

Web based Vehicle Service Management System

For

Trinco Automobile

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Web based Vehicle Service Management System
for
Trinco Automobile

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**This dissertation is submitted in partial fulfilment of the requirement of the
Degree of Bachelor of Information Technology (external) of the
University of Colombo School of Computing**

DECLARATION

DECLARATION

"I certify that this dissertation does not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any university and to the best of my knowledge and belief, it does not contain any material previously published or written by another person or myself except where due reference is made available for photocopying and for interlibrary loans, and for the title and abstract to be made available to outside organizations."



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ABSTRACT

“Trinco Automobile” is one of the major vehicle service stations in Sri Lanka. They have their branches in Trincomalee and Jaffna. Currently they provide booking facility to people through Online based. Nowadays many peoples do not spend more time to purchase services and goods for their daily life. Therefore the buyers would like to purchase services and goods through online based. To full fill that kind of consumers need and to make improvements on company’s business activities, the Trico Automobile Company decided to improve the business trend through online. Because the company is keeping their company records in printed papers and they have found some inconveniences on the traditional paper system to maintain their business.

The “Web based Vehicle Service Management System for Trinco Automobile” is to provide customers to online booking for their vehicle from their places, pay through online with their Credit/Debit cards, ez-cash, and through online banking facility. With the help of this online system “Trinco Automobile” can able to maintain their relationship with their customers through this online system and they are able to maintain their day to day activities such as calculating income and expenditure details, staff details, customers details, and service details.

So they introduced the Web based Vehicle Service Management System to solve above problems. This system development with prototyping is used to develop methodology and design with object oriented concept. This Web based Vehicle Service Management System was mostly been developed using some modern open sourced tools and software. Hypertext Pre-Processor (PHP) which is a powerful server side scripting language has been used for server side scripting along with the Apache web server and MySQL which is relational database management system. The management likes to save the time and decrease the work load by using this system and may help them to achieve their goal. This dissertation was talked about this system and illustrates all the work carried out during the each phase of the project. Each chapter consists of require a details in order to understand the project with help of appropriate figures, graphs and reports.

ACKNOWLEDGEMENT

I developed the effective and efficient system to the Web based Vehicle Service Management System for Trinco Automobile. It was not done easily. I want to thank many people to achieve this success. The Trinco Automobile came and agreement with us to develop the project for their purpose. So we decided to solve their purpose and chosen this system to my BIT project also.

We went to the Trinco Automobile and talked with them and gather information, what are the functions done in manual work, what problems was faced by them and we shared software technology to solve this manual work problem. I discussed this problem with my supervisor and analysis this problem and decided to do this project.

I deepest thanks to, the management of the Trinco Automobile helped me to developed this system and corporate with us to express their problems and listen our solution, our idea and etc. And they gave us permission to implement this software, I would like to thanks Mr Kanesh Venugoban who supervised and guided me with ideas and advice to develop this project, thanks to my family members, friends, other IT teachers, and people who were participating patiently went through this project, without those people it is impossible to develop this system.

Finally I express my sincere thank you to the University Of Colombo School Of Computing (UCSC) for all the support me to finished this project Online reading materials delivery system.

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LIST OF ACRONYMS

PHP – Hypertext Pre-Processor

CSS – Cascading Style Sheet

OO – Object Oriented

1NF / 2NF / 3NF – First / Second / Third Normal Form

ER – Entity Diagram

DVD – Digital Versatile Disc

GUI – Graphical User Interface

RAM – Random Access Memory

GB – Gigabyte

SMS – Short Message Service

HTTP – Hypertext Transfer Protocol

UCSC – University of Colombo School of Computing

BIT – Bachelor of Information Technology

CHAPTER 1: INTRODUCTION

Jaffna district and Trincomalee district are situated in the Northern and Eastern parts of Sri Lanka. Nowadays the most of the peoples are get the services through online in their daily life. The Trinco Automobile is one of the major leading Vehicle service center in northern and eastern province. Now they are giving online facilities to customers. Through this facilities customers can booking for their vehicle service and also make the payment through online. Through these facilities customers don't waste their time for the waiting.

1.1 MOTIVATION

In the quick growing, competitive business world each individual is incredibly busy with their business thus could not rest even for a second. The customers would really like to get services through online and to full fill that customer's needs. Nowadays the "Trinco Automobile" is keeping their company records in written papers in manual work. They have found some inconveniences on the normal manual work to take care of their daily activities. The "Trinco Automobile" is that the major leading vehicle service company in Trincomalee and Jaffna.

The "Trinco Automobile" Company located in different district. One is located in Jaffna and other one is located in Trincomalee. So "Trinco Automobile" management faces several difficulties in manual works like manage record day to day activities, receive booking from customers, service details, employees' details, manager level details and handles the booking inquiries. As mentioned earlier they facing several bother with the older system once they would like to spot the quick services through online.

So they would really like to implement Web based Vehicle Service Management System to get the booking from customers through online. This project provides effective and efficient web based system for the Trinco Automobile. This Web based system facilitate to minimize the work, increase efficiency of work, identify the day to day Booking and view the daily, monthly and annual reports. The management likes to avoid wasting the time and reduces the work load by using this web based system. And additionally they are available to an agreement with me to develop the project for their purpose. Therefore I have determined to chosen this project for my BIT

project additionally. The developing system can provide a resolution for the problems that they need featured additionally for users or the client further.

1.2 OBJECTIVES OF THE PROJECT

The Company can be able to:

- Develop online booking, Thus increase the company's order level.
- Receives booking alerts through mobile phone to branch managers and Administrator.
- View and printout of daily, monthly and annual reports of the branches.
- Manage staffs details and calculate the staff's salary.
- Make discount to the customer.
- Calculate the vehicle service charge based through booking details.
- Provide better services to customer.
- Communicate among the system through message via email or SMS.
- Get feedback from customers to analysis the company services within the customer point of view.

The customers can be able to:

- Make booking through online.
- Make payments through online (credit card, debit card or ez cash).
- Get the variety of vehicle services and service details.
- By using this system the customer may save their time and money

System can be able to:

- The system provide a user -friendly interface system for Trinco Automobile administration and user of the Trinco Automobile, so this is easy to work for system users without any additional knowledge.
- This system can access in a computer with low memory and low processing power. So this is cost effective system.
- This system has to include authentication rights. So this would be secure method to miss use with any other hackers.

- This system has to include login privilege, Admin level staff only access delete, edit permissions.

1.3 SCOPE

The scope of the project is determined by the allocated time, resources and the client's requirements. Thus, the scope of the proposed Web based Vehicle Service Management System can be summarized as follows:

- The proposed system will provide an overall solution to handle the day-to-day activities related to the Trinco Automobile. This includes activities related to web based booking, web based services details and Human Resources.
- The main deliverables of the system would be Summarised Management Reports, Staff salaries, receive and manage online booking, Make alert through mobile phone to management and customers. Moreover, the proposed system will include record monitoring in different user perspectives and provide a secure system.
- The Intranet system will only be operated by the internal employees. The external interaction concepts like Business to Customer and Business to Business are also implemented in this system.

1.4 CRITICAL FUNCTION FOR PROJECT

- When the customer makes many online booking at a time, it may get delay for the vehicle service depends on the vehicle cleaner's availability.
- Handle inquiries about a booking, services and get payment from online.
- People who ever having the lack of knowledge of Information Technology field they may a faced some problem when they used this.
- The Information Technology is a new trend in the northern and eastern province of Sri Lanka therefore may some problem occur during using this system such as how to use a websites and make online payment.

1.5 REPORT ORGANIZATION

The rest of this project is organized as follows. Chapter 2 provides the analysis; this chapter describes the existing system, requirements and feasibility study for the proposed system and the process model used to develop the system. Chapter 3 provides a design including Use case diagram, ER diagram, Activity diagram Sequence diagram of the online reading materials delivery systems and their description. Chapter 4 provides the implementation details, chapter 5 provides the testing procedure, chapter 6 provides conclusion of this project then appendix have some additional documents of this project and last one is glossary.

CHAPTER 2: ANALYSIS

System analysis could be an important part of software development life cycle. During this analysis chapter we will specialise in this scenario of Trinco Automobile. It'll focus that gathering techniques used to gather issues of current manual system of the company and deliver the goods the project goal. Finally we will compare the existing system with the functional and non-functional requirement of the proposed system.

2.1 EXISTING MANUAL SYSTEM

In existing manual system of the company maintains their records in log book. The company divided their manager level into two top level management. They are administrator level, and Regional level management. The customers make booking through telephone and the administrator and staff of the company manage their booking record in manually. Then they gave the information about booking to Branch manager. The management level of the existing system shown in the following Figure 2.1:

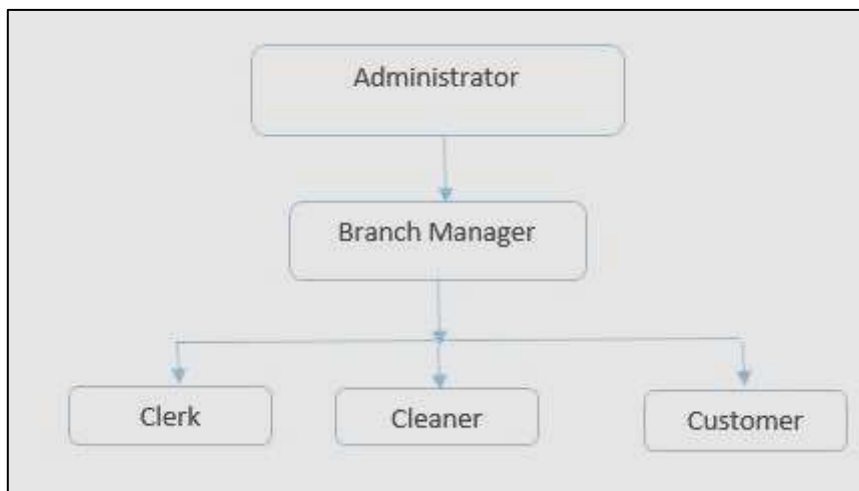


Figure 2.1 Diagram for Management level

This Existing manual system use-case diagram shown in following Figure 2.2:

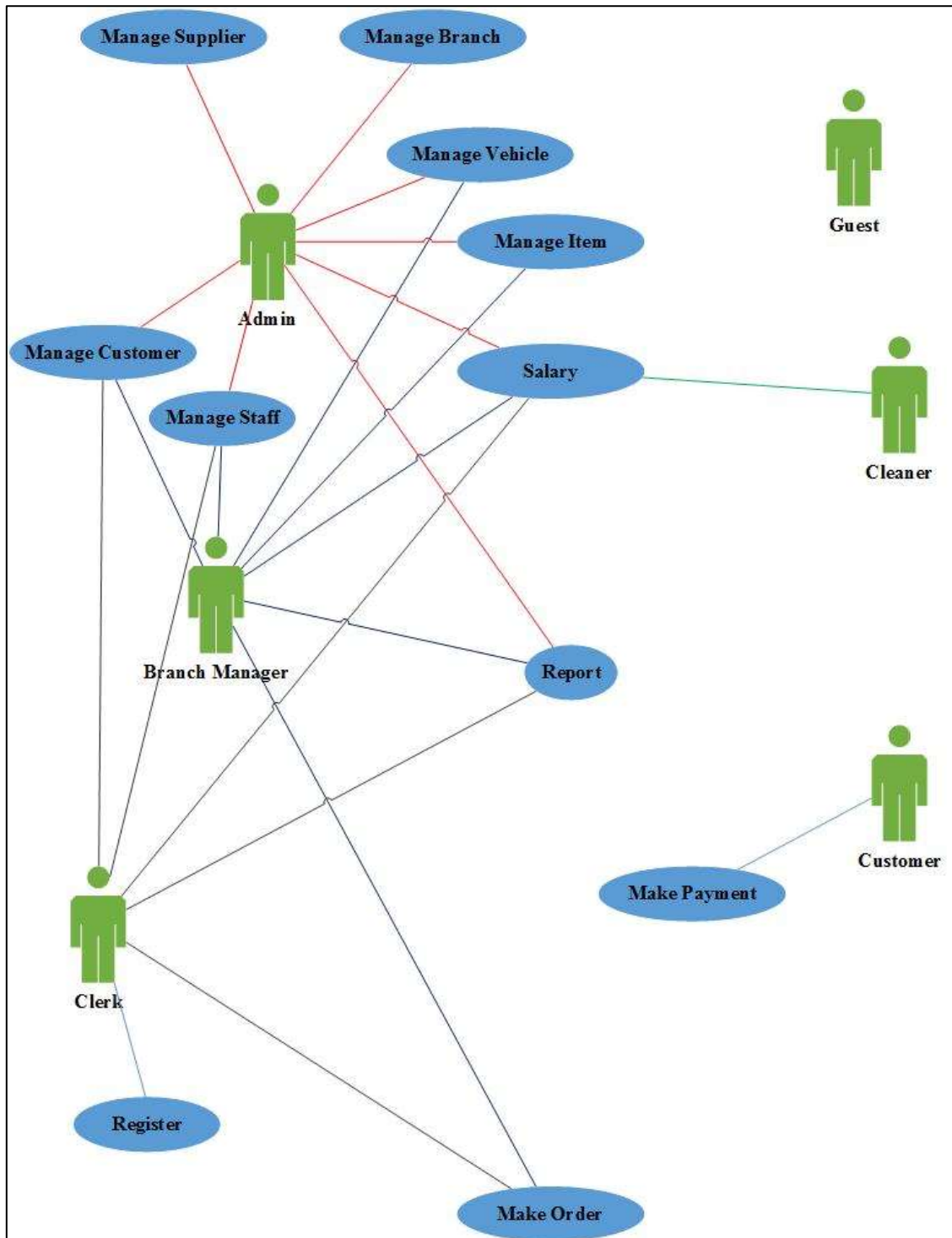


Figure 2.2 Use Case for Existing Manual System

2.1.1 DRAWBACKS OF THE EXISTING MANUAL SYSTEM

The following major drawbacks are known within the existing manual management system.

- Hand written contract documents (booking list, payment vouchers, etc.)
- Inflexibility of finding details of booking.
- Confidential data is recorded in a log book.
- No proper customer history and documentation.
- Calculations are done manually.
- Complex monitoring of business progress.
- Poor communication methods with the customers in business.
- Time wasting by paper work.
- No any easy payment methods (online payment, shopping cards) for customer.

2.2 EXISTING SIMILAR SYSTEM

This section summarizes various techniques that have been employed closely related with our web based system. This system has some literature reviews that are on sale and services. They gives services through online when we make some booking. They are dealing with services such as, “mitsubishicars”, “pepboys” and etc.

The “mitsubishicars” (<http://www.mitsubishicars.com.sg/>) give facilitate online booking for vehicles services. They have facilitated vehicles selection, select date, select time and make online payment facility using credit card only. The mitsubishicars front page shown following Figure 2.3:

The screenshot displays the Mitsubishi Cars website's booking interface. At the top, there is the Mitsubishi logo on the left and the 'CYCLE & CARRIAGE' logo on the right, with the tagline 'WE DRIVE FIRST CLASS'. Below the logos, there are two main navigation buttons: 'Book A Service' and 'Change / Cancel My Bookings'. A message box states: 'Thank you for using Cycle & Carriage Centralized Booking System (CBS). Created for the convenience of our customers, CBS is an integrated & interactive booking system, which provides hassle-free, instantaneous booking and confirmation of your service appointments. This system allows us to plan our backend operation resources to ensure a shorter waiting time for customers who book in advance.' Below this message is a progress bar with five steps: 'Particulars', 'Select Type', 'Select Date', 'Select Time', and 'Confirmation'. The 'Particulars' step is currently active. Underneath, there are two input fields: 'Vehicle Registration No. - Full vehicle plate number (e.g. SGT1234X, GV1234X)' and 'Owner's Identification No. - IC No. (e.g. S1234567X) or Passport No. (e.g. A1234565)'. Both fields have red error messages: 'Please provide your vehicle registration number' and 'Please provide your identification number' respectively. At the bottom right of the form, there is a 'Continue »' button.

Figure 2.3 Mitsubishi cars home page

The “pepboys” ([http:// www.pepboys.com](http://www.pepboys.com)) also facilitate online booking for vehicles services. They have facilitated vehicles selection, location selection, select date, select time and make online payment facility using credit card only. They also deliver their services in globally. The flipkart front page shown on following Figure 2.4:

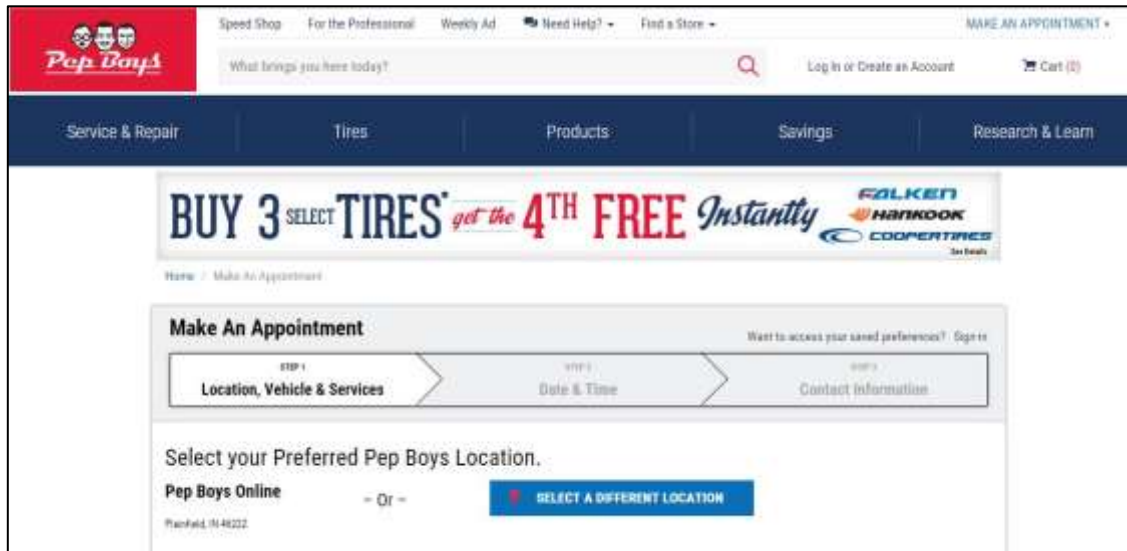


Figure 2.4 pepboys home page

Thus, there are no proper systems available in the literature for web based Vehicle service management system and with other easy payment method (ez-cash) in Sri Lanka.

2.3 GATHERING TECHNIQUE

In the software development, analysis part is very important to collect correct and accurate requirements for this system and analysis the requirements and identify the solution. Some information gathering techniques use for collect the requirements are available such as, interviews, observation, questionnaires, site visit and etc. but in this study used the interviews, observation and site visit to find requirements.

An interview is a formal face to face meeting with two or more peoples. It is primary technique for information gathering during the system analysis, we met the client to interview with them and asking about the manual system of their company. From this technique user involvement is high and they easily interact with the system and we collect the clear business objectives. A questionnaire is mostly used to collect information from large number of people for same questions, this approach not necessary to this system.

Direct observe of work performance is an excellent means gathering data. It is useful if the user is not able to clearly explain what they do or their requirements can see ideas for improving process from their work. From site visit, we directly got to work place and observe their work and ask questions about their work, discuss the problems of their system and gather information. From these techniques we clearly identify the requirements, problems of the current manual system.

2.4 REQUIREMENTS GATHERING

Requirements gathering are the process of addressing the needs and conditions of the new system.

2.4.1 REQUIREMENTS ANALYSIS FOR THE SYSTEM

As mentioned earlier, from information gathering techniques we analysis their process, inquires the booking and services, maintained the data, manager level details and etc. The management responsible for the customer booking. When they receive booking from customers via telephone or personally have inquiry about the booking and send the information to the regional manager. Then they assigns the particular date and time to customers. Cash payments, booking details, customer data recorded on paper and stored in the system based on file.

In their manual system they have manager level department. All the records stored in papers by manual. There is data duplication, not sure about correct data such as staff details, salary details and etc. If they do not have accurate information it is very difficult to manage their records. From evaluate their current manual system they spent waste of time to their work.

2.4.2 FUNCTIONAL REQUIREMENTS

Functional requirements capture the intended behavior of the system. This behavior may be expressed as services, task or functions the system is required to perform. In product development, it is useful to distinguish between the baseline functionality necessary for any system to compete in that product domain and features that differentiate the system from competitors.

Requirements of the Trinco Automobile:

- Entering and storing the details of customers and booking.
- Make friendly Graphical User Interface (GUI).

- Obtaining detailed report view and printouts
- Obtaining periodical report view and printouts.
- Updating the online customer profile.
- Sending promotional information to the customers via SMS, E-mail.
- Advertising business promotional details.
- Blacklisting customers.
- Alert news.
- Calculate salary.
- Get users feedback.

Requirements for customer:

- Customers can search the service station near their area.
- Customers make booking through online.
- Customer make payment through online payments
- Finding their booking status.
- Update the profile.
- Make feedback.
- Receiving promotional information from the company via SMS, E-mail.

2.4.3 NON FUNCTIONAL REQUIREMENTS

Non-functional requirements in system engineering and requirements engineering, a non-functional requirement is a requirement that specifies criteria that can be used to judge the operation of a system, rather than specific behaviors.

- Accuracy and consistency, these are very important non-functional requirements that should be considered when storing the details of customers and company calculating values.
- Reliability, this is a non-functional requirement of the system users. There should be trustworthiness between the users and the system.
- Usability, should be very much important in this project when developing the online user profile to the customers.
- Reusability and maintainability, in a case where the system needs any changes in the future, it should not be a tricky task. Proper

documentation and using standard methods when developing the system will ensure this non-functional requirement.

- Security, there should be superior security mechanisms since the system stores very confidential information such as details of user profile, password of the customers and company account.
- Authorized person only login into our system.
- Easy to access the system.
- Reduce the labor cost and time.
- Increase the sales and marketing.
- Reduce the labor cost and time.

2.4.4 RESOURCE REQUIREMENTS

Hardware requirements:

- Pentium 4 computer or above.
- Basic printer.

Software requirements:

For development purpose:

- Operating system.
- Wamp server (PHP 5.4.12, MySQL 5.6.12, Apache 2.4.4)
- Adobe Dreamweaver CC
- Adobe Photoshop cs5
- CSS
- JavaScript
- Microsoft Word
- MySQL Workbench 6.0.8 CE
- Microsoft Project 2013
- Microsoft Visio professional 2013
- Browsers

For development purpose:

- Operating system
- Browsers

Other requirements:

- Internet connection
- Webhosting and Domain

2.5 FEASIBILITY STUDY FOR THE PROPOSED SYSTEM

Feasibility study is a process, in order to discover the strengths, weaknesses, opportunities and threats of a proposed system to full fill the main business needs. A detailed study of feasibility has been made regarding this system following facts.

2.5.1 LEGAL FEASIBILITY

Since the proposed systems is a customer booking through the online system, by Trinco Automobile, it has been analyzed to ensure that the system is in accordance to the customer act of Sri Lanka.

2.5.2 OPERATIONAL FEASIBILITY

The proposed system functions were analyzed to see whether they accomplish the business requirements.

2.5.3 MARKET FEASIBILITY

The proposed system will operate in Trinco Automobile situated in Jaffna district and trincomalee district where there is a huge demand for their business. The system is capable of facing the market demand.

2.5.4 FINANCIAL FEASIBILITY

The system is fully web based with very low hardware, maintenance and IT costs.

2.6 PROCESS MODEL

“The Rational Unified Process is a Software Engineering Process. It provides a disciplined approach to assigning tasks and responsibilities within a development organization. Its goal is to ensure the production of high-quality software that meets the needs of its end-users, within a predictable schedule and budget.” The Figure 2.5 Iterative Model graph shows how the R.U.P process is structured.

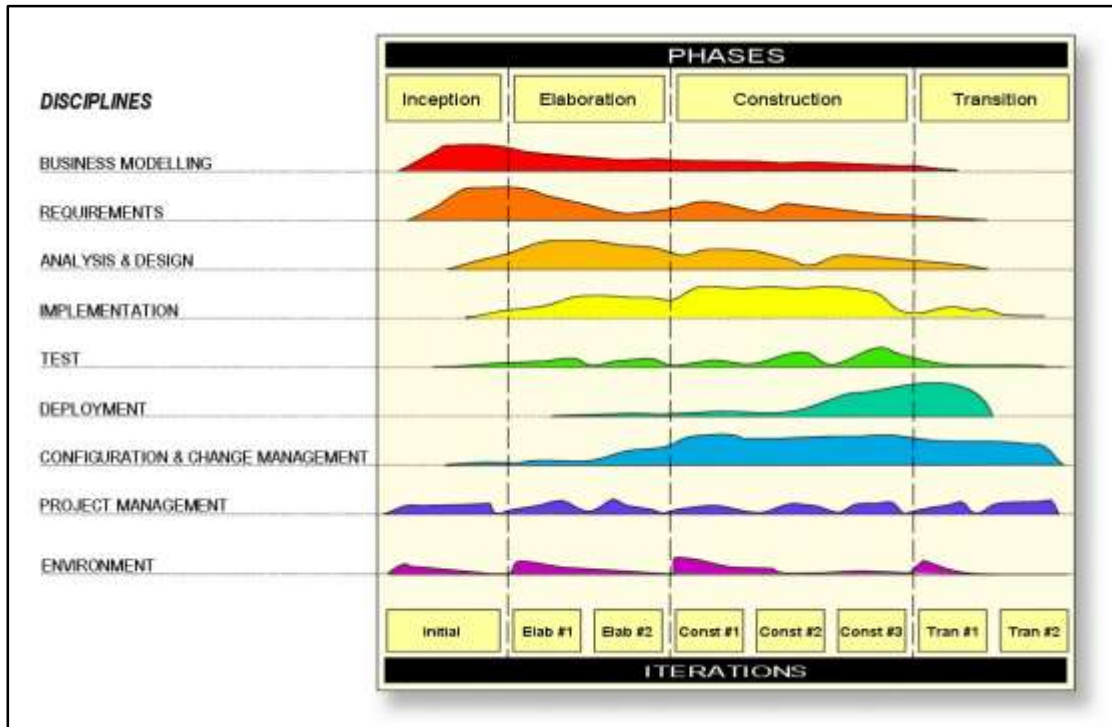


Figure 2.5 Rational Unified Process Model

CHAPTER 3: DESIGN OF SOLUTION

The system design is the process of defining the architecture, components, modules, interfaces and data for a system to meet the specified requirements. In this chapter, drawing, describes various models of approach and methodologies that can be used for the developed system.

3.1 DIFFERENT MODELS IN SOFTWARE ENGINEERING

In the automation, to a methodology developed in making an information system, the more robust it is required and also to provide a validated system to the client. A validated system is one that has no flaws and meets the requirements of the client. A system development methodology is a very formal and precise system development process, which defines a set of activities, methods, best practices, services and automated tools for system developers and project managers to use to develop and maintain an information system [1].

There should be plenty approach as waterfall model, incremental model, rapid application development, prototype model and etc. The waterfall model is suitable for projects that have clear and stable requirements. It has the ability to cascade effects one stage to another stage in leaner cycle development process best suited for where clearly defined requirements [2].

Incremental model, whole system is divided into separate sub-system and these sub-systems implemented separately. In this approach each sub-system is developed separately and development liner approach. This system used for large and complex system. The rapid application development one of the incremental method, it based on technique that speedup the system development with high user involvement [3]. The prototyping [4] model is better understanding on how to develop the system. It helps to clarify the requirements that are stable or unstable requirements. It has two types, one is throw-away prototype [5] it is suitable for vague and stable requirements and another type is evolutionary prototyping [6] that suitable for vague and unstable requirements. We used the evolutionary prototyping model to development our system.

The prototyping model shown following Figure 3.1:

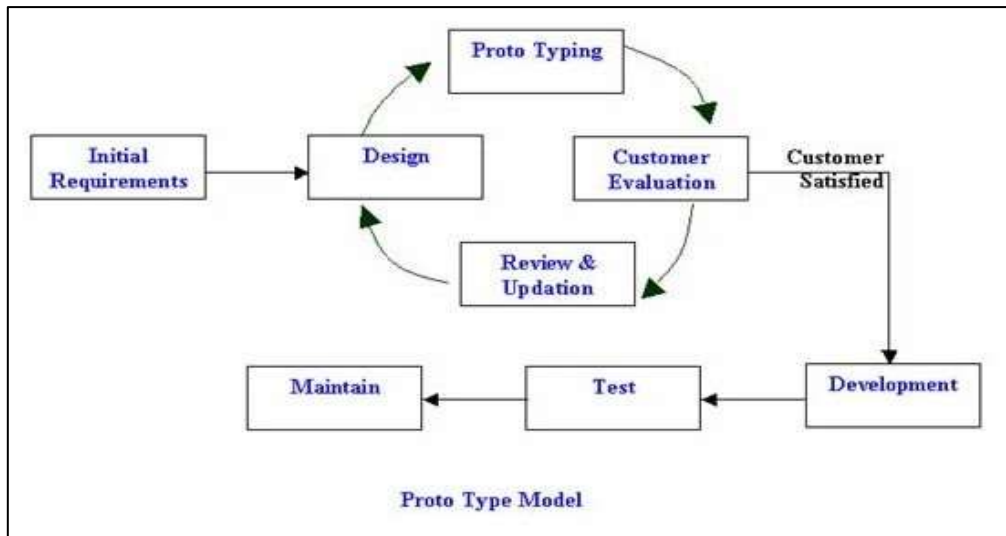


Figure 3.1 Prototype Model

3.2 ALTERNATE SOLUTIONS

In developing software throughout the system basically divided into three categories that are standalone, network based and web based systems.

The **standalone system** more suitable for running in with small area with personal computers and workstations, so that the run standalone application only a specific environment. In this system can test the application substantially complete in categories such as GUI, functionality, load and backend (database).

The **network based application** usually developed for local area network (LAN). Depending on the network, the application is loaded on the server computer, while the exe application on each client machine. In this system can test extensively in categories such as, GUI on both sides, the functionality, load, client server interaction and backend (database). This environment is mostly used in intranets. In network based application in connected mode, menu driven and has limited number of users can access.

The **web application** is accessed over a network connection using HTTP. Application is loaded on the server whose location may or may not be known and no exe is installed on the client machine, you have to test it on different web browser. An application in which all or some parts of the software are downloaded from the web each time it is run in user's web browser. The web based application is Uniform Resource Locator (URL) driven; disconnected mode and unlimited number of users can access the application from any various places.

In this system develop as Web based Vehicle Service Management System for Trinco Automobile because the Trinco Automobile has many branches and many customers in various places, they want to access the system in their places. The Trinco Automobile like to centralized the backend (database) in their head office and provide the system to all users in simultaneously. For these reasons the Trinco Automobile has decided to develop the system in web based.

3.3 PROCESS DESIGN

The design gives the solution for requirements analysis, based on this design to develop the system. This design was divided into three stages:

- Database design
- Application architecture design
- Interface design

3.3.1 DATABASE DESIGN

Database design is done through data modeling. The database designing is done to specify the structure of the object of the system. To avoid the data redundancies the every table of the database were normalized to third normal form.

In normalization there is several level of normal form but we mostly used first three normal form. First normal form (1NF), eliminate duplicative columns from the same table and create separable tables for each group and identify the unique column or set of columns it is called as primary key for that table. Second normal form (2NF), if any non-key attributes are functionally depended on just a part of the key was remove and create separate table and connect both table with foreign key. Thus 2NF can only be violated only when a key is composite key. Third normal form (3NF), remove columns that are not depend upon the primary key.

After third normal form most of the table mostly avoids the data redundancy, if any additional other normal form will be used. The ER diagram drew by MySQL Workbench 6.0.8 CE shown following Figure 3.2:

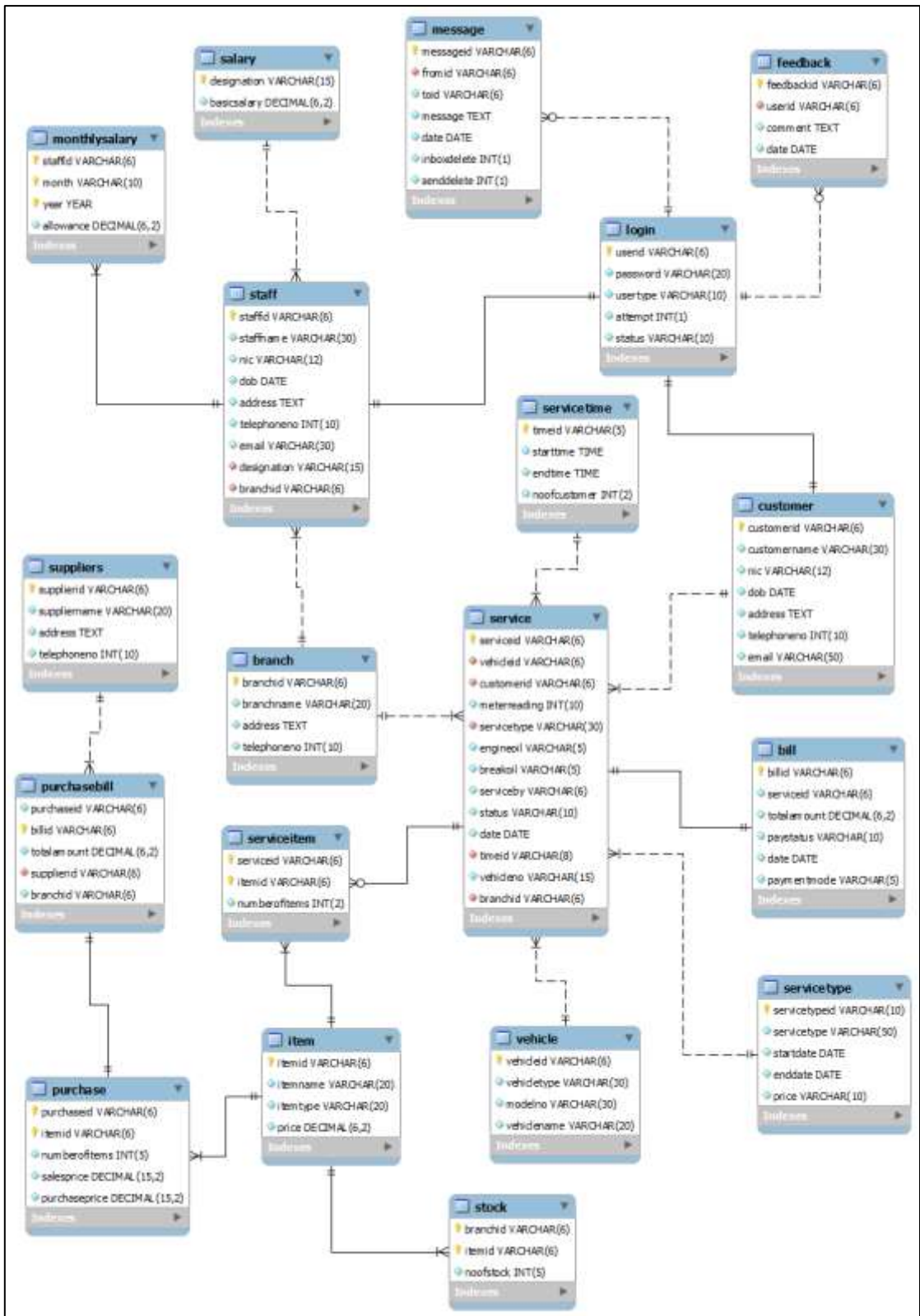


Figure 3.2 ER Diagram for Trinco Automobile

3.3.2 APPLICATION ARCHITECTURE DESIGN

This design describes the functionality and task of the system are connected into sub system. In this design we draw activity, class, sequence and use-case diagram. Other use case, class, activity and sequence diagrams are drew using the Microsoft Visio Professional 2013.

Use-case diagram:

It is simply represent the user's interaction with the system, summarized the relationship between use-cases, actors (users) and systems. This system use-case diagram shown in following Figure 3.3:

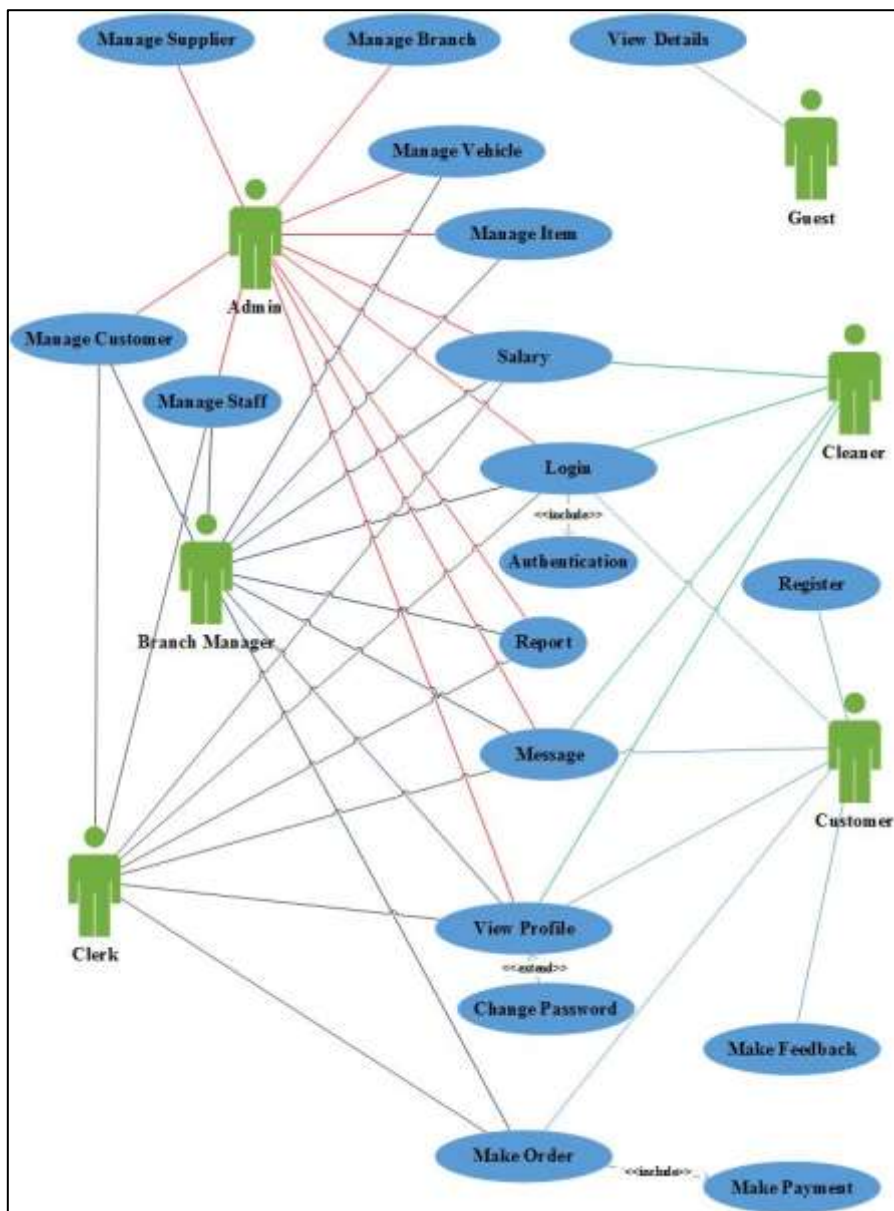


Figure 3.3 Use case Diagram for Trinco Automobile

Use-Case narrative:

The use-case narrative for above use case Figure 3.3 is shown in the following Table 3.1:

Use Case	Actor	Description
Login	Admin, Guest, Branch Manager, Clerk, Cleaner, Customer	The users who are registered in the system have to enter their username and password to open the system. At that time username and password will be authenticated.
Make Booking	Admin, Branch Manager, Clerk, Customer	All the users can search service details, service time, available details and etc, when they make booking they want login into this system; after login they can make booking and settle their advance payment via ez cash and system will confirm their appointment.

Table 3.1 Narrative for use case

Activity diagram:

This diagram represents the graphical view of workflows of stepwise activities in the system. We drew activity diagram for login, new user and booking. Activity diagram for login is shown on following Figure 3.4:

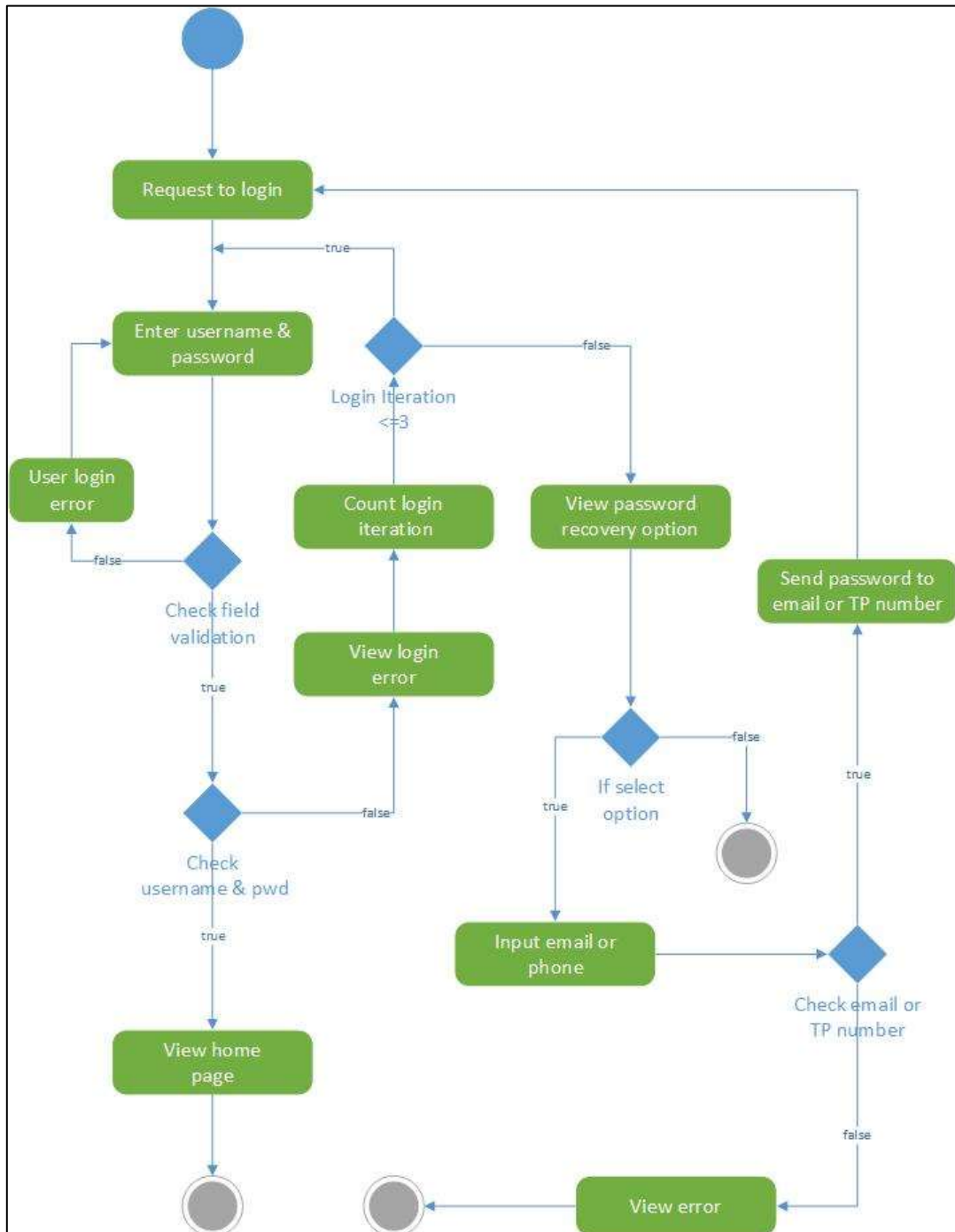


Figure 3.4 Activity Diagram for Login

Sequence diagram:

This diagram represents how objects interact in given situation or activity. The sequence diagram drawn for login, new user and booking process. Sequence diagram for login is shown on Figure 3.5:

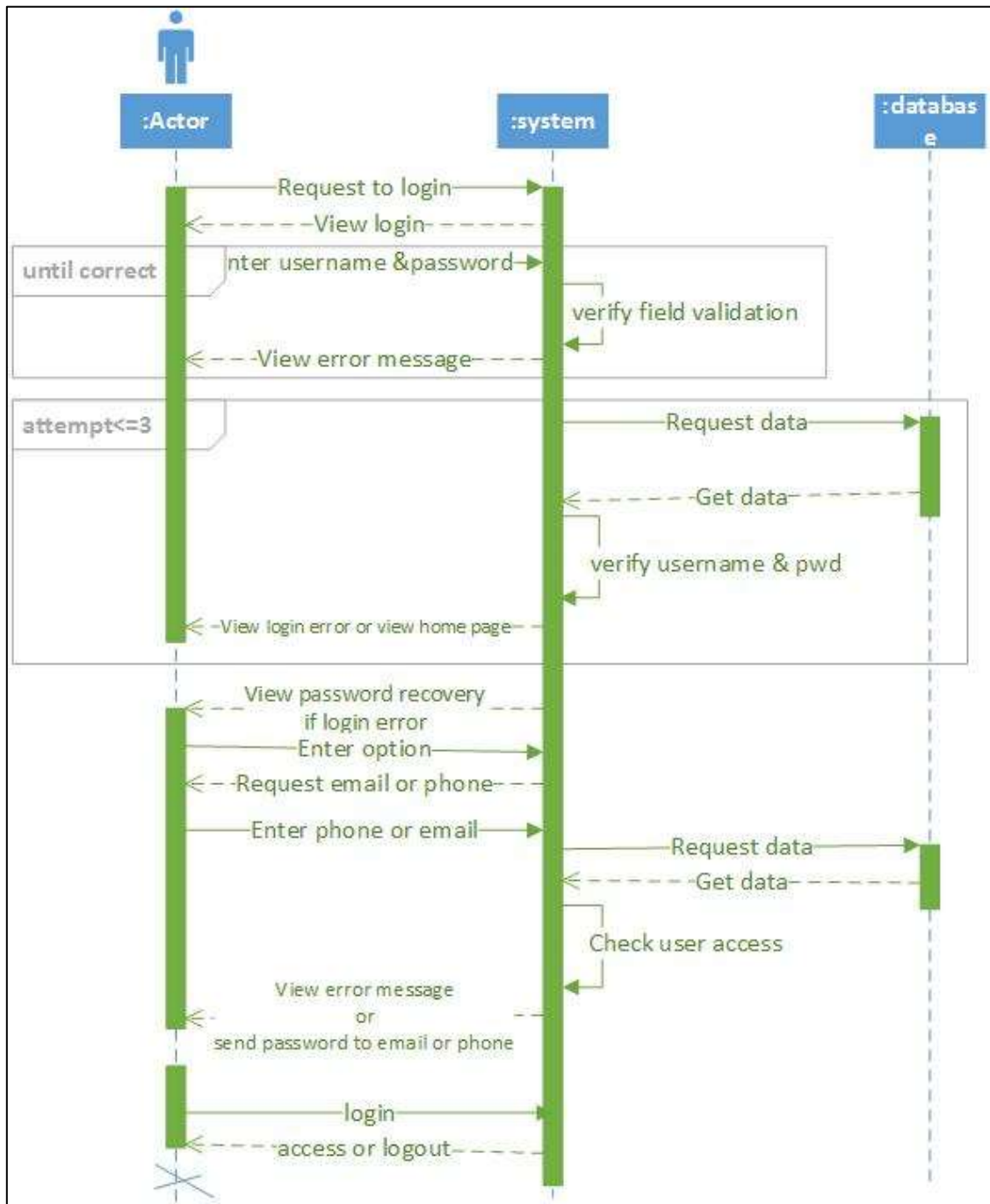


Figure 3.5 Sequence Diagram for Login

Sequence diagram for booking process of this system shown in Figure 3.6:

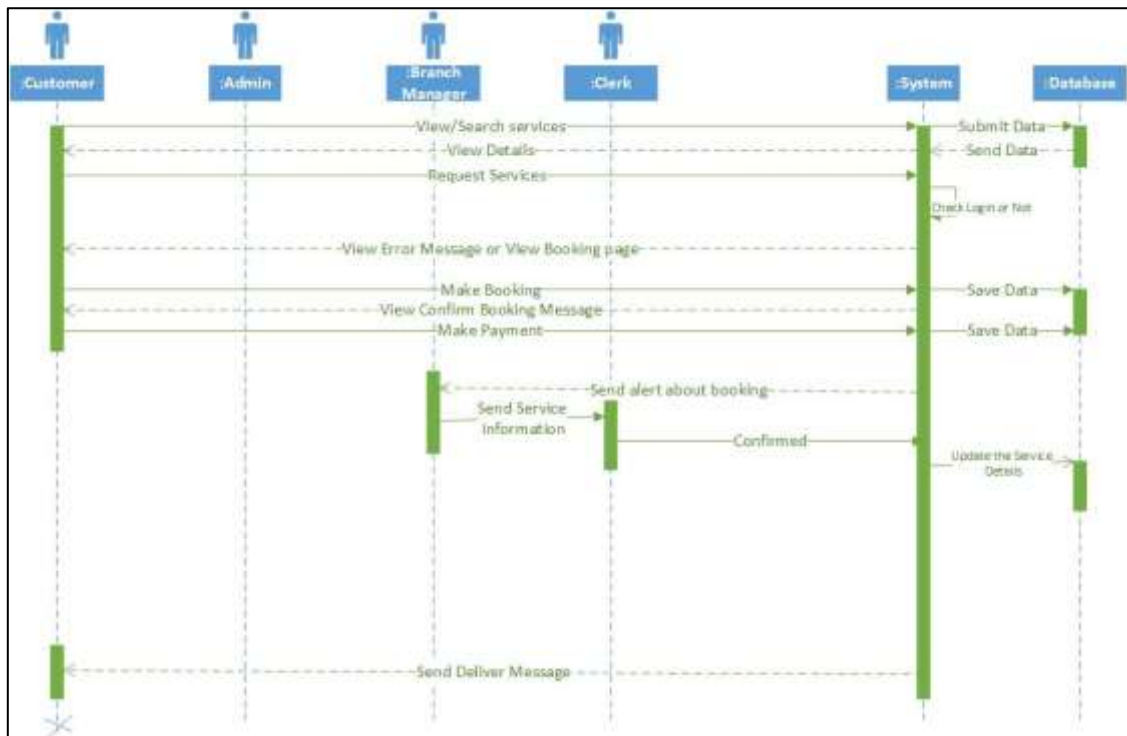


Figure 3.6 Sequence diagram for booking

3.3.3 INTERFACE DESIGN

In this Interface Design section we provide the user interface of our Web based vehicle management system. The user interfaces are very user friendly and easy to access. This system consists of icons, button and navigation to provide easy and better access to the system by the user.

Main screen

The following Figure 3.7 Index Page, show the home page of our system. This index page named as Guest menu. In home page, there are some tabs Admin, Management, Service, About, Contact and Login. The Admin tabs, displays as Index Page. In Management tabs, displays the branches, item and vehicles details. Service tabs displays the service types and service time details. In about tabs, describe about the Trinco Automobile. In contact tabs contain contact details about Trinco Automobile. Finally Login tabs, facilitates the new user to register their details in our system.



Figure 3.7 Index page

Login page

The login permits the user to have access to the system. Login is shown on following Figure 3.8 Login page.



Figure 3.8 Login page

Forget Password

In forget password form, enter the registered mobile phone number. If any wrong input, the system will provide error message. In telephone field can only insert telephone number other than cant' type no any text. Refer in Figure 3.9.

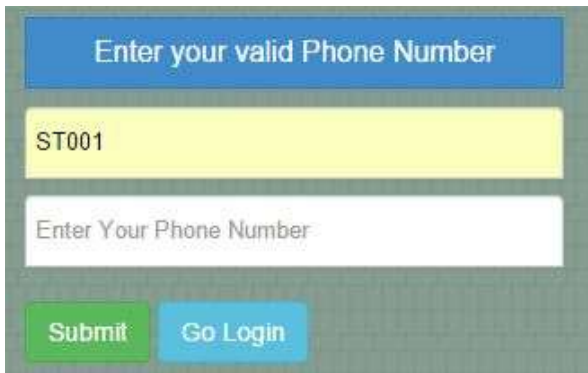


Figure 3.9 Forget password

New Register

If the guest want to register as a new customer that time also add new dialog box will be displayed. Refer in Figure 3.10.

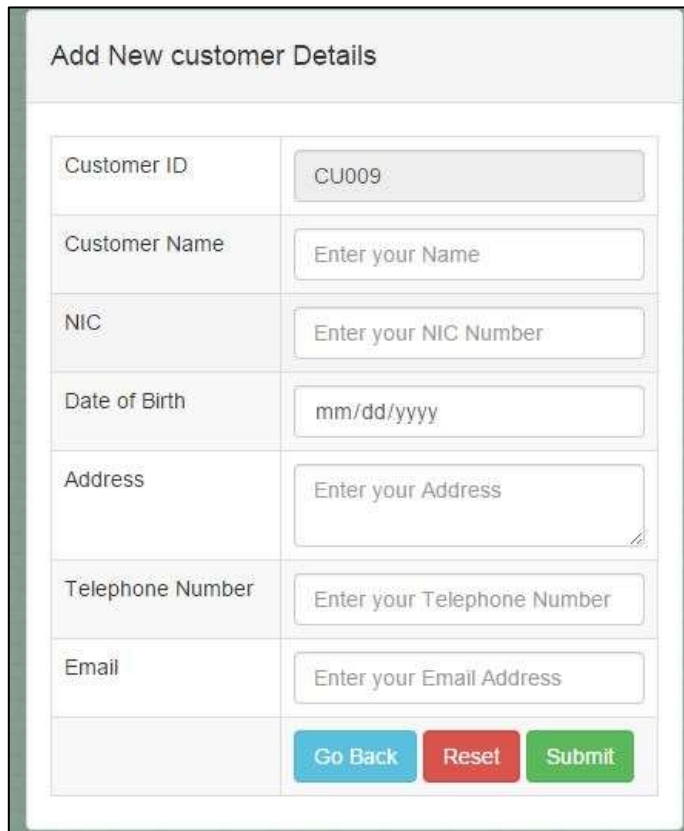


Figure 3.10 New register

Customer Interface

After user login as customer the customer interface screen show the customer menu page and common body page. The customer interface screen is shown on following Figure 3.11 Customer Screen.

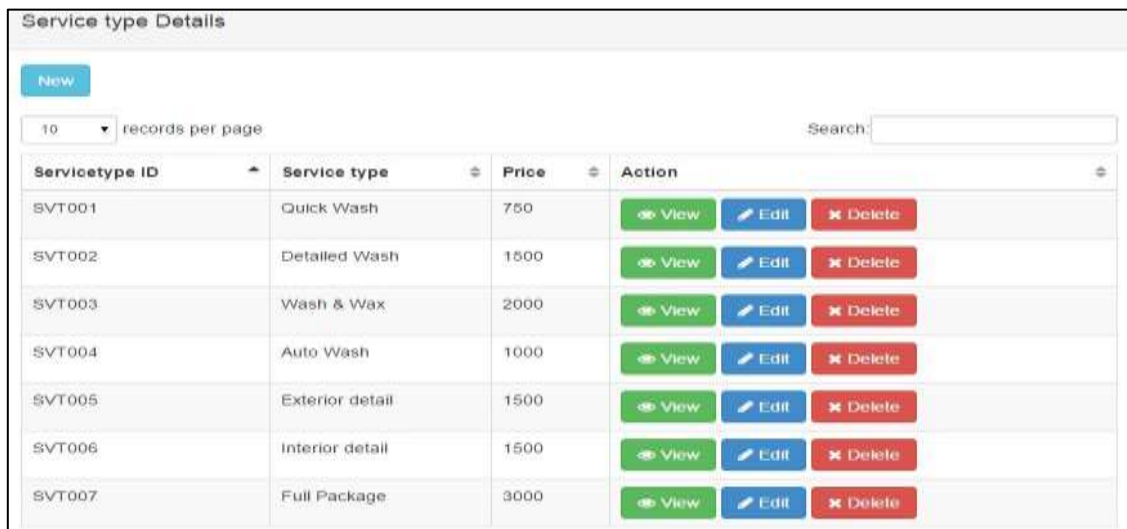


Figure 3.11 Customer Interface

The customer menu page has some tabs such as Customer, Service, Profile, About, contact and logout. The customer link is navigating the interface to main screen. The service tabs provides the branch, item, vehicle, service, service item, service type, service time and bill details. The service type link shows the available types of services. Through the service time link customer can easily identify the service times. The Item link shows the available vehicle service items in Trinco Automobile. The service link provide a booking form for book through online. The message link provides the message details of that login customer. The feedback link provides the customer to feedback about booking or our Trinco Automobile.

Available Service types

This service types displayed with service type id, service type and price. Admin user can only use the view, edit and delete button. Other users can only use view button. Refer in Figure 3.12.

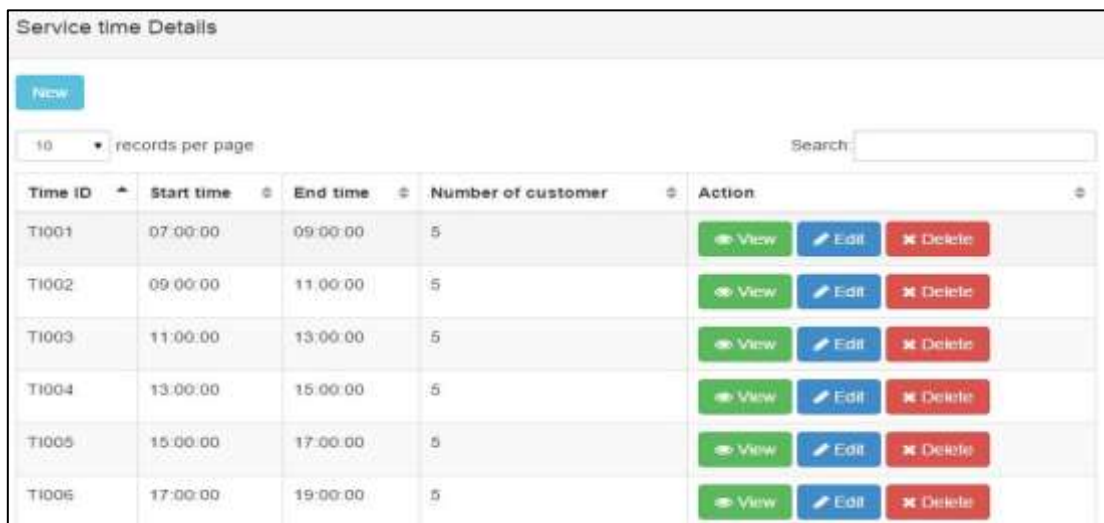


Servicetype ID	Service type	Price	Action
SVT001	Quick Wash	750	View Edit Delete
SVT002	Detailed Wash	1500	View Edit Delete
SVT003	Wash & Wax	2000	View Edit Delete
SVT004	Auto Wash	1000	View Edit Delete
SVT005	Exterior detail	1500	View Edit Delete
SVT006	Interior detail	1500	View Edit Delete
SVT007	Full Package	3000	View Edit Delete

Figure 3.12 Available service types

Available Service time

This service time view displayed with time id, start time, end time and number of customers. Admin user can only use the view, edit and delete button. Other users can only use view button. Refer in Figure 3.13.



Time ID	Start time	End time	Number of customer	Action
T1001	07:00:00	09:00:00	5	View Edit Delete
T1002	09:00:00	11:00:00	5	View Edit Delete
T1003	11:00:00	13:00:00	5	View Edit Delete
T1004	13:00:00	15:00:00	5	View Edit Delete
T1005	15:00:00	17:00:00	5	View Edit Delete
T1006	17:00:00	19:00:00	5	View Edit Delete

Figure 3.13 Available service time

Administration Interface

After user login as admin the Administration interface show the administration menu page and common body page. The administration interface is shown on the following Figure 3.14 Administration Screen.



Start Time	End Time
07:00:00	09:00:00
09:00:00	11:00:00
11:00:00	13:00:00
13:00:00	15:00:00
15:00:00	17:00:00
17:00:00	19:00:00

Figure 3.14 Admin Interface

The Admin menu page has some tabs such as Admin, Management, Service, Staff, Profile and logout. The Admin link is navigating the interface to main screen. The Management tabs provides the branch, item, purchase, purchase bill, suppliers, vehicle, and salary details. The service tabs provides the customer, service, service type, service time, service item and bill details. The staff tabs provides the staff details, salary and monthly salary details. The service link shows the service details of each customers. The service type link shows the available types of services. Through the service time link admin can easily identify the service times. The Item link shows the available vehicle service items in Trinco Automobile. The service link provide a booking form for book through online. The message link provides the message details of that login customer.

Add new service

Through the service link, admin, manager, clerk and customer can create the add new service details. The Add new button also view with this information. When the admin user click add new paper button, add new dialog box will be displayed. Refer in Figure 3.15.

Add New Service Details	
Service ID	SV005
Branch Name	Select The Branch ▼
Vehicle Name	Select the vehicle ▼
Customer Name	Select The Customer ▼
Vehicle Number	
Service Type	Select The Service Type ▼
Date	09/27/2016
Time	Select The Time ▼
Meter Reading	
Engine Oil	Yes ▼
Break Oil	Yes ▼
Status	Pending
<input type="button" value="Go Back"/> <input type="button" value="Reset"/> <input type="button" value="Submit"/>	

Figure 3.15 Add new service

Branch Manager Interface

After user login as branch manager the branch manager interface has branch manager menu page and common body page. The branch manager interface is shown in following Figure 3.16 Branch Manager Screen.



Start Time	End Time
07:00:00	09:00:00
09:00:00	11:00:00
11:00:00	13:00:00
13:00:00	15:00:00
15:00:00	17:00:00
17:00:00	19:00:00

Figure 3.16 Branch Manager Interface

In Branch manager menu page has some link such as manager, Management, Service, Staff, Profile and logout.

In profile link, there is an additional link for change password. As usual this change password link include the current password, new password and retype new password. The system will check enter correct current password or not first and then check new password and retype new password are same or not. The system only allow the password character is more than six. If we make wrong input, system will provide a message. Refer in Figure 3.17.

Change Password	
User Name	<input type="text" value="ST001"/>
Current password	<input type="password"/>
New password	<input type="password"/>
Re Enter New password	<input type="password"/>
<input type="button" value="Clear"/>	<input type="button" value="Submit"/>

Figure 3.17 Change password interface.

CHAPTER 4 IMPLEMENTATION

4.1 INTRODUCTION

After the design stage, this is the core phase where the system was being constructed as a working one according to the design planning and the client's requirements. The system has been developed by using the adequate tools and techniques which were discussed in the design stage. During the implementation stage the system was being design as unit by unit and the end of this stage, all the unit modules were integrated as a complete working system.

In this chapter, the implementation environment, hardware/software requirements, tools & techniques used and codes of the major components are going to be discussed. While coding the system, using appropriate, meaningful comments with the codes is a good habit. The comments can be used for rework or future implementation on the system.

4.2 IMPLEMENTATION ENVIRONMENT

The system implementation environment includes the basic hardware and software requirements to develop the system successfully. The table 4.1 illustrates the implementation environment (Hardware and Software environments) which was used for implementing the Web based Vehicle Service Management System for Trinco Automobile.

Software Environment	Hardware Environment
Microsoft Windows 8.1 Pro (x64)	Intel ^(R) Core ^(TM) i3 CPU M380 @ 2.53GHz
PHP (version 5.5.12)	2 GB RAM (DDR3)
Apache 2.4.9	320 GB HDD
My SQL 5.6.17	Intel ^(R) HD Graphics Card

Table 4.1 Implementation Environment

4.3 CODE AND MODULE STRUCTURE

In this system, code and modules divided into user management, booking management, staff management. User management considers about add new customer or staff and manage their profile and change password.

Booking management considers about service booking through branch wise. In staff management considers about manage staff. In booking management consider about send details of the booking to branch manager and send verification code to customer.

The directories of the system are arranged like Refer in Figure 4.1. With all the core components separated from the style sheet (css), Java Script (js), Images (img) and other templet components. The index.php page is one of the main building blocks of the system. The config.php file is a configuration file. This page contains the mysql connection, data base connection and the session start.

assets	3/26/16 11:12 AM	File folder	
css	9/06/16 4:50 PM	File folder	
fonts	3/05/16 9:23 AM	File folder	
images	9/26/16 6:36 PM	File folder	
photos	9/18/16 7:20 PM	File folder	
temp	9/18/16 7:03 PM	File folder	
about	4/04/14 5:09 AM	Chrome HTML Do...	9 KB
admin_menu	9/25/16 5:58 PM	PHP File	3 KB
ajaxpage	9/25/16 8:47 PM	PHP File	11 KB
bill	9/25/16 8:48 PM	PHP File	13 KB
blog	4/04/14 5:09 AM	Chrome HTML Do...	9 KB
blog-single	4/04/14 5:09 AM	Chrome HTML Do...	9 KB
booking	4/04/14 5:09 AM	Chrome HTML Do...	9 KB
branch	9/20/16 3:46 PM	PHP File	9 KB
branch_manager_menu	9/25/16 7:33 PM	PHP File	3 KB
carrepairshop	4/04/14 5:09 AM	IrfanView PSD File	29,966 KB
changepassword	9/22/16 9:23 PM	PHP File	4 KB
cleaner_menu	9/25/16 7:35 PM	PHP File	2 KB
clerk_menu	9/25/16 5:38 PM	PHP File	3 KB
config	3/12/16 9:34 AM	PHP File	1 KB
contact	4/04/14 5:09 AM	Chrome HTML Do...	6 KB
customer	9/26/16 4:56 PM	PHP File	12 KB
customer_menu	9/25/16 7:43 PM	PHP File	2 KB
feedback	7/02/16 9:14 AM	PHP File	2 KB

Figure 4.1 Directories of the system

4.4 CODE FEATURES

In this section, list down the main coding of the online reading materials delivery system and describe the about the coding. In the code listing the system has utilized PHP, CSS and JavaScript coding.

4.4.1 DATABASE CONNECTIVITY

When develop the system first we want to connect the system with database. Used the `mysql_connect` code to connect the local host. After successful of the connection of local host we want to connect the database. We used the `mysql_select_db` code for connect the database.

Database connection code,

```
<?php
    $host    = 'localhost'; //Host name
    $user    = 'root'; //User name
    $pass    = ''; //Password
    $database = 'automobile'; //Database name
    $connect = mysql_connect ( $host, $user, $pass );
    if(!$connect)
    {
        die("A connection to the server could not be establish");
    }
    $result = mysql_select_db($database);
    if(!$result)
    {
        die("database could not be selected");
    }
?>
```

4.4.2 LOGIN

The users such as administrators, managers, customers, clerk and cleaner are authenticated by this login module. According to the code, the module checks the authentication of user by their username and password. And also, the status of the user (system accessibility of the user) is checked here.

```

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

{

    $uname=$_POST["txtusername");//get the username from form

    $pwd=$_POST["txtpassword"]; //get the password from form

    $sql1="SELECT * FROM login WHERE userid='$uname' AND password='$pwd';
//connect with user table with username and password

    $result1=mysql_query($sql1);

    $sql2="SELECT * FROM login WHERE userid='$uname'; //connect with user table with
username

    $result2=mysql_query($sql2);

    $row2=mysql_fetch_assoc($result2);

    if(mysql_num_rows($result2)>0)

    {

        if(mysql_num_rows($result1)>0)

        {

            $_SESSION['username']=$uname; // save the username in session

            $_SESSION['usertype']=$row2["usertype");// save the user type in session

            $sql4="UPDATE login SET attempt='0' WHERE userid='$uname';

            $result4=mysql_query($sql4);

            if(isset($_GET["book"]))

            {

                header ("location:index.php?pg=service.php&option=new");// view user interface

            }

            else

            {

                header ("location: index.php");

```

```

    }
}

else if($row2["attempt"]<3)// if login attempt more than three
{
    $sql3="UPDATE login SET attempt=attempt+1 WHERE userid='$uname'";
    $result3=mysql_query($sql3);
    echo "<script> alert('Please enter correct password'); </script>";
}

else
{
    echo '<script> alert("You attempt more than three.... Please Give Your Phone number
to reset password"); window.location.href="index.php?pg=forget.php&username='.$uname.'";
</script>'; // if enter wrong user name or password
}

}

else
{
    echo "<script> alert('There is no such username'); </script>";//if username is not correct
}
}
}

```

4.4.3 FORGET PASSWORD

This code used to send a password to user mobile phone number with verification when user forget password. When user enters correct user id and register mobile phone number system send a code to mobile phone for verification, after correct verification system send a password to the user mobile phone number. If we enter wrong user id or mobile phone number system display the alert message with meaningful message.

Forget password code

```
if(isset($_GET['username']))

{

    $forgetusername=$_GET['username'];

}

else

{

    $forgetusername="";

}

include "config.php";

if(isset($_POST["btnsubmit"])) // forget password start

{

    global $phonenumber;

    $forgetusername=$_POST['username']; //Get the username

    $sql1="SELECT * FROM login WHERE userid='$forgetusername'";

    $result1=mysql_query($sql1) or die(mysql_error());

    $row1=mysql_fetch_assoc($result1);

    if($row1["usertype"]=="customer")

    {

        $sql2="SELECT * FROM customer WHERE customerid='$forgetusername'";

        $result2=mysql_query($sql2) or die(mysql_error());

        $row2=mysql_fetch_assoc($result2);

        $phonenumber=$row2["telephono"]; //get the customer mobile phone no

    }

    else

    {
```

```

$sql2="SELECT * FROM staff WHERE staffid='$forgetusername';

$result2=mysql_query($sql2) or die(mysql_error());

$row2=mysql_fetch_assoc($result2);

$phonenumber=$row2["telephonenumber"]; //get the staff mobile phone no
}

$entertpnum=$_POST["txtphonenumber"]; //get the phone number from form

if($phonenumber==$entertpnum)
{

$phonenumber="94".$phonenumber; //send the password to the staff or customer mobile
phone no

$user = "94774127131";

$password = "7455";

$text = urlencode("Your Password is :".$row1["password"]);

$to = $phonenumber;

$baseurl = "http://www.textit.biz/sendmsg";

$url = "$baseurl/?id=$user&pw=$password&to=$to&text=$text";

$ret = file($url);

$res= explode(":",$ret[0]);

if (trim($res[0])=="OK")
{

echo "<script> alert('Please Check Your Mobile Phone');
window.location.href='index.php?pg=login.php';</script>"; //send the password to particular
mobile phone

}

else
{

echo "Sent Failed - Error : ".$res[1];

```

```

}
}
else
{
    echo "<script> alert('Your telephone number is wrong'); </script>"; //if the moblie phone
no is wrong
}
}
}

```

4.4.4 INSERT CODE

If user enters all correct information the system insert the details into user table and customer table. If we enter wrong the system provide an alert message box with meaningful message.

Insert code

```

if(isset($_POST["btnsubmitnew"]))// insert new vehicle start
{
    $sql1="INSERT INTO vehicle(vehicleid,vehicletype,modelno,vehiclename) VALUES(
    ".mysql_real_escape_string($_POST["txtveid"]).",
    ".mysql_real_escape_string($_POST["txtvetype"]).",
    ".mysql_real_escape_string($_POST["txtmono"]).",
    ".mysql_real_escape_string($_POST["txtmoname"]).")";
    $result1=mysql_query($sql1) or die("error in sql1 section:".mysql_error());
//insert the area details
    if($result1)
    {
        echo "<script> alert ('Successfully insert vehicle details'); </script>";
    }
}
}

```

4.4.5 EDIT THE SUPPLIER DETAILS (UPDATE) CODE

After enter correct details the system updates the details in database.

Edit the supplier details

```
if(isset($_POST["btnsubmitted"]))//update the suppliers details
```

```
{
```

```
    $sqlupdate="UPDATE          suppliers          SET          suppliername="
    ".mysql_real_escape_string($_POST['txteusname']).",
```

```
        address= ".mysql_real_escape_string($_POST['txtaddress']).",
```

```
        telephonenumber= ".mysql_real_escape_string($_POST['txttelno'])."
```

```
        WHERE supplierid=".$_POST['txtsuppid']." ";
```

```
    $resultupdate=mysql_query($sqlupdate);//Edit the supplier details
```

```
    if($resultupdate)
```

```
    {
```

```
        echo    '<script>    alert    ("Successfully    update    suppliers    details");
window.location.href="index.php?pg=suppliers.php&option=fullview&supplierid='.$_POST["
txtsuppid"]."';</script>';
```

```
    }
```

```
}
```

4.4.6 GENERATE THE ID

Generate the new ID when we load any new entry form.

```
<?php
```

```
    //get the next customer id
```

```
    $sqlcustomerid="SELECT customerid FROM customer SERVICE BY customerid DESC
LIMIT 1";
```

```
    $resultcustomerid=mysql_query($sqlcustomerid);
```

```
    if(mysql_num_rows($resultcustomerid)>0)
```

```
    {
```

```

$rowcustomerid=mysql_fetch_assoc($resultcustomerid);

$generatecustomerid=$rowcustomerid["customerid"];

$generatecustomerid=++$generatecustomerid;

}

else

{

$generatecustomerid="CU001";

}

?>

```

4.4.7 RE-USABLE COMPONENTS

When, developing the system there were some reusable components were used.

- ▲ Reusable CSS components
- ▲ Reusable jQuery components

Use the Car repair shop [7] template only for user interface, table design and form design. This template is free web template; available in web.

4.5 SECURITY

Proper maintenance of security aspects in a computerized system is essentials to provide better services to the users. This web based Vehicle service management system is accessed by public, admin, staff, clerk and cleaner. The Admin can access the system as an administrator. The administrator has all the privileges in this system. Other registered user has less privileges comparing to administrator. The registered customer of the system are given a username and password to login and access the system. If customer try to login with wrong password, our system allow only three times after three times system automatically loads forgot password page. From forgot password page the system verify the customer ID and registered mobile phone number then system send a password to customer's registered mobile phone number.

CHAPTER 5 EVALUATION

5.1 INTRODUCTION

Evaluation is the process of testing a system or its component with the intent to find whether it satisfies all the specified requirements or not. Further testing is executing a system in order to identify any errors or missing requirements in contrary to the actual desire or requirements. Evaluation phase was used to check validity and verification of the software system. Evaluation process was carried out through the entire software development period.

5.2 TESTING PROCEDURE

Software testing process description describes what happens within the software. Testing process provides an operational definition of the major components of the process. This description specifies, in a complete, precise, and verifiable manner, the requirements, design, behavior characteristics of the Software Testing process. There are many different types of software testing as follows [8].

Black box testing – Internal system design is not considered in this type of testing. Tests are based on requirements and functionality.

White box testing – This testing is based on knowledge of the internal logic of an application's code. Also known as Glass box Testing. Internal software and code working should be known for this type of testing. Tests are based on coverage of code statements, branches, paths, conditions.

Unit testing – Testing of individual software components or modules. Typically done by the programmer and not by testers, as it requires detailed knowledge of the internal program design and code. May require developing test driver modules or test harnesses.

Integration testing – Testing of integrated modules to verify combined functionality after integration. Modules are typically code modules, individual applications, client and server applications on a network, etc. This type of testing is especially relevant to client/server and distributed systems.

Functional testing – This type of testing ignores the internal parts and focus on the output is as per requirement or not. Black-box type testing geared to functional requirements of an application.

System testing – Entire system is tested as per the requirements. Black-box type testing that is based on overall requirements specifications, covers all combined parts of a system [9].

Acceptance testing -Normally this type of testing is done to verify if system meets the customer specified requirements. User or customer do this testing to determine whether to accept application.

Performance testing – Term often used interchangeably with ‘stress’ and ‘load’ testing. To check whether system meets performance requirements. Used different performance and load tools to do this.

Usability testing – User-friendliness check. Application flow is tested, Can new user understand the application easily, Proper help documented whenever user stuck at any point. Basically system navigation is checked in this testing.

5.3 TEST PLAN FOR OUR SYSTEM

Testing was done each and every part of the system. The entire test plans were done before implementation on client side. From our test pan help to us identify the error and fixed it. Our test modules were designed as follows,

- ✓ New user module (Table 5.1)
- ✓ Administration module (Table 5.2)
- ✓ Branch manager module (Table 5.3)
- ✓ Clerk module (Table 5.4)
- ✓ Customer module (Table 5.5)
- ✓ Common function module (Table 5.6)

5.3.1 NEW USER MODULE

New user modules contain the register new module.

Test No.	Test Case	Expected Result	Actual Result	Test Result
01	Login to the system without register	Cannot login into the system	System did not allowed to login into the system	Test case pass
02	Login into to the system with customer ID as user name and NIC No as Password.	Can access the system	System allowed to access the system	Test case pass
03	Change the Password	Can change the password after successful login	System allowed to change the password	Test case pass
04	Recover Password via mobile phone	Can get the password via mobile	System send password to the registered mobile number	Test case pass

Table 5.1 New User Modules

5.3.2 ADMINISTRATION MODULE

Administration module contains some test cases. They are add new vehicle, register new customer, add new staff, edit staff details, delete record from database, and generate reports.

Test No.	Test Case	Expected Result	Actual Result	Test Result
01	Register New vehicle	Admin can register new vehicle	System allowed to register new vehicle	Test case pass

02	Register New customer	Admin can register new customer	System allowed to register new customer	Test case pass
03	Add new staff	Admin can add new staff	System allowed to add new staff	Test case pass
04	Edit staff details	Admin can edit staff details	System allowed to edit staff details	Test case pass
05	Delete records from tables	Admin can delete records from tables	System allowed to delete records from tables	Test case pass
06	Manage all the records in database	Admin can manage all the details in database	System allowed to manage all the details in database	Test case pass
07	Generate reports of each services	Admin can generate service reports	System allowed to generate service reports	Test case pass
08	Generate reports under certain criteria	Admin can generate reports under supplies, service, salary & etc	System allowed to generate such reports	Test case pass

Table 5.2 Administration Modules

5.3.3 BRANCH MANAGER MODULE

Branch manager module contains some test cases. They are login to the system, view details of vehicle, service type, service time, services and generate general reports.

Test No.	Test Case	Expected Result	Actual Result	Test Result
01	Login to the system as Branch Manager	Can login into the system	System allowed to login into the system	Test case pass
02	View the details of vehicle, service types, service times and services	Branch Manager can view All the details of the services.	System allowed to view the details of services.	Test case pass
03	Generate general reports	Branch manager can generate general reports	System allowed to generate general reports	Test case pass

Table 5.3 Branch manager Module

5.3.4 CLERK MODULE

Clerk module contains some test cases. They are View the details of vehicle, service types, service times, services, manage the customers and manage the report.

Test No	Test Case	Expected Result	Actual Result	Test Result
01	View the details of vehicle, service types, service times and services	Clerk can view All the details of the services.	The system allowed to Clerk to view papers and magazines.	Test case pass
02	Manage the customers and services	Allowed to Clerk to view customers and services only under that branch.	The system allowed to clerk to view customers and services only under that branch.	Test case pass
03	Manage the report	Allow to clerk to generate report in branch	The system allowed to clerk to generate	Test case pass

		of only under that branch.	report in branch of only under that branch.	
--	--	----------------------------	---	--

Table 5.4 Clerk module

5.3.5 CUSTOMER MODULE

Customer module contains some test cases. They are View service type, service time and Booking for service.

Test No	Test Case	Expect result	Actual Result	Test Result
01	Login with correct user name and password	Display appropriate user interface based on user type.	The system displayed appropriate user interface based on user type.	Test case pass
02	Booking for service	Only allow to customer to booking for service.	The system allowed customer to booking for service.	Test case pass
03	View the details of vehicle, service types, service times and services	Customer can view All the details of the services.	The system allowed to customer to view All the details of the services.	Test case pass

Table 5.5 Customer Modules

5.3.6 COMMON FUNCTION MODULE

Common function module contains some test cases. They are login with wrong username and password and login with correct username and password, forget password, logout, database connection and form validation.

Test No	Test Case	Expect result	Actual Result	Test Result
01	Login with wrong user name or password	If enter wrong user name or password display error message, allow only three time with wrong password if try more than three attempt with wrong password automatically go to forget password page.	The system displayed message for wrong password or user name, allowed only three time to login with wrong password and if try more than three time with wrong password system automatically displayed forget password page.	Test case pass
02	Login with correct user name and password	Display appropriate user interface based on user type.	The system displayed appropriate user interface based on user type.	Test case pass
03	Forget password	Get user name and register hand phone number and check the hand phone number correct or not if wrong hand phone number display message if correct hand	The system check the phone number and display message if wrong hand phone number, if correct hand phone number send verification code and verify	Test case pass

		phone number send verification code and check code and if wrong display message and if correct send password to hand phone number.	the code if correct send password to hand phone number if verification wrong display message.	
04	Logout	If user clicks logout then system destroy all session details and display index page. After logout if user click back button in browser then system not allow to go back only stay in index page.	The system destroy all session details when click logout and not allowed to user to go back when click back button in browser after user make logout.	Test case pass
05	The browser support and operating system support	Support all browser and all windows version support to our system access and load.	Support all browser and all windows version support to our system access and load.	Test case pass
06	Database connection	Want to connect	The system connect with database	Test case pass


			successfully	
07	Form validation	If enter wrong input display message.	The system display message when enter wrong input.	Test case pass

Table 5.6 Common function module

5.4 TEST DATA

The sample data were entered to the system to all modules need to be tested in order to test the function. We test the all form, view, manage and report with sample data. If we enter wrong input system display meaningful error message.

The client accepts testing result (user evaluation) shown in following Figure 5.1 Acceptance Result:



TRINCO AUTOMOBILE (PVT) LTD.

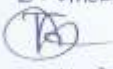
Head Office:-
No-301 B/1, Kamlyu Road,
Veerathiyangar, Trincomalee, 31000
Phone :- 026 326 5137, Fax:- 026 222 5299
Email:- trincoapi@gmail.com

Branch:-
Kattihadi Road, Maruthanaradam,
Jaffna, 40000
Phone :-021 320 3133 Fax:-021 224 1955

User evaluation

Test case Number	Test Case	Satisfied? Yes? Or no?
01	New User Register Module	Yes
02	Administrator Module	Yes
03	Branch manager Module	Yes
04	Clerk Module	Yes
05	Cleaner Module	Yes
06	Customer Module	Yes
07	Common Function Module	Yes
08	User Friendly of system	Yes
09	Clear of error messages, validation and verification code	Yes
10	Access the system	Yes
11	Overall perform of the system	Yes
12	User Education	Yes

How do you feel about the system?
The system was Fully satisfied with our Requirements.

Evaluated By: B. Vinokanth
Signature: 
Date: 07.11.2017

Trinco Automobile (Pvt) Ltd
Kattihadi Road,
Maruthanar Madam,
Jaffna,

Figure 5.1 Acceptance results

This system was used by many customers and they gave the feedback about this system and the customer feedback shown in the following Figure 5.2:



Figure 5.2 Customer Feedback

CHAPTER 6 CONCLUSION

In this system, Web based vehicle service management system was give good knowledge to us and we go to next level of our career successfully. This project gave knowledge and how to implement our knowledge what gain throughout from previous semester of BIT (Bachelor of Information Technology) degree.

6.1 PROJECT OBJECTIVES

This system was built using the technologies Object Oriented (OO) concept, HTML, CSS, PHP and JavaScript with back end MySQL. The developed web based system was fulfilled the requirements of our client and was earned their full satisfaction too. The system completely changes their day to day activities from earlier traditional system. The system helps them to realize their needs with in the time schedule, booking on time and able to ignore the delays in generating reports.

6.1.1 THE OBJECTIVES WHICH ARE ACHIEVED

The system was successfully satisfied with user requirements including their functional and non-functional requirements and client was accepting our project with fulfill of satisfaction. From this system the Web based vehicle service management system for Trinco automobile facilitate to increase the online booking through this system, So easy to manage the every branch, Online booking facility to customer, staff salary their allowance, get up to date reports to help make better management decision and support to management employees, receive booking alerts through mobile phone to branch manager of the Trinco automobile and help to make necessary action about booking and identify the service items through the timely generated report, etc.

6.1.2 THE OBJECTIVES WHICH ARE FAILED TO ACHIEVED

The online payment methods and user security of this system can be improved by adding new features such as payment get ways and encryption methods.

6.2 CRITICAL ASSESSMENT OF PROJECT

The developed Web based vehicle service management system was fulfilled the requirements of our client and was earned their full satisfaction too.

6.2.1 COMPARE WITH EXISTING SYSTEM

The system completely changes their day to day activities from earlier traditional system. The system helps them to realize their needs within the booking and able to ignore the delays in generating reports.

6.2.2 USER SATISFACTION

The system was tested by various category of users based on user privilege and all those satisfy with system. The system was tested with all the modules such as new user, Administration, Branch manager, Clerk, Customer and Common function, user friendliness, time consuming, bill calculation, reports and etc. with using of sample data in real time environment.

6.3 LESSON LEARNT

This project gave me the wide range of practical knowledge in the system development. It gave the great opportunity to apply the theories in system analyzing, designed the diagrams, system development and report writing areas. The developed domain area was considerably large and has complexity. So from the requirement analyzing part to until the implementation were able to learn plenty of knowledge regarding the system development.

Through this project I have acquired more knowledge in CSS, Ajax, JavaScript and PHP web language tools. In addition I could be learnt to write reports according to the recognized standard and in a professional manner.

6.4 FUTURE WORK

Our system satisfy client requirement but further more if we change some function out system make more quality and our country now a days grow up in technology field so we want to do some future work.

These are some future work:

- Improve the security by using encryption methods.
- Allow to customer to make booking with online shopping card.
- Allow more new branches and give more opportunity to customer.
- Developed our system like similar system Toyota, Mitsubishi
- Generate more variety of reports etc.

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APPENDIX

APPENDIX A – SYSTEM DOCUMENTATION

Introduction

We give instruction how to install our system and database, and it is help to client to installation and maintenance.

Step 1: Double click on download file Wamp Server 2.4 and just follow the instruction. Everything is automatic. Refer in Figure A.1.



Figure A.1 Setup wizard

Step 2: After click next, accept the agreement and click next. Refer in Figure A.2.

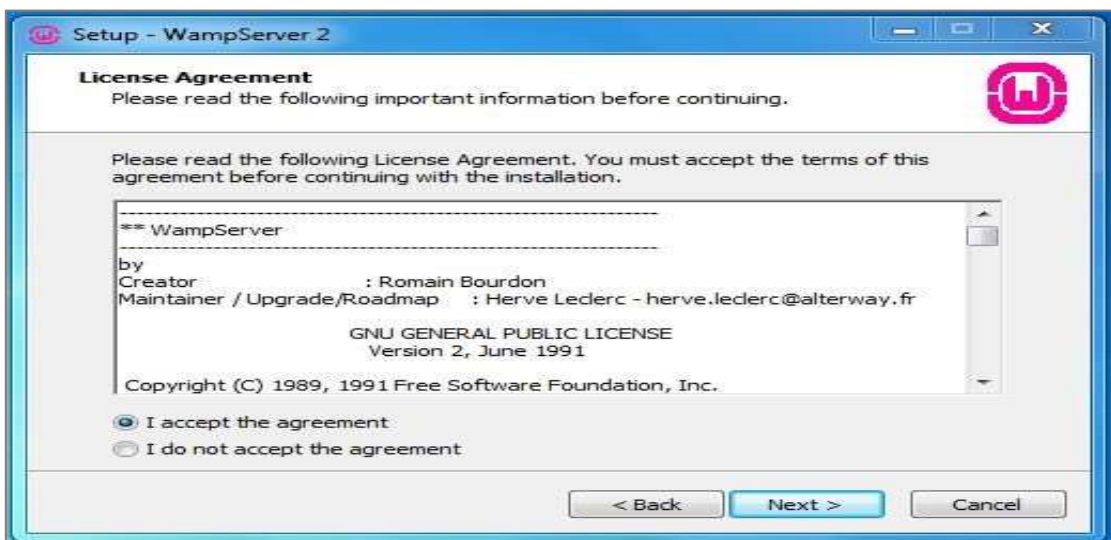


Figure A.2 Agreement

Step 3: Select the installation location of Wamp Server. Refer in Figure A.3.

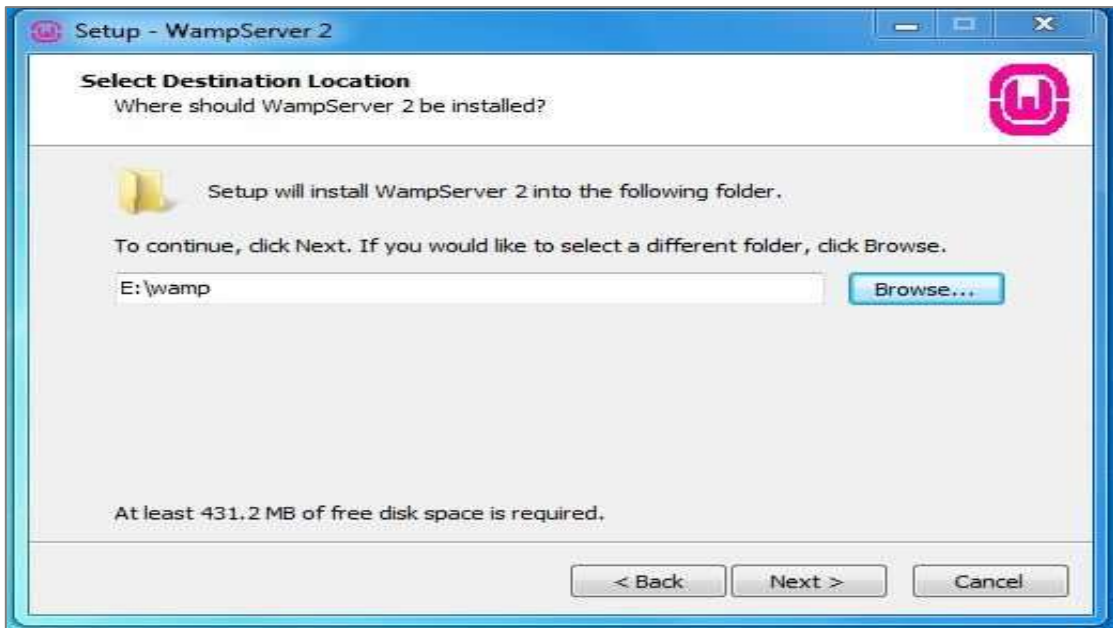


Figure A.3 Folder Location

Step 4: Click Install and It finish automatically. Refer in Figure A.4.

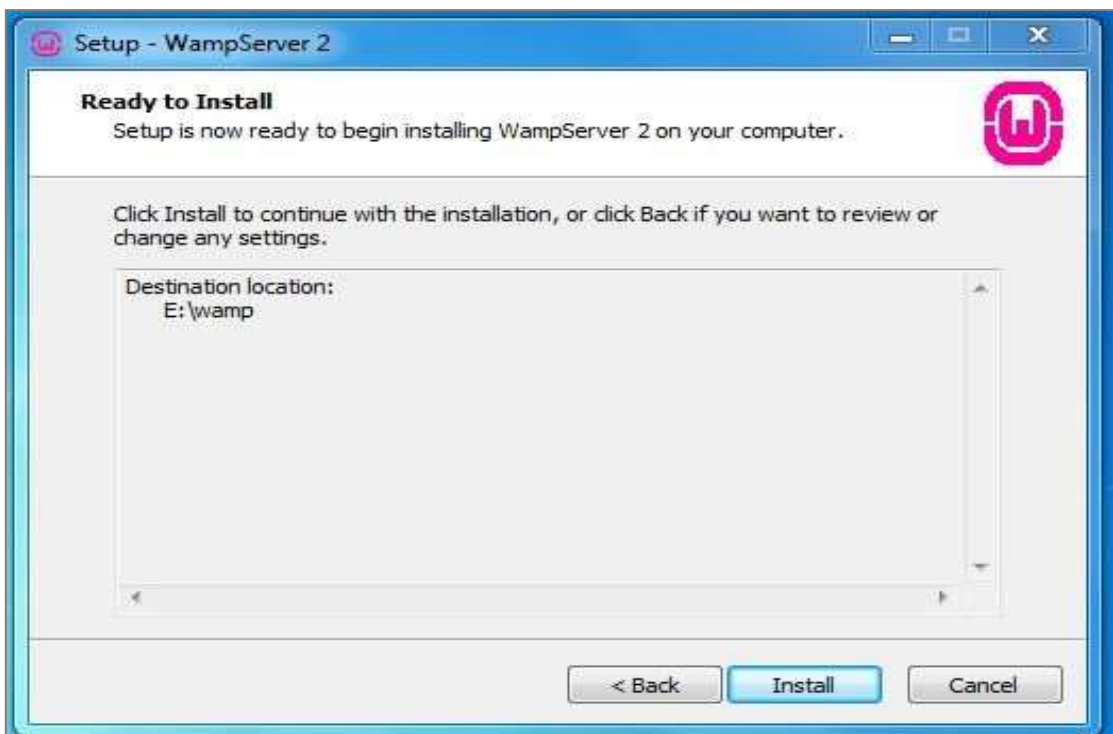


Figure A.4 Install

Step 5: After Install, start the Wamp Sever in taskbar Wamp Server visible in green color. After green color, go and type in browser's address bar "localhost or 127.0.0.1". Refer in Figure A.5.



Figure A.5 In Taskbar

Step 6: In browser, there is phpmyadmin under Tools heading, click that link and type username as “root” and password is blank. And click go button. Refer in Figure A.6. and Refer in Figure A.7.



Figure A.6 Index Page of Wamp Server



Figure A.7 Welcome Page

Step 7: After login click Import tab, in that tab click browse and select the database file automobile.sql file from CD and click go button. Refer in Figure A.8.

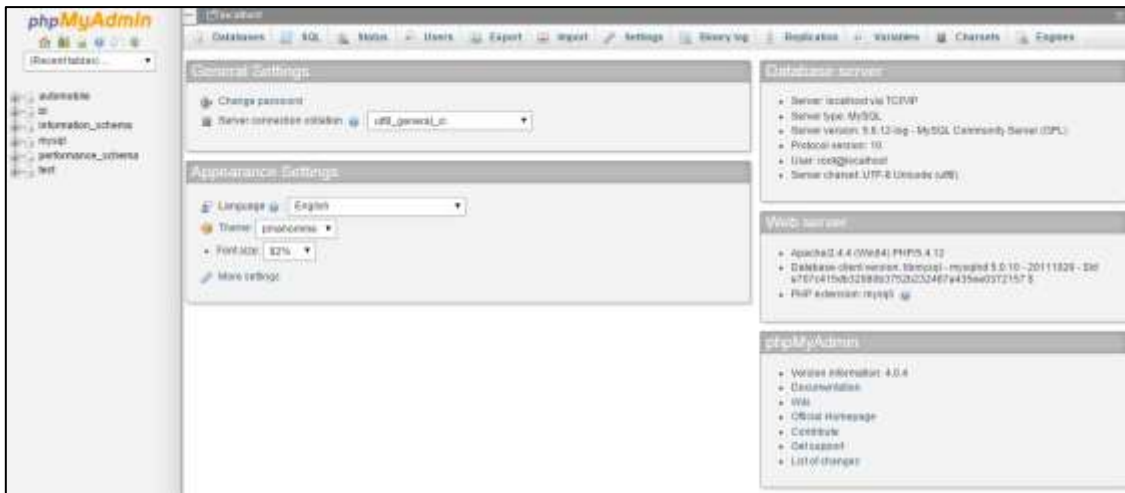


Figure A.8 Database Upload

Step 8: You now successfully upload database. Refer in Figure A.9.

Table	Action	Rows	Type	Collation	Size	Overhead
bill	Browse Structure Search Insert Empty Drop	~26	InnoDB	latin1_swedish_ci	32 K1B	-
branch	Browse Structure Search Insert Empty Drop	~2	InnoDB	latin1_swedish_ci	16 K1B	-
customer	Browse Structure Search Insert Empty Drop	~14	InnoDB	latin1_swedish_ci	16 K1B	-
feedback	Browse Structure Search Insert Empty Drop	~5	InnoDB	latin1_swedish_ci	32 K1B	-
item	Browse Structure Search Insert Empty Drop	~15	InnoDB	latin1_swedish_ci	16 K1B	-
login	Browse Structure Search Insert Empty Drop	~39	InnoDB	latin1_swedish_ci	16 K1B	-
message	Browse Structure Search Insert Empty Drop	~12	InnoDB	latin1_swedish_ci	32 K1B	-
monthsalary	Browse Structure Search Insert Empty Drop	~38	InnoDB	latin1_swedish_ci	16 K1B	-
purchase	Browse Structure Search Insert Empty Drop	~41	InnoDB	latin1_swedish_ci	16 K1B	-
purchasebill	Browse Structure Search Insert Empty Drop	~11	InnoDB	latin1_swedish_ci	72 K1B	-
salary	Browse Structure Search Insert Empty Drop	~4	InnoDB	latin1_swedish_ci	16 K1B	-
service	Browse Structure Search Insert Empty Drop	~32	InnoDB	latin1_swedish_ci	64 K1B	-
serviceitem	Browse Structure Search Insert Empty Drop	~29	InnoDB	latin1_swedish_ci	16 K1B	-
servicetime	Browse Structure Search Insert Empty Drop	~9	InnoDB	latin1_swedish_ci	16 K1B	-
servicetype	Browse Structure Search Insert Empty Drop	~7	InnoDB	latin1_swedish_ci	16 K1B	-
staff	Browse Structure Search Insert Empty Drop	~14	InnoDB	latin1_swedish_ci	48 K1B	-
stock	Browse Structure Search Insert Empty Drop	~39	InnoDB	latin1_swedish_ci	16 K1B	-
suppliers	Browse Structure Search Insert Empty Drop	~18	InnoDB	latin1_swedish_ci	16 K1B	-
vehicle	Browse Structure Search Insert Empty Drop	~9	InnoDB	latin1_swedish_ci	16 K1B	-
19 tables	Sum	313	InnoDB	latin1_swedish_ci	448 K1B	0 B

Figure A.9 Our Tables

Step 9: The “www” directory will be automatically created. According the Step 3, our www folder is under E:\wamp. In www folder we create a subdirectory and put our PHP files.

APPENDIX B – DESIGN DOCUMENTATION

The additional diagram such as activity diagram and sequence diagram of this system include in this section.

Activity diagram for new user registration is shown on following Figure B.1 Activity Diagram for New user:

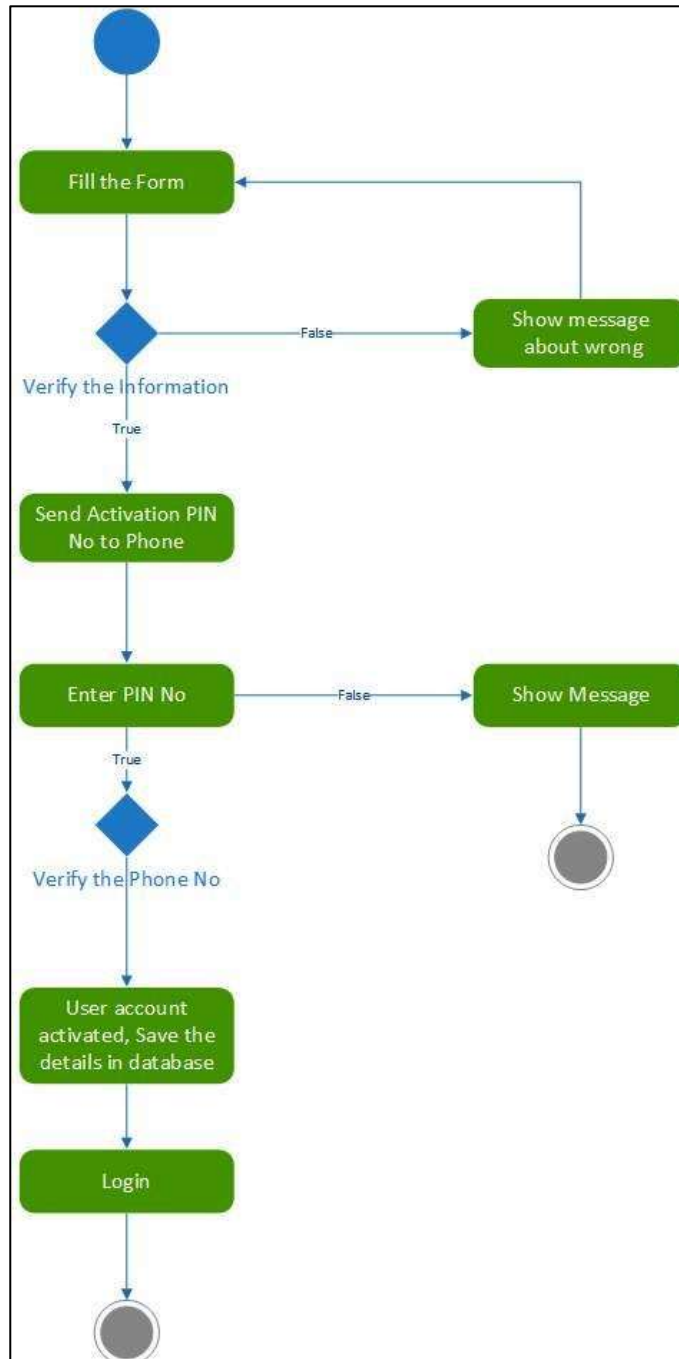


Figure B.1 Activity Diagram for New User

Activity diagram for booking is shown on following Figure B.2 Activity Diagram for Booking:

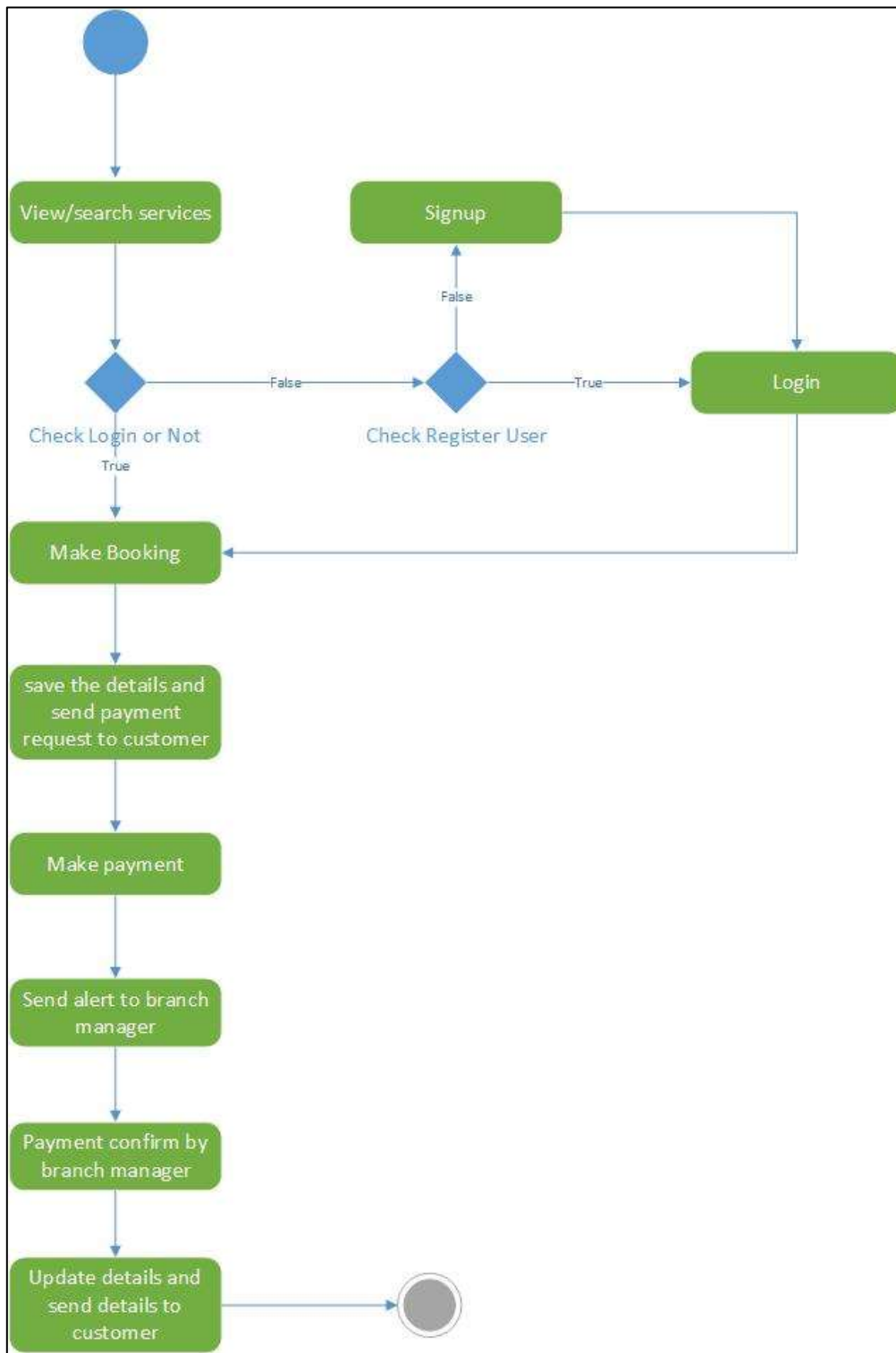


Figure B.2 Activity Diagram for Booking

Activity diagram for print or save report shown on following Figure B.3 Activity Diagram for Report:

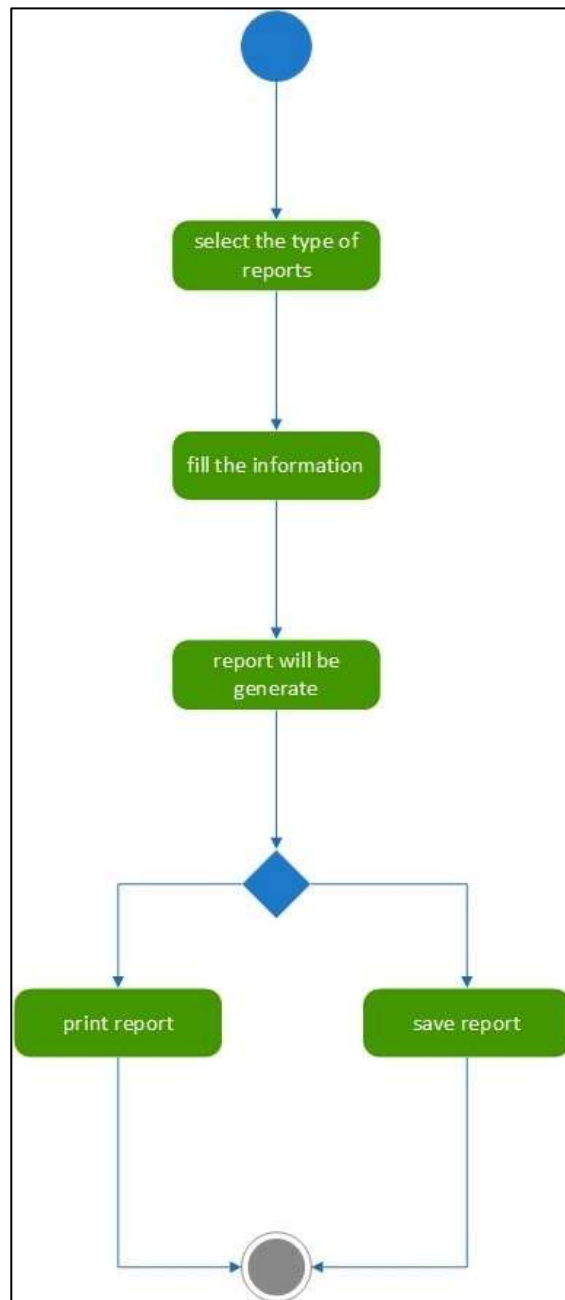


Figure B.3 Activity Diagram for Report

Sequence diagram for booking is shown on Figure B.4 Sequence Diagram for New user:

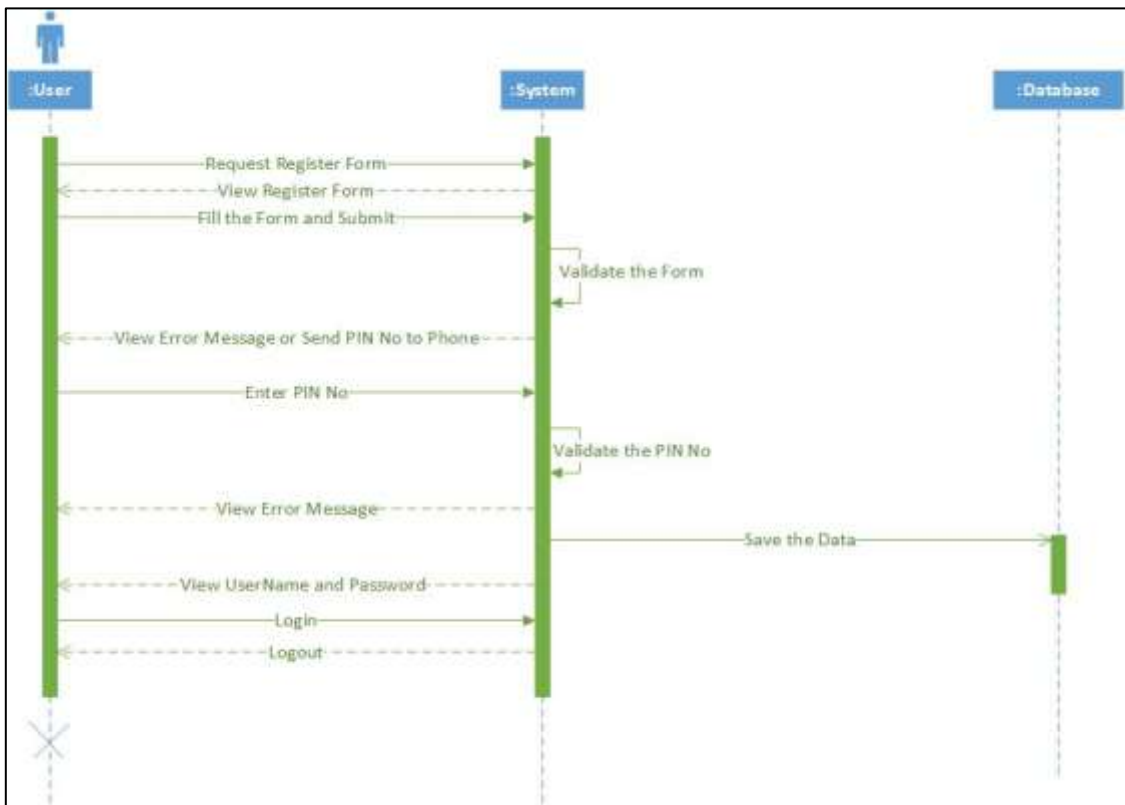


Figure B.4 Sequence Diagram for New user

Sequence diagram for booking is shown on Figure B.5 Sequence Diagram for Booking:

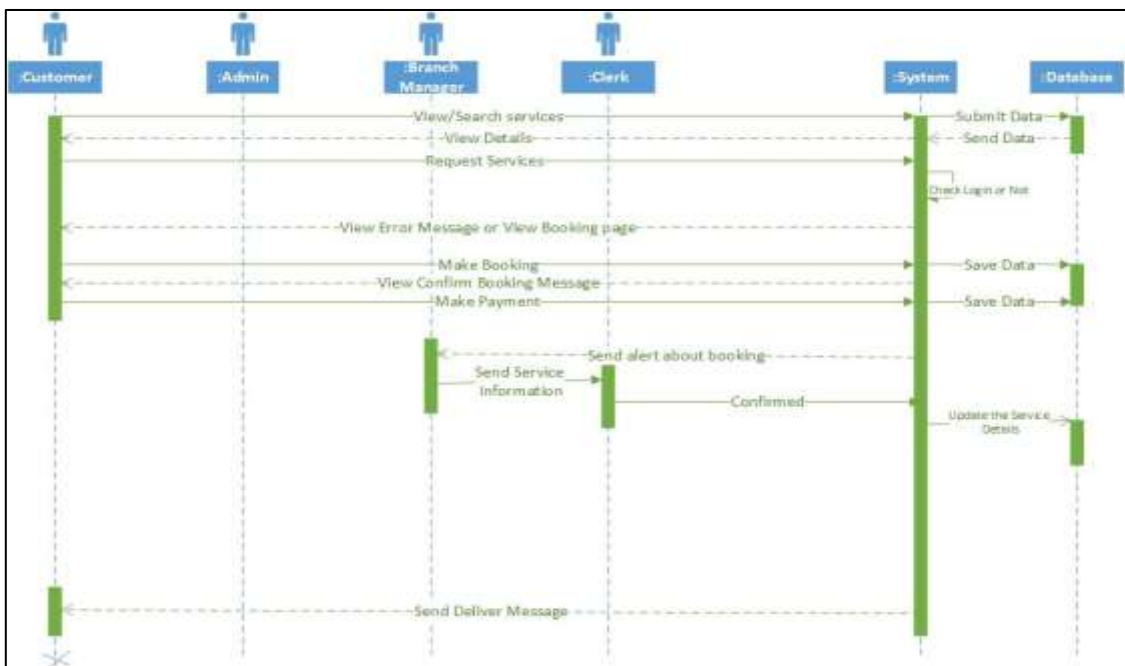


Figure B.5 Sequence Diagram for booking

Network diagram for Network is shown on Figure B.6 Network Diagram for network:

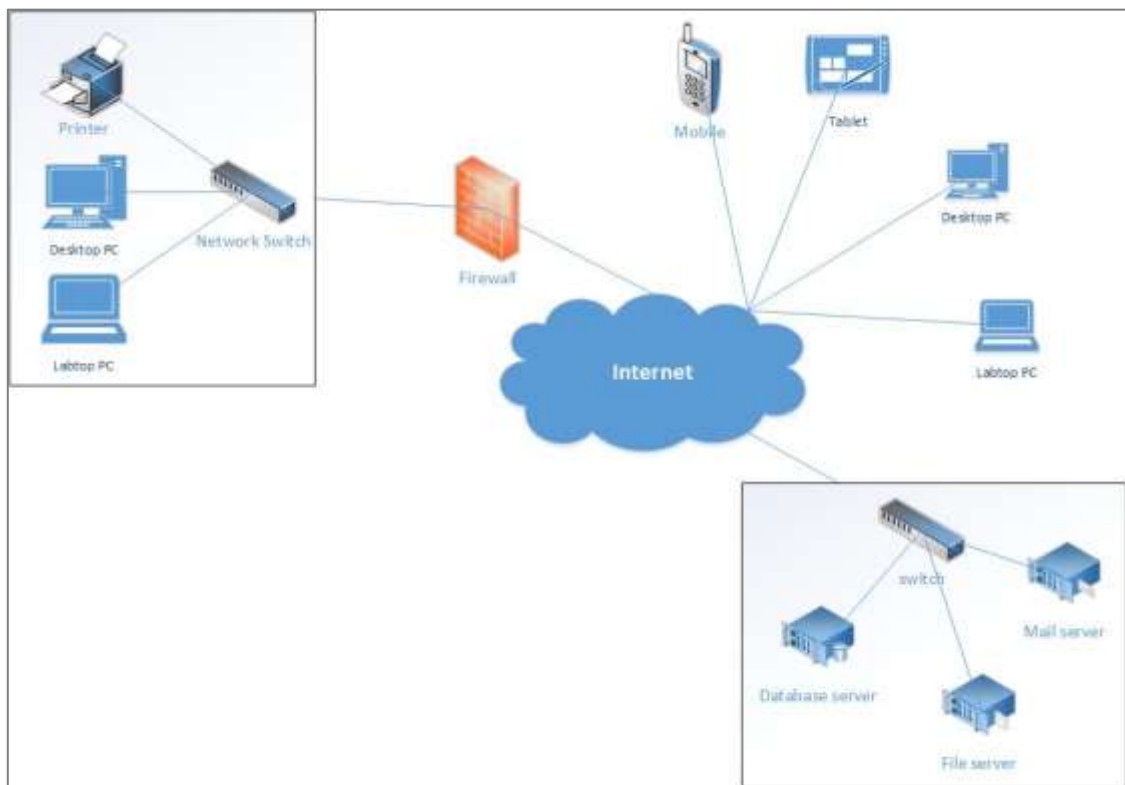


Figure B.6 Network Diagram for network

APPENDIX C – USER DOCUMENTATION

This documentation gives a total explanation of our Web based Vehicle service management system, how to handle this system.

Index Page

The following Figure C.1 Index Page, show the home page of our system. This index page named as Guest menu. In home page, there are some tabs Admin, Management, Service, About, Contact and Login. The Admin tabs, displays as Index Page. In Management tabs, displays the branches, item and vehicles details. Service tabs displays the service types and service time details. In about tabs, describe about the Trinco Automobile. In contact tabs contain contact details about Trinco Automobile. Finally Login tabs, facilitates the new user to register their details in our system.


Start Time	End Time
07:00:00	09:00:00
09:00:00	11:00:00
11:00:00	13:00:00
13:00:00	15:00:00
15:00:00	17:00:00
17:00:00	19:00:00

Figure C.1 index page


The Contact menu show as the Following Figure C.2.

Contact Information

Head Office:	Branch:
Address: 301 B/1, Kanniya Road, Varothayanagar, Trincomalee.31000	Address: Kaithadi Road, Maruthanarmadam, Jaffna.40000
Phone: 026-326-5137	Phone: 021-320-2133
Fax: 026-222-5299	Fax: 021-224-1955
Email: trincoaspl@gmail.com	Email: trincoaspl@gmail.com



View larger map



Jaffna servi... ★
View larger map

Figure C.2 Contact page

Trinco Automobile featured service menu show as the Following Figure C.3.

Featured Services

 <p>Car Wash Packages</p> <p>QUICK WASH – Body wash, and tyre dressing</p> <p>DETAILED WASH – Body wash, carpet wash, glass cleaning and tyre dressing.</p> <p>WASH & WAX – Body wash, carpet wash, glass cleaning, dressing, interior vacuuming, and 3M wax.</p> <p>AUTO WASH – Body wash, under wash, carpet wash, g and interior vacuuming</p>	 <p>Lubrication Service</p> <p>UNDERCARRIAGE DEGREASING - We completely deg undercarriage of the automobile, removing accumulated using the application of pressure washes with advanced sensors.</p> <p>VACUUM FLOOR / SEATS & TRUNK- We vacuum the seats and trunk to ensure removal of dust and particle a</p> <p>WINDSCREEN & GLASS CLEANING - Our glass treatm wet weather driving visibility. The treatment uses a non-f formula, ammonia free and safe for tinted windows. This high humidity conditions.</p>
---	---

Figure C.3 Featured service details

From login, only registered users will allow to enter our system. Refer in Figure C.4.

A login page with a blue header bar containing the text "Enter your username and password". Below the header are two white input fields: the first is labeled "Type your username" and the second is labeled "Type your password". At the bottom of the form are two buttons: a red "Submit" button and a green "Forget Password" button.

Figure C.4 Login page

When registered user enters wrong username or password the system will provide an error message. It shows on following Figure C.5 Username Error and Figure C.6 Password Error.

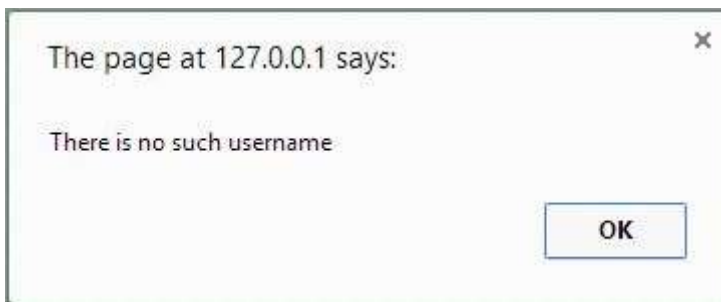


Figure C.5 Username error message

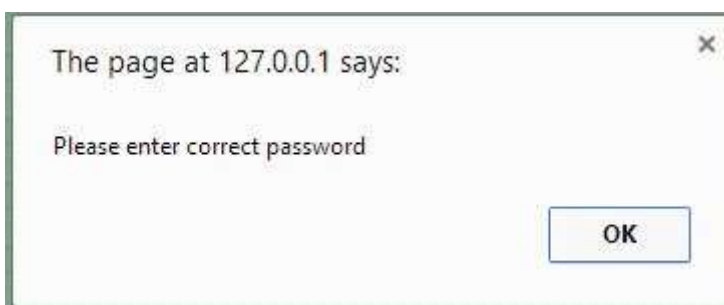


Figure C.6 Password error message

If registered user attempt more than three times login this system, system provide a message and redirect to forget password form. Refer in Figure C.7.

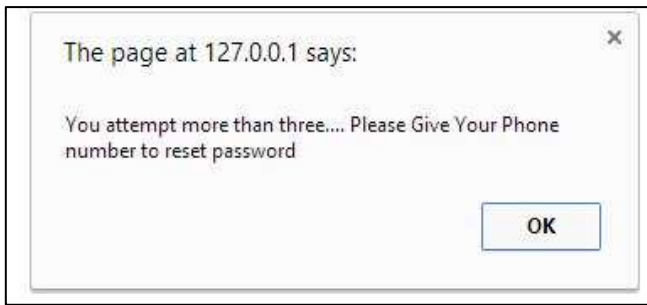


Figure C.7 More than 3 Attempts

In forget password form, enter the registered mobile phone number. If any wrong input, the system will provide error message. In telephone field can only insert telephone number other than cant' type no any text. Refer in Figure C.8.



Figure C.8 Forget password form

If enter wrong mobile phone number, Refer in Figure C.9.

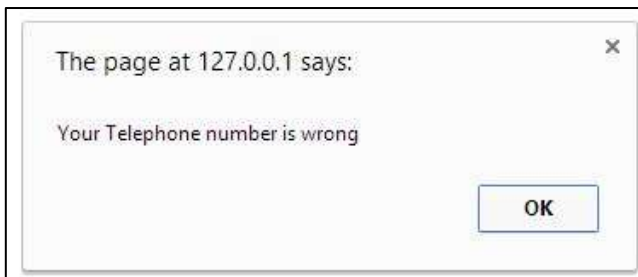


Figure C.9 Wrong Telephone number

If enter wrong telephone format, Refer in Figure C.10.

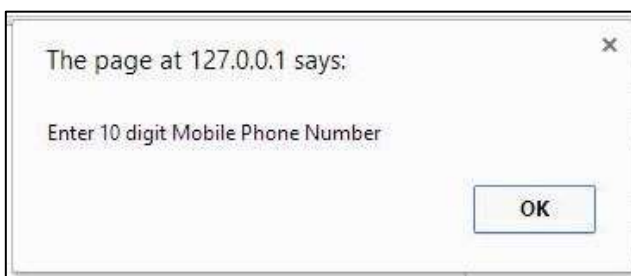


Figure C.10 Wrong Telephone number format

After enter the correct user name and mobile phone number, system send a verification code to mobile phone number and redirect to verification form. Refer in Figure C.11.



Figure C.11 Send verification code

In profile link, there is an additional link for change password. As usual this change password link include the current password, new password and retype new password. The system will check enter correct current password or not first and then check new password and retype new password are same or not. The system only allow the password character is more than six. If we make wrong input, system will provide a message. Refer in Figure C.12, Refer in Figure C.13, Refer in Figure C.14 and Refer in Figure C.15.

A screenshot of a web form titled "Change Password". The form has a light gray background and a white border. It contains four input fields: "User Name" (with the value "ST001"), "Current password", "New password", and "Re Enter New password". Below the input fields are two buttons: a red "Clear" button and a green "Submit" button.

Figure C.12 Change Password Interface



Figure C.13 Wrong Current Password

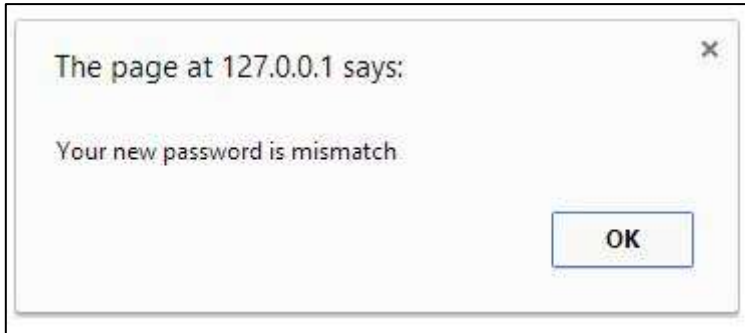


Figure C.14 Mismatch New Password



Figure C.15 Change new Password

Administrator Interface

After user login as admin the Administration interface show the administration menu page and common body page. The administration interface is shown on the following Figure C.16 Administration Screen. The Admin menu page has some tabs such as Admin, Management, Service, Staff, Profile and report. The Admin link is navigating the interface to main screen. The Management tabs provides the branch, item, purchase, purchase bill, suppliers, vehicle, and salary details. The service tabs provides the customer, service, service type, service time, service item and bill details. The staff tabs provides the staff details, salary and monthly salary details. The service link shows the service details of each customers. The service type link shows the available types of services. Through the service time link admin can easily identify the service times. The Item link shows the available vehicle service items in Trinco Automobile. The service link provide a booking form for book through online. The message link provides the message details of that login customer.

ADMIN MANAGEMENT SERVICE STAFF PROFILE REPORT

HOT LINE ☎ 021-320-2133

SERVICE TIME

Start Time	End Time
07:00:00	09:00:00
09:00:00	11:00:00
11:00:00	13:00:00
13:00:00	15:00:00
15:00:00	17:00:00
17:00:00	19:00:00

BOOK FOR SERVICE

Figure C.16 Admin Menu

The add new staff details link is only for administration. This link facilitate a form shown in following Figure C.17 for add new staff to this system. After enter the new staff details then click the submit button, the system will provide a success message. Refer in Figure C.18.

Add New Staff Details

Staff ID	<input type="text" value="ST010"/>
Staff Name	<input type="text"/>
NIC	<input type="text"/>
Date of Birth	<input type="text" value="mm/dd/yyyy"/>
Address	<input type="text"/>
Telephone Number	<input type="text"/>
Email	<input type="text"/>
Designation	<input type="text" value="Select The Designation"/>
Branch Name	<input type="text" value="Select The Branch"/>
<input type="button" value="Go Back"/> <input type="button" value="Reset"/> <input type="button" value="Submit"/>	

Figure C.17 Add New Staff Form

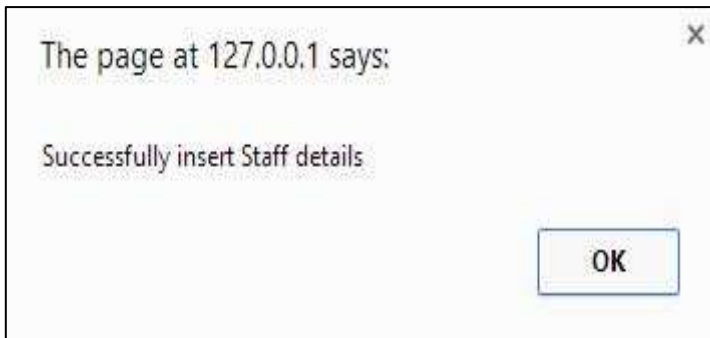


Figure C.18 successfully insert staff details

This staff view displayed with Staff id, Staff name, Address and Telephone number. Admin user can only use the view, edit and delete button. Refer in Figure C.19. Staff users can use the view and edit button. Other users can only use view button. Customer users cannot view the staff details.

View Staff Details

10 records per page

Search

Staff ID	Staff Name	Address	Telephone Number	Action
ST001	Sajth	SUTHUMALAI SOUTH, MANIPAL	777352055	View Edit Delete
ST002	Sujanthan	HOSPITAL ROAD, KONDAVIL	770548111	View Edit Delete
ST003	Jathusan	BROWN ROAD, JAFFNA	773296587	View Edit Delete
ST004	Mathee	K.K.S Road, Kondavil	774128576	View Edit Delete
ST005	Neepatharan	No20, Central road, Trincomalee.	777683173	View Edit Delete
ST006	Karan	no 58 Kachcher Road, Trincomalee.	750709031	View Edit Delete
ST007	varan	Pina factory road, Trincomalee.	773048415	View Edit Delete
ST008	thaya	an hill Road, Trincomalee.	777570599	View Edit Delete
ST009	Kannan	K.K.S Road, Inivil.	777123456	View Edit Delete
ST011	Nagesh	Brown Road, Nalkur	732116344	View Edit Delete

Showing 1 to 10 of 10 entries

Previous 1 Next

Figure C.19 Staff View Details

When you click view button the view all full information about the particular staff. Refer in Figure C.20. If the admin user and particular staff want to show a staff profile that time system provides the staff full view form.

Staff Details Full-View	
Customer ID	ST006
Customer Name	Karan
NIC	796512368V
Date of Birth	1979-07-30
Address	no 56 Kachcheri Road, Trincomalee
Telephone Number	0750709631
Email	karan@gmail.com
Designation	Clerk
Branch	Trincomalee
Go Back Edit	

Figure C.20 Staff details Full view

If the Admin want to delete one staff from database at the time delete message box appear as this format. Refer in Figure C.21.

The page at 127.0.0.1 says:

Are You Sure delete this record

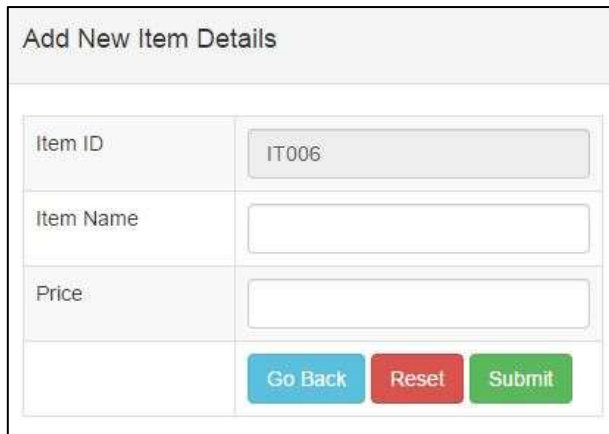
Figure C.21 Delete message

The add new Branch details link is only for administration. This link facilitate a form shown in following Figure C.22.

Add New Branch Details	
Branch ID	<input type="text" value="BR004"/>
Branch Name	<input type="text"/>
Address	<input type="text"/>
Telephone No	<input type="text"/>
<input type="button" value="Go Back"/> <input type="button" value="Reset"/> <input type="button" value="Submit"/>	

Figure C.22 Add new Branch form

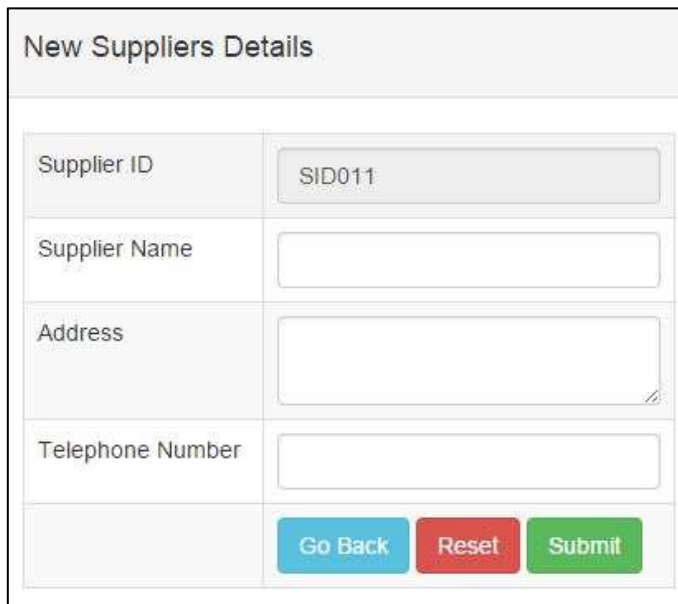
The add new item details link is only for administration, branch manager and clerk. This link facilitate a form shown in following Figure C.23.



Add New Item Details	
Item ID	<input type="text" value="IT006"/>
Item Name	<input type="text"/>
Price	<input type="text"/>
<input type="button" value="Go Back"/> <input type="button" value="Reset"/> <input type="button" value="Submit"/>	

Figure C.23 Add new Item form

The add new Suppliers details link is only for administration, branch manager and clerk. This link facilitate a form shown in following Figure C.24.



New Suppliers Details	
Supplier ID	<input type="text" value="SID011"/>
Supplier Name	<input type="text"/>
Address	<input type="text"/>
Telephone Number	<input type="text"/>
<input type="button" value="Go Back"/> <input type="button" value="Reset"/> <input type="button" value="Submit"/>	

Figure C.24 Add new Suppliers form

The add new Vehicle details link is only for administration, branch manager and clerk. This form has drop down menu for the vehicle type detail. This link facilitate a form shown in following Figure C.25.

Add New Vehicle Details	
Vehicle ID	VE006
Vehicle Type	Select The Vehicle Type ▼ Select The Vehicle Type Car Van Bus Lorry Three Wheeler Pickup
Model Year	
Vehicle Name	

Figure C.25 Add new Vehicle form

The add new Service details link is only for administration, branch manager, clerk and customer. This link facilitate a form shown in following Figure C.26. When admin, branch manager or clerk add a new service at the time first select the branch name. Then select the vehicle name. After that select the customer name. Then give the vehicle number, select the vehicle type, date, time, give the meter reading, after that if customer want to change engine oil or break oil they select the yes option. Finally status as pending.

Add New Service Details	
Service ID	SV005
Branch Name	Select The Branch ▼
Vehicle Name	Select the vehicle ▼
Customer Name	Select The Customer ▼
Vehicle Number	
Service Type	Select The Service Type ▼
Date	09/29/2016
Time	Select The Time ▼ Today All Time are book
Meter Reading	
Engine Oil	Yes ▼
Break Oil	Yes ▼
Status	Pending
<input type="button" value="Go Back"/> <input type="button" value="Reset"/> <input type="button" value="Submit"/>	

Figure C.26 Add new Service form

When click the submit button in service form after that advance payment form will display as this format. The form shown in following Figure C.27.

Advance payment Details	
Please Make Advance Payment for your Confirmation	
Service Id	SV006
Payment Mode	Ezcash
Amount	500
<input type="button" value="Reset"/> <input type="button" value="Make Advance Payment"/>	

Figure C.27 Advance payment details form

One customer finish his service admin, branch manager or clerk print the service bill. The form shown in following Figure C.28.

Add New Bill Details	
Bill ID	BI017
Service ID	Select The service
Pay status	Paid
Date	2017-10-26
Payment Mode	Cash
<input type="button" value="Go Back"/> <input type="button" value="Reset"/> <input type="button" value="Submit"/>	

Figure C.28 Add new Bill

When admin, branch manager or clerk select the service id to make a bill at the time bill shows the additional details. This format shows the customer name, service type charge, service item details, then total payment, advance payment and balance payment details. Refer in Figure C.29.

Add New Bill Details		Bill Details	
Bill ID	BI017	Service ID	SV035
Service ID	SV035	Date	2017-10-25
Pay status	Paid	Time	09:00:00 - 11:00:00
Date	2017-10-26	Customer Name	Ramanan
Payment Mode	Cash	Service Type	Quick Wash
<input type="button" value="Go Back"/> <input type="button" value="Reset"/> <input type="button" value="Submit"/>		Service Type Charge	Rs. 750
		Service Items	
		Total Service Charge	Rs. 750
		Advance Payment	Rs. 500
		Balance Payment	Rs. 250

Figure C.29 Detailed Bill

The add new Service time link is only for administration, branch manager and clerk. This link facilitate a form shown in following Figure C.30.

Add New service time Details	
Time ID	T1007
Start Time	--:--:--
End Time	--:--:--
Number of customer	
<input type="button" value="Go Back"/> <input type="button" value="Reset"/> <input type="button" value="Submit"/>	

Figure C.30 Add new service time

The add new Service type link is only for administration, branch manager and clerk. This link facilitate a form shown in following Figure C.31.

Add New service type Details

Servicetype ID:

Service Type:

Start Date:

End Date:

Price:

[Go Back](#) [Reset](#) [Submit](#)

Figure C.31 Add New Service Type

Through the message link, all users compose new message. The compose message view with this information. Refer in Figure C.32.

Compose

Message ID:

Message To:

Message From:

Message:

[Go Back](#) [Clear](#) [Submit](#)

Figure C.32 Compose new message

Through the admin user, message view displayed with Message id, Message to and Message. Admin user can only use the view and delete button. Refer in Figure C.33. Other users cannot see this message.

Sent

10 records per page Search:

Message ID	Message To	Message	Action
ME002	CU001	Your Vehicle service finished. you can come and settle the balance payment.	View Delete
ME003	CU007	What are the service items you want?	View Delete

Showing 1 to 2 of 2 entries [Previous](#) [1](#) [Next](#)

Figure C.33 Received messages by admin user

Through the report link, admin user create the booking details report. Refer in Figure C.34.

The screenshot shows the admin interface for TRINCO AUTOMOBILE (PVT) LTD. At the top, there is a navigation menu with options: ADMIN, MANAGEMENT, SERVICE, STAFF, PROFILE, and REPORT. The main content area is divided into two sections:

Booking

Start Date: 09/01/2016
 End Date: 09/29/2016
 Print

Service Details

Service ID	Vehicle Name	Date	Customer	Status
SV001	Toyota Hiace	2016-09-07	Ramanan	Pending
SV002	Bajaj 125	2016-09-26	Ramanan	Pending
SV003	Toyota Hilux	2016-09-07	Ramanan	Pending
SV004	Nissan March	2016-09-29	Kukesan	Pending

Figure C.34 Generate reports

Branch Manager Interface

After user login as branch manager the branch manager interface has branch manager menu page and common body page. The branch manager interface is shown in following Figure C.35 Branch Manager Screen. In Branch manager menu page has some link such as manager, Management, Service, Staff, Profile and report.

The screenshot shows the branch manager interface for TRINCO AUTOMOBILE (PVT) LTD. At the top, there is a navigation menu with options: MANAGER, MANAGEMENT, SERVICE, STAFF, PROFILE, and REPORT. Below the menu, there is a blue banner with the text "HOT LINE 021-320-2133".

The main content area features a large image of a mechanic working on a car tire. To the right of the image, the text "SERVICE TIME" is displayed in large, bold letters. Below this text is a table showing service times:

Start Time	End Time
07:00:00	09:00:00
09:00:00	11:00:00
11:00:00	13:00:00
13:00:00	15:00:00
15:00:00	17:00:00
17:00:00	19:00:00

At the bottom of the page, there is a yellow button with the text "BOOK FOR SERVICE".

Figure C.35 Branch manager menu

Clerk Interface

After user login as clerk the clerk interface has clerk menu page and common body page. The clerk interface is shown in following Figure C.36 Clerk Screen. In clerk menu page has some link such as clerk, Management, Service, Staff, Profile and report.

Start Time	End Time
07:00:00	09:00:00
09:00:00	11:00:00
11:00:00	13:00:00
13:00:00	15:00:00
15:00:00	17:00:00
17:00:00	19:00:00

Figure C.36 Clerk menu

Cleaner Interface

After user login as cleaner the cleaner interface has cleaner menu page and common body page. The cleaner interface is shown in following Figure C.37 cleaner Screen. In cleaner menu page has some link such as cleaner, Management, Service, Staff, Profile and report.



Figure C.37 Cleaner Menu

Customer Interface

After user login as customer the customer interface has customer menu page and common body page. The customer interface is shown in following Figure C.38 customer Screen. In customer menu page has some link such as customer, Management, Service, Staff, Profile and report.



Figure C.38 Customer menu

The add new customer details link is only for administration, branch manager, clerk and customer. This link facilitate a form shown in following Figure C.39 for add new customer to this system. After enter the new customer details then click the submit button, the system will provide a success message.

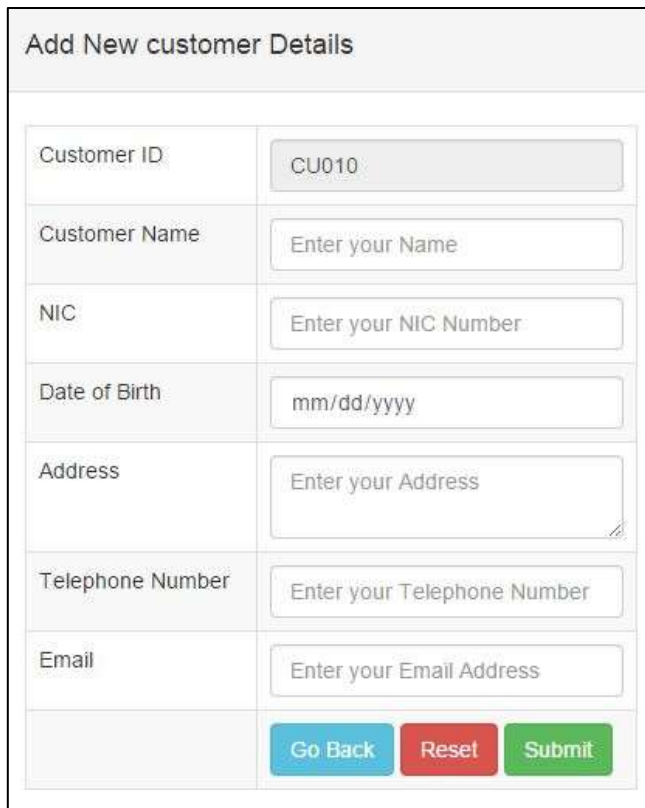
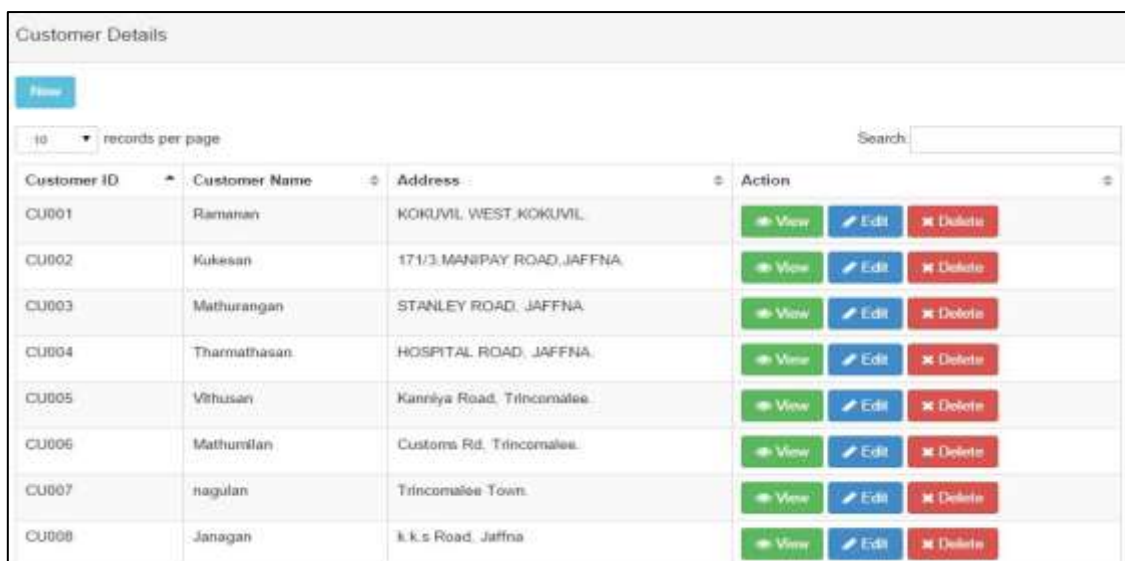


Figure C.39 Add New Customer form

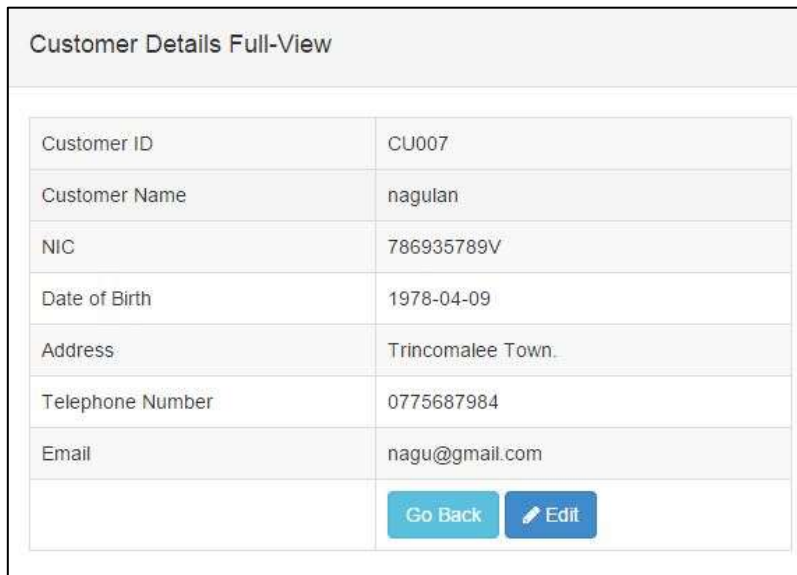
This Customer view displayed with Customer id, Customer name and Address. Admin user can only use the view, edit and delete button. Refer in Figure C.40. Staff users can use the view and edit button. Other users can only use view button.



Customer ID	Customer Name	Address	Action
CU001	Ramanan	KOKUMIL, WEST, KOKUMIL	View Edit Delete
CU002	Kulesan	17/1/3, MANIPAY ROAD, JAFFNA	View Edit Delete
CU003	Mathurangan	STANLEY ROAD, JAFFNA	View Edit Delete
CU004	Tharmathasan	HOSPITAL ROAD, JAFFNA	View Edit Delete
CU005	Vithusan	Kanniya Road, Trincomalee	View Edit Delete
CU006	Mathumilan	Customs Rd, Trincomalee	View Edit Delete
CU007	nagulan	Trincomalee Town	View Edit Delete
CU008	Janagan	k.k.s Road, Jaffna	View Edit Delete

Figure C.40 Customer view

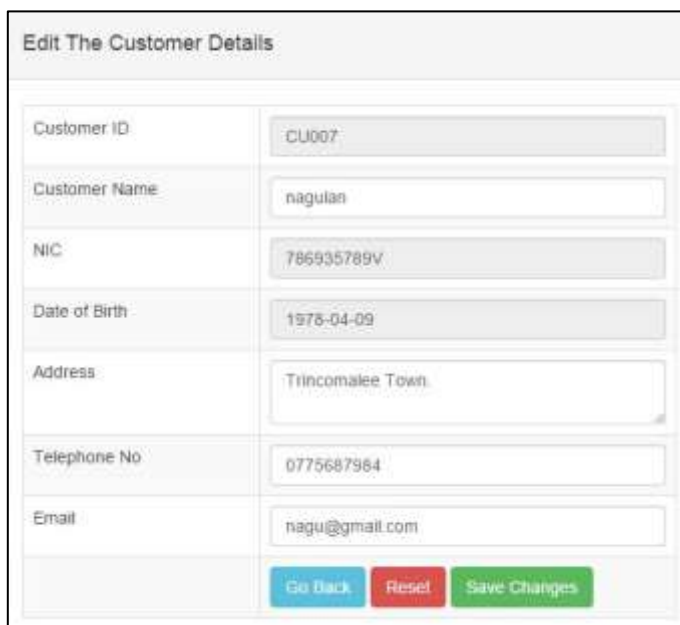
When you click view button the view all full information about the particular customer. Refer in Figure C.41. If the admin user, branch manager, clerk and particular customer want to show a customer profile. That time system provides the customer full view form.



Customer Details Full-View	
Customer ID	CU007
Customer Name	nagulan
NIC	786935789V
Date of Birth	1978-04-09
Address	Trincomalee Town.
Telephone Number	0775687984
Email	nagu@gmail.com
Go Back Edit	

Figure C.41 Customer full view

If the Customer want to edit the customer details at the time edit form display as this format. Refer in Figure C.42.



Edit The Customer Details	
Customer ID	<input type="text" value="CU007"/>
Customer Name	<input type="text" value="nagulan"/>
NIC	<input type="text" value="786935789V"/>
Date of Birth	<input type="text" value="1978-04-09"/>
Address	<input type="text" value="Trincomalee Town."/>
Telephone No	<input type="text" value="0775687984"/>
Email	<input type="text" value="nagu@gmail.com"/>
Go Back Reset Save Changes	

Figure C.42 Customer Edit

The add new Service details link is only for administration, branch manager, clerk and customer. This link facilitate a form shown in following Figure C.43. When customer add a new service at the time first select the branch name. Then select the vehicle name. After that displays the login customer name. Then give the vehicle number, select the vehicle type, date, time, give the meter reading, after that if customer want to change engine oil or break oil they select the yes option. Finally status as pending.

Add New Service Details	
Service ID	SV035
Branch Name	Select The Branch ▼
Vehicle Name	Select the vehicle ▼
Customer Name	Select The Customer ▼
Vehicle Number	<input type="text"/> Enter Vehicle Number
Service Type	Select The Service Type ▼
Date	2017-10-25
Time	Select The Time ▼
Meter Reading	<input type="text"/>
Engine Oil	Yes ▼
Break Oil	Yes ▼
Status	Pending
<input type="button" value="Go Back"/> <input type="button" value="Reset"/> <input type="button" value="Submit"/>	

Figure C.43 Add New Service Form

APPENDIX D - MANAGEMENT REPORTS

The system allows the administrator, Branch manager and Clerk to generate reports with their appropriate power. They can generate these reports suppliers, Service types, bill and booking details.

Supplier details report



TRINCO AUTOMOBILE (PVT) LTD.

Head Office:-
No-301 B/1, Kanniya Road,
Varoathayanagar, Trincomalee. 31000
Phone :- 026 326 5137, Fax:- 026 222 5299
Email:- trincospl@gmail.com

Branch:-
Kaithadi Road, Marathanarmadam,
Jaffna. 40000
Phone :-021 320 2133 Fax:-021 224 1955

Print Report

Suppliers Details

Supplier ID	Supplier Name	Telephone Number
SID001	Kanthe Motors	775878745
SID002	Sun Lanka Auto Trade	112583929
SID003	Semini Motors (Pvt)	717689707
SID004	Udawatta Motors Pvt	115744496
SID005	Pathma Motor Stores	112925666
SID006	Japan Lanka Auto-Lan	112754639
SID007	Toyota Lanka	777939052
SID008	United Motors Lanka	112448112
SID009	Samarasinghe Motors	412222768
SID010	Jaffna Motors	774545412

Figure D.1 Supplier details report

Service type details report



TRINCO AUTOMOBILE (PVT) LTD.

Head Office:-
No-301 B/1, Kanniya Road,
Varoathayanagar, Trincomalee: 31000
Phone :- 026 326 5137, Fax:- 026 222 5299
Email:- trincospl@gmail.com

Branch:-
Kaithadi Road, Marathanarmadam,
Jaffna. 40000
Phone :-021 320 2133 Fax:-021 224 1955

Print Report

Service type Details

Servicetype ID	Service type	Price
SVT001	Quick Wash	750
SVT002	Detailed Wash	1500
SVT003	Wash & Wax	2000
SVT004	Auto Wash	1000
SVT005	Exterior detail	1500
SVT006	Interior detail	1500
SVT007	Full Package	3000

Figure D.2 Service type details report

Service bill details report


 TRINCO AUTOMOBILE (PVT) LTD. Head Office:- No-301 B/1, Kanniya Road, Varothayanagar , Trincomalee. 31000 Phone :- 026 326 5137, Fax:- 026 222 5299 Email:- trincoaspl@gmail.com		Branch:- Kaithadi Road, Maruthanaramadam, Jaffna. 40000 Phone :-021 320 2133 Fax:-021 224 1955	
Print Report			
Bill Details			
Service ID	SV021		
Date	2017-11-22		
Time	07:00:00 - 09:00:00		
Customer Name	nagulan		
Service Type	Auto Wash		
Service Type Charge	Rs. 1000		
Service Items			
Item Name	Unit Price	Quantity	Amount
Engine Oil - 2L	Rs. 1700.00	1	Rs. 1700
Radiator Coolen	Rs. 570.00	1	Rs. 570
Air Freshner	Rs. 300.00	1	Rs. 300
Polishing Cloth	Rs. 100.00	1	Rs. 100
Total			Rs. 2670
Total Service Charge	Rs. 3670		
Advance Payment	Rs.500		
Balance Payment	Rs. 3170		

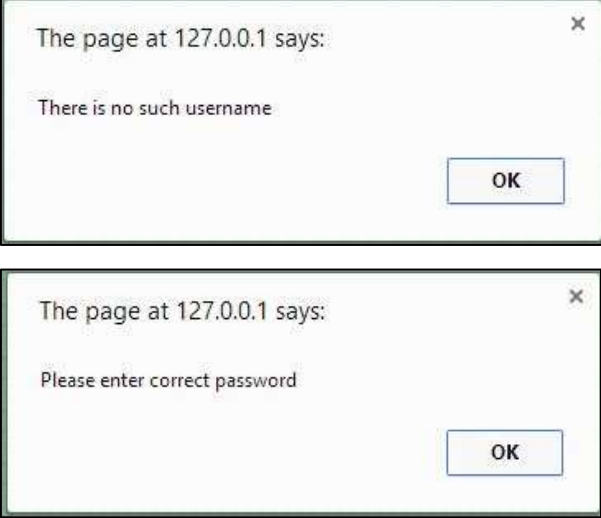
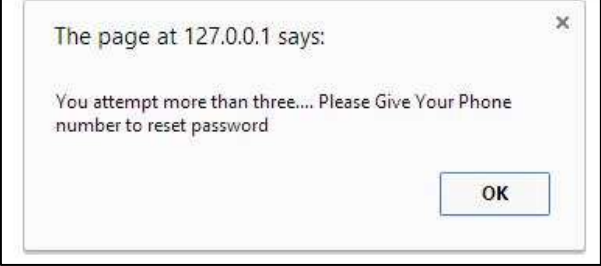
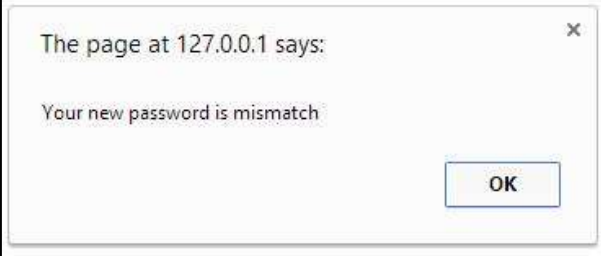

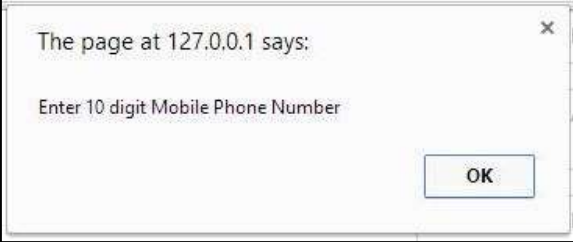
Figure D.3 Service bill details report




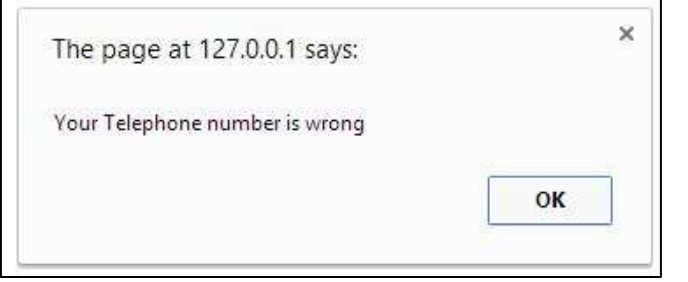
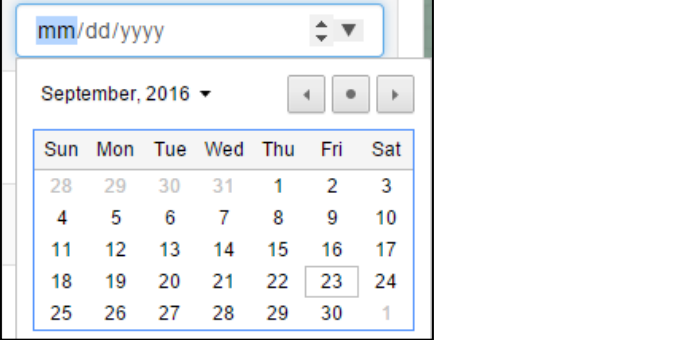
Booking details report

 TRINCO AUTOMOBILE (PVT) LTD. Head Office:- No-301 B/1, Kanniya Road, Varothayanagar , Trincomalee. 31000 Phone :- 026 326 5137, Fax:- 026 222 5299 Email:- trincoaspl@gmail.com		Branch:- Kaithadi Road, Maruthanaramadam, Jaffna. 40000 Phone :-021 320 2133 Fax:-021 224 1955		
Print Report				
Booking				
Start Date	2017-10-18			
End Date	2017-10-31			
service Details				
Service ID	Vehicle Name	Date	Customer	Status
SV035	Nisaan March	2017-10-25	Ramanan	Accept
SV036	Toyota Hilux	2017-10-26	Ramanan	Pending

Figure D.4 booking details report

APPENDIX E - TEST RESULTS

Test case	Screen short	Result
When we enter wrong Username or password	 <p>The page at 127.0.0.1 says: There is no such username OK</p> <p>The page at 127.0.0.1 says: Please enter correct password OK</p>	Pass
When we enter wrong password more than 3 times	 <p>The page at 127.0.0.1 says: You attempt more than three.... Please Give Your Phone number to reset password OK</p>	Pass
In change password, new password and retype new password are different	 <p>The page at 127.0.0.1 says: Your new password is mismatch OK</p>	Pass
In change password, wrong current password	 <p>The page at 127.0.0.1 says: Your current password is wrong OK</p>	Pass
Enter wrong format of telephone number	 <p>The page at 127.0.0.1 says: Enter 10 digit Mobile Phone Number OK</p>	Pass

Enter wrong format of E-Mail		Pass
Submit without enter value in mandatory field		Pass
Automatically calculate the number of items and total price		Pass
When enter Wrong mobile number		Pass
The date picker		Pass

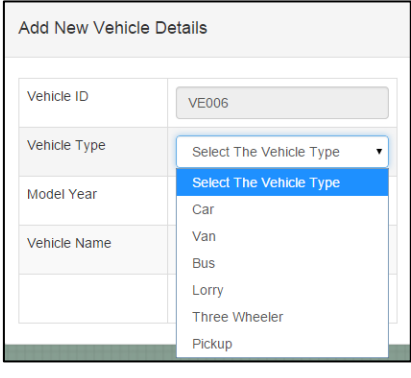

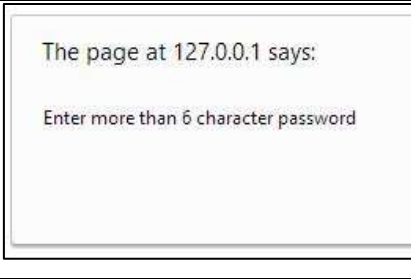

The drop down box shown			Pass
The available service type			Pass
Password more than 6 characters			Pass
Display print button in report			Pass

Table E.1 Test Results

Acceptance test result

System was developed and we give the final system to the client and they satisfy with our system and give an acceptance report.



TRINCO AUTOMOBILE (PVT) LTD.

Head Office:-
No-301 B/1, Kanniya Road,
Varothayanagar, Trincomalee. 31000
Phone :- 026 326 5137, Fax:- 026 222 5299
Email:- trincoaspl@gmail.com

Branch:-
Kuthadi Road, Maruthanarmadam,
Jaffna, 40000
Phone :-021 320 2133 Fax:-021 224 1955

User evaluation

Test case Number	Test Case	Satisfied? Yes? Or no?
01	New User Register Module	Yes
02	Administrator Module	Yes
03	Branch manager Module	Yes
04	Clerk Module	Yes
05	Cleaner Module	Yes
06	Customer Module	Yes
07	Common Function Module	Yes
08	User Friendly of system	Yes
09	Clear of error messages, validation and verification code	Yes
10	Access the system	Yes
11	Overall perform of the system	Yes
12	User Education	Yes

How do you feel about the system?

The system was Fully satisfied with our Requirements.

Evaluated By: B. Vinokantha

Signature:

Date:

04.11.2017

Trinco Automobile (Pvt) Ltd
Kuthadi Road,
Maruthanar Madam,
Jaffna.

APPENDIX F- CODE LISTING

Store user id and user type in session:

```
if(!isset($_SESSION))
{
    session_start();
}
if(isset($_POST['btn_submit']))
{
    $username=$_POST['txt_username'];
    $password=$_POST['txt_password'];

    $sql="SELECT * FROM login WHERE UserName='$username' AND
Password='$password'";
    $result=mysql_query($sql) or die(mysql_error());
    $n=mysql_num_rows($result);
    if($n==1)
    {
        $row=mysql_fetch_assoc($result);
        $usertype=$row['UserType'];

        $_SESSION['username']=$username;
        $_SESSION['usertype']=$usertype;
        header("location:index.php?pg=home.php");
        exit;
    }
}
```

Session out:

```
<?php
if(!isset($_SESSION))
{
    session_start();
}
// destroy all session value
session_destroy();
```

```
header("location:index.php");
```

```
?>
```

Only number input in text-box:

```
function isNumberKey(evt)
```

```
{
```

```
    var charCode = (evt.which) ? evt.which : event.keyCode;
```

```
    if (charCode != 46 && charCode > 31 && (charCode < 48 || charCode > 57))
```

```
        return false;
```

```
    return true;
```

```
}
```

Only text input in text-box:

```
function isTextKey(evt)
```

```
{
```

```
    var charCode = (evt.which) ? evt.which : event.keyCode;
```

```
    if (((charCode > 64 && charCode < 91) || (charCode > 96 && charCode < 123) || charCode  
    == 08 || charCode == 127 || charCode == 32 || charCode  
    == 46) && !(evt.ctrlKey && (charCode == 118 || charCode == 86)))
```

```
        return true;
```

```
    return false;
```

```
}
```

More than six characters password:

```
function password()
```

```
{
```

```
    var str = document.getElementById("txtpassword").value;
```

```
    var res = str.length;
```

```
    if(res > 6)
```

```
    {
```

```
        return true;
```

```
    }
```

```
    else
```

```
    {
```

```
        alert("Enter more than 6 character password");
```

```
document.getElementById("txtpassword").value="";  
return false;  
}  
}
```

Validation for hand phone number:

```
function hand()  
{  
var str = document.getElementById("txtteleno").value;  
var res = str.substring(0, 2);  
if(res=="07")  
{  
return true;  
}  
else  
{  
alert("enter 10 digit of hand phone number");  
document.getElementById("txtteleno").value="";  
return false;  
}  
}
```

Make alert for delete details

```
function deletedata() // make alert for delete details  
{  
var x=confirm("Are You Sure delete this record");  
if(x)  
{  
return true;  
}  
else
```



```
{  
    return false;  
}
```

Validation for NIC number:

```
function validatenic()
```

```
{  
    var nic=document.getElementById("txtnic").value;  
  
    if(nic.length==10)  
    {  
        var nicformat1=/^[0-9]{9}[a-zA-Z0-9]{1}$/;  
  
        if(nic.match(nicformat1))  
        {  
            var nicformat2=/^[0-9]{9}[vVxX]{1}$/;  
  
            if(nic.match(nicformat2))  
            {  
            }  
        }  
        else  
        {  
            alert("last character must be V/v/X/x");  
  
            document.getElementById("txtnic").value="";  
  
            document.getElementById("txtnic").focus();  
        }  
    }  
    else  
    {  
        alert("First 9 characters must be numbers");  
  
        document.getElementById("txtnic").value="";
```

```

    document.getElementById("txtnic").focus();
}
}

else if(nic.length==12)
{
    var nicformat3=/^[0-9]{12}$/;

    if(nic.match(nicformat3))
    {
    }

    else
    {
        alert("All 12 characters must be number");

        document.getElementById("txtnic").value="";

        document.getElementById("txtnic").focus();
    }
}

else if(nic.length==0)
{
}

else
{
    alert("NIC No must be 10 or 12 Characters");

    document.getElementById("txtnic").value="";

    document.getElementById("txtnic").focus();
}
}

```

APPENDIX G- CLIENT CERTIFICATE



TRINCO AUTOMOBILE (PVT) LTD.

Head Office:-
No-301 B/1, Kanniya Road,
Varothayanagar, Trincomalee, 31000
Phone :- 026 326 5137, Fax:- 026 222 5299
Email:- trincoaspl@gmail.com

Branch:-
Kaithadi Road, Maruthanarmadam,
Jaffna. 40000
Phone :-021 320 2133 Fax:-021 224 1953

BIT Coordinator
University of Colombo School of Computing,
Colombo - 07.

Dear Sir/Madam

LETTER OF CERTIFICATION

This is to certify that Mr. Thayaparan Matheeban has successfully designed and developed a Web based Vehicle Service management System for Trinco Automobile. The project was undertaken by his partial fulfillment of a requirement for the Bachelor of Information Technology Degree Program.

The system was fully satisfied with our requirements and this system, web based management system would be solution for us and our customer. From this system customer can easily make booking through online and also enabled the smooth operation of our company to manage booking. It has enhanced our relationships with customer. I'm pleased to certify that the system developed by Mr. Thayaparan Matheeban fulfill the requirements of the company and could be used as our management system and host to public use.

Thank you

Yours Faithfully



Trinco Automobile (Pvt) Ltd
Kaithadi Road,
Maruthanar Madam,
Jaffna.

Mr B. Vinokanth
Manager
Trinco Automobile
04. 11. 2017

GLOSSARY

Apache – Open source web server.

PHP – Hypertext Pre-Processor, it is one of the famous server side scripting languages.

CSS – Cascading Style Sheet described how the structured element must be rendered on screen or on media.

JavaScript – it is one of the Client-side scripting languages.

Database – The backend storage of system.

SDLC – Software Development Life Cycle is a structure imposed on the development of a software product.

OO – Object Oriented, is an approach to designing modular, reusable software systems.

UML – Unified Modeling Language, is a graphical language for visualizing, specifying, constructing and documenting the artifacts of a software-intensive system.

WWW – World Wide Web.

Web browser – is software to access the web.

GUI – Graphical User Interface, utilized to support to user to interaction with system.