workshop owners and customer. The web based system is develop to reduce the communication barrier in term of misunderstand the information between the workshop mechanic and the customer.</p>	<ul style="list-style-type: none"> ✓ Questionnaire to car owner (Appendix). ✓ Workshop interview. ✓ Onsite observation.
<p>2. Design</p> <p>To analyze customer requirements and learn about the customer behavior by designing a user-friendly graphical web based system to display and lists all the information needed. With this customer feel more comfortable and always get the updated information about the services date from the workshop.</p>	<ul style="list-style-type: none"> ✓ Questionnaire to car owner (Appendix) ✓ Workshop interview.
	<ul style="list-style-type: none"> ✓ Use case diagram. ✓ Activity diagram. ✓ Context Diagram.
<p>3. Develop & Test</p> <p>To develop of web based information system that can provide the information between workshop and car owner in more meaningful figure and graphical representation by using an effective, informative and reliable web base system. Then test it to know the ease of use and the usefulness of the system</p>	<ul style="list-style-type: none"> ✓ Development of the web-based. ✓ Testing (Questionnaire) (Appendix)

3.1 Phase1: Data collection & Requirement Gathering (Interviews & survey).

This phase establishes a high-level view of the intended project and determines the framework of the project goal. The aim of this phase is to perform preliminary investigation on the current and effective web based system design, framework and the analysis on the method of generating the workshop and customer information. In order to achieve these aims, a number of requirement gathering methods were select such as:

1. Interviews: In this project the workshop owner and mechanic who are dealing with all servicing work at the workshop. The interviews is conducted in order to get opinions and insights about the systematic system that could be apply to retrieve all the information for the car owner.
2. Survey : Car owner needs to answer a questionnaire. This survey being conducted to gather all information requirement that customer really need.

Right after all data are collected, the framework of OASIS will be developed. This will include the process of understanding the characteristic and behavior of the data and what are the method of collection and process of the data.

For OASIS, the use case and activity diagram is developed to visualize the interaction of the system with the user and also automotive company that will get from the interviews, survey and also analysis. The use case diagram and activity diagram were developed to illustrate the flow of the OASIS data. This may require data input, processed and also the output.

3.2 Phase 2: Design and Prototyping

In the design and also prototyping phase, the modeled requirement need to be produced in form of the diagrams (function, graphical and operation) that contains of input, process and out of the actual web base system. To support the designing and also prototyping this system will use the tools such as Notepad++, XAMPP, Adobe Photoshop and Microsoft SQL server. The snapshot will be presenting the prototypes and will be presenting to the customers. Since this project (OASIS) is implementing the same concept with Agile System Development, there will an alternating activities between the system design and performing customer evaluation.

3.3 Development of web based system OASIS System Architecture

The tools used will be the same as the design phase. The tools that being used will be further change during the development, implement and testing the web based system.

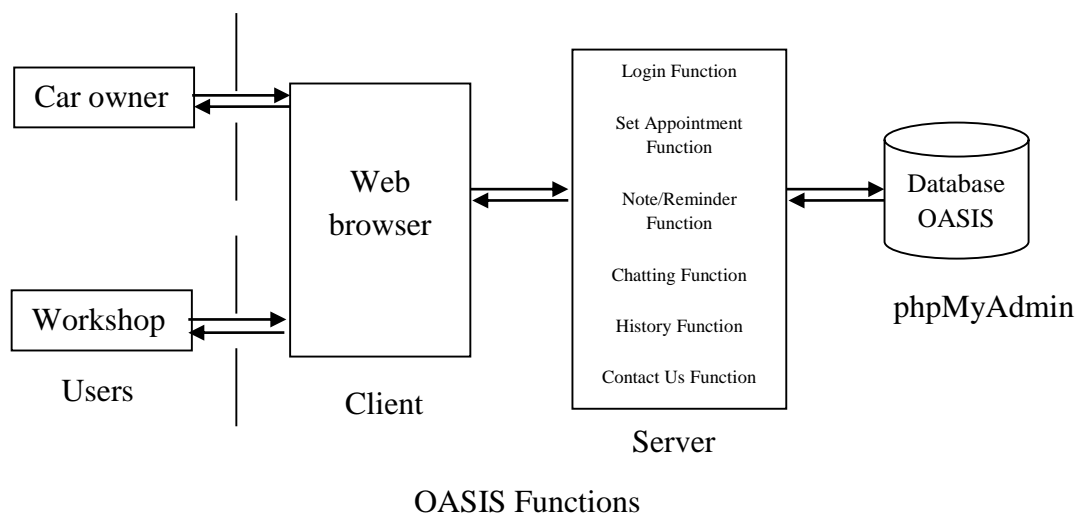


Figure 11: System Architecture of the OASIS

3.4 Analysis Design

In the project, context diagram, use case diagram, and activity diagram is developed to demonstrate the actors that act within the system.

3.4.1 Context Diagram

A context diagram is a top level data flow diagram. It is important to make the diagram to show the relationship of the system with the user. This type of diagram at the centre, with no details of interior structure, is being shown in the interacting system, activities and environment (Kossiakoff, 2003). The user or actor in this system are car owner and workshop mechanic who are the target users. Figure 12 shows the Context Diagram of OASIS. It consists of 3 major users. These users are workshop, car owners and administrator.

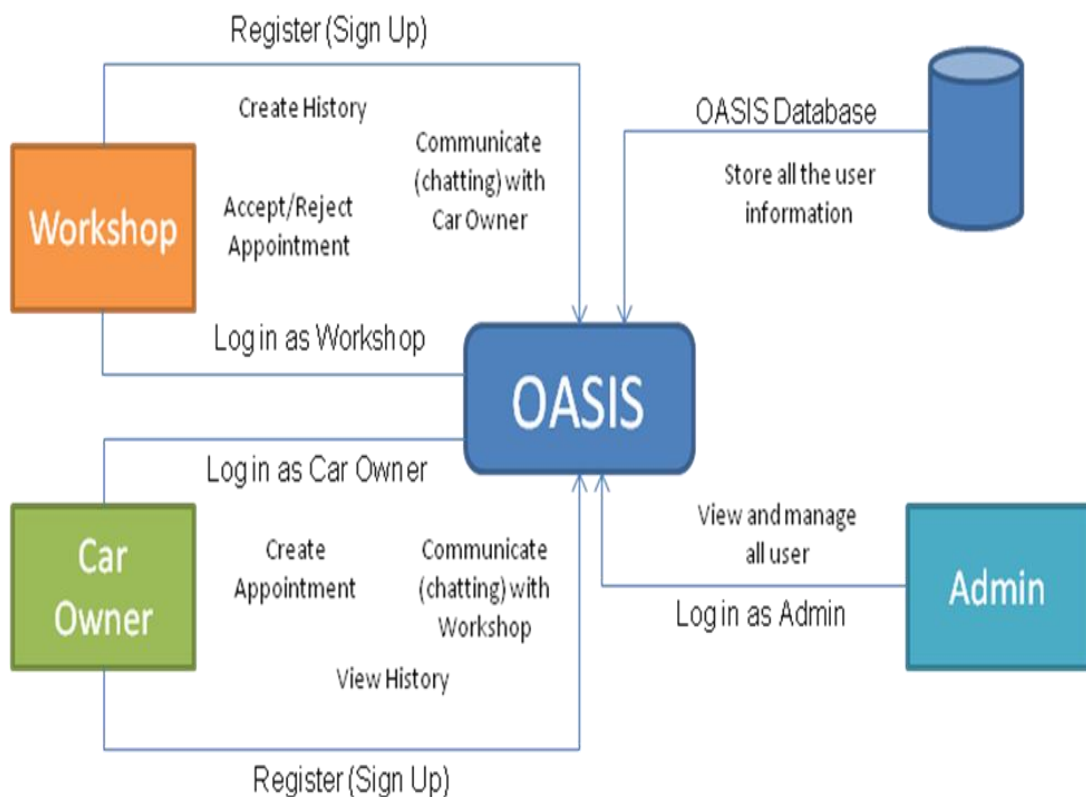


Figure 12: OASIS Context Diagram

3.4.2 Use Case Diagram

In this project a simple analysis using use case diagram and also state diagram have been create to give a clear understanding about the OASIS. Use case diagram is to describe the connection of the actor with the system to describe dynamic aspects of the system.

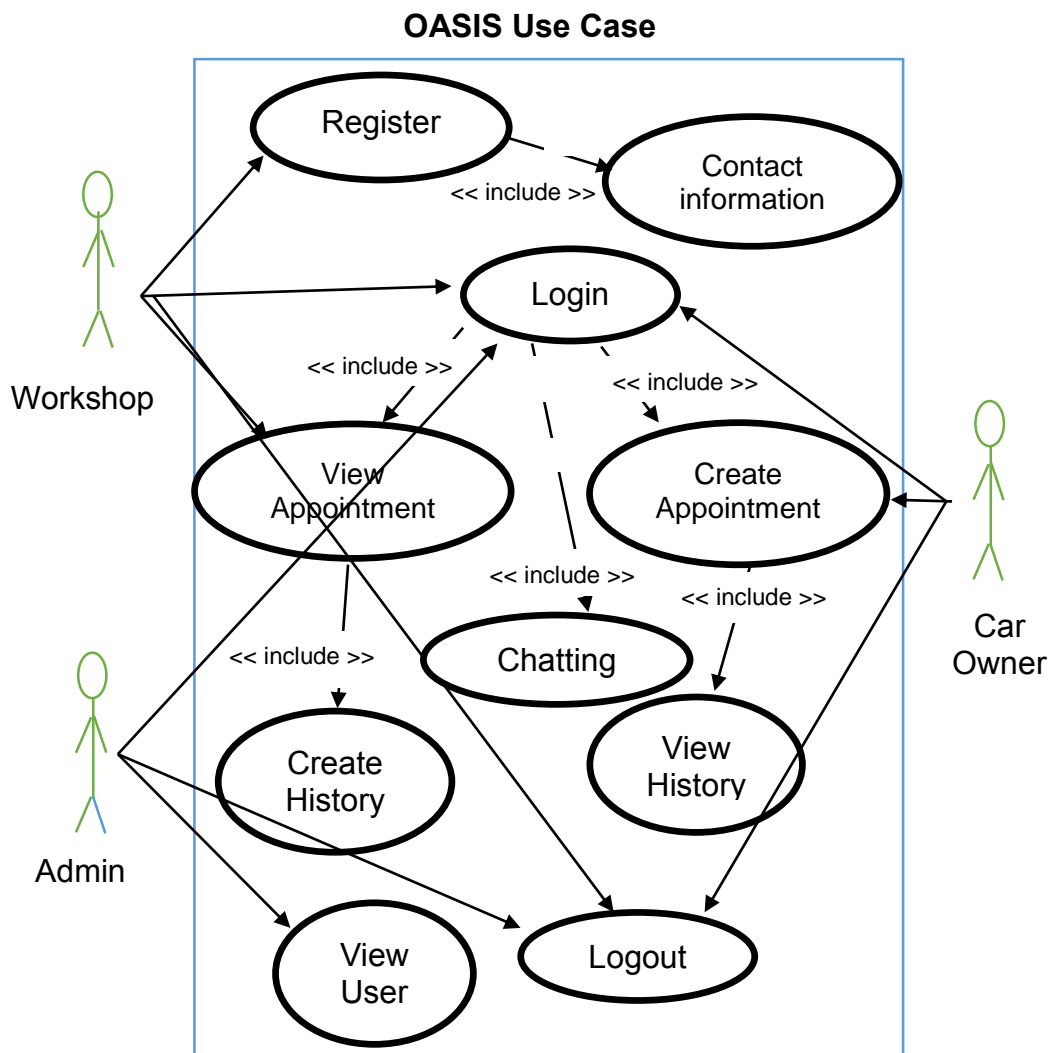


Figure 13: OASIS Use Case Diagram

3.4.3 Activity Diagram

Activity diagram is important diagram in UML to describe dynamic aspects of the system. Activity diagram is basically a flow chart to represent the flow from one activity to another activity in the application. The activity diagram for this project is as below:

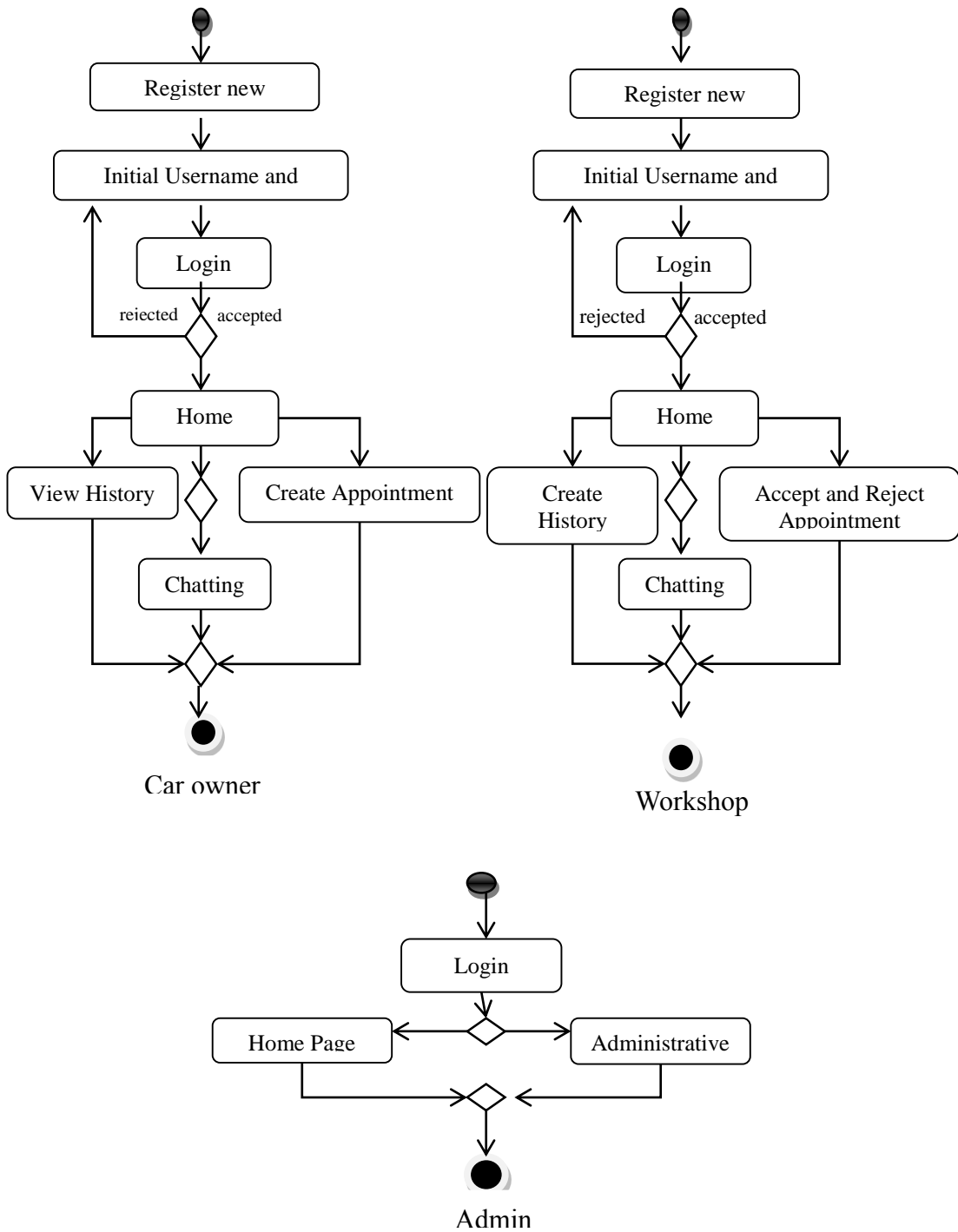


Figure 14: OASIS Activity Diagram

3.5 Key milestone

Below table is the overview of the key milestone in the Gantt chart.

Table 2: Activity Milestone

No	Deliverables/Activities	Schedule
1	Progress Report <ul style="list-style-type: none"> - Add up interview result - Update development part example the home, login, appointment, note and reminder page. - Testing 1st phase 	Week 4 (11 June 2014)
2	Pre Sedex <ul style="list-style-type: none"> - Testing 2nd phase - Testing 3rd phase - Make a poster 	Week 10 (23 July 2014)
3	Dissertation for external examiners <ul style="list-style-type: none"> - Finalize the project 	Week 12 (4 August 2014)
4	VIVA	Week 13 (13 August 2014)
5	Submit Technical Report	Week 15 (27 August 2014)

3.6 Used Tools

Table 3: The Tools Used in OASIS

Hardware	Software
Personal computer	Notepad++ XAMPP Adobe Photoshop Microsoft SQL server

CHAPTER 4: RESULT AND DISCUSSION

4.0 Data Gathering and Analysis

Throughout this project, the researcher have conduct both questionnaire survey and interview in order to gather data to identify the existing problem that is faced by the car owner and workshop in sharing an information.

4.1 Survey Results

The objective of this survey is to collect the data gathering to identify the functionally and what kind of information that car owner need in this system. The target audience is the entire car owner. There are 17 questions in this survey. The survey was conducted using online survey form at Goggle Drive. The structure of the questionnaire is consist of four part. First, Demographic that contains five questions. Second, Customer car maintenance habits (eight questions), this Part explores the habits of the car owners in maintaining their cars. Third, Information and knowledge challenges just one questions and last part is Propose web based information system that contain three questions. There are around 30 respondent of this survey.

4.1.1 Demographic

Demographic is a studies of a population based on factors such as gender, age, primary language, highest education and current income. Demographic are used to learn more about a population's characteristic. According to the survey that have been conducted, 16 responders are male and another 14 are female. Most of the respondent age around 18 to 25 years old.

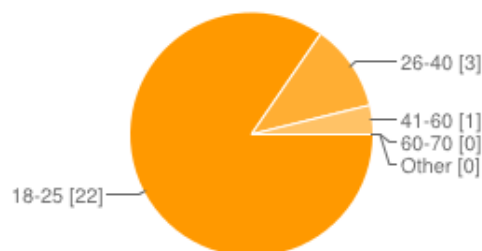


Figure 15: The distribution respondent's age

Around 71 percent of the respondent use Malay as their primary language. With the result firm the demographic part it can be conclude that male and female both cares about their car services maintenance. This because they are teenager and they lack of knowledge regarding the car service.

4.1.2 Customer Car Maintenance Habits

Second part is refer to customer car maintenance habits. How often car owner services their car? The car owner are given an option either once a month, every two month, twice a year, once a year, when reach the mileage or other than be mention. According to the result, around 38% of car owner often services their car when reach the mileage, followed by 31% that often service their car every two month.

4.1.3 Useful Information for Car Owner

Figure below shown the information that car owner need the most in the system. Based on the chart, 72 percent of the respondent want to have an information about the estimation cost and also what to be covered during the services. All this information is important for car owner to set their budget and know well about their car.

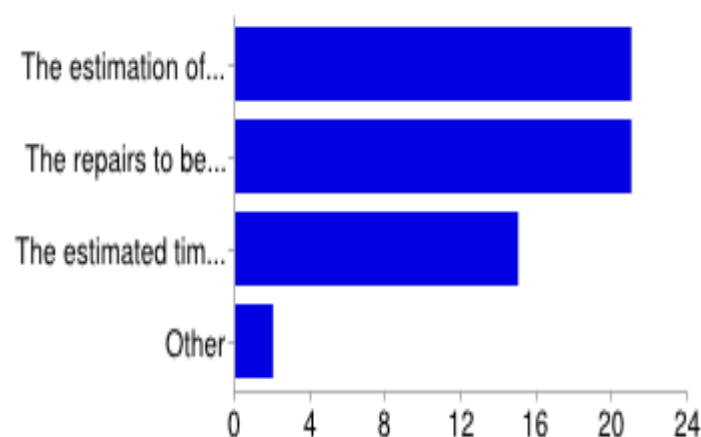


Figure 16: The information that car owner need in the system

4.1.4 Preferred Workshop

According to the result of the survey almost 89 percent of the respondent do have their preferred workshop, it because car owner are the regular customer and their trust the mechanic. The mechanic can maintain their car owner trustiness by making a good relationship with them.

4.1.5 IT Services at Workshop

Refer to the figure 17, it clearly shown that the workshop does not have IT service at all. Implementation of the technologies like web site and social network will attract more car owner to services their car at that workshop. At the same time can improvise workshop services toward customer. As long as maintain a good relationship with the customer.

Wifi	9	24%
Credit card	11	29%
Website	1	3%
Social network	1	3%
Workshop does not have IT service at all	14	37%
Other	2	5%

Figure 17: Type of IT services in the workshop

The car owner is given scale-like option from 0 (unsatisfied) to 5 (very satisfied). The analysis is conducted using mean of the responses. According to the result, around 42 percent of the car owner satisfied with their preferred workshop, 35 percent very satisfied, 23 percent just satisfied and there is no one that unsatisfied with the services that their preferred workshop give. The main factor of their satisfaction is due to the reasonable cost of car service from the workshop. Due to this problem 76 percent of the respondents answer definitely will recommend to friends and relative to services the car at their preferred workshop.

4.1.6 Information and Knowledge Challenges

The car owner is given grid-scale option from definitely, probably, maybe, probably not and definitely not. The question that being ask all related to the challenge that may the car owner faced it during the car services. The example of the question such as is it mechanic have the difficulties in explaining the repair work? Did car owner get the explanation of the services charge? Is it true that the workshop do not have the proper communication platform between the car owner and mechanic? And other. Almost all of the respondents answer probably not for all of the challenge that being ask. It shown that the car owner really want the platform that can minimize the current challenge the faced. And car owner can get all the information that they need. Figure 18 shown the difficulty of mechanic in explaining the repair work.

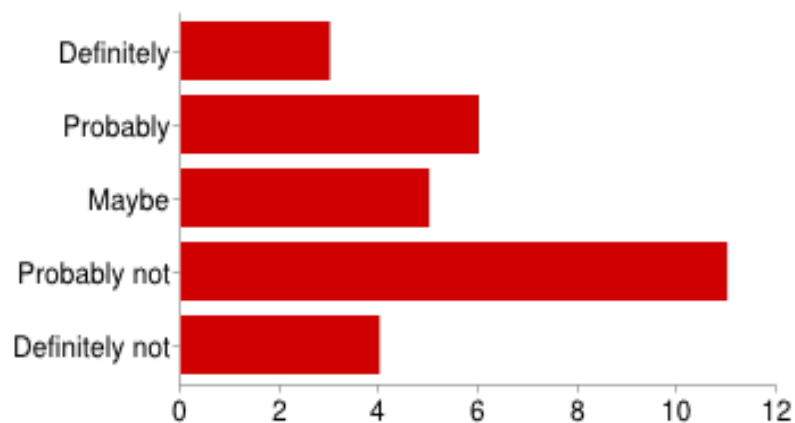


Figure 18: The difficulties mechanic work

4.1.7 Proposed Web Based Information System

The main objective of this part is to propose a web based information system for car owner and workshop. According to the result, 96 percent strongly agreed if there is a web based system that can retrieve all the information about the car services. The system can also act as a communication platform between the car owner and workshop.

Refer to figure below around 56 percent of the respondents want the web based system to have the reminder and note functionality. The reminder about the date of car services is important to make car owner keep alert when they need to services their car, and a note that they can write and list out their car problem before send their car for the services. Figure 19 shown a functionality that car owner would like to have in the web based.

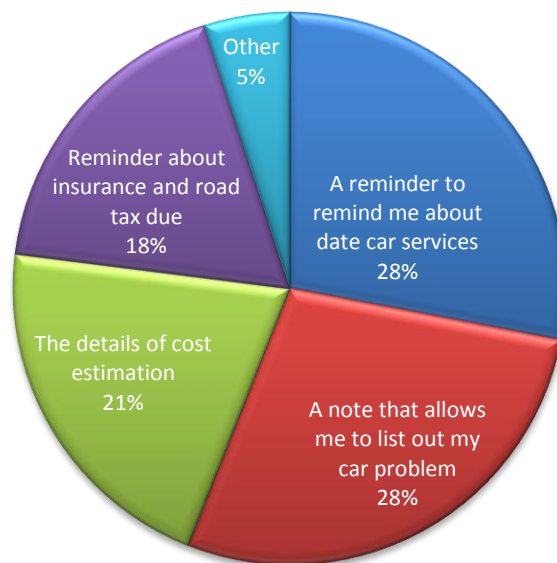


Figure 19: The function of the OASIS

4.2 Interview Result

The interview mainly target on the workshop owner and staff in order to understand the functionality that need in the system. The full transcript of the interview is shown in the **Appendix 3** section.

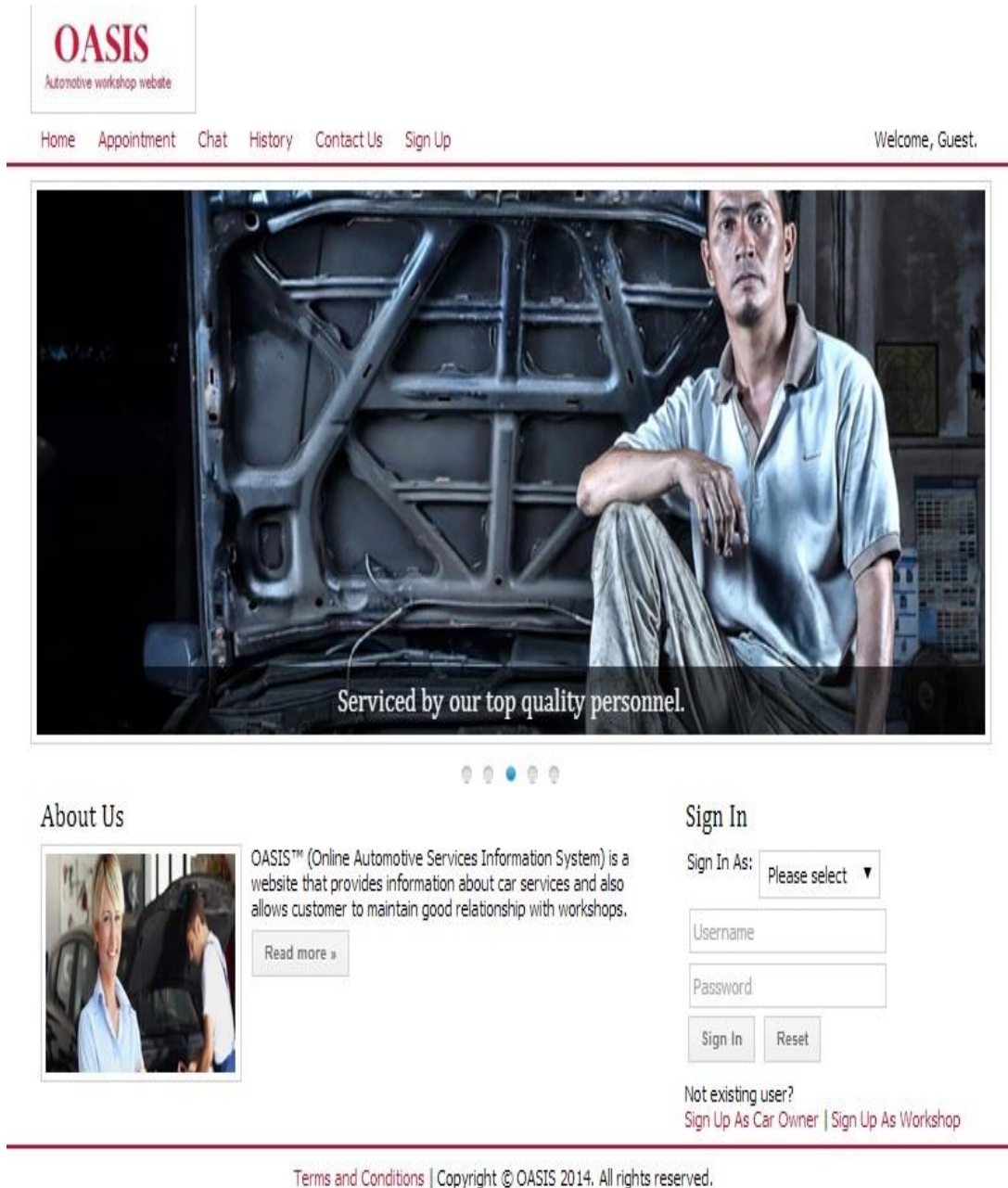
The objective of this interview is to collect and gather all information that apply in workshop and identify mechanic working culture. Which mean identify and solve the problem that mechanic faced in delivering their services to car owner. The target audience is the respondents for interview sessions, its consist of the workshop owner and two of mechanic in KS Tyre at Kuantan, Pahang. The interview was conducted around one hours on 3rd May 2014 at 3pm. The interview is semi structure in nature. There are seven open ended questions for the interview sessions. The questions are attached in the appendix section.

The detailed information regarding the respondents is remains confidential. The workshop owner mention that, it's really important to have a web based system that can facilitate the performance of the automotive services as well as give the useful information to the car owner. With this workshop also can build a strong customer relationship with the car owner.

Based on the conducted interview, it's can be summarize that the workshop owner and mechanics needs a platform that can make them directly contact their customer. With this both parties can always keep track of the car maintenance. They also have a problem in reviewing back their customer history. All respondent agree if there is a web based that can react as a platform. The function of that platform is to retrieve all the information from the car owner and act as a communication platform. With the proper communication platform workshop can maintain a good relationship with the car owner as well as increase their profit.

4.3 Prototype

4.3.1 Homepage and log in page for workshop and car owner



OASIS
Automotive workshop website

Home Appointment Chat History Contact Us Sign Up Welcome, Guest.

Serviced by our top quality personnel.

About Us

OASIS™ (Online Automotive Services Information System) is a website that provides information about car services and also allows customer to maintain good relationship with workshops.

Read more »

Sign In

Sign In As: Please select ▼

Username

Password

Sign In Reset

Not existing user?
[Sign Up As Car Owner](#) | [Sign Up As Workshop](#)

Terms and Conditions | Copyright © OASIS 2014. All rights reserved.

Figure 20: OASIS Login Page

4.3.2 Sign Up for New User Page

4.3.2.1 Sign up Page (Car Owner)



OASIS
Automotive workshop website

Home Appointment Chat History Contact Us Sign Up Welcome, Guest.

Sign Up (Owner)

Username:

Password:

Repeat Password:

First Name:

Last Name:

Email:

[Not an Owner? Sign Up as Workshop](#)

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4.3.2.2 Sign up Page (Workshop)



OASIS
Automotive workshop website

Home Appointment Chat History Contact Us Sign Up Welcome, Guest.

Sign Up (Workshop)

Username:

Password:

Repeat Password:

Workshop Name:

Branch:

Address:

Email:

[Not a Workshop? Sign Up as Owner](#)

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4.3.2.3 Sign up Page (Admin)



OASIS
Automotive workshop website

Home Appointment Chat History Contact Us Sign Up Welcome, Guest.

Sign In (Administrator)

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Figure 21: OASIS Sign up Page

4.3.3 Set Appointment Page (Car owner)

OASIS
Automotive workshop website

Home Appointment **1** Chat History Contact Us View Profile Welcome, Iqah. | Sign Out

View Appointments

	« Prev	01-08-2014	Next »
0800			
0900			
1000			
1100			
1200			
1300			
1400			
1500			
1600			
1700			

Create Appointment

Date:

Time:

Type:

Vehicle No.: (+) Add new vehicle

Workshop:

Branch:

Add. Notes:

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4.3.4 Accept/Reject Appointment Page (Workshop)

OASIS
Automotive workshop website

Home Appointment Chat History Contact Us View Profile Welcome, Workshop Osman. | Sign Out


View Appointments

	« Prev	01-08-2014	Next »
0800			
0900			
1000		Type: Repair Vehicle No.: CCR5678 Owner: Iqah Workshop: Workshop Osman Add. Notes: Accept Appointment Reject Appointment	
1100			
1200			
1300			
1400			
1500			
1600			
1700			

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Figure 22: OASIS Appointment Page

4.3.5 Create History Page



OASIS
Automotive workshop website

[Home](#) | [Appointment](#) | [Chat](#) | [History](#) | [Contact Us](#) | [View Profile](#)

Welcome, Workshop Osman. | [Sign Out](#)

Workshop Previous Appointment(s)

Date	Type	Vehicle Num.	Workshop Name	Branch	Additional Notes
23-07-2014	Repair	CDD6758	Workshop Osman	Kelantan	
01-08-2014	Repair	CCR5678	Workshop Osman	Kedah	

Vehicle Information

Vehicle Num.	Car Owner	Mileage (KM)	Insurance Due	Road Tax Due	Cost (RM)	Changes	Modified by	Workshop Name	Modified on	
WWW1234	Iqah	30000	09-09-2016	09-09-2016	500	We change the timing belt	Kamal	Workshop Ali	23-07-2014	Edit
CCR5678	Iqah									Edit
ABC789	Iqah									Edit
DCA5475	Siti Rohana									Edit
CDD6758	Siti Rohana	40000	17-07-2015	17-07-2015	2000	Overall services including timing belt, break pa, engine oil and air-cord	Asyraf	Workshop Osman	23-07-2014	Edit
AJJ474	Siti Rohana									Edit

Edit Vehicle Information

Mileage: KM

Insurance Due Date: DD MM YYYY

Road Tax Due Date: DD MM YYYY

Cost (RM):

Changes:

Modified by:

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Figure 23: OASIS History Page

4.3.6 Chatting Page

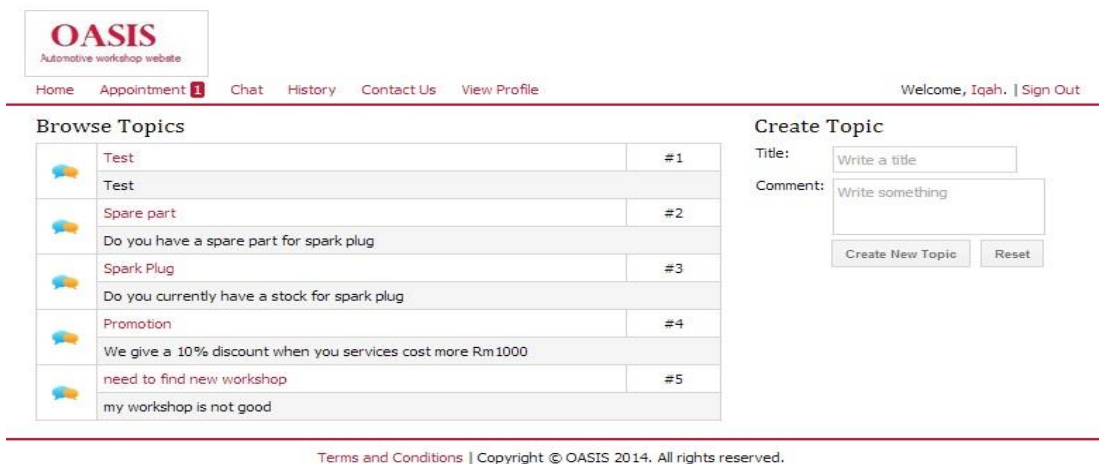


Figure 24: OASIS Chatting Page

4.3.7 User Edit Profile Page

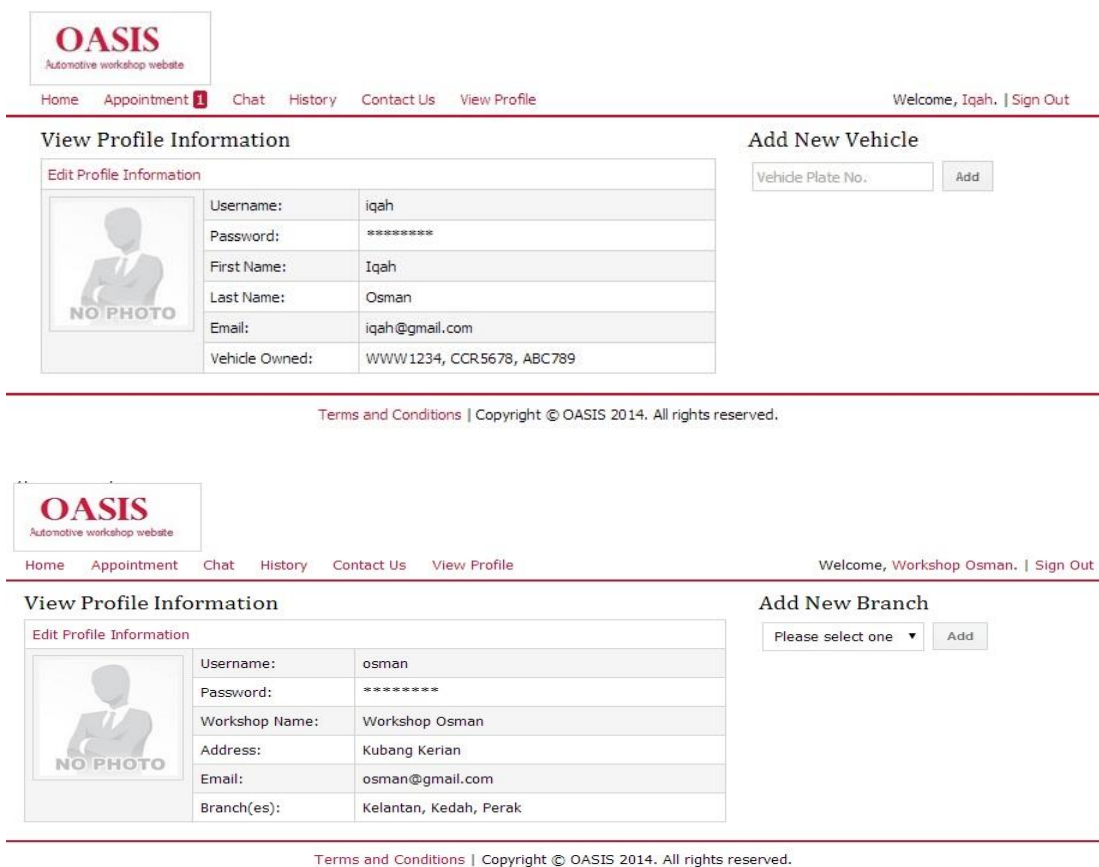


Figure 25: OASIS User Profile Page

4.3.8 Admin Manage and View Page

OASIS
Automotive workshop website

Home Admin Welcome, Administrator. | Sign Out

List of Vehicle Owners

#	First Name	Last Name	Username	Email	Delete?
6	Siti Rohana	Salim	siti	siti@gmail.com	Delete
5	Iqah	Osman	iqah	iqah@gmail.com	Delete

List of Workshop

#	Workshop Name	Branch	Address	Email	Delete?
4	Workshop Ali	Johor	Johor Bahru	workshopali@gmail.com	Delete
5	Workshop Osman	Kelantan	Kubang Kerian	osman@gmail.com	Delete

List of Vehicles

#	Plate Number	Car Owner	Delete?
7	WWW1234	Iqah	Delete
8	CCR5678	Iqah	Delete
9	ABC789	Iqah	Delete
10	DCA5475	Siti Rohana	Delete
11	CDD6758	Siti Rohana	Delete
12	AJJ474	Siti Rohana	Delete

Contact Us Messages

#	Date	Email	Remarks
1	21-07-2014	iqah@gmail.com	its good

[Terms and Conditions](#) | Copyright © OASIS 2014. All rights reserved.

Figure 26: OASIS Admin Manage and View Page

4.3.9 Contact Us Page

OASIS
Automotive workshop website

Home Appointment Chat History Contact Us Sign Up

Contact Us

Email address

What do you think?

[Terms and Conditions](#) | Copyright © OASIS 2014. All rights reserved.

Figure 27: OASIS Contact Us Page

4.4 Testing

4.4.1 System Testing

The purpose of the system testing is to check the functionalities system for both user (car owner and workshop). Table 4 shows the functional testing of the OASIS.

Table 4: System Fuctional Testing for OASIS

Component	Expected Function	Testing Frequency	Testing Results Success / Failure	Remark
“Sign Up” button	Navigate to create / register new account	15	15 (success)	
“Sign In” button	Automatic executed when username and password is correct and already registered	15	13 (success) 2 (failure)	1st Failure due to lost in Internet connection. 2nd Failure caused by slow server processing
“Reset” button	Clear the entered information of the page	10	10 (success)	
“Read More” button	Navigate to overview about system	10	10 (success)	
“Create Appointment” button	Updated all data of the car owner appointment into the database	10	10 (success)	
“Reset Appointment” button	Clear the set appointment of the page	15	14 (success) 1 (failure)	Failure due to lost in Internet connection
“Accept Appointment” link	Generate the appointment information in the database	5	5 (success)	
“Reject Appointment” link	Update the appointment information in the database	5	5 (success)	
“Add New Vehicle” button	Update a adding new vehicle in the database	10	10 (success)	

“Add New Branch” button	Update a adding new branch in the database	5	4 (success) 1 (failure)	Failure caused by slow server processing
“Post Comment” button	Navigate the information to system admin	15	15 (success)	
“Edit History” button	Update the history changes in the database	5	5 (success)	
“Chatting-create new topic” button	Generate the information to be viewed by other user’s	15	15 (success)	
“Edit Information” button	Updated all data of the user into the database	15	15 (success)	

4.4.2 User Testing

The user testing is done mainly for the evaluation of the system for both user, car owner and workshop. The main features that is being tested for both user is:

- ❖ Understanding of the registration process
- ❖ Easier to understand how to create, accept and reject a car services appointment
- ❖ Agreed the useful of history page
- ❖ Evaluation of user rating towards chatting page

10 car owner and 5 workshop owner have been randomly choose to perform the testing. Targeted user are provided with the intruction and question to test the system according to car owner point of view and workshop owner are being provided with the computer and setup internet connection. After the testing, most of user’s are required to fill in the questionnaire as shown in the **Appendix 4**.

The first part of testing is to test the . Users are expected to create a new account by fill in the user details in the “Sign Up” page and update it from time to time. Next car owner be ask about their understanding to create a appointment of the car services and workshop owner understading in the useage of accept and reject the appointment.

Car owner also be asked whether all history information about the car services is fully display in the system and is it easier for workshop owner to fully understand how to used and create the history function. Furthermore, researcher will asked about the useful of chatting function between both user. Figure 28 to Figure 31 shows the result of the user testing in car owner point of view.

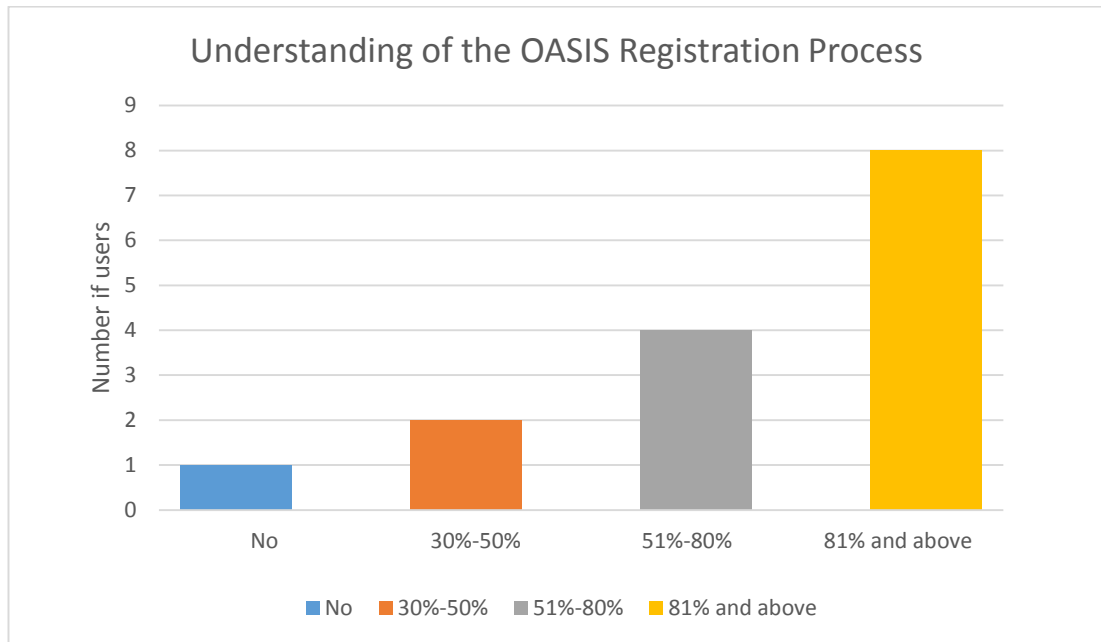


Figure 28: Evaluation in understanding of the OASIS Registration Process

There are more than half of the user believe that this system have help them to understanding the registration process. In Figure 28, 8 user says that it save more than 81% understand how to use and perform the registration process, while the rest not fully understand how to register in the system. This is because they did not really familiar in using a technology such as internet and computer.

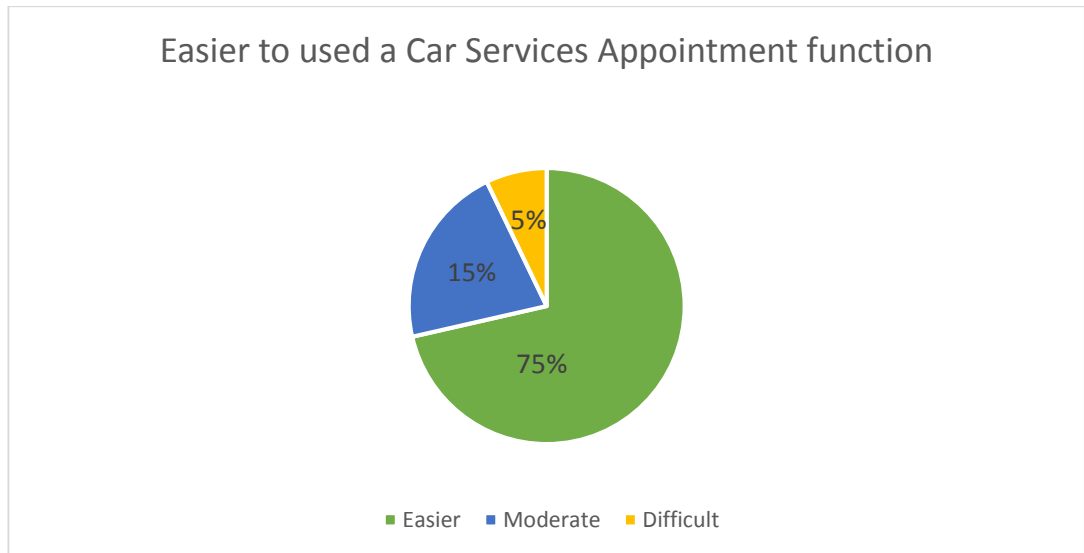


Figure 29: Percentage of difficulty level in creating a car services appointment

In figure 29, the evaluation results shows that around 75% user feel that OASIS is a system that easier to be understand. The remaining 25%, fell a bit confuse and difficult in creating a car services appointment due to the lack of knowledge in technology. Most of user believes that this system will make their appointment process easier and always being remind and in the same time can keep track their car services history.

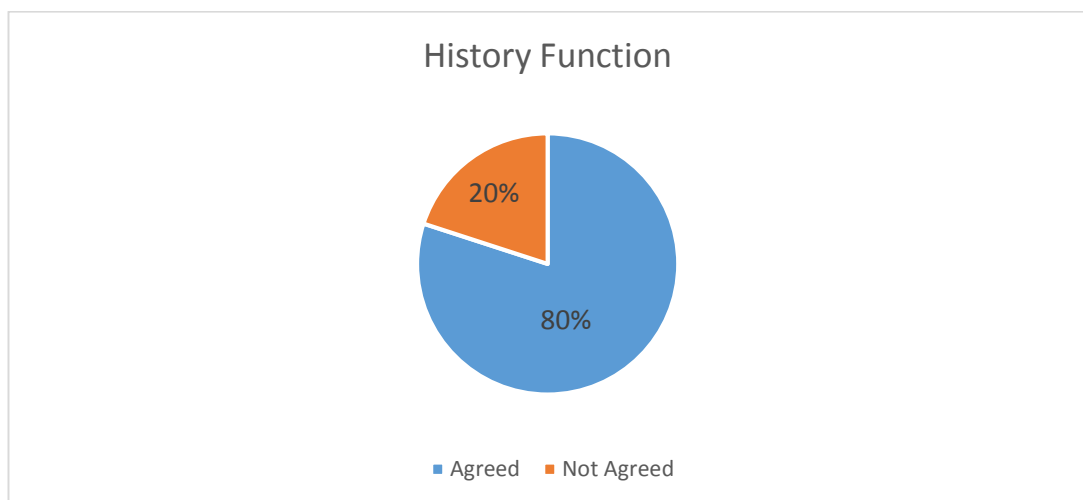


Figure 30: Percentage of user agree of car services history page

In is found that most of the user agrees that history function is really useful in the future. However 20% of the users not agree of this function, it's because he believe that the information provided is not sufficient which need to be include more details

about the car services. On other hand, almost 80% of user agreed with this function and give a positive feedback toward it.

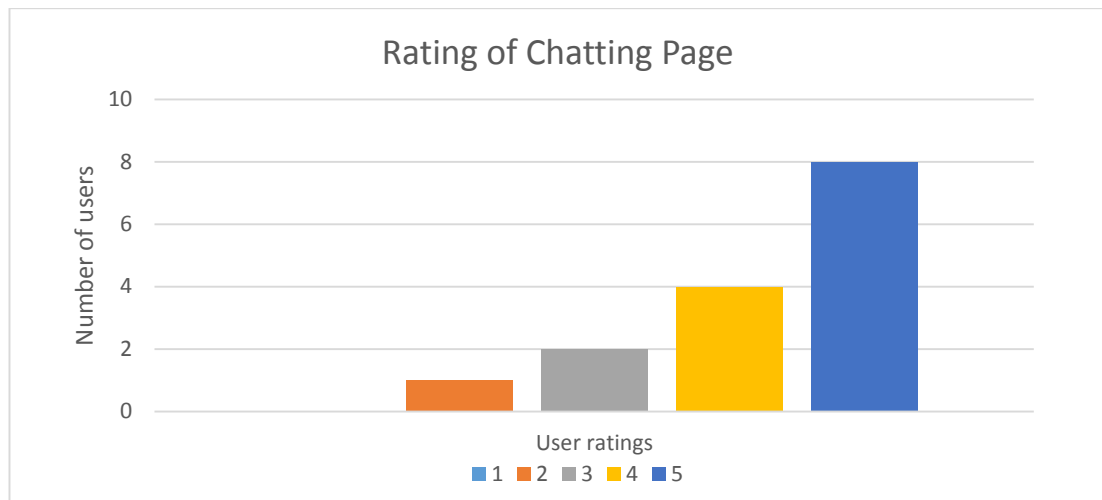


Figure 31: Evaluation of user rating towards chatting page

In Figure 31, 70% of the car owner believe that chatting page in the OASIS really useful in order to let them communicated with workshop. Its have many benefit such as; they can save a time, cost and also can make the car services process done smoothly.

Overall after researcher conducted this testing, it can be concluded that both user really interested to use this system and find out that this system have a lot of benefit. Moreover, with this system all the information regarding car services process can be done smoothly. They also agree that its can help them to be more alert and detailed in manage their car services appointment schedule.

Furthermore, they know that this system help them in keep track their past car services history in a systematic way. For data mining purpose, it provides a simple data for both user to review and it can help user's in managing a good relationship. In car owner point of view, this system help them a lot in capture information, share the knowledge and use it back in the future.

On the workshop owner side, they commented that this system really good in helping them to keep track their royal customer. Moreover with this system, the also can increase their profile as well as increase the services performance of the workshop.

CHAPTER 5: CONCLUSION & RECOMMENDATION

5.1 Conclusion

The projects have provided a significant value especially to the users as it change the behaviour of the users on effectively sharing information about the car services. The development of this system (OASIS) is becoming the key strategy that can increase the productivity of workshop mechanic toward advanced technology. The workshop should applied the IT services to attract more customer and in the same time increase a revenue of the business. Now a day almost all information cannot just being capture using tacit knowledge but it's also need to be capture using explicit knowledge that can be store so that can be refer in the future.

On the other hand, customer is one of the importance stakeholder in every organization or business, their satisfaction are really importance and need to be a priority to management. The quality of product and services is determined by the customer satisfaction. All research activities include literature research, quantitative survey, interview, designing new process and the development of prototype are related and strive to achieve the objectives of the research. OASIS is and easy to use application and is perceived to be beneficial for car owner and workshop owner.

5.2 Recommendation and Future Work

As for the recommendation to be made for this research, future development such as adding a new functions and features of OASIS will be implemented. Example of it such as add functionality such as car owner can diagnose the car problem by using system and OASIS can implement a payment method in the system. Currently, OASIS being develop in the web based platform. Future, if OASIS will be applied using mobile application in order to fulfill the need of all user.

Other than that, users would like to further improve the system by adding more function such as discussion function. This advance feature will help the OASIS to further understanding and develop a better sharing information and knowledge about the car services between car owner and workshop owner.

REFERENCE

- Andrew, W. (2006). Product service system in the automotive industry: Contribution to system innovation?. *Centre for Business Relationship, Accountability, Sustainability and Society (BRASS)*. Cardiff University, UK
- Andy, B. (2011). Customer service should be the most important part of any business plan. *Journal of Customer Relationship*. 14(5), pp. 56-74.
- Bakar, M. R.(2006). Journal of Economic Cooperation Among Islamic Countries . Jan2006, Vol. 27 Issue 1, p89-114. 26p.
- Casby et. al, (2000). Hands free automotive service system. *Patent of Technology in Society*. United States, US.
- Fu. 2006. Used of IT in Real Business Process. *Journal of Business Relationship*. 34(1), pp 45-67.
- Godlevskaja, O., Iwaarden, J. v., & Wiele, T. v. d. (2011). Moving from product-based to service-based business strategies: Services categorisation schemes for the automotive industry. *International Journal of Quality & Reliability Management*, 28(1), pp. 62-94.
- Gopalakrishnan, D., Sharma, M., & Kumar, S., (2009). Managing Customer Satisfaction at Maruti Authorized Services Station. *Services Marketing Management*.
- Grimm. K. (2003). Software Technology in an Automotive Company-Major Challenges. *DaimlerChrysler AG, Research and Technology*.
- Groucutt, J. (2007). The value of seeking strategic direction in ensuring a future pattern of “realistic” growth potential. *Business Strategy Series*, 8(1), pp. 78-88.

Guidice, R. R. et. al, (2002). Online tracking of delivery status information over a computer network. *Technology Management*. United States, US.

Hamzah Abdul Rahman¹ Chen Wang*, Irene Yen Wui Lim³ Waste Processing Framework For Non-Value Adding Activities Using Lean Construction Faculty of Built Environment, University of Malaya. Dec. 2012, Vol. 1 Iss. 1, PP. 8-13

Hennig-Thurau, T. & Klee, A. (1997). The impact of customer satisfaction and relationship quality on customer retention: A critical reassessment and model development. *Journal of Psychology & Marketing*, 14(8), pp. 737-764.

Jiao, R. J., Pokharel, S., Kumar, A., & Zhang, L. (2007). Development of an online quality information system for e-manufacturing. *Journal of Manufacturing Technology Management*, 18(1), pp. 36-53.

Ku-Hsi (2012) Service Quality, and Customer Satisfaction: Direct and Indirect Effects in a B2B Customer Loyalty Framework. *Journal of Global Business Management*. 8-(1), pp 86-93.

Latham, R. (1995). *The Dictionary of Computer Graphics and Virtual Reality*. New York, NY: Springer-Verlag.

Löfberg, N., Witell, L., & Gustafsson, A. (2010). Service strategies in a supply chain. *Journal of Service Management*, 21(4), pp.427-440.

Oliver, R. L. (1997). *Customer Satisfaction. A behavioural perspective on the consumer*. New York: McGraw-Hill

Plant, R. (2004). Online communities. *Technology in Society*, 26(1),pp. 51-65.

Propfe. B., Redelbach. M., Santini. D. J., & Friedrich. H. (2012). Cost analysis of Plug-in Hybrid Electric Vehicles including Maintenance & Repair Costs and Resale Values. *Institute of Vehicle Concept, German Aerospace Center (DLR)*.

Richard, H. C.(2009) Comparing transnational production systems: the automobile industry in the USA and Japan International . *Journal of Urban and Regional Research*.462-480

Rogers et. al, (2012). Automotive Services Contain Numerous Expensive Pieces. *Technology Of the Modern Automotive Equipment*. 132-140.

Rosemary, B. (2002).Managing Customer Services: Human Resource Practices, Quit Rates, and Sales Growth. Retrieved May, 2010 from <http://www.proquest.org/article.pdf/>

Sihem, B., M., J., & Sylvain. L., (2010). Platform re-use lessons from the automotive industry. *International Journal of Operations & Production Management*.33(1),pp. 98-124.

Smith, A. D. (2009). Online accessibility concerns in shaping consumer relationships in the automotive industry. *Online Information Review*, 33(1), pp.77-95.

Wang P., Nieuwenhuis P. (2009) The automotive industry – A guide, centre for *automotive industry research (CAIR)*. LONDON

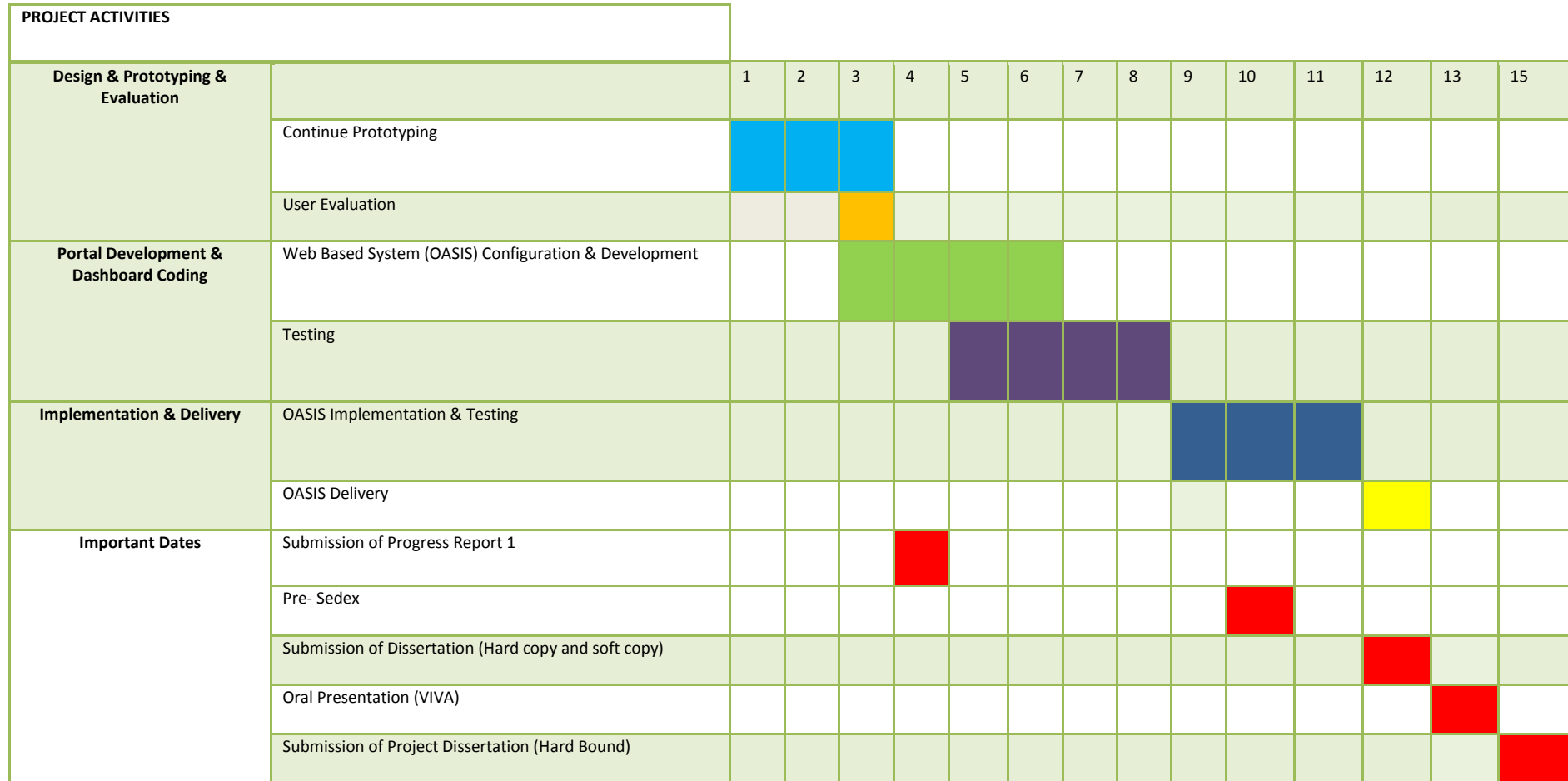
Wattel, K. & York, L. (2014) The factor to avoid car accident. *Online Information Article Review*. 67(1), pp.69-72.

Whitfield, K. (2003). Green by design. Automotive Design and Production. *Journal of the Green Design*. 73(8), pp.7 -9.

Appendix 1: Gantt chart (FYP I)

Preliminary Research Work		PROJECT ACTIVITIES													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Selection of Project Topic.	█	█	█											
	Identify & clarify research element, system objectives .		█	█	█	█	█	█	█	█	█	█			
	Read research works, journals, papers, articles etc.				█	█									
Requirement Gathering & Analysis	Identify research methodology to be used.					█	█								
	Phase 1:Data collection & Requirement Gathering (Interviews & survey).						█	█	█						
	Phase 2: Design and Prototyping								█	█					
	Development of web base system.									█					
Design & Prototyping	Implementation and delivery.										█	█	█	█	█
Important Dates	Web base system Designing & Prototyping							█	█	█	█	█	█	█	█
	Submission of selected project topic & preliminary proposal				█	█									
	Submission of Extended Proposal						█								
	Proposal Defence							█	█	█					
	Project work continues										█	█	█		
	Submission of Interim Draft Report													█	
	Submission of Interim Report														█

Appendix 1: Gantt chart (FYP II)



Appendix 2: Survey Questions

Demographic

What is your gender?

- Female
- Male

What is your age?

- 18-25
- 26-40
- 41-60
- 60-70
- Other: _____

What is your primary language?

- Malay
- English
- Chinese
- Tamil
- Other: _____

Your highest education?

- PMR Level
- SPM Level
- Diploma Holder
- Bachelor's Degree
- Master's Degree
- Professional Degree
- Other: _____

What is your current household income?

- Under RM2000
- RM2000 - RM4000
- RM4000 - RM6000
- RM6000 - RM10000
- RM10000 Above

Customer car maintenance habits

How often do you service your car?

- Once a month
- Every two month
- Twice a year
- Once a year
- When reach the mileage
- Other: _____

If you go to a workshop for scheduled maintenance or repair what kind of information that you need?

- The estimation of cost
- The repairs to be covered
- The estimated time of completion
- Other: _____

Do you have a preferred workshop?

- Yes
- No

If Yes, Why do go to the preferred workshop?

- Because of the location nearby to your place
- Trusted, because you are the regular customer
- Because of manufacturer recommended
- The maintenance cost is cheaper.
- Other: _____

From your experience going to that preferred workshop, what kind of IT service that the workshop provide?

- Wifi
- Credit card
- Website
- Social network
- Workshop does not have IT service at all
- Other: _____

Overall how satisfied are you with your preferred workshop services?

- Definitely Not 1 2 3 4 5 Definitely
-

What makes you a satisfied customer?

- Reasonable cost
- Workmanship
- Staff friendliness
- Other: _____

Would you recommend to your friends or relative to services their use car at your preferred workshop?

- Definitely Not 1 2 3 4 5 Definitely
-

Knowledge challengers

Please rate your challengers to get the related information about the services of your automotive?

Definitely Probably Maybe Probably not Definitely not

Didn't get enough information about the services from the mechanic

Mechanics have difficulties in explaining the repair work

I have difficulties in understanding the mechanic's explanation on the repair work

I have difficulties in keeping track with my scheduled maintenance

You did not get the explains of the charges

The workshop do not have a constant communication

Proposed web-site

Do you agree if there is a web-site that can list out the information of the workshop and you also can point out the reminder of what need to be change in the next service?

Disagrees 2 3 4 5
 Strongly Agreed

State you reason for answer above

What is the functionality that you would like to have in the web-site?

- A reminder to remind me about date car services
- A note that allows me to list out my car problem
- The details of cost estimation
- Reminder about insurance and road tax due
- Other: _____

Appendix 3: Interview Questions (Workshop Owner and Mechanics)

- Do you have a regular customer?
- Do you have difficulties to interact and maintain a good relationship with your customer?
- What are the main problem that you face when dealing or selling your product or services to your customer?
- In your point of view, what are the easier way you would like to use to communicate with your customer in the fasters way.
- Do you think the existent of web based system (OASIS) will growth your business further?
- What are the functionalities would you like to have in that web based system (OASIS)?
- Are you willing to contribute and give full cooperation in developing of OASIS?

Appendix 4: System Testing Questionnaire

User (Car owner)

1. How much percent do you think the system help you in understanding the registration process?
 - a)No
 - b) 30 – 50%
 - c) 51% - 80%
 - d) 81% and above

2. What level of understanding do you feel towards this system, in order to help you to make your car services appointment done smoothly?
 - a) Easier
 - b) Moderate
 - c) Difficult

3. Do you agree that car services history give you a lot of benefit?
 - a) Agreed
 - b) Not agreed

4. How do you rate the ease of the chatting page?

1 – Lowest (not useful)

5 – Highest (really useful)

Rating: 1 2 3 4 5

5. In your opinion, what are the most benefit did you get when using this system? (Open-ended)

Appendix 5: Coding of the application

1. Appointment

```
?> <!DOCTYPE html>

<head>

    <link rel="stylesheet" type="text/css" href="css/reset.css" />

    <link rel="stylesheet" type="text/css" href="css/normal.css" />

    <link rel="stylesheet" type="text/css" href="css/button.css" />

    <script type="text/javascript" src="script-js/formcheck.js"></script>

    <title>OASIS&trade;</title>

</head>

<body>

    <?php

    include "misc/header.php";

    ?>    <div class="container">

            <div class="width">

                <div class="general">

                    <div class="maincol left">
```

```
<!-- CODES TO CREATE APPOINTMENT -->
```

```
<?php
```

```
if(isset($_POST["day"]) && isset($_POST["month"]) &&
isset($_POST["year"]) && isset($_POST["time"]) &&
isset($_POST["type"]) && isset($_POST["vnum"]) &&
isset($_POST["wshop"]) && isset($_POST["branch"]) &&
(!isset($_GET["edited"]))) {

    $d = $_POST["day"];

    $m = $_POST["month"];

    $y = $_POST["year"];

    $date = $d . "-" . $m . "-" . $y;

    $time = $_POST["time"];

    $type = $_POST["type"];

    $vnum = $_POST["vnum"];

    $wshop = $_POST["wshop"];

    $branch = $_POST["branch"];

    if(isset($_POST["notes"]))

        $notes = $_POST["notes"];

    //echo $d . $m . $y . $time . $type . $vnum . $session;

    $query = "INSERT INTO appointment VALUES
('','$alias','$date','$time','$type','$vnum','$wshop','$branch','$notes',CUR
RENT_TIMESTAMP,'','')";

$result = mysqli_query($connect,$query) or exit("Cannot perform query!");}
?>
```

```

        <!-- CODES TO ACCEPT/REJECT APPOINTMENT -->

<?php

    if(isset($_GET["id"]) && isset($_GET["reject"])){

        $id = $_GET["id"];

        $query = "UPDATE appointment SET accepted=0

        $query = "UPDATE appointment SET rejected=1

        WHERE id='$id'";

$result = mysqli_query($connect,$query) or exit("Cannot perform query!");}

?>

```

2. History

```

<?php

    include "misc/function.php"; ?>

    <!DOCTYPE html>

<head>

    <link rel="stylesheet" type="text/css" href="css/reset.css" />
    <link rel="stylesheet" type="text/css" href="css/normal.css" />
    <link rel="stylesheet" type="text/css" href="css/button.css" />
    <script type="text/javascript" src="script-js/formcheck.js"></script>
    <title>OASIS&trade;</title>

</head>

    <body>

        <?php
            include "misc/header.php"; ?>

            <div class="container">
                <div class="width">
                    <div class="general">
                        <div class="mainwrap">
                            <?php
                                if(!isset($_SESSION["oasis"])){
                                    echo "Access denied! Please sign in to continue.";}

```

```

else{
//CODES TO EDIT VEHICLE INFO
if(isset($_POST["eid"]) && isset($_POST["edited"])){
    $id = $_POST["eid"];
    $edited = $_POST["edited"];

$mile = $idy = $im = $iy = $in = $rtd = $rtm = $rty = $rt = $cost =
$changes = $modifyby = "";

if(isset($_POST["mileage"]) && isset($_POST["iday"]) &&
isset($_POST["imonth"]) && isset($_POST["iyear"]) &&
isset($_POST["rtday"]) && isset($_POST["rtmonth"]) &&
isset($_POST["rtyear"]) && isset($_POST["cost"]) &&
isset($_POST["changes"]) && isset($_POST["modifyby"])){

    $mile = $_POST["mileage"];

    $idy = $_POST["iday"];
    $im = $_POST["imonth"];
    $iy = $_POST["iyear"];

    $in = $idy . "-" . $im . "-" . $iy;

    $rtd = $_POST["rtday"];
    $rtm = $_POST["rtmonth"];
    $rty = $_POST["rtyear"];

    $rt = $rtd . "-" . $rtm . "-" . $rty;

    $cost = $_POST["cost"];
    $changes = $_POST["changes"];
    $modifyby = $_POST["modifyby"];}

//echo $d . $m . $y . $time . $type . $vnum . $session;

$query = "UPDATE vehicle SET mileage='$mile', insurance_due='$in',
roadtax_due='$rt', cost='$cost', changes='$changes',
modified_by='$modifyby', workshop_name='$alias', modify_date='$date'
WHERE id='$id'";
$result = mysqli_query($connect,$query) or exit("Cannot perform
query!");    }?>

```

```

<?php
    if(isset($whois) && $whois == "owner"){
    echo "<h2>Previous Appointment(s)</h2>";
    echo "<table class=\"profile_tbl\">";

    echo "<tr><td>Date</td><td>Type</td><td>Vehicle
    Num.</td><td>Workshop
    Name</td><td>Branch</td><td>Additional Notes</td></tr>";

$query = "SELECT * FROM appointment WHERE username='$alias' AND
rejected=0";
$result = mysqli_query($connect,$query) or exit("Cannot perform
query!");

    while($a = mysqli_fetch_array($result)){
    echo "<tr><td>" . $a[2] . "</td><td>" . $a[4] . "</td><td>" . $a[5] .
"</td><td>" . $a[6] . "</td><td>" . $a[7] . "</td><td>" . $a[8] .
"</td></tr>";    };

    echo "</table>";}
    else if(isset($whois) && $whois == "workshop"){
    echo "<h2>Previous Appointment(s)</h2>";
    echo "<table class=\"profile_tbl\">";

    echo "<tr><td>Date</td><td>Type</td><td>Vehicle Num.</td><td>Workshop
    Name</td><td>Branch</td><td>Additional Notes</td></tr>";

$query = "SELECT * FROM appointment WHERE workshop_name='$alias' AND
rejected=0";
$result = mysqli_query($connect,$query) or exit("Cannot perform
query!");

    while($a = mysqli_fetch_array($result)){
    echo "<tr><td>" . $a[2] . "</td><td>" . $a[4] . "</td><td>" .
$a[5] . "</td><td>" . $a[6] . "</td><td>" . $a[7] . "</td><td>" .
$a[8] . "</td></tr>";    };

    echo "</table>";    }

    if(isset($whois) && $whois == "owner"){
    echo "<h2>Vehicle Information</h2>";
    echo "<table class=\"chat_tbl\">";
    echo "<tr><td>Vehicle Num.</td><td>Mileage (KM)</td><td>Insurance
    Due</td><td>Road Tax Due</td><td>Cost

```

```

(RM)</td><td>Changes</td><td>Modified by</td><td>Workshop
Name</td><td>Modified on</td></tr>";

$query = "SELECT * FROM vehicle WHERE owner='$alias'";
$result = mysqli_query($connect,$query) or exit("Cannot
perform query!");

while($a = mysqli_fetch_array($result)){
echo "<tr><td>" . $a[1] . "</td><td>" . $a[3] . "</td><td>" .
$a[4] . "</td><td>" . $a[5] . "</td><td>" . $a[6] . "</td><td>" .
$a[7] . "</td><td>" . $a[8] . "</td><td>" . $a[9] . "</td><td>" .
$a[10] . "</td></tr>";};

echo "</table>";}
else if(isset($whois) && $whois == "workshop"){
echo "<h2>Vehicle Information</h2>";
echo "<table class=\"chat_tbl\">";
echo "<tr><td>Vehicle Num.</td><td>Mileage
(KM)</td><td>Insurance Due</td><td>Road Tax Due</td><td>Cost
(RM)</td><td>Changes</td><td>Modified by</td><td>Workshop
Name</td><td>Modified on</td><td></td></tr>";

$query = "SELECT * FROM vehicle WHERE
workshop_name='$alias'";

$result = mysqli_query($connect,$query) or exit("Cannot perform
query!");

while($a = mysqli_fetch_array($result)){
echo "<tr><td>" . $a[1] . "</td><td>" . $a[3] .
"</td><td>" . $a[4] . "</td><td>" . $a[5] . "</td><td>" . $a[6] .
"</td><td>" . $a[7] . "</td><td>" . $a[8] . "</td><td>" . $a[9] .
"</td><td>" . $a[10] . "</td><td><a href=\"?id=" . $a[0] .
"&&edit=1\">Edit</a></td></tr>";};

echo "</table>"; }

?>

```

3. Chatting

```
<?php
    include "misc/function.php";
?>

<!DOCTYPE html>
<head>
    <link rel="stylesheet" type="text/css" href="css/reset.css" />
    <link rel="stylesheet" type="text/css" href="css/normal.css"/>
    <link rel="stylesheet" type="text/css" href="css/button.css"/>
    <script type="text/javascript" src="script
js/formcheck.js"></script>
        <title>OASIS&trade;</title>
</head>
<body>
<?php
    include "misc/header.php";?>

    <div class="container">
    <div class="width">
    <div class="general">

<!-- CODES TO CREATE NEW TOPICS -->

<?php
    if(isset($_POST["topic"]) && isset($_POST["comments"])){
        $topic = $_POST["topic"];
        $comments = $_POST["comments"];
        $query = "INSERT INTO topics VALUES
        ('','$topic','$alias','$comments',CURRENT_TIMESTAMP)";

$result = mysqli_query($connect,$query) or exit("Cannot perform
query!");    }?>

<!-- CODES TO POST COMMENTS -->

<?php

    if(isset($_POST["comments"]) && isset($_GET["id"])){
        $id = $_GET["id"];
        $comments = $_POST["comments"];
        $query = "INSERT INTO comments VALUES
        ('','$id','$alias','$comments',CURRENT_TIMESTAMP)";
$result = mysqli_query($connect,$query) or exit("Cannot perform
query!");}}?>
```

```

        <div class="maincol left">
    <?php
        if(isset($session)){
            if(isset($_GET["id"])){
                $id = $_GET["id"];
                $query = "SELECT * FROM topics WHERE id='$id'";
$result = mysqli_query($connect,$query) or exit("Cannot perform
query!");

        $count = 0;
        while($a = mysqli_fetch_array($result)){
            $count++;
                echo "<h1>" . $a[1] . "</h1>";
                echo "<table class=\"profile_tbl\">";
                echo "<tr><td rowspan=\"2\">" . $a[2]
                    . "</td><td>Posted on: " . $a[4] . "</td><td
                    class=\"textctr\">#" . $count .
                    "</td></tr>";
                echo "<tr><td colspan=\"3\">" .
                    nl2br($a[3]) . "</td></tr>";        };

$result = mysqli_query($connect,$query) or exit("Cannot
perform query!");

        while($a = mysqli_fetch_array($result)){

            $count++;
                echo "<tr><td rowspan=\"2\">" . $a[2]
                    . "</td><td>Posted on: " . $a[4] . "</td><td
                    class=\"textctr\">#" . $count . "</td></tr>";
                echo "<tr><td colspan=\"3\">" . nl2br($a[3])
                    . "</td></tr>";        };
                echo "</table>";?>

                <h2>Post Comment</h2>
                <table class="login_tbl">
                    <form method="POST" onsubmit="return checkComment();"
action="<?php echo $_SERVER["PHP_SELF"] . "?id=" . $_GET["id"]; ?>"
                    <tr><td><textarea cols="50" rows="1" placeholder="Comment on
this topic" name="comments" id="comments"></textarea></td></tr>

```

```

        <tr><td><input type="submit" class="gobtn" value="Post
Comment" /><input type="reset" class="gobtn" value="Reset"
/></td></tr>
    </form>
</table>
    <?php }
else{
    echo "<h1>Browse Topics</h1>";

    $query = "SELECT * FROM topics";
$result = mysqli_query($connect,$query) or exit("Cannot perform
query!");

    $count = 0;
    echo "<table class=\"chat_tbl\">";
    while($a = mysqli_fetch_array($result)){
        $count++;
        echo "<tr><td rowspan=\"2\"><img
class=\"chat_img\" src=\"images/chat.png\" /></td><td><a href=\"?id="
. $a[0] . \"\"> . $a[1] . "</a></td><td class=\"textctr\">#\" . $count
. "</td></tr>";
        echo "<tr><td colspan=\"3\"> . nl2br($a[3]) .
\"</td></tr>"; };
    echo "</table>"; } ?>

</div>
<div class="sidecol right">
<?php
    if(isset($session)){ ?>
        <h1>Create Topic</h1>
        <table class="login_tbl">
            <form method="POST" onsubmit="return checkPostTopic();"
action="<?php echo $_SERVER["PHP_SELF"]; ?>">

<tr><td>Title: </td><td><input type="text" placeholder="Write a
title" name="topic" id="topic" value="" /></td></tr>

<tr><td>Comment: </td><td><textarea cols="25" rows="3"
placeholder="Write something" name="comments"
id="comments"></textarea></td></tr>

<tr><td></td><td><input type="submit" class="gobtn" value="Create New
Topic" /><input type="reset" class="gobtn" value="Reset" /></td></tr>
    </form>
</table>
    <?php }

```

```

    }
else
    echo "Access denied! Please sign in to continue.";
?>
    </div>
        <div class="clearfix"></div>
            </div>
                </div>
                    </div>
<?php
    include "misc/footer.php";
?>
</body>
</html>

```

4. Profile Edit

```

<?php
    include "misc/function.php";
?>

<!DOCTYPE html>
    <head>
        <link rel="stylesheet" type="text/css"
href="css/reset.css" />
        <link rel="stylesheet" type="text/css"
href="css/normal.css" />
        <link rel="stylesheet" type="text/css"
href="css/button.css" />
        <script type="text/javascript" src="script-
js/formcheck.js"></script>
        <title>OASIS&trade;</title>
    </head>
    <body>
        <?php
            include "misc/header.php";
        ?>

        <div class="container">
            <div class="width">
                <div class="general">
                    <div class="maincol left">
                        <?php
                            //CODES TO REGISTER NEW
                            VEHICLE

```

```

        if(isset($_POST["plate_num"])){
            $p =
$_POST["plate_num"];

            $query = "INSERT INTO
vehicle VALUES ('','$p','$alias','','','','','','')";
            $result =
mysqli_query($connect,$query) or exit("Unable to perform query.");
        }
        ?>

        <?php
            if(isset($session)){
                echo "<h1>View
Profile Information</h1>";

                if($whois ==
"owner"){
                    $query =
"SELECT * FROM owner WHERE username = '$session'";

                    $result =
mysqli_query($connect,$query) or exit("Unable to perform query.");

                    echo

                    "<table class=\"profile_tbl\">";

                    while($a =
mysqli_fetch_array($result)){

                        echo "<tr><td rowspan=\"6\"><img class=\"profile_img\"
src=\"images/profile.jpg\" /></td><td>Username: </td><td>" . $a[1] .
"</td></tr>";

                        echo "<tr><td>Password: </td><td>*****</td></tr>";

                        echo "<tr><td>First Name: </td><td>" . $a[3] . "</td></tr>";

                        echo "<tr><td>Last Name: </td><td>" . $a[4] . "</td></tr>";

                        echo "<tr><td>Email: </td><td>" . $a[5] . "</td></tr>";

                    };

```

```

                                                                    $query =
"SELECT * FROM vehicle WHERE owner = '$alias'";

                                                                    $result =
mysqli_query($connect,$query) or exit("Unable to perform query.");

                                                                    $count =
0;

                                                                    echo
"<tr><td>Vehicle Owned: </td><td>";

                                                                    while($a =
mysqli_fetch_array($result)){

                                                                    $count++;

                                                                    if($count > 1)

                                                                    echo ", ";

                                                                    echo $a[1];

                                                                    };
                                                                    echo
"</td></tr>";

                                                                    echo
"</table>";

                                                                    }

                                                                    else if($whois ==
"workshop"){

                                                                    $query =
"SELECT * FROM workshop WHERE username = '$session'";

                                                                    $result =
mysqli_query($connect,$query) or exit("Unable to perform query.");

                                                                    while($a =
mysqli_fetch_array($result)){

                                                                    echo "<table class=\"profile_tbl\">";

                                                                    echo "<tr><td rowspan=\"6\"><img class=\"profile_img\"
src=\"images/profile.jpg\" /></td><td>Username: </td><td> . $a[1] .
</td></tr>";

                                                                    echo "<tr><td>Password: </td><td>*****</td></tr>";

```

```

        echo "<tr><td>Workshop Name: </td><td>" . $a[3] .
"</td></tr>";

        echo "<tr><td>Branch: </td><td>" . $a[4] . "</td></tr>";

        echo "<tr><td>Address: </td><td>" . $a[5] . "</td></tr>";

        echo "<tr><td>Email: </td><td>" . $a[6] . "</td></tr>";

        echo "</table>";

                                                    };
        }
    }
    else
        echo "Access
denied! Please sign in to continue.";
    ?>
</div>
<div class="sidecol right">
    <?php
        if(isset($session)){
            if($whois ==
"owner"){
                echo
                "<h1>Add New Vehicle</h1>";
                echo
                "<table class=\"login_tbl\">";
                echo
                "<form method=\"POST\" onsubmit=\"return checkPlateNo();\" action=\"\"
. $_SERVER[\"PHP_SELF\"] . \">";
                echo
                "<tr><td><input type=\"text\" name=\"plate_num\" id=\"plate_num\"
placeholder=\"Vehicle Plate No.\" value=\"\" /></td>";
                echo
                "<td><input type=\"submit\" class=\"gobtn\" value=\"Add\"
/></td></tr>";
                echo
                "</form>";
                echo
                "</table>";
            }
        }
    ?>
</div>
<div class="clearfix"></div>

```

```

        </div>
    </div>
</div>

<?php
    include "misc/footer.php";
?>
</body>
</html>

```

5. Contact Us

```

<?php
    include "misc/function.php";
?>

<!DOCTYPE html>
    <head>
        <link rel="stylesheet" type="text/css"
href="css/reset.css" />
        <link rel="stylesheet" type="text/css"
href="css/normal.css" />
        <link rel="stylesheet" type="text/css"
href="css/button.css" />
        <script type="text/javascript" src="script-
js/formcheck.js"></script>
        <title>OASIS&trade;</title>
    </head>
    <body>
        <?php
            include "misc/header.php";
        ?>

        <div class="container">
            <div class="width">
                <div class="general">
                    <div class="maincol left">
                        <!-- CODES TO CREATE NEW
TOPICS -->

                                <?php

                                    if(isset($_POST["email"]) && isset($_POST["comment"])){
                                        $email =
$_POST["email"];

```

```

                                                                    $comment =
$_POST["comment"];

                                                                    $query = "INSERT
INTO contactus VALUES
('','$email','$comment','$date',CURRENT_TIMESTAMP)";
                                                                    $result =
mysqli_query($connect,$query) or exit("Cannot perform query!");
                                                                    }
                                                                    ?>

                                                                    <h2>Contact Us</h2>
                                                                    <table class="login_tbl">
                                                                    <form method="POST"
action="<?php echo $_SERVER["PHP_SELF"]; ?>">
                                                                    <tr><td><input
type="text" size="40" placeholder="Email address" name="email"
id="email" value="" /></td></tr>
                                                                    <tr><td><textarea
cols="50" rows="3" placeholder="What do you think?" name="comment"
id="comment"></textarea></td></tr>
                                                                    <tr><td><input
type="submit" class="gobtn" value="Post Comment" /><input
type="reset" class="gobtn" value="Reset" /></td></tr>
                                                                    </form>
                                                                    </table>
                                                                    </div>
                                                                    <div class="sidecol right">
                                                                    <!-- CODES HERE -->
                                                                    </div>
                                                                    <div class="clearfix"></div>
                                                                    </div>
                                                                    </div>
                                                                    <?php
                                                                    include "misc/footer.php";
                                                                    ?>
                                                                    </body>
</html>

```

6. OASIS Admin

```
<?php
    include "misc/function.php";
?>

<!DOCTYPE html>
    <head>
        <link rel="stylesheet" type="text/css"
href="css/reset.css" />
        <link rel="stylesheet" type="text/css"
href="css/normal.css" />
        <link rel="stylesheet" type="text/css"
href="css/button.css" />
        <script type="text/javascript" src="script-
js/formcheck.js"></script>
        <title>OASIS&trade;</title>
    </head>
    <body>
        <?php
            include "misc/header.php";
        ?>

        <?php
            $u = $p = "";

            //if no session
            if(!isset($_SESSION["oasis"])){
                //sign in verification
                if(isset($_POST["user"]) &&
isset($_POST["pass"])){
                    $u = $_POST["user"];
                    $p = $_POST["pass"];

                    $query = "SELECT * FROM admin";

                    $result =
mysqli_query($connect,$query) or exit("Unable to perform query.");

                    while($a =
mysqli_fetch_array($result)){
                        if($a[1] == $u && $a[2] ==
md5($p)){
                            session_start();
                            $_SESSION["oasis"] =
$a[1];
```

```

                                                                    $_SESSION["alias"] =
$a[3];
                                                                    $_SESSION["type"] =
"admin";
                                                                    }
                                                                    };
                                                                    //back to home page
                                                                    header("location: index.php");
                                                                    }
                                                                    }
                                                                    if(isset($_GET["id"]) && isset($_GET["block"])){
                                                                    $id = $_GET["id"];
                                                                    if($_GET["block"] == 1){
                                                                    $query = "UPDATE owner SET blocked=1
WHERE id='$id'";
                                                                    $result =
mysqli_query($connect,$query) or exit("Cannot perform query!");
                                                                    }
                                                                    else if($_GET["block"] == 0){
                                                                    $query = "UPDATE owner SET blocked=0
WHERE id='$id'";
                                                                    $result =
mysqli_query($connect,$query) or exit("Cannot perform query!");
                                                                    }
                                                                    }
                                                                    if(isset($_GET["id"]) && isset($_GET["wblock"])){
                                                                    $id = $_GET["id"];
                                                                    if($_GET["wblock"] == 1){
                                                                    $query = "UPDATE workshop SET
blocked=1 WHERE id='$id'";
                                                                    $result =
mysqli_query($connect,$query) or exit("Cannot perform query!");
                                                                    }
                                                                    else if($_GET["wblock"] == 0){
                                                                    $query = "UPDATE workshop SET
blocked=0 WHERE id='$id'";
                                                                    $result =
mysqli_query($connect,$query) or exit("Cannot perform query!");
                                                                    }
                                                                    }
?>

```

```

        <div class="container">
            <div class="width">
                <div class="general">
                    <div class="mainwrap">
                        <?php
if(!isset($_SESSION["oasis"])){ ?>
                                                    <h1>Sign In
(Administrator)</h1>
                                                    <table
class="login_tbl">
                                                    <form
method="POST" action="<?php echo $_SERVER["PHP_SELF"]; ?>">
                <tr><td><input type="hidden" name="signin_as" id="signin_as"
value="admin"/></td></tr>
                <tr><td><input type="hidden" name="user" id="user"
value="administrator"/></td></tr>
                <tr><td><input type="text" size="25" value="administrator"
disabled="disabled"/></td></tr>
                <tr><td><input type="password" name="pass" id="pass_si"
placeholder="Password" size="25" value="" /></td></tr>
                <tr><td><input type="submit" class="gobtn" value="Sign In"
/><input type="reset" class="gobtn" value="Reset" /></td></tr>
                                                    </form>
                                                    </table>
                        <?php }
                            else{
                                echo "<h2>List of
Vehicle Owners</h2>";
                                echo "<table
class=\"chat_tbl\">";
                                echo
                                "<tr><td>#</td><td>First Name</td><td>Last
Name</td><td>Username</td><td>Email</td><td>Block?</td></tr>";
                                $query = "SELECT
* FROM owner";
                                $result =
mysqli_query($connect,$query) or exit("Cannot perform query!");

```

```

                                                                    while($a =
mysqli_fetch_array($result)){
                                                                    echo
"<tr><td>" . $a[0] . "</td><td>" . $a[3] . "</td><td>" . $a[4] .
"</td><td>" . $a[1] . "</td><td>" . $a[5] . "</td>";
                                                                    if($a[6]
== "0")

                                                                    echo "<td><a href=\"?id=" . $a[0] .
"&&bblock=1\">Block</a></td>";
                                                                    else

                                                                    echo "<td>Blocked! <a href=\"?id=" . $a[0] .
"&&bblock=0\">Unblock</a></td>";
                                                                    echo

"</tr>";
                                                                    };

                                                                    echo "</table>";

                                                                    echo "<h2>List of
Workshop</h2>";

                                                                    echo "<table
class=\"chat_tbl\">";

                                                                    echo

"<tr><td>#</td><td>Workshop
Name</td><td>Branch</td><td>Address</td><td>Email</td><td>Block?</td>
</tr>";

                                                                    $query = "SELECT
* FROM workshop";

                                                                    $result =
mysqli_query($connect,$query) or exit("Cannot perform query!");

                                                                    while($a =
mysqli_fetch_array($result)){
                                                                    echo

"<tr><td>" . $a[0] . "</td><td>" . $a[3] . "</td><td>" . $a[4] .
"</td><td>" . $a[5] . "</td><td>" . $a[6] . "</td>";
                                                                    if($a[7]
== "0")

                                                                    echo "<td><a href=\"?id=" . $a[0] .
"&&wblock=1\">Block</a></td>";
                                                                    else

```

```

        echo "<td>Blocked! <a href=\"?id=" . $a[0] .
"&wblock=0\">Unblock</a></td>";

                                                                    echo

"</tr>";

                                                                    };

                                                                    echo "</table>";

                                                                    echo "<h2>Contact

Us Messages</h2>";

                                                                    echo "<table

class=\"chat_tbl\">";

                                                                    echo

"<tr><td>#</td><td>Date</td><td>Email</td><td>Remarks</td></tr>";

                                                                    $query = "SELECT

* FROM contactus";

                                                                    $result =

mysqli_query($connect,$query) or exit("Cannot perform query!");

                                                                    while($a =

mysqli_fetch_array($result)){

                                                                    echo

"<tr><td>" . $a[0] . "</td><td>" . $a[3] . "</td><td>" . $a[1] .

"</td><td>" . $a[2] . "</td>";

                                                                    echo

"</tr>";

                                                                    };

                                                                    echo "</table>";

                                                                    }

                                                                    ?>

                                                                    </div>

                                                                    <div class="clearfix"></div>

                                                                    </div>

                                                                    </div>

                                                                    </div>

                                                                    <?php

                                                                    include "misc/footer.php";

                                                                    ?>

                                                                    </body>

</html>

```