



**WEB BASED AUTO MOBILE SERVICE
MANAGEMENT SYSTEM FOR SUN LANKA AUTO
SERVICE CENTRE**

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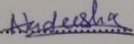
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**This dissertation is submitted in partial fulfilment of the requirement of the
Degree of Bachelor of Information Technology of the
University of Colombo School of Computing**

DECLARATION

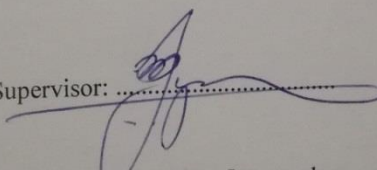
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ABSTRACT

Sun Lanka Auto Service Centre is a well-known vehicle service provider in Galle area. Currently whole process is done manually which is engaged with heavy paper work and it is time consuming, inefficient and error prone. Therefore it is necessity to automate the current manual system into fast, efficient automate system for better service.

The Web Based Auto Mobile Service Management System is built to overcome some of the problems and inefficiencies of the current manual system. This system has provided many facilities such as online reservation, customer feedback facility from customer's end and Labour registration, Item registration, Labour assigning, Item allocation, Job assigning, Task Allocation, invoicing and generate customized reports from admin's end. Management can track daily, monthly sales and income by using various reports. At the same time system facilitates the mobile app for all the customers. Therefore vehicle service status, service history details can be seen to customer by logging to the mobile app.

The proposed system has been developed according to the Rational Unified Process (R.U.P).

PHP which is an object oriented language was used to implement this system as the programming language. Further MySQL server database has been selected as the database to store the data of the system.

Further this system has provided automation of the processes and become an aid to face the competition and future forecasting about the business. This system features are user friendly, easy to use, and contain graphical tabbed interfaces. The system includes all necessary functionalities to support smooth and effective procedure for managing day today activities of Sun Lanka Services.

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I must thank Mr Samath Nanayakkara, Mr.Upali Bolgoda, Mr. P. A. Ravindra, Mr. M. S. Bandara and all the staff of Sun Lanka Auto Service Centre who gave me the opportunity to develop this system for their workstation and gave me an enormous support for the successful completion of the project. I must also thank all the staff at MATRIX Computer Studies (Pvt) Ltd, Colombo for giving me the academic knowledge for the BIT degree program.

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LIST OF ACRONYMS

CD	- Compact Disc
DBMS	- Database Management Systems
IDE	- Integrated Development Language
JAD	- Joint Application Development
NIC	- National Identity Card
RUP	- Rational Unified Process
SQL	- Structured Query Language
UML	- Unified Modelling Language
WBAMSMS	- Web Based Auto Mobile Service Management System
1NF	- First Normal Form
2NF	- Second Normal Form
3NF	- Third Normal Form

CHAPTER 1 INTRODUCTION

1.1 INTRODUCTION

Vehicle repair service business is all about the time and quality. Reduce service downtime and plan service recourses including mechanics and equipment. Web Based Auto Mobile Service Management System for Sun Lanka Auto Service Centre ensures vehicle repair business functions and allows to manage entire organization using this proposed system. This proposed Web Based Auto Mobile Service Management System is designed to overcome the problems of current existing manual system.

Information Technology has transformed the whole world into a global village with a global economy, which is increasingly dependent on the creative management and distribution of information. Since the Information Technology works to foster growth and access to high technology nowadays, Sun Lanka Auto Service station management has decided to go with automated system with the intension of providing best service for their customers.

Currently the entire process is done manually and it is time consuming, inefficient and error prone. In order to overcome these problems, the Auto Mobile Service Management System was developed.

1.2 MOTIVATION FOR PROJECT

The client company is currently experiencing in some issues of registration, reservation, managing company spending, managing company assets and controlling the occurrence of faults by carrying their operations in manual way. Therefore Client Company has to use telephone, e-mail, fax to get and update relevant information with heavy paper work. The problems of the existing manual system can be listed as follows:

- There is no proper mechanism to manage vehicle details, customer details and stock details of the company separately
- There is no systematic way to handle reservation details such as reserving vehicle and cancelling the reserved appointments and Facing many difficulties to allocate date and time for vehicles
- Currently whole process is done manually and it is time consuming, error prone and Inefficient
- No proper way to manage vehicle attendance and schedules
- There is no systematic way to generate daily, monthly, yearly reports. Because of that it will cost more time to achieve that task and the calculations won't be accurate too.
- No proper mechanism to manage income and expense of the company.
- There is no proper mechanism to manage vehicle service details, vehicle maintenance details and breakdown details.
- No proper way of keeping hardware inventory

In order to overcome these problems, the Web Based Auto Mobile Service Management System was developed. It would help the Sun Lanka Auto Service Centre to manage time, effort, resources more efficiently.

1.3 OBJECTIVE OF THE PROJECT

The main objective of this project is to automate the current manual functionality of Sun Lanka Auto Service Centre. Automation of the system has main benefit for company and stake holders.

The objectives of the project are as follows;

- Implementing fast and efficient, user friendly reliable system for Sun Lanka Auto Service Centre.
- Automate the current manual functionalities of Sun Lanka Auto Service Centre.
- Increase the efficiency of vehicle service reservation process.
- Increasing the effectiveness of vehicle task allocation process and labour assigning process in order to increase the effectiveness and time saving.
- Increase the customer engagement and customer attraction, while vehicle service process is running in workstation.
- Easily maintaining vehicle schedules and daily attendance of the vehicles in order to allocate vehicles for reservation based on those accurate details.
- Expense management can be done effectively so that will help to do the calculations regarding the company profits.
- Daily tracking of the vehicles will help to allocate the vehicles to the services.

1.4 SCOPE OF THE PROJECT

The project Scope is determined by the available resources, the client's requirements and allocated time etc. The scope of the proposed Web Based Auto Mobile Service Management System can be summarized as follows;

- System will be provided to store the vehicle details, customer details, assets details and package details of the company

- System will be facilitated to early reservation for each and every customer.
- System will be facilitated the reservation vehicles for services based on the vehicle attendance.
- System will be facilitated mobile app for all the customers and they can see their vehicle service status by using the mobile app
- There are 3 levels of the user management module such as top level, middle level, and operational level
- Users of each level can be accessed to the system with relevant user privileges.
- Expense management can be handled effectively. Such as fuel costs, maintenance
- Company income and expenses can be managed easily and effectively
- System can track the vehicles attendance daily by job task
- Reports can be generated daily or monthly or yearly basics easily.
- System has facilitated to create users and can access system securely.
- System has provided the facility to maintain service details and breakdown details of the vehicles.

1.5 STRUCTURE OF THE DISSERTATION

The dissertation contains six main chapters to provide an overall knowledge on the web based Automobile Service Management System.

Chapter 2 - Analysis

The system analysis chapter describes the requirements gathering techniques and collected functional, non-functional requirements to design and develop the system. High level Use-Case diagrams are used to make it easier to understand the system.

Chapter 3 – Design

The system design chapter defines the design methodologies of the system, tools and techniques employed in the designing phase and the database design. This chapter also includes detailed Use-Case diagrams and narratives. The chapter gives the features of the graphical user interfaces, which help the users to interact with the system and screen shots of them.

Chapter 4 – Implementation

The implementation chapter explains the development procedures of the system. Further, the implementation environment, software tools and technologies used at the time of development are explained. This chapter also incorporates major code segments of the system.

Chapter 5 – Evaluation

This chapter defines how the system was tested using sample data and the outcomes of the assessment. This includes testing procedures and test cases.

Chapter 6 - Conclusion

This is the final chapter of the dissertation, which includes the critical evaluation of the project and gives details about the recommended future improvements and lessons learnt.

In Appendix will provide further details about the content of the dissertation chapters which were not included in the main chapters.

In this chapter the motivation for the project, objectives of the project, scope of the project and structure of the dissertation were described and the next chapter will describe the analysis chapter.

CHAPTER 2 ANALYSIS

2.1 INTRODUCTION

Systems Analysis can be considered as one of the main phases in the software development life cycle. Getting an overall image of the system and producing a high level description of the system through this phase will be carried out by system analysts. Main objectives of this phase are what services system should provide, required performance of the system. Requirement gathering should be conducted by using methods such as interviews, observations, sample documentations etc. [1]

The analysis chapter contains six major topics such as requirements gathering techniques, requirement analysis, functional and non-functional requirements and existing similar systems to provide an overall knowledge on the requirement analysing process of the web based Automobile Service Management System.

2.2 REQUIREMENT GATHERING TECHNIQUES

Requirements gathering phase has been done by using lot of techniques from different stakeholder perspectives.

The main methods used for fact finding process were

- Interview.
- Sampling and documentation.
- Observation.

Facts were primarily gathered by interviewing owner of the company, employees of the company, Administrators and users who are the primary users of the proposed system. The above mentioned methods can be considered beneficial, when we intend to acquire more knowledge and understanding about the domain.

2.3 REQUIEMENT ANALYSIS

Requirement analysis phase has been done in parallel with requirement gathering phase to detect and resolve conflict between requirements. Furthermore analysis should be done to discover the boundaries of the system and determine how system must interact with its environment with respect to requirements gathered.

2.3.1 ANALYSING THE CURRENT MANUAL SYSTEM

The whole process is currently done manually. Therefore staff and management has to go through a traditional methodology to store and retrieve information. Since this was more time consuming and inefficient, management has come into decision with automate the current manual system with the intension of providing better service to their customers. The current flow is explaining below.

- Company has to go through the manual data record sheets for getting information
- There is no proper mechanism for managing appointments.
- There are no any computerized data process uses for registration, reservation, vehicle for services.
- There is no proper mechanism for calculate company profit and expenses.
- There is no proper mechanism for jobs assigning with available labours.

Figure 2.1 shows the use case diagram of the current manual system.

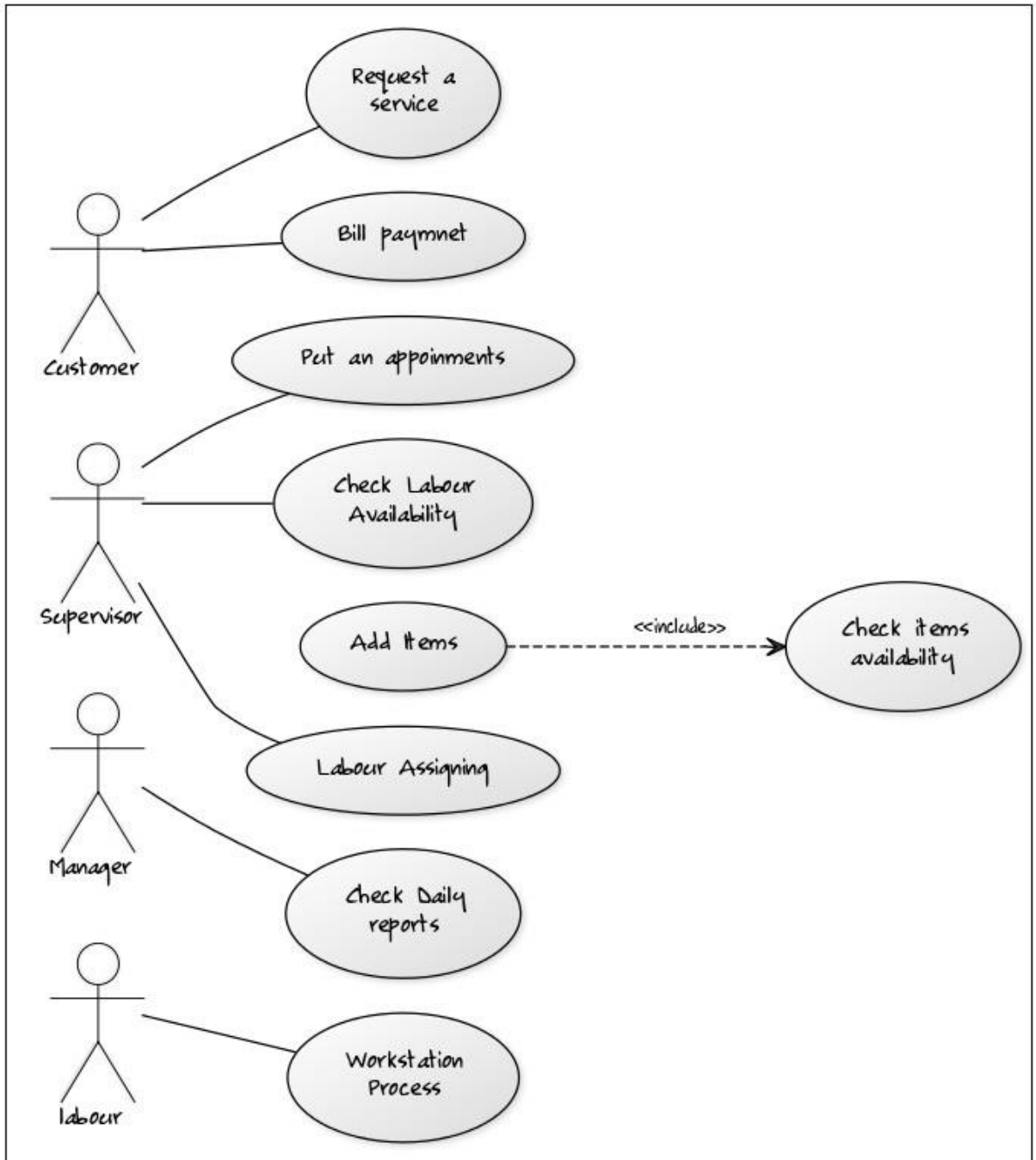


Figure 2.1 Use case diagram for the manual system

2.4 EXISTING SIMILAR SYTEMS

More knowledge could be gained while searching and learning more facts about famous similar web sites and also could learn how to develop the system and how would it look like. Following is few examples which referred while developing the Auto Mobile Service Management system. Figure 2.2 and Figure 2.3 show the existing similar systems for proposed system application.

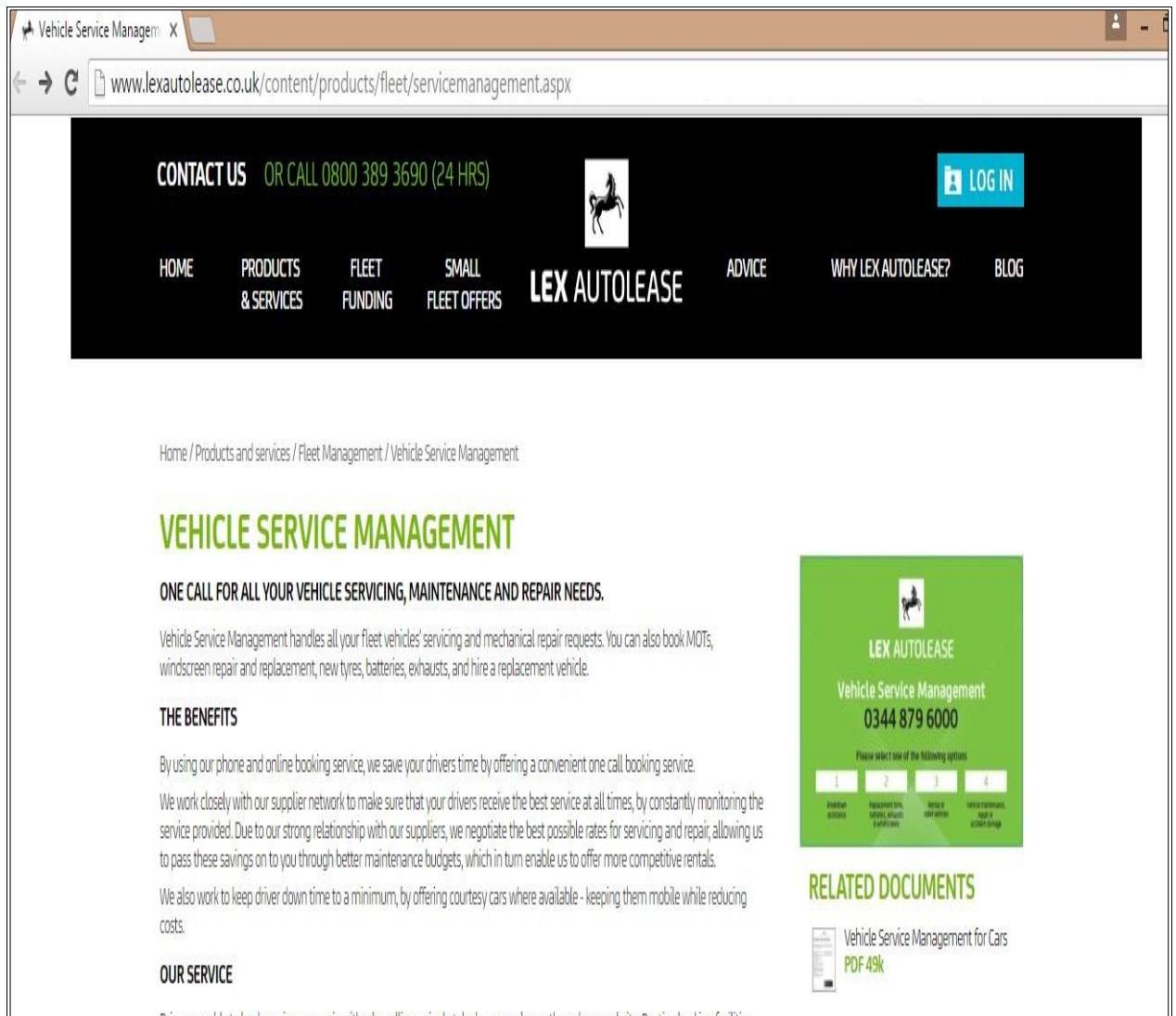


Figure 2.2 Lex auto lease System

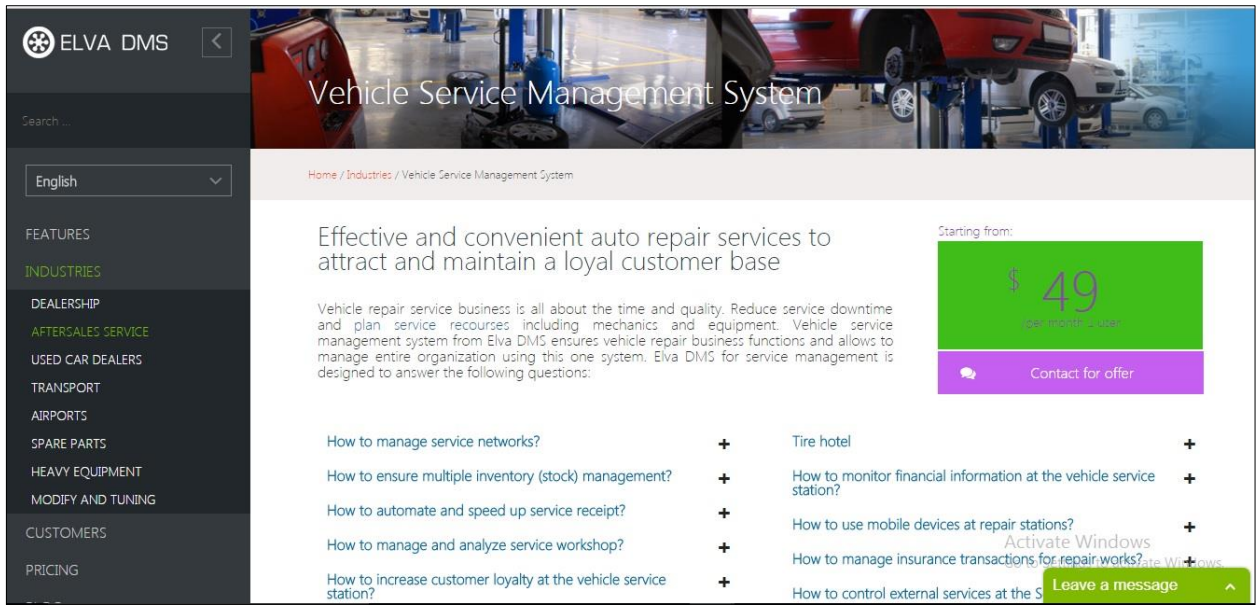


Figure 2.3 Elva DMS

2.5 FUNCTIONAL REQUIREMENTS

“Function of a software system or its component is defined and detailed under functional requirement of software engineering. A function consists of a set of inputs, a behaviour and output/s and functional requirements are consisted of calculations, technical details, data manipulation and processing and other specific functionality which outline which a system is supposed to achieve. Behavioural requirements are captured in use cases.” [2]

The functional requirements are the system functions that the Web Based Auto Mobile Service Management System should perform. The below explain the functional requirements for the proposed system as identified through the Analysis phase.

2.5.1 Login Module

- 1.1 Privileged Users can Log into the System by Using Username and Password.
- 1.2 The system should allow the Administrator to create new users accounts with differing privileges for the Users who needs to access the system.

1.3 Register new user facility also available. Admin can create new accounts.

2.5.2 Customer Registration

2.1 Register new customer by giving their information such as Customer name, address, contact details etc.

2.2 After registration process is done, Administrator should able to Update, delete customer records from the system.

2.5.3 Vehicle Registration

3.1 Register new vehicle by giving its information such as vehicle No, vehicle type, Engine details etc.

3.2 After vehicle registration process is done, staff member should able to Update, delete vehicle records from the system

2.5.4 Labour Registration

4.1 Register new labour by giving its information such as name, Enrolment type, NIC details etc.

4.2 After Labour registration process is done, staff member should able to Update, delete labour records from the system

2.5.5 Reservation Module

4.1 Log into the System by using Username and Password for privileged users

4.2 Customer is provided a facility to reserve date and time earlier on phone call request.

4.3 Once reserved a date and time, system should show the availability of other days and time.

4.4 Administrator should be able to view, update, delete records form database.

2.5.6 Stock Items Control Module

- 5.1 Log into the System by using Username and Password for privileged users
- 5.2 System should keep maintaining the Stock IN/OUT detail report.
- 5.3 After receiving goods, system should update the “Stock IN” details
- 5.4 After allocating stock items to services process, system should update “Stock Out” details accordingly.

2.5.7 Work station Module

- 6.1 Log into the System by using Username and Password for privileged users
- 6.2 User should be able to view their allocated task to workstation
- 6.3 Vehicles should be able to assigned to the services queue
- 6.4 Work station task should be added, updated or deleted from the database.

2.5.8 Manage Company Profit and Expenses

- 7.1 Log into the System by using Username and Password for privileged users
- 7.2 System should update the daily profit and expenses in order to get the real time statics values
- 7.3. System should generate required reports to compare the profit and expenses.

2.5.9 Reports Module

- 8.1 The system should allow generating and viewing all the reports related to Sun Lanka Auto Service Center.
- 8.2 User can be able to filter by reports with all necessary information by daily, monthly or annually
- 8.3 The system should allow the managers and administrators to view the statics of receiving and allocating inventory items, profit and expenses etc.

2.5.10 Document Processing Module

9.1 This module should allow to print, save and edit all the generated reports.

2.5.11 Master File Module

10.1 User should be able to add, delete, update, view and search vehicle details, yCustomer details, service package details etc.

2.6 NON-FUNCTIONAL REQUIREMENTS

“Non-functional requirement focuses more on operations of a system rather than specific behaviours and it defines a criteria which is utilized to check the operations.” [3]

“Though non-functional requirements are not directly attached with specific functions delivered by the system, it has a vital role as the whole systems can be unusable if these requirements are not met.” [4]

The key to non-functional requirements that the system should attain is given below;

- The User Interfaces should be simple and easy to use with less training by its users.
- The system should provide a user friendly environment to work without getting any inconveniences.
- In case of software/hardware failure, the system should have the ability to recover, get back up and running without facing any problems.

2.7 METHODOLOGY FOR THE PROPOSED SYSTEM

Rational Unified Process (RUP) illustrated in Figure 2.4, RUP was the life cycle model used to develop the proposed system. RUP is an iterative software development process

framework created by Rational Software Corporation [5]. It has great support for Object – Oriented development because of its underline object-oriented model and Unified Modelling Language (UML).

The RUP lifecycle organizes the tasks into phases and iterations. Following content provide a brief description about those phases.

2.7.1 RATIONAL UNIFIED PROCESS MODEL

The RUP Model is a software 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 models of its end users, within a predictable schedule and budget.

Each module was developed individually which aided incremental development of the whole system.

“RUP is an adaptable process framework, where the elements of the processes can be changed according to the user’s requirement. The RUP lifecycle comprises four main phases namely: Inception, Elaboration, Construction and Transition. Brief descriptions of each phase are given below. Figure 2.4 explains the Rational Unified Process Model. It consists of four major phases. These major phases are briefly described as follows:

- Inception Phase : Defining the scope of the development stage.
Lifecycle Objective Milestone is achieved in this phase
- Elaboration Phase : Defining the architectural view of the development stage.
Lifecycle Architecture Milestone is reached in this phase.
- Construction Phase : Writing the source code and creating application design.
Initial Capability Milestone is achieved through this phase
- Transition Phase : Finalizing the development stage.

Product release Milestone is met and the development lifecycle ends.” [6]

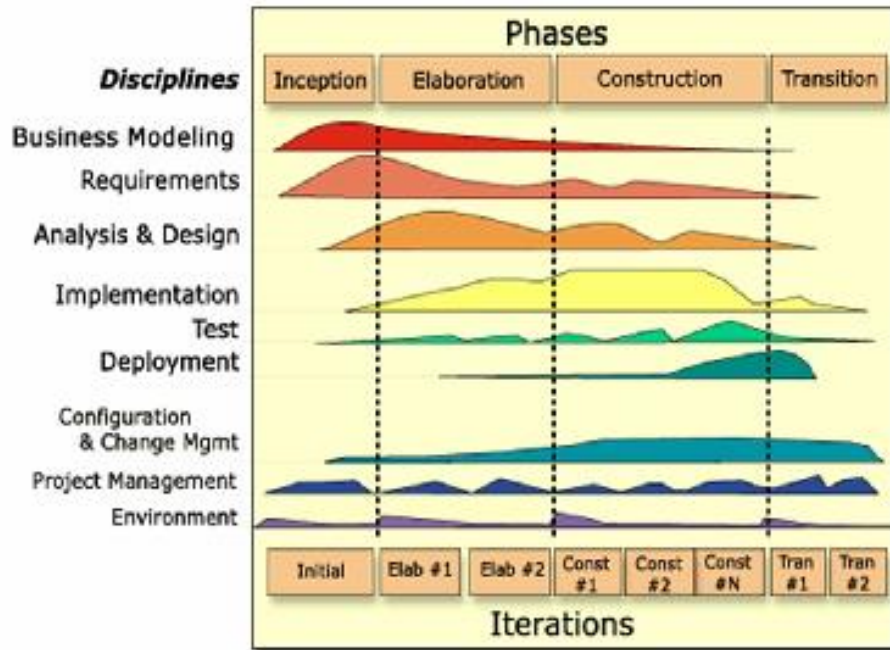


Figure 2.4 Rational Unified Process Model

In this chapter introduction, requirements gathering technics, requirements analysis, existing similar systems functional requirements, non-functional requirements and methodology for the proposed systems were described. In next chapter will describe the system designing phase.

CHAPTER 3 DESIGN

3.1 INTRODUCTION

“Designing phase is considered as the most important factor which defines the quality of the system and it also affects later phases too such as implementation, testing etc. Problems outlined in the analysis phase should be addressed by a solution which is planned in the designing phase.” [7]

The design chapter contains eleven major topics such as system design techniques, high level use case diagram for entire system, use case diagram description, class diagrams, activity diagram, sequence diagram, database design, user interface designs of the system and decision taken during the design process, decision to choose php and mysql database and decision to choose centralized database over distributed database were described in order to provide an overall knowledge on the system design process of the web based Automobile Service Management System.

3.2 SYSTEM DESIGN TECHNIQUES

System design Techniques specify that the technology can be used to implement one or more information system in terms of data, process, interface and how these components interact and communicate across the network.

Design techniques are the methods used to model the solution domain. Although there are various designing practices like Modern Structured design, Prototyping, Rapid Application Development, Object Oriented design technique was chosen out of them for the main design concepts like abstraction, modularity ,inheritance, encapsulation, reusability, and message passing. Unified Modeling Language (UML) plays an important

role in Object Orientation. UML allows us to build easy to use and easy to understand models of objects so that programmers can easily write software.

3.2.1 HIGH LEVEL USE CASE DIAGRAM FOR THE ENTIRE SYSTEM

Figure 3.1 shows the Use Case diagram for entire system which describe the top level functionality of the system. It includes Actors, Use Cases and the relationship among the use cases and actors. The relationships such as Include, Extend and Generalization may vary depending on the situation. The following Use Case diagram describe major system functionalities and it shows actor and use case interaction.

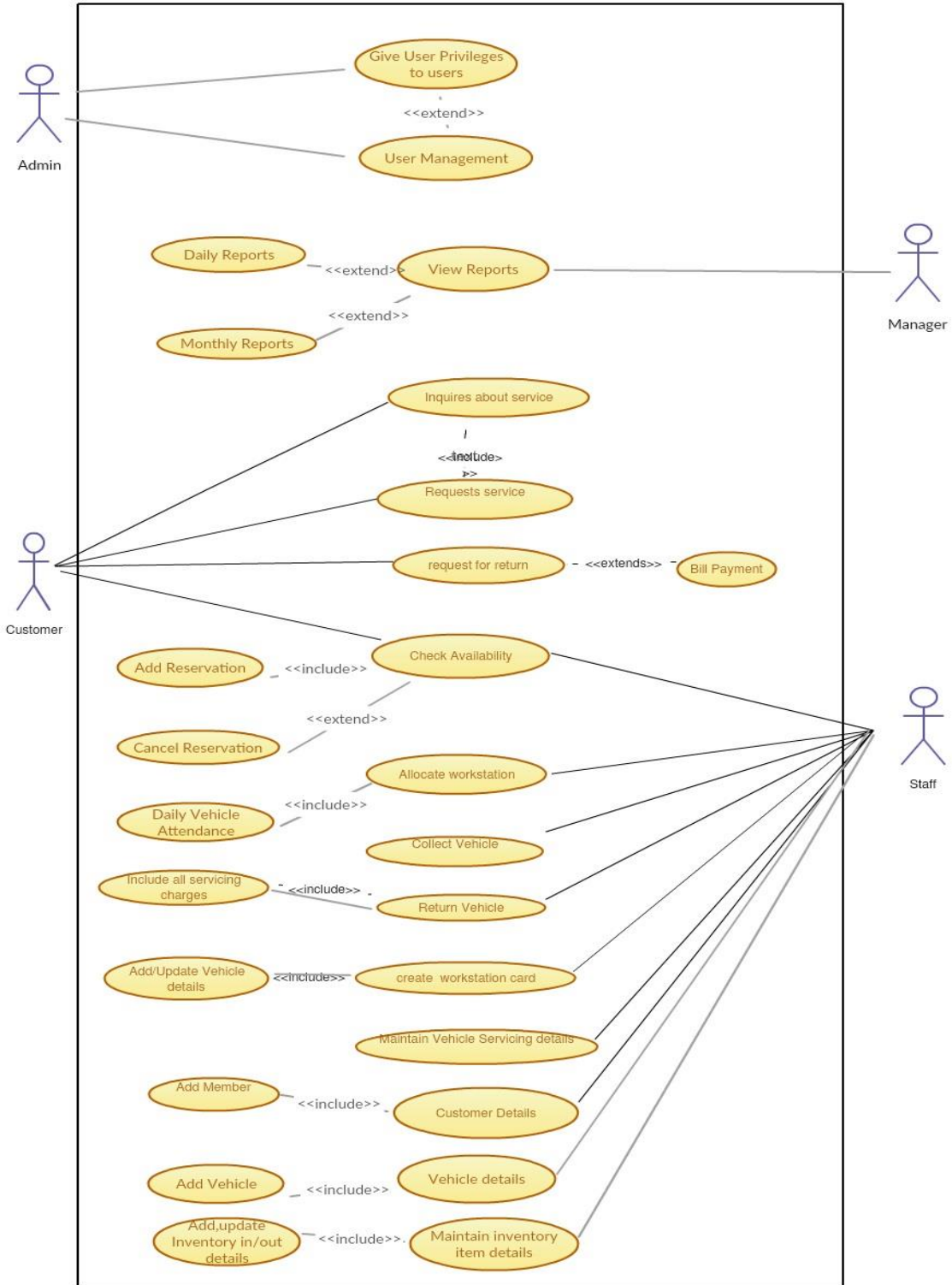


Figure 3.1 High Level Use case Diagram WBAMSM System

3.2.2 USE CASE DIAGRAMS DESCRIPTION

The table 3.1 describes the behavior of the proposed system from an external point of view.

3.2.2.1 Use-Case Description for Login

Use-Case	Login
Actors	Manager, Administrator, Staff employee
Overview	
Manager, Administrator, user, staff employee can login to the system using their usernames and passwords.	
Preconditions	
Having privileges to enter to the system.	
Flow of events	
1. Provide user name and password. 2. User authentication.	
Preconditions	
Member can use the system.	

Table 3.1- Use-Case Description for Login

3.2.3 CLASS DIAGRAM FOR WEB BASED AUTO MOBILE SERVICE MANAGEMENT SYSTEM

Figure 3.2 depicted in the Class diagram for the proposed system for the entire system.

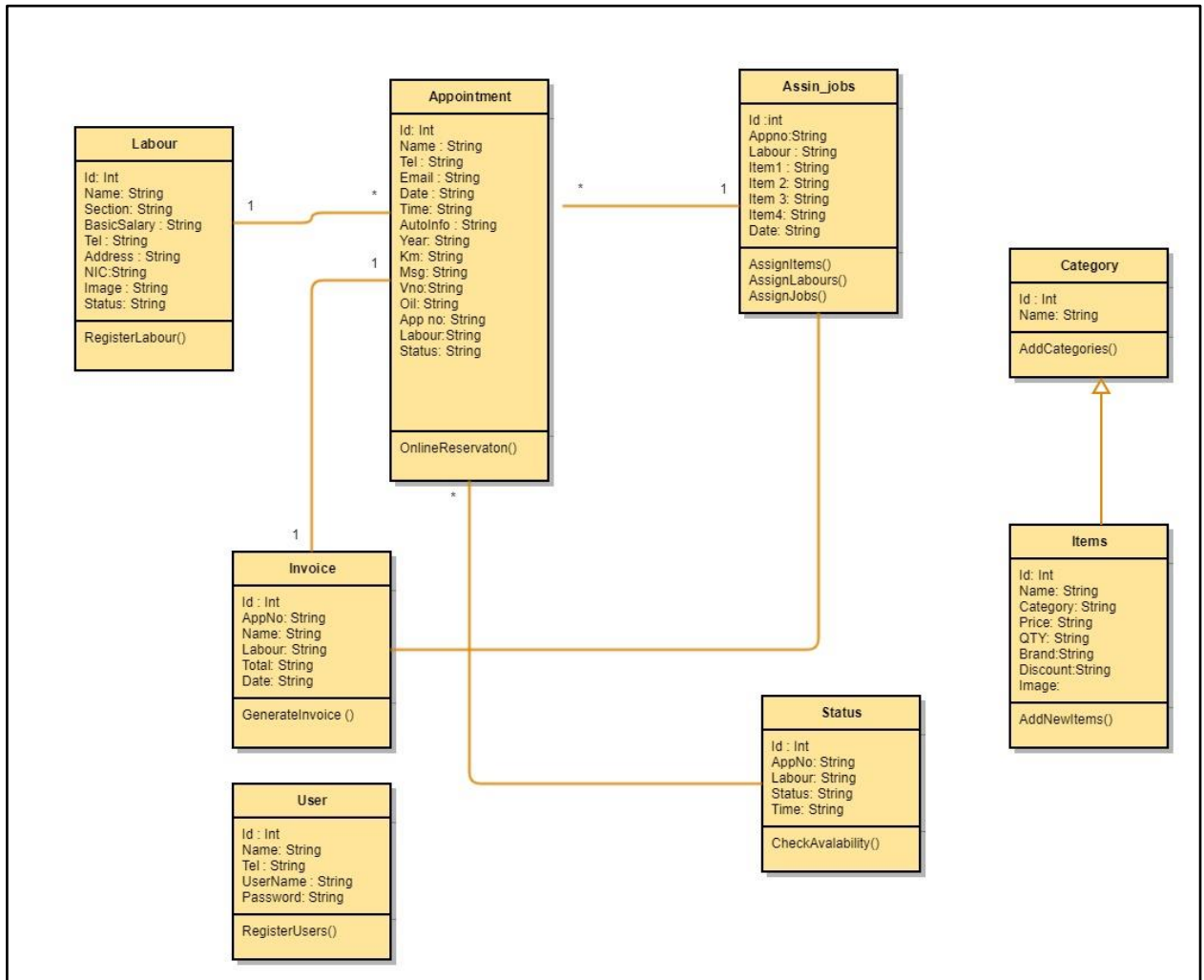


Figure 3.2 Class Diagram for Auto Mobile Service Management System

3.2.4 ACTIVITY DIAGRAM FOR AUTO MOBILE SERVICE MANAGEMENT SYSTEM

Figure 3.3 depicted in the activity diagram for the proposed system.

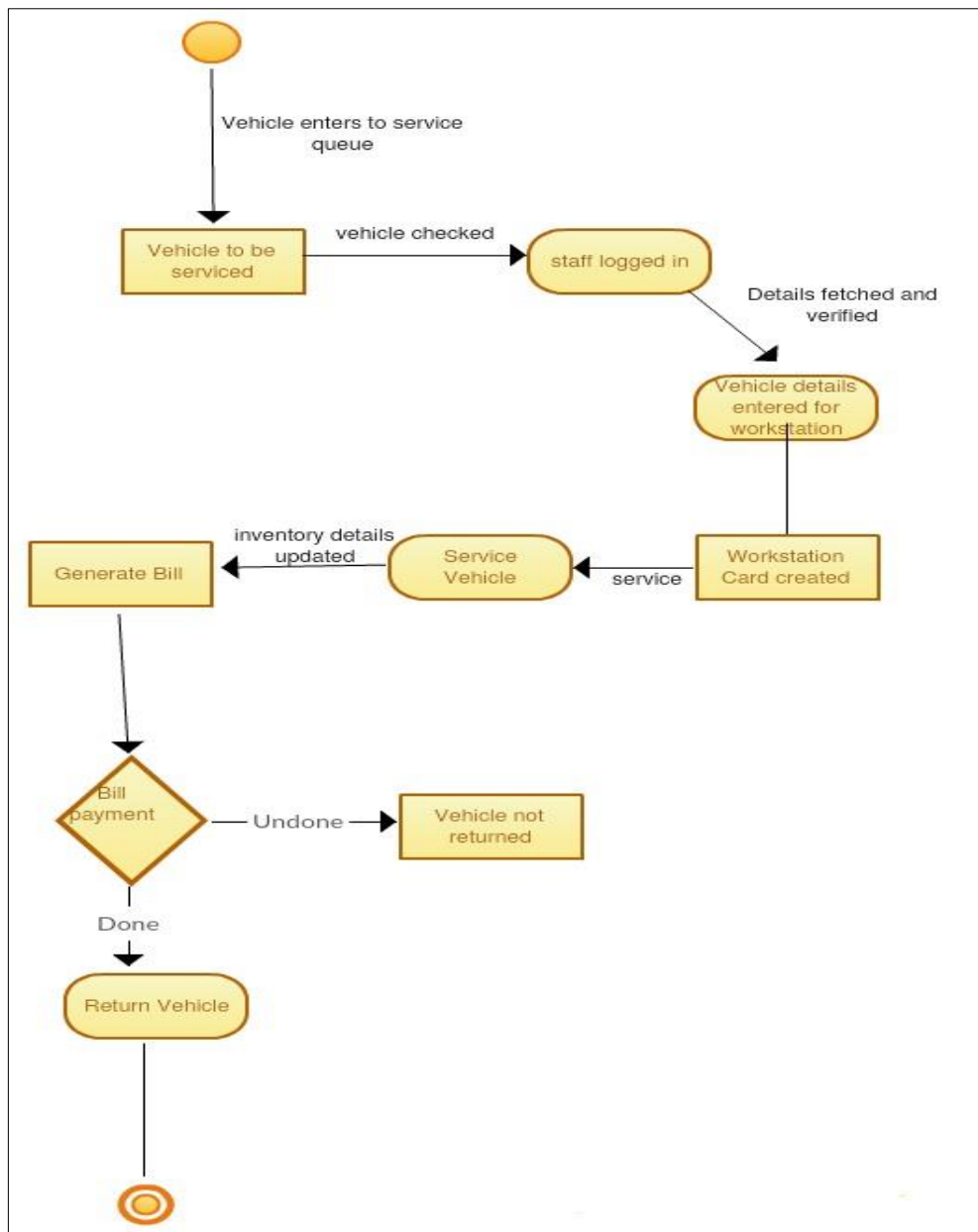


Figure 3.3 Activity Diagram for Vehicle Service Management System

3.2.5 SEQUENCE DIAGRAM FOR EMPLOYEE ASSIGNED TO PARTICULAR JOB TASK

The sequence diagram which relates to the job assigning process is displayed by figure 3.4

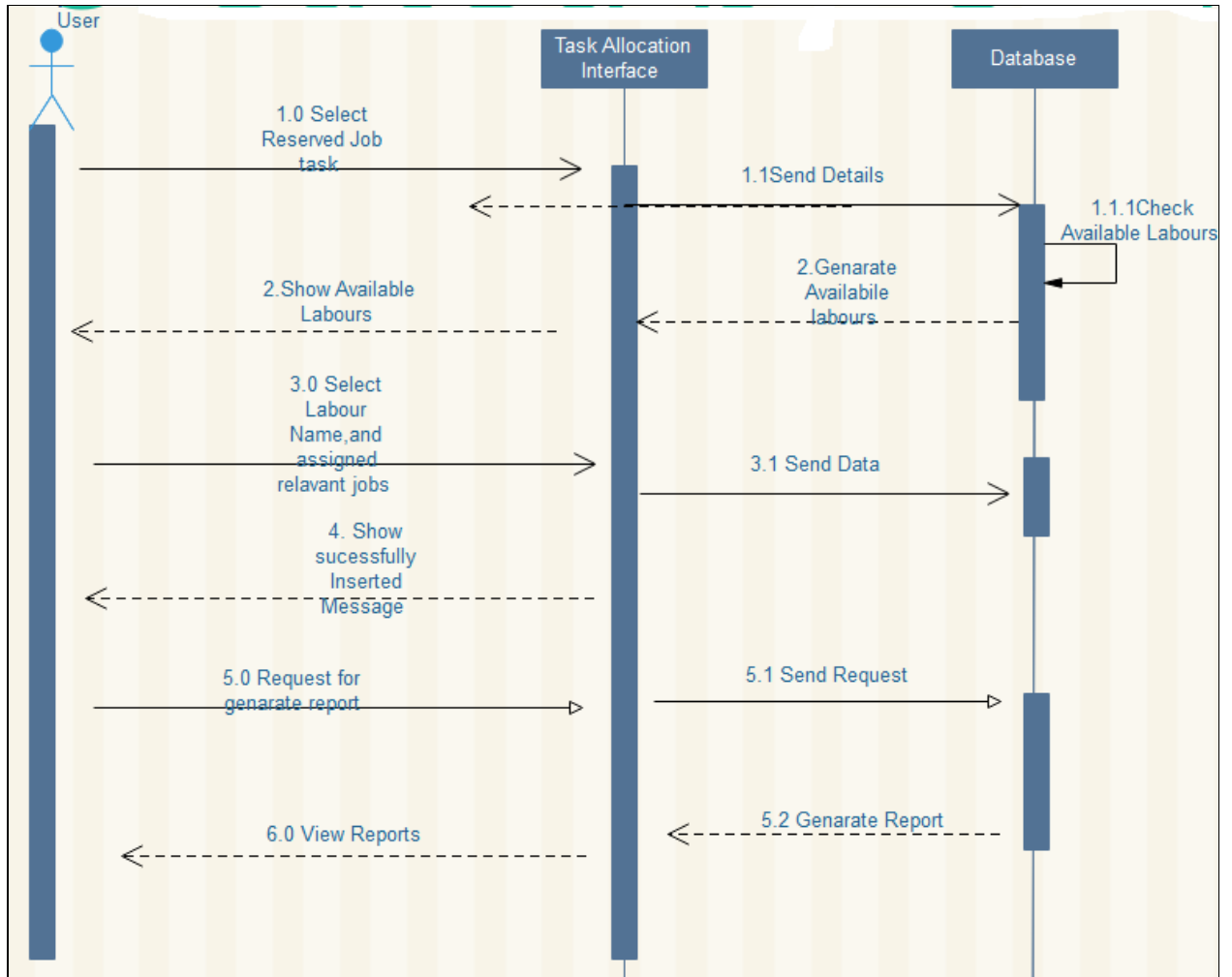


Figure 3.4 Sequence Diagram Employee Assigned to particular job task

3.3 DATABASE DESIGN

Database design is the process of producing a detailed data model of a database. There are three main phase in the database design which are conceptual design, logical design and physical design. Figure 3.5 represents the table structure of the database for proposed system is given below

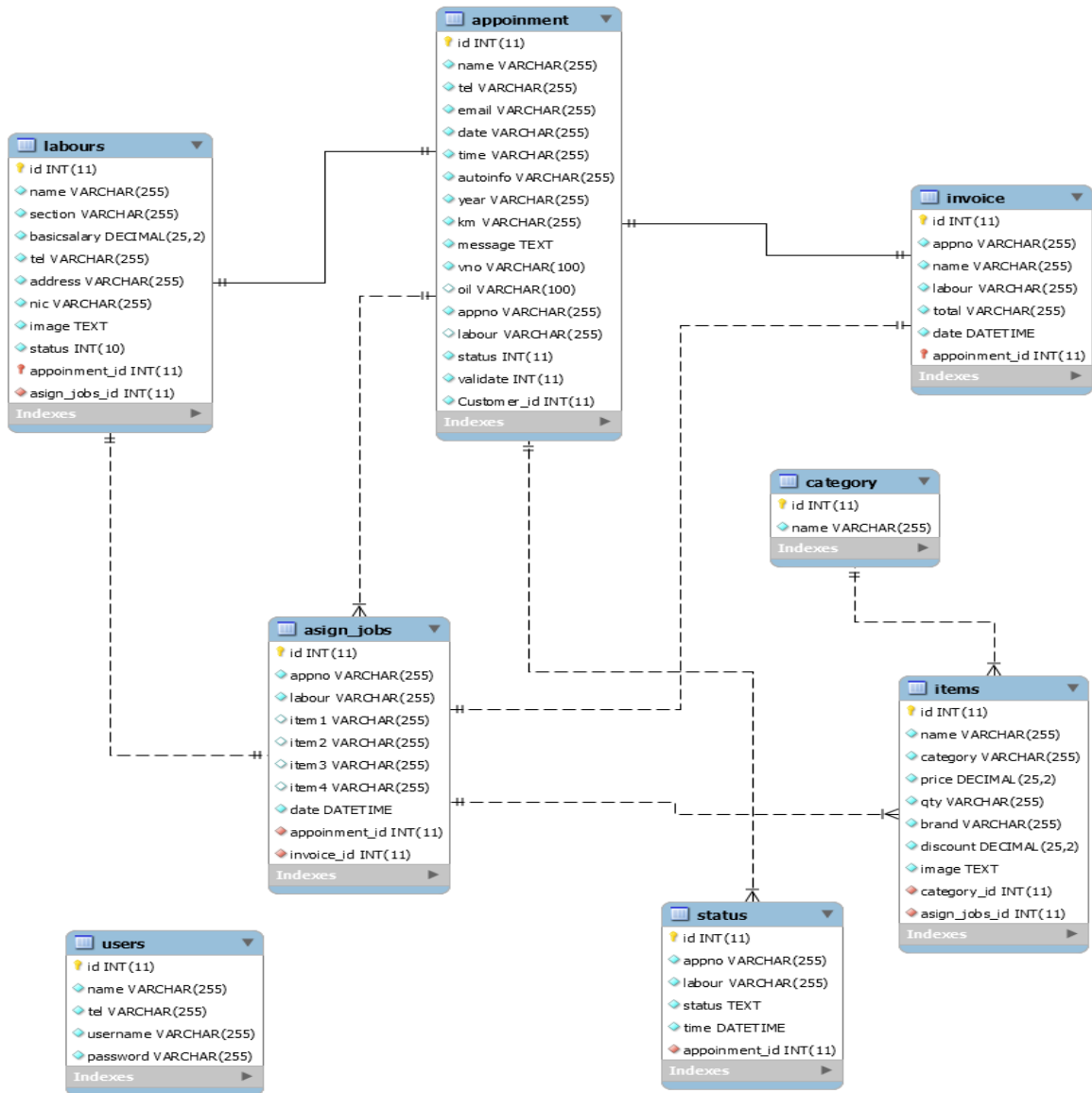


Figure 3.5 Database diagram

3.4 USER INTERFACE DESIGN

The user interface should play a major role for designing phase. Because without having a user friendly interface, user interaction with the system would be hard.

Providing a good user Interface is one of the major tasks in any system designing process. Good system design should have a simple and attractive user interface. Considering the above facts this system has been designed with simple and attractive colour combinations.

The system consists of different interfaces for the different privileged user categories in order to provide them their own functionalities.

Some of the properties a user interface must have to achieve this are as

Follows;

- Icons, controls, should be consistent across screens.
- Screen contains meaningful headings and buttons
- Page to page navigation and screen navigation should be done in an easy way and meaningful Manner.
- Controls required for a task should be clearly shown to the user.
- Display simple and meaningful error messages.
- Used attractive color combinations for all the pages.

Few main interfaces of the system have been illustrated below.

3.4.1 HOME INTERFACE

The figure 3.6 shows the home page which is main interface of the system. By analyzing other similar web based system interfaces and the client's requirements the below shown design has been finalized.

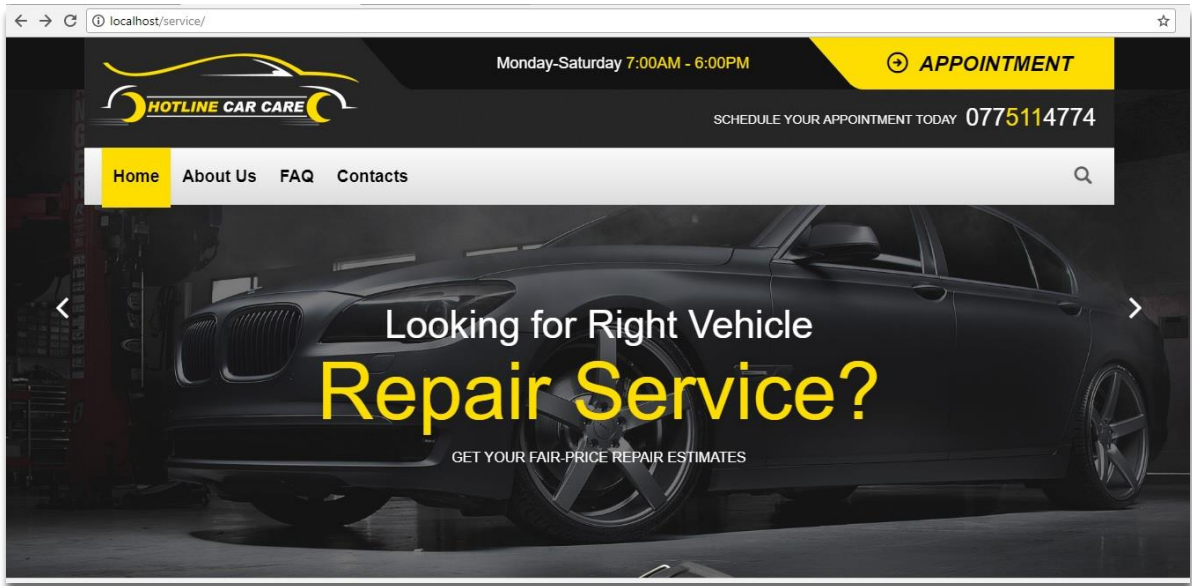


Figure 3.6 UI Design for Home Page

3.4.2 APPOINTMENT PAGE

The figure 3.7 shows the appointment page. Customer can reserve their vehicle service date by filling the below shown form.

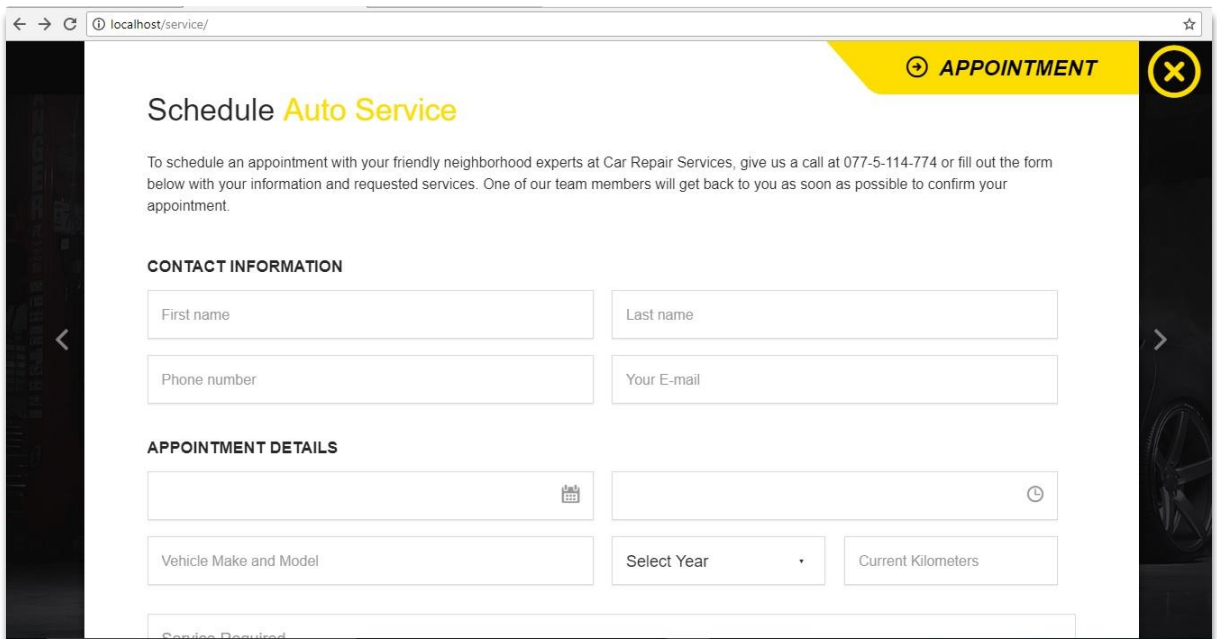


Figure 3.7 UI Design for Appointment page

3.4.3 ADMIN MODULE

The figure 3.8 shows the system administration module. All the service station process has been handled by using the below shown module.

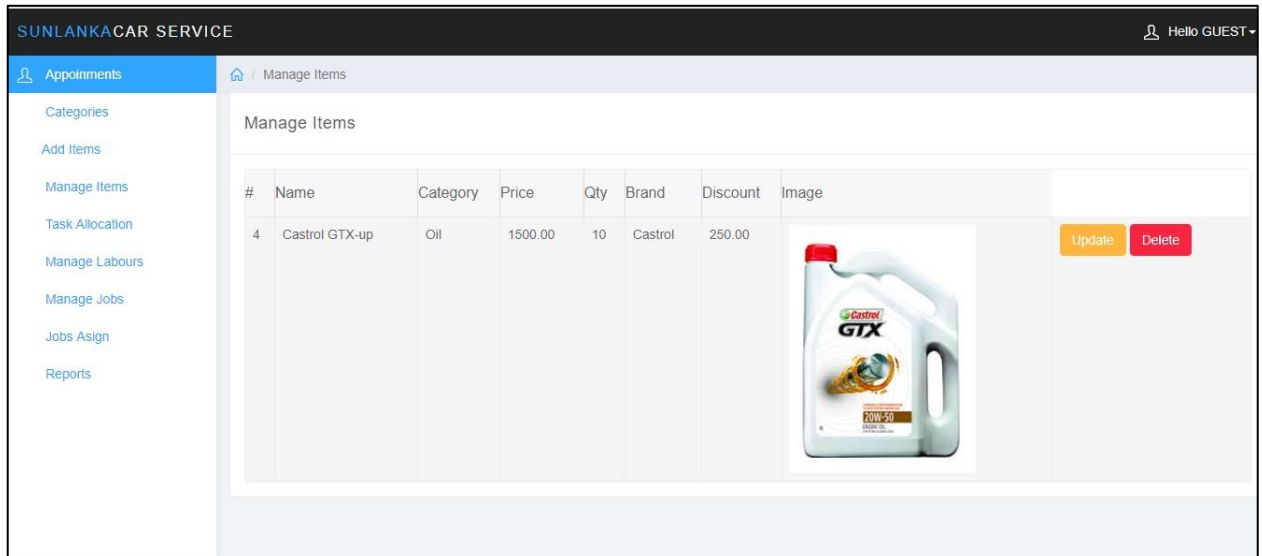


Figure 3.8 UI Design for Admin Module

3.5 DECISIONS TAKEN DURING THE DESIGN PROCESS

3.5.1 DECISION TO CHOOSE WEB BASED OVER STANDALONE

Client server architecture was chosen as the structure of proposed system. Computers and clients are connected to server by using some computer network. This reason was considered as the main reason when selecting client server architecture as the proposed system structure. This was a major client requirement.

“The client/ server model is found in most of the systems in which tasks and workloads are shared between servers and clients. Servers are the ones who provide service or a resource and ones who request the service are called clients. Clients and servers reside in the same system and they talk to each other over a computer network on separate

hardware. Servers have one or more programs running and share their resources with clients. On the other hand clients do not share their resources and request servers' functions/contents. In addition clients initiate communication sessions with the servers who wait for incoming requests." [9]

Figure 3.10 describes the client server architecture of the system.

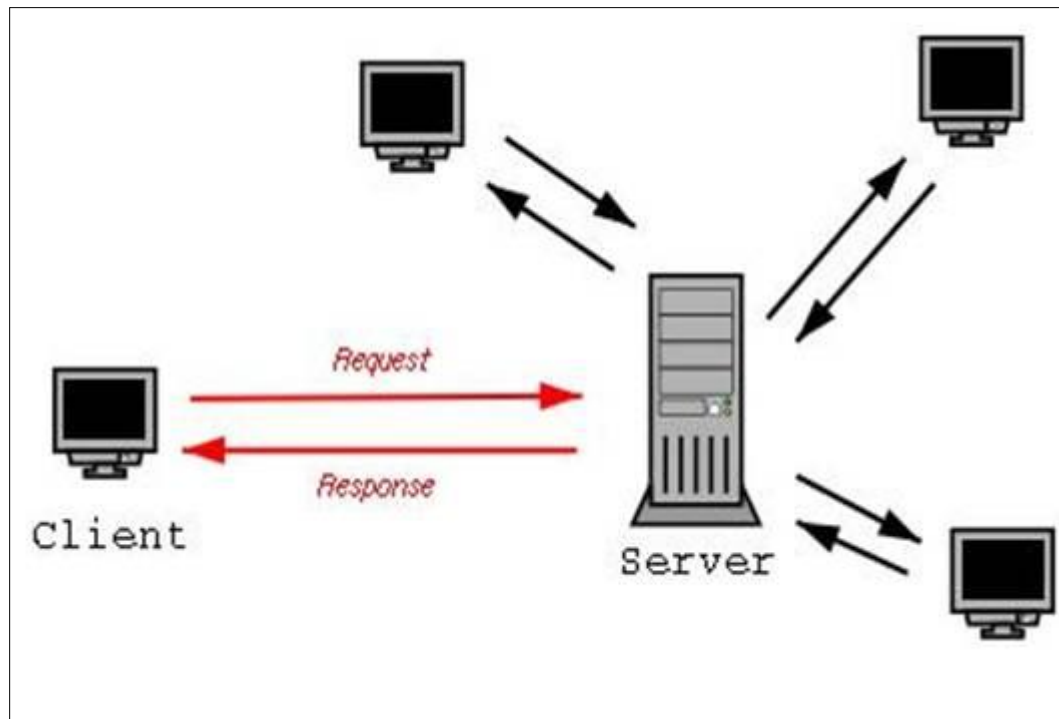


Figure 3.9 Client Server Architecture

Client/Server Advantages and Cautions

There are several significant benefits that can be realized by adopting client server architecture.

1. It allows most processing to be performed close to the source of processed data, thereby improving response times and reducing network traffic.
2. It allows companies to leverage the benefits of microcomputer technology. Today's workstation delivers impressive computing power at a fraction of the costs of mainframe

3. It facilitates the use of graphical user interfaces (GUIs) and visual presentation techniques commonly available for workstations
4. It allows for and encourages the acceptance of open systems.[10]

3.5.2 DECISION TO CHOOSE PHP LANGUAGE AND MYSQL DATABASE

PHP was chosen as the language for development. The main reason for this is that the System will be web based and PHP is a very powerful language when it comes to developing websites. PHP is also an open source package which eliminated the need for licensing thus reducing the cost. Support for PHP development is also widely available on the internet.

MySQL was chosen as the database management (DBMS) package as it is also open source software that requires no licenses. PHP and MySQL, both have many inbuilt functions that make it easier to develop communication between the business logic and the database

3.5.3 DECISION TO CHOOSE CENTRALIZED DATABASE OVER DISTRIBUTED DATABASE

A centralized database was designed to implement the proposed system. One of main objectives of developing the proposed system was introducing a database with minimum data redundancy and easy maintenance. Maintenance overheads and redundancy in centralized databases are much less than compared to distributed databases.

The system has chosen the Centralized database as all the data resides on Sunlanaka Auto Service Centre and all data is available effectively.

In this chapter introduction, system design techniques, user interface designing, and decision taking during the design process were described. Next chapter will describe the system implementation phase.

CHAPTER 4 IMPLEMENTATION

4.1 INTRODUCTION

“The actual system construction and building starts in this phase based on the models established in Design phase. Once this phase is completed a fully functional system will be available which meets the goals. Implementation of an accurate and efficient system on a range of computers with the usage of relevant tools and programming language is yhr target of this phase.” [11].

Implementation is the process of converting the system specification into an executable system. Design and implementation processes transform the specification to an executable program.

The system has been implemented in order to fulfill the requirements identified so far in the system analysis phase and also to make all the main stake holders of the system satisfied. Code modules, user interfaces and database tables were created and successfully integrated as per client requirements.

4.2 HARDWARE AND SOFTWARE REQUIREMENTS

4.2.1 HARDWARE REQUIREMENTS

- 500 GB Hard Disk
- 4GB RAM
- Printer
- Intel Core i3 Processor 2.50GHz

4.2.2 SOFTWARE REQUIREMENTS

- PHP (Hypertext Pre Processor) was the main development language used to develop the main system and its logics
- MySQL was used to handle all the development related to the database
- HTML was used to build the base Interfaces of the system.
- CSS was used to make the plain HTML interfaces more attractive and user friendly, which also decided the look and feel of the system
- JavaScript was used to code all the client-side validation
- JQuery which is also based on JavaScript was used to implement the pre-coded time picker module

Although Auto Mobile Service Management System was developed with above configuration, the system is fully compatible with windows 10.

4.3 DEVELOPMENT TOOLS

- 4.3.1 Windows 7 operating system
- WAMP Server.
- Apache server 2.2.12
- MySQL Server Version 5
- PHP Version 5
- phpMyAdmin
- Firefox, Google chrome and Internet explorer
- Macromedia Dreamweaver CS4
- Adobe Photoshop CS2

4.4 CODES OF THE MAIN MODULE

4.4.1 INITIALIZING DATABASE CONNECTION

Web system needs to be linked with database, in order to functioning well. Whenever data is added, deleted or updated in the system, the system should be connected with the related database. Code segment given below links the system to its database. Predefined MySQL function called “mysql_connect()” helps to manage the connection by passing three parameters in its hostname, username, and the password. “mysql_select_db()” function used to connect the database by passing database name and the connection.

```
config.php
1
2 <?php
3 //Database connection with the Sql Server
4
5 $con=mysqli_connect("localhost","root","","service_car");
6
7 mysql_connect('localhost','root','') or die(mysql_error());
8
9 //selecting the database
10
11 mysql_select_db('service_car') or die(mysql_error());
12 ?>
```

4.4.2 CREATING INCLUDE FUNCTION

We can call configuration page for any page by using include function. The following code segment explains how it works.

```
appointments.php
108 <?php
109 // Include Connection string
110 include "config.php";
111 $user=$_SESSION['user'];
112 $sql = mysql_query("SELECT * FROM appointment ORDER BY id desc")
113 or die(mysql_error());
114
```

4.4.3 INSERT DATA

The following code segment explains how insertion query works in appointment page.

```
appointment.php 3
16
17 $con=mysqli_connect("localhost","root","","service_car");
18
19 $token=rand()*100;
20
21 // insert data into appointment
22 $sql="insert into appointment
23 (name,tel,email,date,time,autoinfo,year,km,message,vno,oil,appno)
24 values('$name','$tel','$email','$date','$time','$model','$year','$km','$description','$vno','$oil',
25 '$token')";
26
27
```

4.4.4 UPDATE DATA

The following code segment explains how data updating works in labour page.

```
update_labour.php 2
177 $sql = mysql_query("SELECT * FROM labours ORDER BY id desc")
178 or die(mysql_error());
179
180 while($row = mysql_fetch_array($sql)){
181 echo '<tr>';
182 echo '<td>'.$row['id'].'</td>';
183 echo '<td>'.$row['name'].'</td>';
184 echo '<td>'.$row['section'].'</td>';
185 echo '<td>'.$row['basicsalary'].'</td>';
186 echo '<td>'.$row['tel'].'</td>';
187 echo '<td>'.$row['address'].'</td>';
188 echo '<td>'.$row['nic'].'</td>';
189 echo '<td></td>';
190 //update labour
191 echo '<td>
192
193 <a href="update_labour.php?id='.$row['id'].'" class="btn btn-warning">Update</a>
194 <a href="delete_labour.php?id='.$row['id'].'" class="btn btn-danger">Delete</a>
195 </td>';
```

4.4.5 DELETE DATA

The following code segment explains how data deletion works in appointment page.



```
delete_contact.php
1 <?php
2 // Delete data
3 if(isset($_GET["id"])){
4     include "config.php";
5     $id=$_GET["id"];
6
7     $sql="DELETE FROM appoinment WHERE id='".$id.'"
8     ";
9
10    if (!mysqli_query($con,$sql)) {
11        die('Error: ' . mysqli_error($con));
12    }
13
14    header('Location:appoinments.php');
15 }
16 ?>
```

4.4.5 DATA VALIDATION

Data validation is a most important and critical of the implementation process. Because users can enter unwanted values to the system, so that accuracy of the data can be lost. The main objective of the data validation is ensuring the input value is in the correct format. Validation was done using “regular expression”. Following code snippets shows text field validation using regular expression.

The following code segment explains how data validation works in appointment page.

```
2 <head>
3
4 </head>
5
6 <body>
7 <form action="" method="POST">
8 <input type="number" name="txttel"/>
9 <input type="submit" name="btnok">
10 </form>
11
12 <?php
13 //validate phone number 10 digits
14
15 if(isset($_POST["btnok"])) {
16     $tel=$_POST["txttel"];
17     if(strlen($tel) !=10) {
18
19         echo '<script>
20             alert("Invalid Tel No");
21         </script>';
22
23     }
24 }
25 ?>
26 </body>
27 </html>
```

4.5 REUSED EXISTING CODES

Some codes and components were reused in several locations in this project. Those codes were maintained in separate classes and recall them when needed. Following codes and components are few of them which is reused in this project.CSS Re-usable Components, and Query Re-usable Components were reused in several locations in this projects.

CHAPTER 5 EVALUATION

5.1 INTRODUCTION

“A method for software testing turns software test cases design methods into a well-organized series of steps that eventually results in a successful construction of a software. This method includes steps which are required for testing and when the tests are planned effort, time and resources needed for it can be calculated. A testing method or strategy must have test planning, test cases design, test evaluation and test result and data collection and evaluation.” [12]

“Software testing has a pivotal role in evaluation phase as it executes product or application with the aim of finding defects. For this ultimate review of specification, design and code generation are very much important. Ensuring the system work well is expected in this.” [13]

5.2 VERIFICATION & VALIDATION PROCESS

“It is the activity of evaluating the process by confirming that software meets the customer needs. Both verification and validation should be run in every phase of development life cycle.

Validation check whether the software fulfils the business needs and verification ensures that developed product is in the way of obtaining the correct final product.” [14]

5.3 TEST PLAN

Test plan is a document which is describing the scope, objectives, approach, schedule, and resources available of a software testing effort. It identifies the items to be tested and not be tested, who will do the testing, what test approach followed, what will be the pass/fail

criteria, training needs for team, the testing schedule etc. Only summarized main functionalities are included in following high level test plan, as illustrated by Table 5.12.

Module Name	Test Case No	Test Date	Deviation	Overall Status
Login Module	1.1,1.2, 1.3,1.4, 1.5,1.6, 1.7,1.8,	04/07/2017	No	Pass
Appointment Module	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11,2.12,	06/07/2017	No	Pass
Labour Assigning Module	3.1,3.2, 3.3.4	07/07/2017	No	Pass
Task Allocation Module	4.1,4.2, 4.3	08/07/2017	No	Pass
Manage Items Module	5.1,4.2, 5.3	10/07/2017	No	Pass
Manage Jobs Module	6.1,10.2, 6.3,10.4, 6.5	10/07/2017	No	Pass
Report Module	7.1,11.2, 7.3,11.4, 7.5, 11.6	11/07/2017	No	Pass

Tested By :
R.H.N.M.Weerasiri (Developer)

Signature : Date:

Verified by : Samath Nanayakkara (Owner of SunLanka Auto Service Centre)

Table 5.1 Test Plan

A Testing has been done to the Automobile Service Management System according to a test plan.

5.4 TEST CASES

A test case is a documentation which specifies input values, expected result and the preconditions given for executing the test. It also a part of test deliverables. Stakeholders can get an idea about the quality of test cases written and the effectiveness of those test cases by reading test case document. In order to minimize the complexity, the whole system has been divided in to several modules, and each module was tested separately.

The following tables specify some test cases for major Modules.

5.4.1 LOGIN MODULE

Test No	Test Description	Steps to Test	Expected Results
1.1	Validate login details	Enter correct username and password	Display “Successfully logged in” Message
1.2	Check Invalid Details	1.User enter invalid username or/and password 2.User enter empty username 3. User enter empty password	Display appropriate error message
1.3	Identify the user and user type	Different users enter login details then redirect to the relevant page	Show user name and type in the relevant page
1.4	Create new user.	1.Admin can create new account 2.New user can register	The administrator should be able to create a new user account
1.5	Change password	Click change password	User is able to change their password

Table 5.2: Login Module Test Results

5.4.2 CUSTOMER MODULE

Test No	Test Description	Steps to Test	Expected Results
1.1	Validate Personnel Information adding	Add Information with Filling all the required fields	Display Message “Successfully inserted User details”
1.2	Validate Personnel Information adding	Add Information without	Popup the error message

		Filling all the required fields	“Please Fill the mandatory Fields”
1.3	Validate Personnel Information adding	Add information by keeping all fields in empty	Popup the error message “Please Fill the mandatory Fields”
1.4	View user information	Select User from the list, View details.	Display User details.
1.5	Update user information	Select user, view details and Update user Information.	Display a message ”User information Successfully Updated”
1.6	Delete user information	Select user, view details and Delete user Information.	Display a message ”User information Successfully Deleted”

Table 5.3: Customer Module Test Results.

5.4.3 REPORTS MODULE

Test No	Test Description	Expected Results	Status
9.1	Generate reports.	The system should display reports on screen and also as a popup to print.	pass
9.2	Test valid Date/year/ID	Display and popup valid report.	pass
9.3	Print Report.	Send print job to the printer	pass

Table 5.4: Reports Module Test Results

5.5 TEST DATA

Both boundary value analysing and equal partition concepts were considered when selecting test data, because careful selection of test data is needed to successfully conduct testing

procedure. Maximum value and minimum value that can be entered for a given input parameter and boundary values those falls in between valid and invalid input values were also considered when selecting test data.

5.6 TESTING LEVELS

A proper system testing should be carried out for evaluating the system to see its compatibility as a solution for the problem domain. The Following test Strategies are used for the system testing.

Unit testing

“It is the method of testing individual units of the source code. These tests are written and executed by software developers to ensure the unit behaves as expected.” [15]

Unit testing is done using either Black box testing or white box testing.

Black Box testing

“This is also called as input/output driven testing techniques. Both functional and non-functional testing are carried out in this phase. A tester should examine how well the system operates.” [16]

White box testing

“Glass-box testing technique is another name given for this. Code execution should be done in this phase.” [17]

Integration testing

It tests the interactions between software components and is done after component testing. The software components themselves may be specified at different times by different specification groups, yet the integration of all of the pieces must work together. It is

important to cover negative cases as well because components might make assumption with respect to the data [18]

System Testing

In system testing the behavior of whole system/product is tested as defined by the scope of the development project or product. It may include tests based on risks and/or requirement specifications, business process, use cases, or other high level descriptions of system behavior, interactions with the operating systems, and system resources. System testing is most often the final test to verify that the system to be delivered meets the specification and its purpose. System testing is carried out by specialists' testers or independent testers. System testing should investigate both functional and non-functional requirements of the testing. [19]

5.7 USER EVALUATION

Normally user evaluation is done by selecting different users of the system. In this transport management system Manager has been taken as an administrator of the system and other users has taken as normal users with different privileges. User evaluation questionnaire was given to target population and results has summarized.

Following figure 5.1 shows user evaluation questionnaire sample document.

USER EVALUATION QUESTIONIRE

Name :					
User Role					
Evaluation Schema	Very Good	Good	Average	Poor	Very Poor
1.Overall Performance					
2.Font readability					
3.Icon/colour scheme					
4.System Navigation					
5.User friendliness					
6.Functionalities					
7.User Interface					
Comments :					

Name :

Date

Table 5.5: User Evaluation sample table

Following figure 5.2 shows user evaluation questionnaire form which is filled by customer.

USER EVALUATION QUESTIONIRE

Name : <u>Samath Nanayakkara</u>					
User Role : <u>Manager</u>					
Evaluation Schema	Very Good	Good	Average	Poor	Very Poor
1.Overall Performance	✓				
2.Font readability	✓				
3.Icon/colour scheme	✓				
4.System Navigation		✓			
5.User friendliness	✓				
6.Functionalities		✓			
7.User Interface	✓				
Comments : System is working fine as <u>expected</u> . <u>Good</u> work					

Samath Nanayakkara

02/10/2017

Name :

Date

Table 5.6: User Evaluation table

CHAPTER 6 CONCLUSION

6.1 OVERVIEW

Sun Lanka Auto Service Centre plays a major role as a Vehicle Service Provider in Galle area. Currently, the whole process is done manually and it is time consuming. However, with the intension of improving efficiency and effectiveness of daily work, Sun Lanka was in the view of shifting to the Web based Application. It was the commencement of the development of “Web Based Auto Mobile Service Management System” which is the efficient solution for Sun Lanka Auto Service Centre.

The main aim of developing this Web Based Auto Mobile Service Management System final year project is to provide efficient and effectiveness management services to the Sun Lanka Auto service Centre. This Auto Mobile Service Management system is fully customized Web Based application where Sun Lanka staff can view each customer order and give solution to their vehicle problems. This mini project software application was written in PHP with MySQL database.

The developed system supports all the operations related to the Sun Lanka Auto Service Centre process and also it supports to managing staff issues as well as task allocation overlaps which are normally reported to the management. All the above mentioned solutions work together making it easier and user friendly sharing information between management and staff in Sun Lanka Auto Service Centre.

The major modules of this system are managing current manual problems which is interfered in day to day process. Since available manual system is time consuming and inefficient procedure, this Web Based Application will plays a major role for company growth.

6.2 CRITICAL APPRAISAL OF THE PROJECT

The implementation of Web Based Auto Mobile Service Management System can be categorized as successful with opportunity for expansion. An initial assessment was done when submitting the project proposal. Once done submitting the proposal, detailed Analysis was carried out to identify and document the business functionality of the client.

Several attempts of discussions were held with the management as well as employees of Sun Lanka Auto Service Centre during these discussions the management was made known of the benefits that implementing a web based application could bring to the company. After been enlightened on the technological aspects and the benefits those technologies can bring to the business, the management requested a wide range of functionalities to be implemented with the Auto Mobile Service Management system. Implementing the requested number of requirements was big challenge due to the time constraints. The challenge was accepted with determination and many of the modules were implemented. As stated in the System Analysis chapter feasibility studies were carried out with regard to some requirements.

Most of the project objectives were successfully met and the client has accepted and implemented the system and is being used the system in parallel to the manual system. The manual system will be phased off gradually once the management and Staff get used to the system. Therefore it could be summarized that the project was successfully completed but there will be future enhancements to be applied to the system.

6.3 LESSONS LEARNT

The practical knowledge which I have gained throughout the project was really important. This developed system assists me to practically apply the knowledge learnt throughout the past three years and gave me an opportunity to communicate with real client and carry out the system step by step according to a specific time frame in a professional manner.

This project gave me chance to test and implement most valuable theories and technologies which I have learnt through the BIT Degree program. Implementation Phase was toughest, as it is allow me to practically test and try out my PHP, MySQL knowledge, as well as gained knowledge of using relevant tools and technologies. Each and every implementation tasks guide me to improve my knowledge and skills in a succeed way.

Apart from that the most enthusiastic part of the project was writing the dissertation. It provided me with lessons on how to write a report according to the recognized standards. It helped me to improve my skills on writing reports.

Proper time management and planning experience which I have gained throughout the project will help me do my day to day activities in an effective and efficient way.

6.4 FUTURE ENHANCEMENTS

The system can be improved by adding new features and hardware equipment.

- Provide Inventory Items management module
- Provide online payment facility
- Add more customized reports based on the management requirements

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APPENDIX - A

SYSTEM DOCUMENTATION

The system documentation provides step by step guidance on how to install the system properly. The document comprises the necessary software and hardware requirements to run the system and the tools that will be helpful to do any amendments to the system in future. Hardware and software requirements for the system have been mentioned below.

(1) Installing recommended software

Installing WAMP

- Download and install xampp windows version. Give installation path to C:\ of the computer.
- Copy the “Service1” folder given in the supplementary CD and paste it inside the htdocs folder in the following paths.

Windows Environment with XAMPP installed - the path would be C:\xampp\htdocs

Step 1 : Install Xampp Server

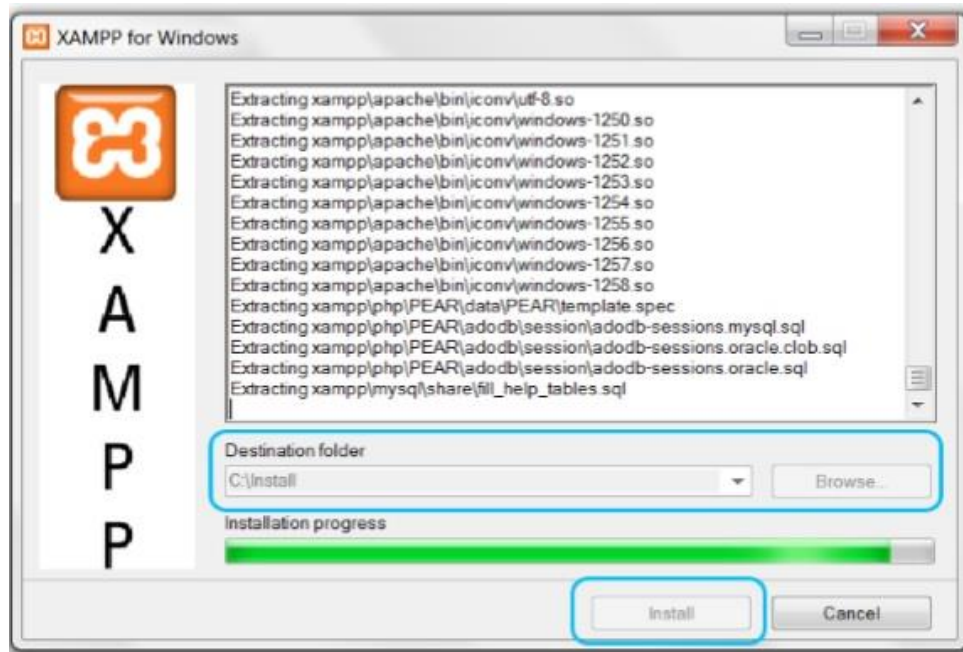


Figure A. 1: Install Xampp Server

Installing Firefox or Google chrome web browsers

Before running the system, it is needed to download and install the latest version of Mozilla Firefox (from www.mozilla.com) or Google chrome (from www.google.com)

(2) Extracting files

Browse the Read-Only CD to find “Service1.zip” file, which contain source codes. Extract “service.zip” file into the “htdocs” folder of xampp server.

(3) Setting up database

- Open up the web browser and type `http://localhost/` in the URL and press Enter. If XAMPP installed successfully, you could now see the XAMPP home page on your browser window.
- Select phpMyAdmin tool from the left side panel of the XAMPP home page
- In the phpMyAdmin window click in the text field named “Create new database” and type “Service_car” and press „Create“ button. A new database named “Service-Car” will be created.
- Now click on the “Import” tab from the tabs located in the top of the window and click on the “Chose file” button located next to the “Location of the text file” option in “File to import” section. It will give you a browsing window.
- Insert the “WBAMSMS” CD in to your CD-ROM. Locate and select the “service_car.sql” from the path: `X:\WBAMSMS \Database\ Service-Car` (Note: „X“ is your CD-ROM Drive letter) and press “Open” button.
- Press “Go” button located in the bottom right hand corner.

(4) System installation

- Browse the WBAMSMS CD, Locate the folder “Service” from the path:
X:\WBAMSMS (Note: X is your CD-ROM drive letter).
- Copy the entire folder and paste it in the following location
- C:\xampp\htdocs

APPENDIX - B

DESIGN DOCUMENTATION

Use-Case Description for Task Assign Module

The Task assign module use case is displayed by figure B.1. The main use case functionality of this module is described by Table B.1.



Figure B.1: Use case diagram of the pre informed Task Assign module

Use-Case	Pre informed Task Assign module
Actors	Staff
Overview	
Staff member makes task assignment based on customer request	
Preconditions	
Having privileges to enter to the system.	
Flow of events	
<ol style="list-style-type: none"> 1.Select Vehicle type and Customer details 2.Select labours from labour table 3.Select items from item table 3.Click on Check availability button 4.System should display the availability 5.Enter customer details to confirm the task assignment 	
Post conditions	
Reservation data should save in the database	

Table B.1: Use Case diagram Description for Task assignment

Use-Case Description for Item Handling Module

The Item handling module use case functionality of this module is described by Table B.2.

Use-Case	Item Handling
Actors	Staff
Overview	
Staff member maintain Stock In and Stock Out items based on inventory details	
Preconditions	
Having privileges to enter to the system.	
Flow of events	
<ol style="list-style-type: none">1. Check available items levels in stock and out Stock2. Issue Items for workstation process3. System should display the “Stock in and Out” availability4. Update the stock levels	
Post conditions	
Stock details should be accurately updated for the report generation purposes	

Table B.2: Use Case diagram Description for Item Handling

Use-Case Description for Labour Allocation Module

The Labour Allocation module use case is displayed by figure B.2. The main use case functionality of this module is described by Table B.3.

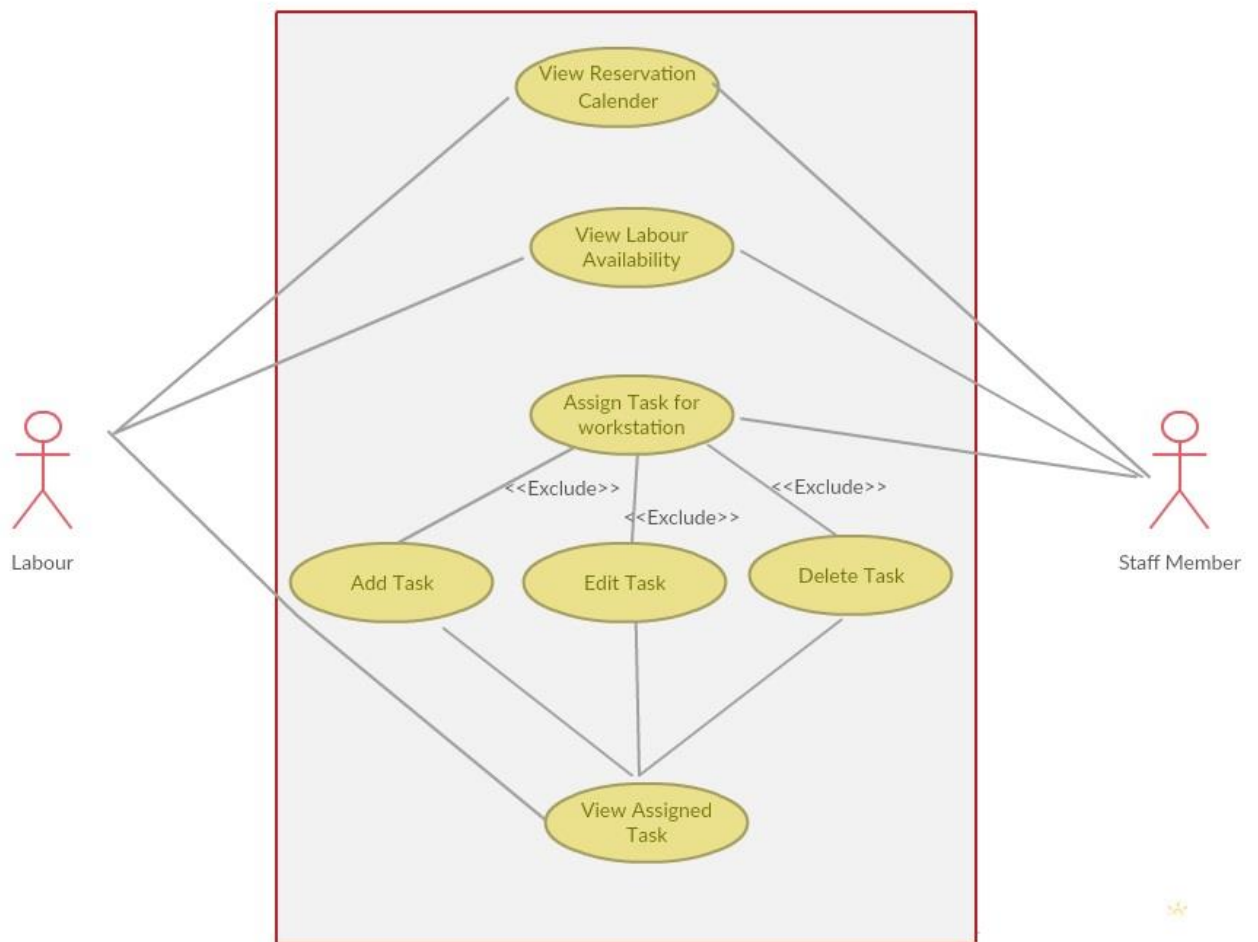


Figure B.2: Use Case diagram for Labour Allocation

Use-Case	Labour Allocation
Actors	Staff
Overview	
Staff member makes allocation based on labour availability	
Preconditions	
Having privileges to enter to the system.	
Flow of events	
<ol style="list-style-type: none"> 1. Select the from and To date range and time 2. Select Enrollment type and workstation task 3. Click on Check availability button 4. System should display the availability 5. Enter labour details to confirm the allocation 	
Post conditions	
Labour Allocation data should save in the database	

Table B.3: Use Case diagram Description for Labour Allocation

Use-Case Description for Vehicle Appointment Module

The Vehicle Appointment module use case is displayed by figure B.3. The main use case functionality of this module is described by Table B.4.

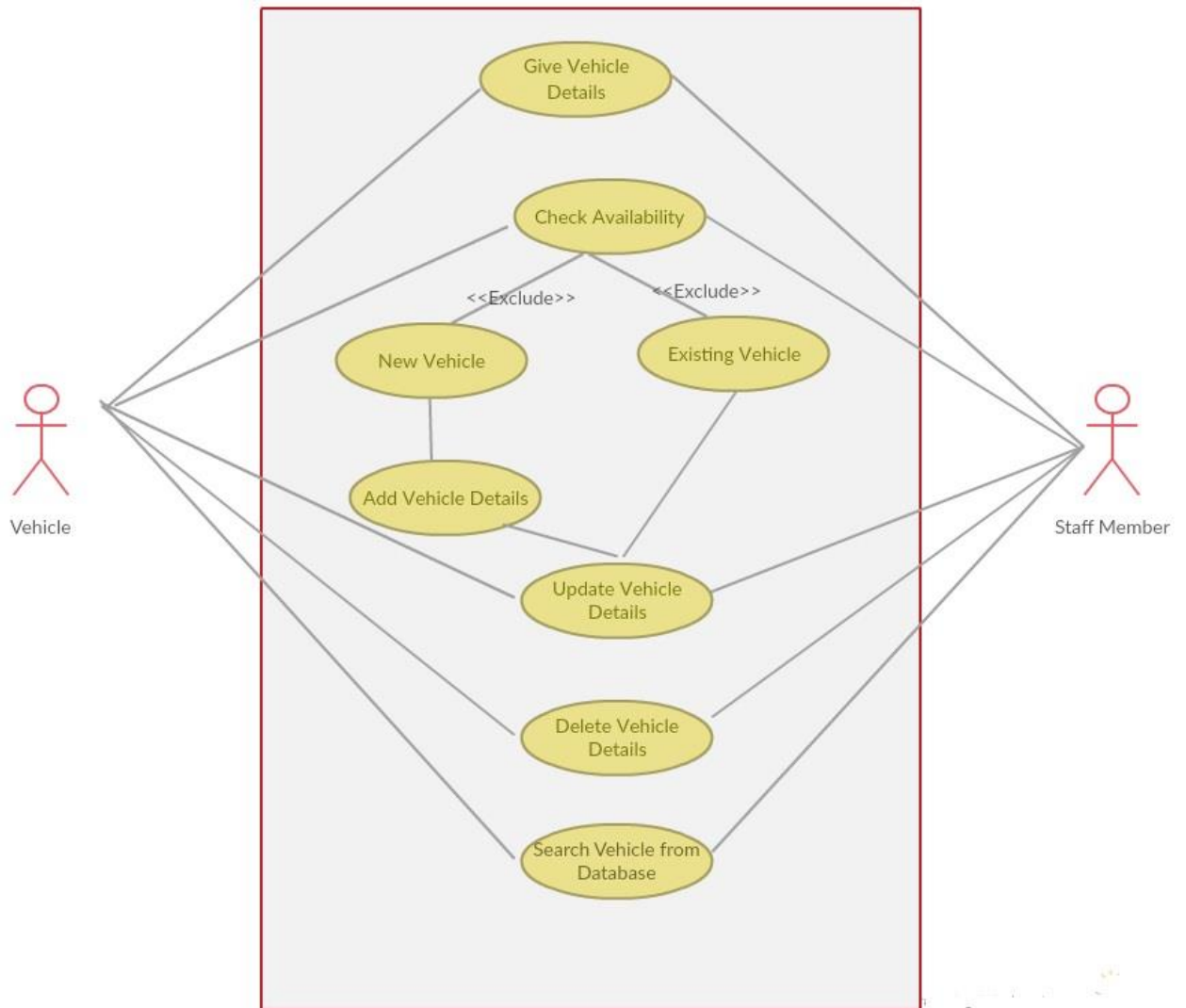


Figure B.3: Use case diagram of the appointment module

Use-Case	Vehicle Registration
Actors	Staff
Overview	
Staff member makes vehicle registration based on customer request	
Preconditions	
Having privileges to enter to the system.	
Flow of events	
<ol style="list-style-type: none"> 1. Select the from and To date range and time 2. Select Vehicle type and workstation task 3. Click on Check availability button 4. System should display the availability 5. Enter customer details to confirm the reservation 	
Post conditions	
Reservation data should save in the database	

Table B.4: Use Case diagram Description for appointment Module

Use-Case Description for Customer Registration Module

The Customer Registration module use case is displayed by figure B.4. The main use case functionality of this module is described by Table B.5.

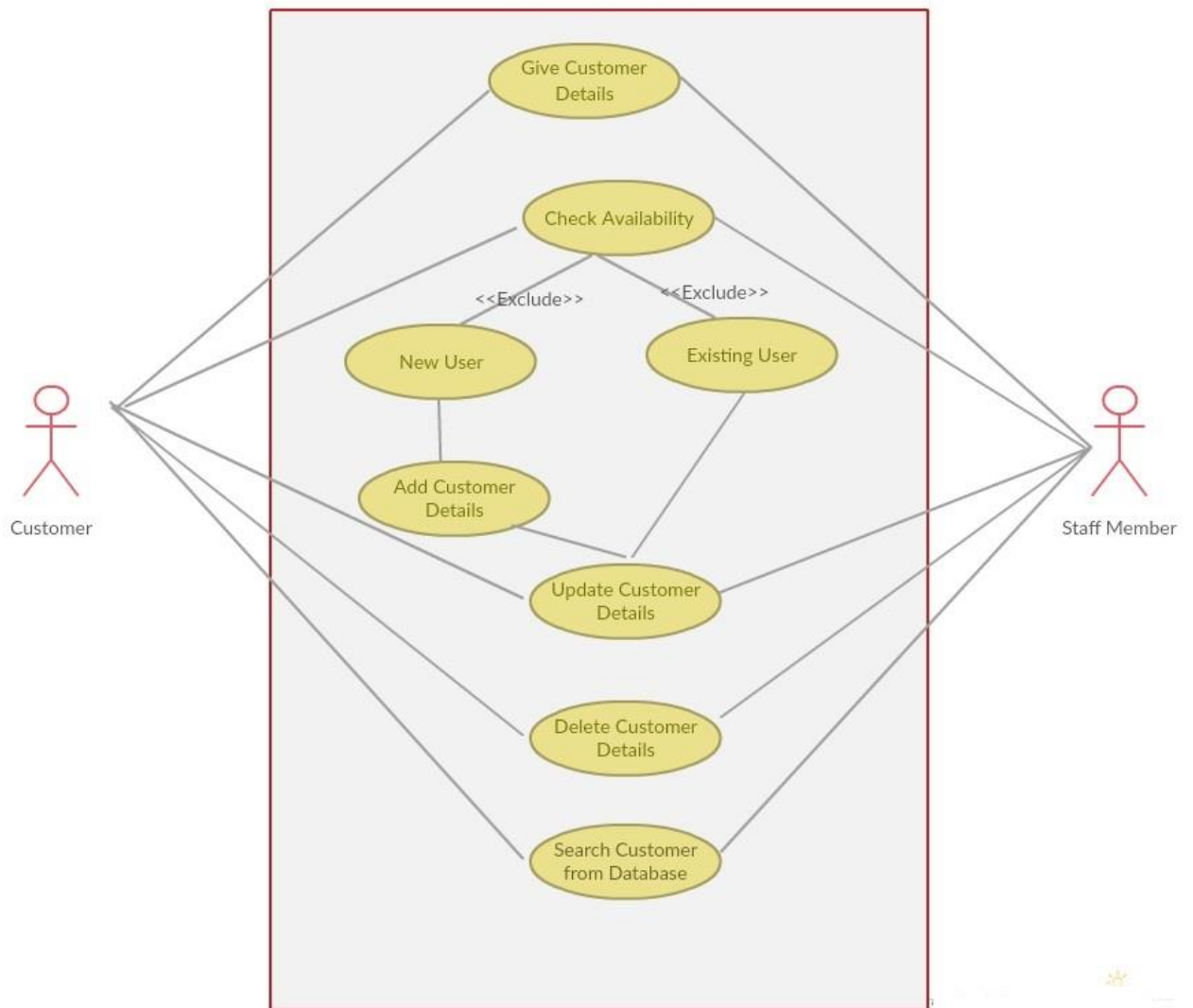


Figure B.4: Use case diagram of the Customer Registration module

Use-Case	Customer Registration
Actors	Staff
Overview	
Staff member makes Customer registration based on customer request	
Preconditions	
Having privileges to enter to the system.	
Flow of events	
<ol style="list-style-type: none"> 1. Select the from and To date range and time 2. Select Vehicle type and workstation task 3. Click on Check availability button 4. System should display the availability 5. Enter customer details to confirm the reservation 	
Post conditions	
Reservation data should save in the database	

Table B.4: Use Case diagram Description for Customer Registration

Activity Diagram for Workstation Module

The Activity Diagram for workstation module is displayed by figure B.5.

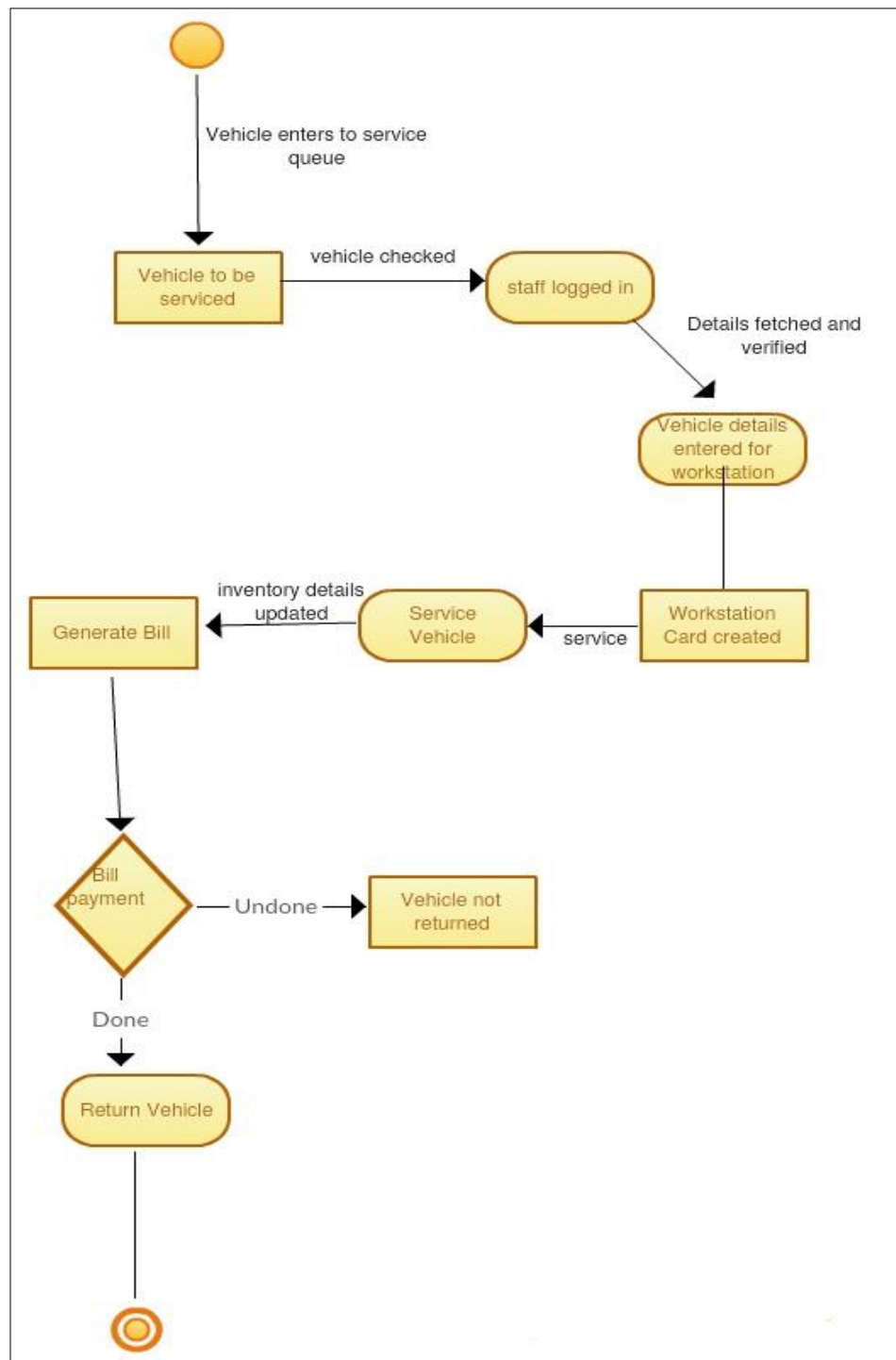


Figure B.5 Activity Diagram for Automobile Service Management System

Sequence Diagram for Stock In/Out Item Processing Module

The Sequence diagram for stock In/Out item processing module is displayed by figure B.6.

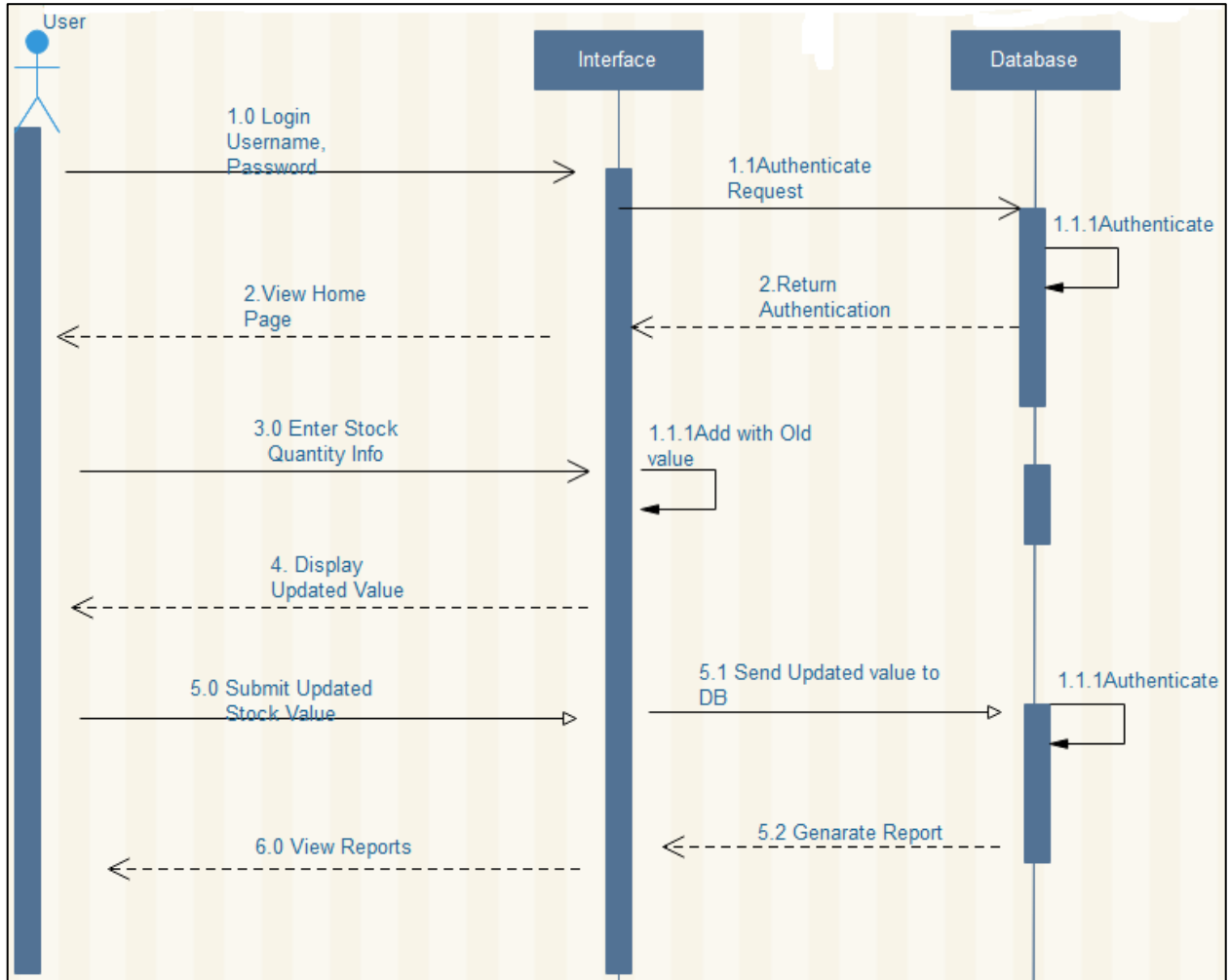


Figure B.6 Sequence Diagram for Stock In/Out Item Processing Module

APPENDIX - C

USER DOCUMENTATION

Users who have privileges to access the system is given to navigate within the system and how to use its functions are described by this document. Eligibility to access the system is available to Super admin, Manager, administrator, Stock keeper etc.

Different user levels are available to each and every member and different profile pages are provided for their management. The administrator's profile which has all the system privileges is described by this document.

ADMIN LOGIN

Only authorized user can log in to the system as "Admin" via the login page shown in figure C.1, using their valid user name and password. if the user enters wrong user name and password it will show the error message. There is a facility for create new admin users.



Figure C.1: UI design for Admin Module

HOME PAGE

All the functions of each and every module can be accessible by users through this main form. Following figure C.2 shows how main menu looks like.

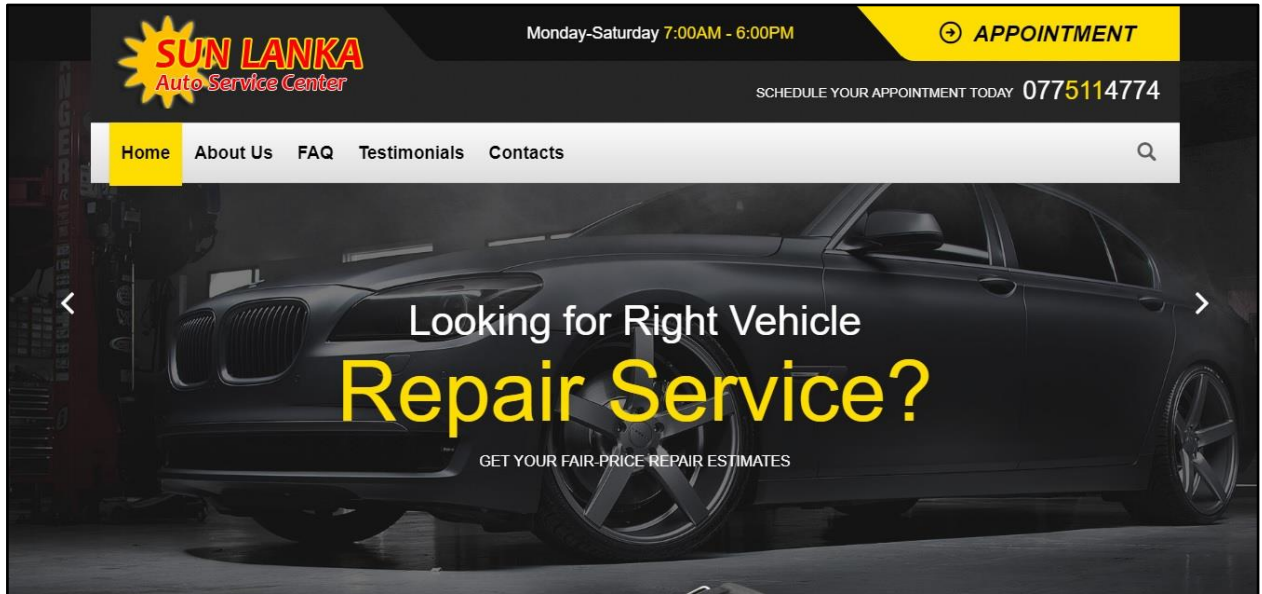


Figure C.2 Home Page

- Main menu items

Figure C.3 shows the main menu item of the main form.

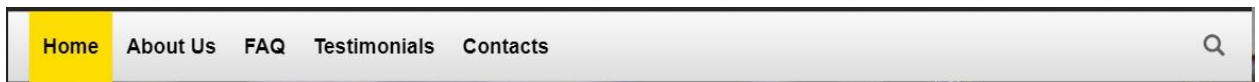


Figure C.3 Main Menu Items

Online Reservation Form

All the vehicle details can be stored via this form. User can do insert, delete, update and clear data. Further all the inserted data are displayed the table. When double click the row of table all the relevant data filled in textboxes and combo boxes, then user can update or delete data. If user enters invalid data system displays the error message. If the user is

trying to save with empty field the system validates and displays error message. Furthermore the user can search data by vehicle type and vehicle register no.

Figure C.4 shows vehicle register form.

Schedule Auto Service

To schedule an appointment with your friendly neighborhood experts at Car Repair Services, give us a call at 0-914-920-032 or fill out the form below with your information and requested services. One of our team members will get back to you as soon as possible to confirm your appointment.

CONTACT INFORMATION

First name: Last name:

Phone number: Your E-mail:

APPOINTMENT DETAILS

CURRENT APPOINTMENTS DETAILS

Date	Time
09/11/2017	7:00 AM
18/10/2017	7:00 PM

Figure C.4 Online Reservation Form

Add Categories Form

All the items categories should be registered thru this window box. Figure C.5 shows the item category registration form.

SUN LANKA AUTO SERVICE Hello nadeesha

Appointments / Categories

Add Categories

Category Name

Please Enter Category Name

Save Category

Categories List

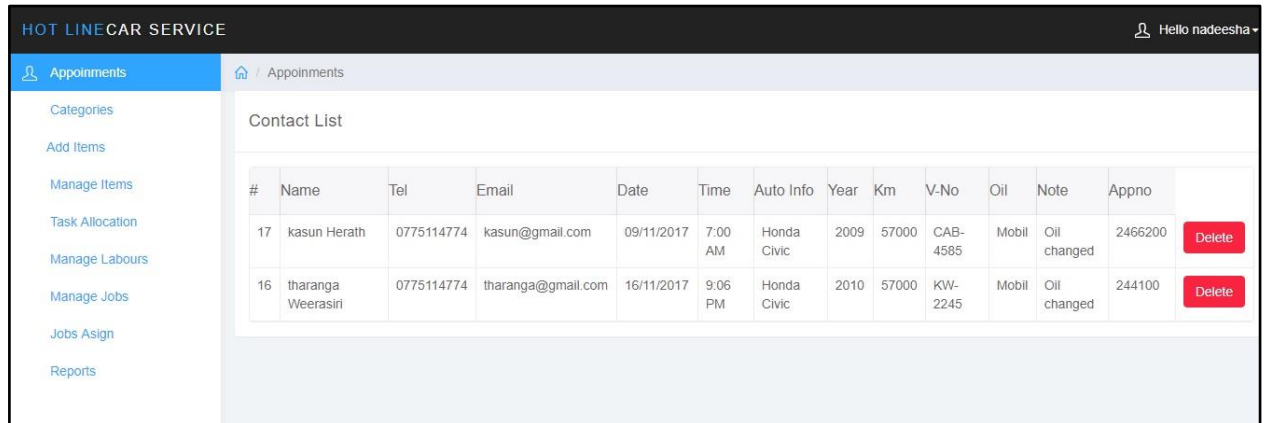
#	Name	
7	Oil	Delete

Figure C.5 Add Categories Form

Appointments Form

Customer can reserve a service date and time by filling this form. Once submitted the details, successfully insertion appointments only will generate a sms to a relevant phone number.

Figure C.6 shows the appointment form.

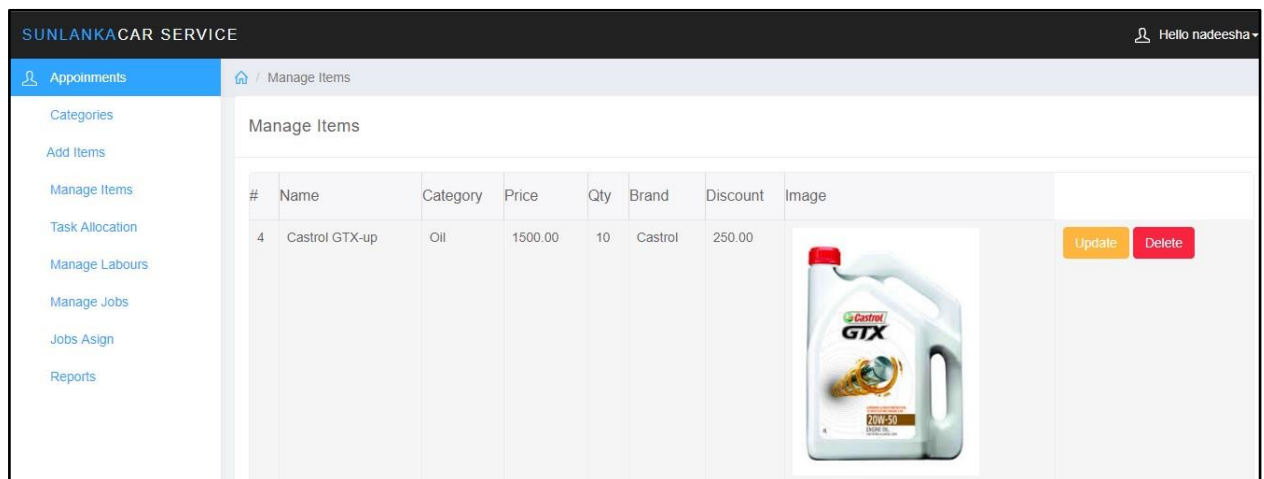


#	Name	Tel	Email	Date	Time	Auto Info	Year	Km	V-No	Oil	Note	Appno	
17	kasun Herath	0775114774	kasun@gmail.com	09/11/2017	7:00 AM	Honda Civic	2009	57000	CAB-4585	Mobil	Oil changed	2466200	Delete
16	tharanga Weerasiri	0775114774	tharanga@gmail.com	16/11/2017	9:06 PM	Honda Civic	2010	57000	KW-2245	Mobil	Oil changed	244100	Delete

Figure C.6 Appointments Form

Manage Items Form

All the items can be managed by using this window box. Admin can update or delete relevant details, if it is necessity. Figure C.7 shows manage items form.




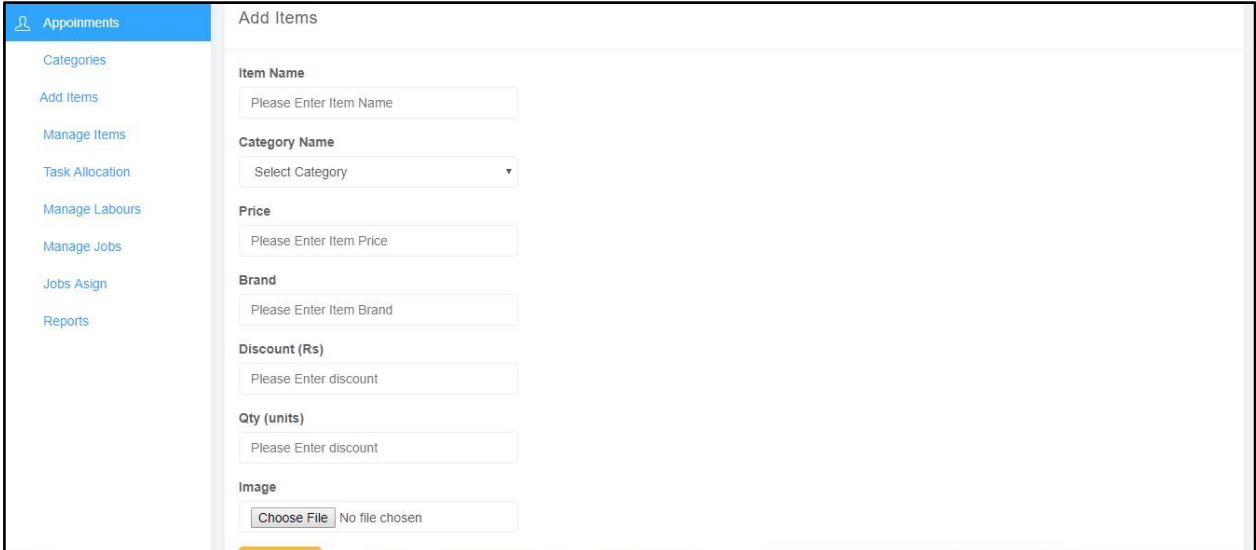
#	Name	Category	Price	Qty	Brand	Discount	Image	
4	Castrol GTX-up	Oil	1500.00	10	Castrol	250.00		Update Delete

Figure C.7 Manage Items Form

Items Registration Form

All the Stock In/Out item details can be stored via this forms such Item code, description, category, re order level details etc. Users can do insert, update, delete and clear data via this form. if user enter invalid data system displays the error message. If user trying to save with empty field system checks and display error message. User can view all the Stock In/Out item details. When double click the row of table all the relevant data filled in textboxes and combo boxes, then user can update or delete data. Figure C.8 shows the items registration form.



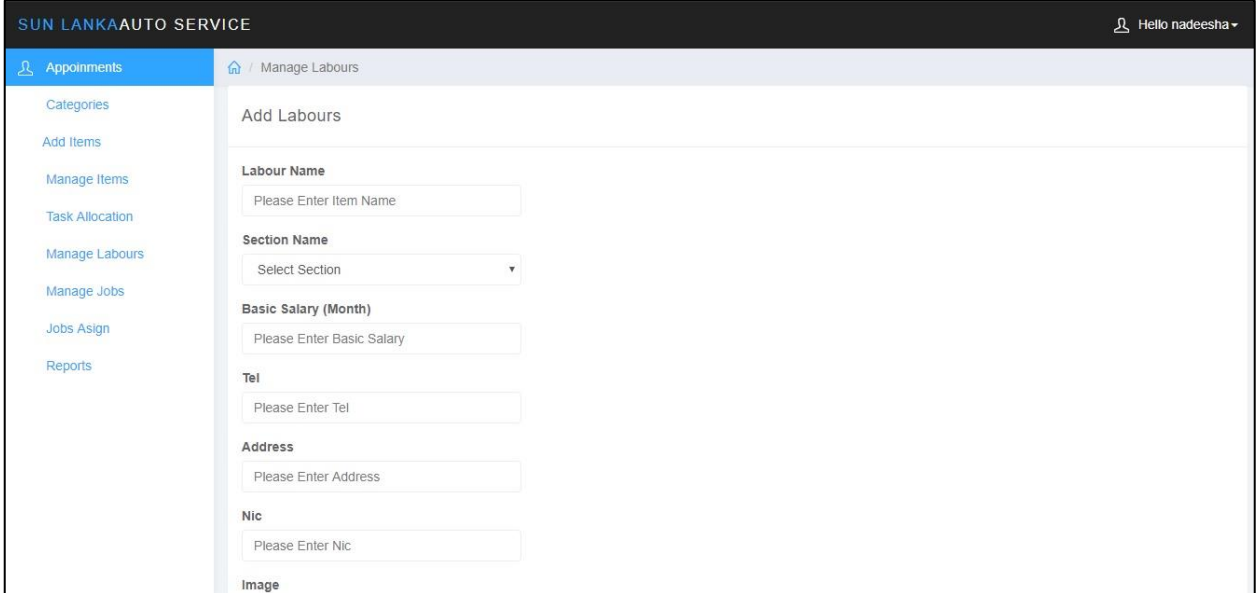
The screenshot displays a web application interface for adding items. On the left, a sidebar menu lists various navigation options: Appointments, Categories, Add Items, Manage Items, Task Allocation, Manage Labours, Manage Jobs, Jobs Assign, and Reports. The main content area is titled 'Add Items' and contains the following form fields:

- Item Name:** A text input field with the placeholder text 'Please Enter Item Name'.
- Category Name:** A dropdown menu with the placeholder text 'Select Category'.
- Price:** A text input field with the placeholder text 'Please Enter Item Price'.
- Brand:** A text input field with the placeholder text 'Please Enter Item Brand'.
- Discount (Rs):** A text input field with the placeholder text 'Please Enter discount'.
- Qty (units):** A text input field with the placeholder text 'Please Enter discount'.
- Image:** A file upload field with a 'Choose File' button and the text 'No file chosen'.

Figure C.8 Item Registration Form

Labour Registration Form

All labours should be registered in the system, before assigning any job. Only registered labours shows in workstation window boxes. Figure C.9 shows the labour registration form.



The screenshot displays the 'SUN LANKA AUTO SERVICE' web application interface. The top navigation bar includes the service name and a user profile 'Hello nadeesha'. A left sidebar menu lists various management options, with 'Manage Labours' selected. The main content area is titled 'Add Labours' and contains a form with the following fields:

- Labour Name:** A text input field with the placeholder 'Please Enter Item Name'.
- Section Name:** A dropdown menu with the placeholder 'Select Section'.
- Basic Salary (Month):** A text input field with the placeholder 'Please Enter Basic Salary'.
- Tel:** A text input field with the placeholder 'Please Enter Tel'.
- Address:** A text input field with the placeholder 'Please Enter Address'.
- Nic:** A text input field with the placeholder 'Please Enter Nic'.
- Image:** A label for an image upload field, which is currently empty.

Figure C.9 Labour Registration Form

Labour Assign Form

Only registered labourers shows in labour assigning window boxes. Once labourers are assigned, required filed will be shown in yellow colour. Figure C.10 shows labour assign form.

SUN LANKAAUTO SERVICE Hello nadeesha

Appointments / Job Assign

Categories
Add Items
Manage Items
Task Allocation
Manage Labours
Manage Jobs
Jobs Assign
Reports

Contact List

#	Name	Tel	Email	Date	Time	Auto Info	Year	Km	Note	Appno	Labour	
16	kasun herath	775114774	kasun@gmail.com	09/11/2017	7:00 AM	Viva Elite	2010	57000	Oil changed	2333900	Not Assign	Assign Labour
15	Ishan Kumaranayake	0775114774	ishan@gmail.com	18/10/2017	7:00 PM	Viva Elite	2010	57000	Oil changed	1576600	Not Assign	Assign Labour
14	test test	0445869	test@gmail.com	18/10/2017	7:00 PM	Honda Vessal	2003	40000	test	3131600	Not Assign	Assign Labour
13	nayanika malle	0774033452	nayani@gmail.com	27/10/2017	6:57 PM	Viva Elite	2010	33000	Oil change	2771800	Not Assign	Assign Labour
12	hansani Weerasiri	0718260869	hansani@gmail.com	24/10/2017	4:41 PM	Honda Civic	2008	2365	oil changed	822500	Not Assign	Assign Labour

Figure C.10 Labour Assign Form

Task Allocation Form

Supervisor can update vehicle status by using this window box. All the allocated task can be viewed by customer by logging his/her mobile app. Figure C.11 shows Task Allocation form.

SUN LANKAAUTO SERVICE Hello nadeesha

Appointments / Task Allocation

Categories
Add Items
Manage Items
Task Allocation
Manage Labours
Manage Jobs
Jobs Assign
Reports

Contact List

#	Name	Tel	Email	Date	Time	Auto Info	Year	Km	Note	Appno	Labour	
16	kasun herath	775114774	kasun@gmail.com	09/11/2017	7:00 AM	Viva Elite	2010	57000	Oil changed	2333900	Not Assign	Update Status

Figure C.11 Task Allocation Form

Mobile Application

Customers can logging to this app by using their mobile phone number as a username. Once logged into the system customer can view his history and current vehicle status, invoice bill amount etc, Figure C.12 shows mobile app interface.

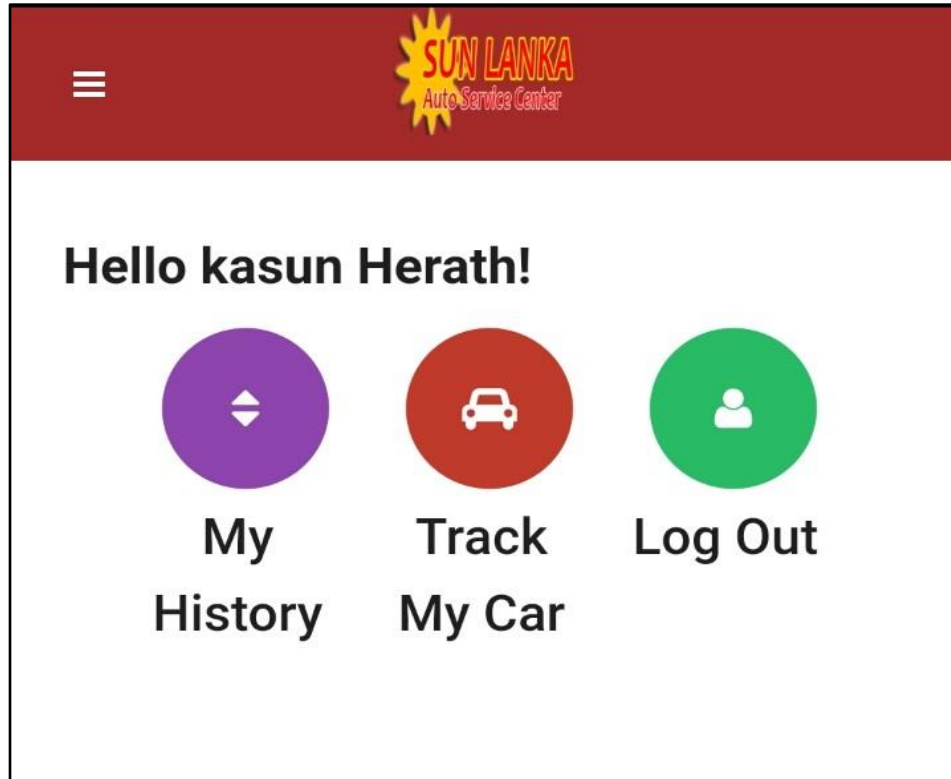
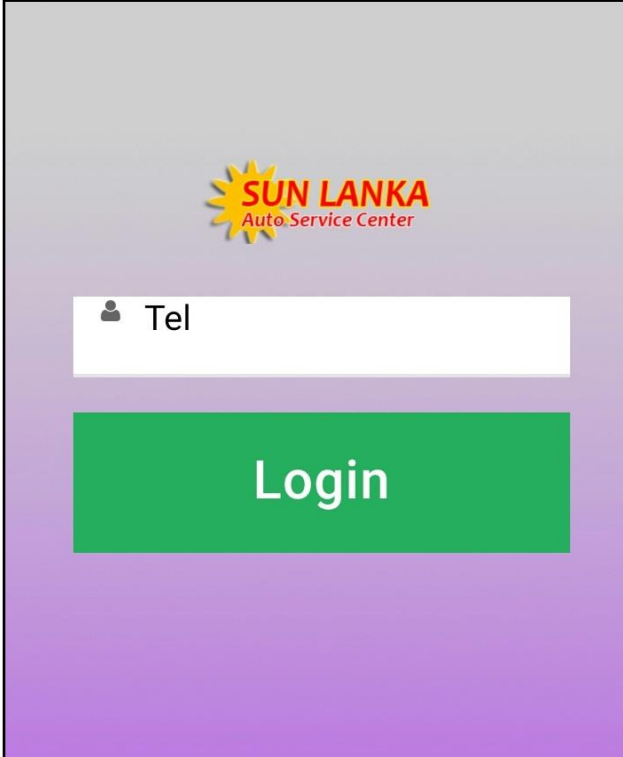


Figure C.12 Mobile application menu

Mobile Application-User Login Form

Customers can logging to this app by using their mobile phone number as a username.
Figure C.13 shows mobile app interface.



The image shows a mobile application login screen. At the top center is the logo for "SUN LANKA Auto Service Center", featuring a yellow sun icon and the text "SUN LANKA" in red and "Auto Service Center" in smaller red text below it. Below the logo is a white input field with a grey person icon on the left and the text "Tel" next to it. Underneath the input field is a large green button with the word "Login" written in white text. The background of the screen is a gradient from light grey at the top to light purple at the bottom.

Figure C.13 Mobile application-user login form

Mobile Application testimonials Page

Customers can put their comments regarding the service what they have got in the service station by using his testimonials page. Figure C.14 shows Testimonial form.

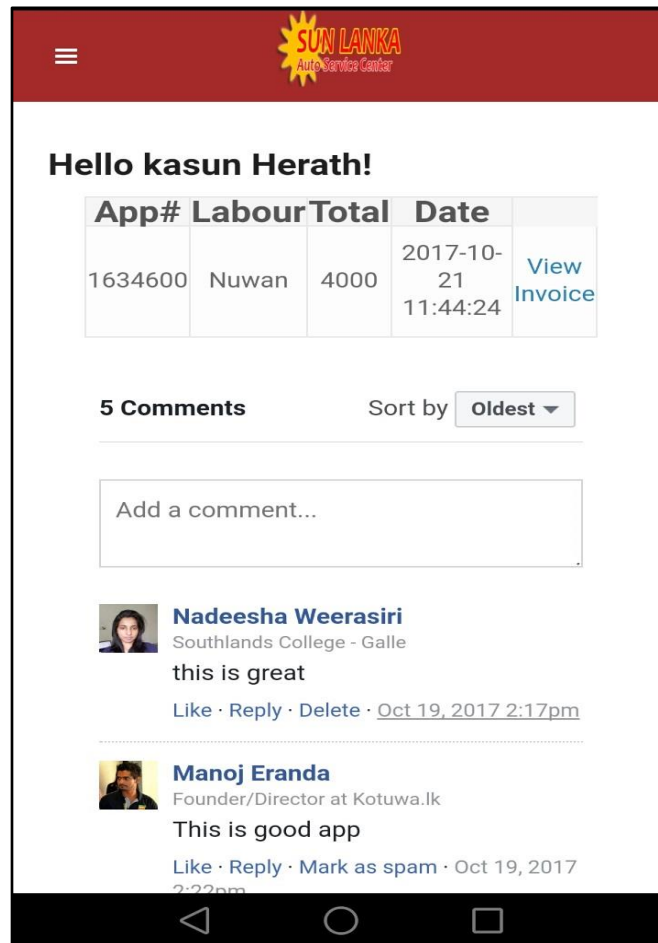


Figure C.14 Mobile Application testimonials form

APPENDIX - D

MANAGEMENT REPORTS

Customer List Report

Figure D.1 shows all the customer details such as name, phone number, address, email, NIC etc. This report would help to keep all the customer personal logs in one page.



Sun Lanka Auto Service Centre
High Pressure Washing Centre
Manawila, Welahanduwa, Galle. Tel : 0773 280689, 0914 920 032

11/29/2016

Customer List


ID	Name	Phone	Address	Email	Nic
1,011	hansi	3353535	rwrwr	test@yahoo.com	hansi
1,008	ranil	5445464646	tete	ranil@yahoo.com	ranil
1,007	teseeeeeeeeeeee	454545445	ewwwwwwwwww	test@gmail.com	teseeeeeeeeeeee
1,006	teseeeeeeeeeeee	454545445	ewwwwwwwwww	test@gmail.com	teseeeeeeeeeeee
8	rehan	4444444444	rehan	tets@gmail.com	rehan
7	rehab	8888888888	rerer	abc@gmail.com	rehab
6	MS:Nadeesha	0775114774	30/35D,Galle Roda,Aken	malinadeesha@yahoo.c	MS:Nadeesha

Figure D.1: Customer List Report

Item List Report

Figure D.2 Item name, description, price and quantity. All the available items can be track easily by using this report.

11/29/2016



Sun Lanka Auto Service Centre
High Pressure Washing Centre
Manawila, Walahanduwa, Galle. Tel : 0773 280689, 0914 920 032

Item List

<u>ID</u>	<u>Name</u>	<u>Discription</u>	<u>PriceIn</u>	<u>PriceOut</u>	<u>Quantiv</u>
2	Tire 12'	Tire 12'	Rs 90	Rs 100	2001 Units
3	Nails 98'	Nails 98'	Rs 80	Rs 100	9500 Units
4	Nails 88'	Nails 88'	Rs 80	Rs 100	8989 Units
5	Tire 50'	Tire 50'	Rs 12	Rs 20	989 Units
6	5	Petrol	Rs 140	Rs 160	0 Units
7	6	Petrol	Rs 75	Rs 90	0 Units
8	7	Petrol	Rs 140	Rs 160	0 Units
9	8	Petrol	Rs 5000	Rs 6000	0 Units
10	9	Petrol	Rs 4500	Rs 6000	0 Units

Figure D.2: Item List Report

Labour List Report

Figure D.3 shows all the registered labours in the service centre. It gives details list of name, description, NIC number etc.

11/29/2016



Sun Lanka Auto Service Centre

High Pressure Washing Centre

Manawila, Welahanduwa, Galle. Tel : 0773 280689, 0914 920 032

Labour List

<u>ID</u>	<u>Name</u>	<u>Discription</u>	<u>Nic</u>
1003	amanda	test	3434343
3	isuru	etst	78545455
2	MAWAN	MAWAN ATAPATTU	323232323v
1	NADEESHA	BIT STUDENT	123123123v

Figure D.3 Labour List Report

Vehicle List Report

Figure D.4 shows all the registered vehicle list details such as Name, Nu, Description, oil name, Km, vehicle number etc.

11/29/2016



Sun Lanka Auto Service Centre

High Pressure Washing Centre

Manawila, Welahanduwa, Galle. Tel : 0773 280689, 0914 920 032

Labour List

<u>ID</u>	<u>Name</u>	<u>Discription</u>	<u>Nic</u>
1003	amanda	test	3434343
3	isuru	etst	78545455
2	MAWAN	MAWAN ATAPATTU	323232323v
1	NADEESHA	BIT STUDENT	123123123v

A
C

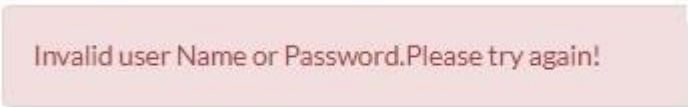

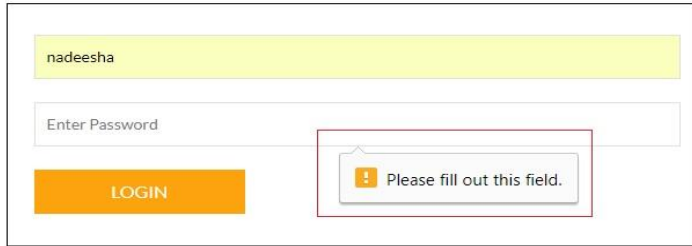
Figure D.4 Registered Vehicle List

APPENDIX - E

TEST RESULT

General Overview of Test Case Result

The test cases with results belong to User Authentication is displayed by table E.1.

No	Test case	Expected Results	Actual Results	Status
1	User enter invalid user name and/or Invalid password	Display error message		Pass
2	User enter empty username	Display error message		Pass
3	User enter empty password	Display error message		Pass


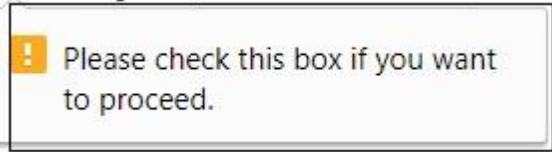



4	User enter correct user name and password	Display welcome message		Pass
5	Customer Register When All required fields are not filled	Display error message		Pass
6	Item Register When all required fields are filled and click save button	1. Display confirmation message 2. Once the record is saved display "Successfully inserted" message	 	Pass
7	Click "Search" Button	Display search option window		Pass

Table E.1 General Overview of test result

TEST RESULTS FOR MAJOR MODULES

Following tables shows the test results of major modules

LOGIN MODULE

The test cases with results belong to Login Users is displayed by figure E.2.

Test No	Test Description	Steps to Test	Expected Results
1.1	Validate login details	Enter correct username and password	Display “Successfully logged in” Message
1.2	Check Invalid Details	1.User enter invalid username or/and password 2.User enter empty username 3. User enter empty password	Display appropriate error message
1.3	Identify the user and user type	Different users enter login details then redirect to the relevant page	Show user name and type in the relevant page
1.4	Create new user.	1.Admin can create new account 2.New user can register	The administrator should be able to create a new user account
1.5	Change password	Click change password	User is able to change their password

Table E.2: Login Module Test Results

CUSTOMER REGISTRATION MODULE

The test cases with results belong to Customer registration is displayed by figure E.3.

Test No	Test Description	Expected Results	Status
2.1	Validate login details	Enter correct username and password	Pass
2.2	When all required fields are filled and click save button	Confirmation dialog should be appeared and finally display “successfully Registered” message.	pass
2.3	When All required fields are not filled	Display error message	pass
2.4	When click the row header of the data grid view row	All Registered customer details should be loaded.	pass
2.5	When click the delete Customer detail button	Confirmation dialog box should be appeared and should be display Message box with “successfully deleted”	pass
2.6	When all required fields are filled with duplicate values and click save button	Display error message	pass
2.7	When click the Browse button for add a customer image	Image gallery should be loaded and image can be selected successfully	pass
2.8	When click print button	Should be generating a Customer details form.	pass
2.9	When click clear button	Should be cleared all the entered data and refresh the form	pass

Table E.3: Customer Registration Module Test Results

STOCK IN/OUT PROCESS MODULE

The test cases with results belong to Item In/out is displayed by figure E.4

Test No	Test Description	Expected Results	Status
3.1	Validate login details	Enter correct username and password	Pass
3.2	When select Stock In radio button and click on insert button	Item Registration form should be loaded	pass
3.3	When select Stock Out radio button and click on delete button	Registered item list should be loaded and deletion should be possible	pass
3.4	When click the row header of the data grid view row	All data should be filled in the relevant field and update delete button should enabled	pass
3.5	When click on the load items link.	All the registered items list should be loaded	pass
3.6	When all required fields are filled with duplicate values and click save button	Display error message	pass
3.7	When click clear button	Should be cleared all the entered data and refresh the form	pass

Table E.4: Item In/Out Process Module Test Result

VEHICLE REGISTRATION MODULE

The test cases with results belong to vehicle registration module is displayed by figure E.5

Test No	Test Description	Expected Results	Status
4.1	Validate login details	Enter correct username and password	Pass
4.2	When all required fields are filled and click save button	Confirmation dialog should be appeared and finally display “successfully Registered” message.	pass
4.3	When All required fields are not filled	Display error message	pass

4.4	When click the row header of the data grid view row	All Registered customer details should be loaded.	pass
4.5	When click the delete Customer detail button	Confirmation dialog box should be appeared and should be display Message box with “successfully deleted”	pass
4.6	When all required fields are filled with duplicate values and click save button	Display error message	pass
4.7	When click the Browse button for add a customer image	Image gallery should be loaded and image can be selected successfully	pass
4.8	When click print button	Should be generating a Customer details form.	pass
4.9	When click clear button	Should be cleared all the entered data and refresh the form	pass

Table E.5: Vehicle Registration Module Test Results

ITEM REGISTARTION MODULE

The test cases with results belong to item registration module is displayed by figure E.6

Test No	Test Description	Expected Results	Status
5.1	Validate login details	Enter correct username and password	Pass
5.2	When all required fields are filled and click save button	Confirmation dialog should be appeared and finally display “successfully Registered” message.	pass
5.3	When All required fields are not filled	Display error message	pass
5.4	When click the row header of the data grid	All Registered customer details should be loaded.	pass

	view row		
5.5	When click the delete Customer detail button	Confirmation dialog box should be appeared and should be display Message box with “successfully deleted”	pass
5.6	When all required fields are filled with duplicate values and click save button	Display error message	pass
5.7	When click the Browse button for add a customer image	Image gallery should be loaded and image can be selected successfully	pass
5.8	When click print button	Should be generating a Customer details form.	pass
5.9	When click clear button	Should be cleared all the entered data and refresh the form	pass

Table E.6: Item Registration Module Test Results

TASK ALLOCATION MODULE

The test cases with results belong to task allocation module is displayed by figure E.7

Test No	Test Description	Expected Results	Status
6.1	Validate login details	Enter correct username and password	Pass
6.2	When all required fields are filled and click allocate button	Confirmation dialog should be appeared and finally display “Task Allocated successfully” message.	pass
6.3	When All required fields are not filled	Display error message	pass
6.4	When click the row header of the data grid view row	All Allocated Task details should be loaded.	pass

6.5	When click the delete Customer detail button	Confirmation dialog box should be appeared and should be display Message box with “successfully deleted”	pass
6.6	When all required fields are filled with duplicate values and click save button	Display error message	pass
6.9	When click clear button	Should be cleared all the entered data and refresh the form	pass

Table E.7: Task Allocation Module Test Results

LABOUR REGISTRATION MODULE

The test cases with results belong to vehicle registration module is displayed by figure E.8

Test No	Test Description	Expected Results	Status
7.1	Validate login details	Enter correct username and password	Pass
7.2	When all required fields are filled and click save button	Confirmation dialog should be appeared and finally display “successfully Registered” message.	pass
7.3	When All required fields are not filled	Display error message	pass
7.4	When click the row header of the data grid view row	All Registered labour details should be loaded.	pass
7.5	When click the delete labour detail button	Confirmation dialog box should be appeared and should be display Message box with “successfully deleted”	pass
7.6	When all required fields are filled with duplicate values and click save button	Display error message	pass
7.7	When click the Browse	Image gallery should be loaded and	pass

	button for add a labour profile image	image can be selected successfully	
7.8	When click print button	Should be generating a labour details form.	pass
7.9	When click clear button	Should be cleared all the entered data and refresh the form	pass

Table E.8: Labour Registration Module Test Results

REPORTS MODULE

The test cases with results belong to reports module is displayed by figure E.9

Test No	Test Description	Expected Results	Status
8.1	Generate reports.	The system should display reports on screen and also as a popup to print.	pass
8.2	Test valid Date/year/ID.	Display and popup valid report.	pass
8.3	Print Report.	Send print job to the printer	pass

Table E.9: Reports Module Test Result

TRACEABILITY MATRIX TABLE

The traceability matrix reports will explain the table E.10

Functional Requirement No	Module Name	Developer	Table No/Test case No	Results	Status
1.1	Admin Login Module	✓	T 5.1 1.1,1.2,1.3	Pass	Success
1.2	Admin Login Module	✓	T 5.1 1.4,1.5,1.6	Pass	Success
2.1	Appointments Module	✓	T 5.2 2.1,2.2	Pass	Success

2.2	Appointments Module	✓	T 5.2 2.3	Pass	Success
2.3	Appointments Module	✓	T 5.2 2.4,2.7,2.10	Pass	Success
2.4	Appointments Module	✓	T 5.2 2.5,2.6,2.8,2.9	Pass	Success
2.5	Appointments Module	✓	T 5.2 2.11	Pass	Success
2.6	Appointments Module	✓	T 5.2 2.12,2.13	Pass	Success
2.7	Appointments Module	✓	T 5.2 2.14	Pass	Success
3.1	Manage Items Module	✓	T 5.3 2.15	Pass	Success
3.2	Manage Items Module	✓	T 5.3 2.16	Pass	Success
3.3	Manage Items Module	✓	T 5.3 3.1	Pass	Success
3.4	Manage Items Module	✓	T 5.3 3.2	Pass	Success
4.1	Manage Labours Module	✓	T 5.4 3.3	Pass	Success
4.2	Manage Labours Module	✓	T 5.4 4.1	Pass	Success
4.3	Manage Labours Module	✓	T 5.4 4.2	Pass	Success
5.1	Manage Jobs Module	✓	T 5.5 4.3	Pass	Success
5.2	Manage Jobs Module	✓	T 5.5 5.1	Pass	Success
5.3	Manage Jobs Module	✓	T 5.5 5.2	Pass	Success
5.4	Manage Jobs Module	✓	T 5.5 5.3	Pass	Success
6.1	Jobs Assign Module	✓	T 5.6 5.4	Pass	Success
6.2	Jobs Assign	✓	T 5.6	Pass	Success

	Module		5.5		
6.3	Jobs Assign Module	✓	T 5.6 6.1	Pass	Success
7.1	Task Allocation Module	✓	T 5.7 6.2	Pass	Success
7.2	Task Allocation Module	✓	T 5.7 6.3	Pass	Success
7.3	Task Allocation Module	✓	T 5.7 6.4	Pass	Success
7.4	Task Allocation Module	✓	T 5.7 6.5	Pass	Success
8.1	Add Items Module	✓	T 5.8 8.1	Pass	Success
8.2	Add Items Module	✓	T 5.8 8.2	Pass	Success
8.3	Add Items Module	✓	T 5.8 8.4	Pass	Success
8.4	Add Items Module	✓	T 5.8 8.5	Pass	Success
8.5	Add Items Module	✓	T 5.8 8.7	Pass	Success
9.1	Report Module	✓	T 5.9 9.1,9.2,9.3	Pass	Success
9.2	Report Module	✓	T 5.9 9.3	Pass	Success

Table E.10 Traceability Matrix

APPENDIX - F

CODE LISTING

In this chapter we include the more about the code sample of the system. Since the codes are very lengthy, only important code snippets are represented in this segment apart from the codes included in implementation chapter.

Code for Admin Login module

```
<?php

session_start();
if(isset($_POST['btnlogin']))
{
include "config.php";
$username=$_POST['txtusername'];
$password=$_POST['txtpassword'];

if($username!=" || $password!="){

$query=mysql_query("select * from users where username='".$username.'" AND
password='".$password.'")
or die(mysql_error());
$res=mysql_fetch_row($query);

if($res){

header('location:appointments.php');
$_SESSION['user']=$username;
}
else{

echo '
<div class="alert bg-danger" role="alert" >

<svg class="glyph stroked checkmark"><use
xlink:href="#stroked-checkmark"></use></svg>Invalid User! Please Try Again.<a href="#"
class="pull-right"><span class="glyphicon glyphicon-remove" ></span></a>
</div>
```



```

        ';
    }
}
else{
    echo '
    <div class="alert bg-danger" role="alert" >
        <svg class="glyph stroked checkmark"><use
xlink:href="#stroked-checkmark"></use></svg>Enter User Name and Password!<a href="#"
class="pull-right"><span class="glyphicon glyphicon-remove" ></span></a>
        </div>
    ';
}
}
?>

        <form role="form" action="" method="POST">
            <fieldset>
                <div class="form-group">
                    <input class="form-control"
placeholder="User Name" name="txtusername" type="text" autofocus="">
                </div>
                <div class="form-group">
                    <input class="form-control"
placeholder="Password" name="txtpassword" type="password" value="">
                </div>
                <input type="submit" value="Login"
name="btnlogin" class="btn btn-primary"/>
            </fieldset>
        </form>
    </div>
</div>
</div><!-- /.col-->
</div><!-- /.row -->

```

Code for Appointments Module

```

<?php
if(isset($_POST["btnsubmit"])){

```

```

$name=$_POST["txtname"];
$lname=$_POST["txtlname"];
$tel=$_POST["txttel"];
$email=$_POST["txtemail"];
$date=$_POST["txtdate"];
$time=$_POST["txttime"];
$model=$_POST["txtautoinfo"];
$year=$_POST["txtselect1"];
$km=$_POST["txtkilometers"];
$description=$_POST["txtmessage"];
$vno=$_POST["txtvno"];
$soil=$_POST["txtoil"];
$name=$fname." ".$lname;
$con=mysqli_connect("localhost","root","","service_car");

                                $token=rand()*100;

                                $sql="insert into appoinment

(name,tel,email,date,time,autoinfo,year,km,message,vno,oil,appno)

values('$name','$tel','$email','$date','$time','$model','$year','$km','$description','$vno','$soil'
,$token)";

                                //$_SESSION['cat']=$uname;

                                if (!mysqli_query($con,$sql)) {
                                    die('Error: ' . mysqli_error($con));
                                }

                                $message="Hello $fname Your Appoinment for
Car Repair Service has been Successfull!, Your Appoinment No is $token We will Contact You
Soon Thank You!";
$name2 = str_replace(" ", "%20", $message);
$url =
"https://www.axislanka.com/smsgateway/sms_engine.php?number=$tel&message=$name2&user
name=nadeesha&password=1234&smid=1";
//echo $url;
$data = file_get_contents($url);

                                header('Location:index.php?status=success'); }

?>

```

Code for Job Assign Module

```
<?php
session_start();

?>
<?php
if(isset($_SESSION['user'])){

?>
<!DOCTYPE html>
<html>
<head>
<meta charset="utf-8">
<meta name="viewport" content="width=device-width, initial-scale=1">
<title>Lumino - Tables</title>

<link href="css/bootstrap.min.css" rel="stylesheet">
<link href="css/datepicker3.css" rel="stylesheet">
<link href="css/bootstrap-table.css" rel="stylesheet">
<link href="css/styles.css" rel="stylesheet">

<!--Icons-->
<script src="js/lumino.glyphs.js"></script>

<!--[if lt IE 9]>
<script src="js/html5shiv.js"></script>
<script src="js/respond.min.js"></script>
<![endif]-->

</head>

<body>

    <nav class="navbar navbar-inverse navbar-fixed-top" role="navigation">
        <div class="container-fluid">
            <div class="navbar-header">
                <button type="button" class="navbar-toggle collapsed"
data-toggle="collapse" data-target="#sidebar-collapse">
                    <span class="sr-only">Toggle navigation</span>
                    <span class="icon-bar"></span>
                    <span class="icon-bar"></span>
                    <span class="icon-bar"></span>
                </button>
            </div>
        </div>
    </nav>

```

```

Line</span>Car Service</a>
    <a class="navbar-brand" href="#"><span>Hot
    <ul class="user-menu">
        <li class="dropdown pull-right">
            <a href="#" class="dropdown-toggle" data-
toggle="dropdown"><svg class="glyph stroked male-user"><use xlink:href="#stroked-
male-user"></use></svg>Hello <?php echo $_SESSION['user'];?><span
class="caret"></span></a>
                <ul class="dropdown-menu" role="menu">
                    <li><a href="logout.php"><svg
class="glyph stroked cancel"><use xlink:href="#stroked-cancel"></use></svg>
Logout</a></li>
                </ul>
            </li>
        </ul>
    </div>
</nav>

<?php
include('sidebar.php');

?><!--/.sidebar-->

<div class="col-sm-9 col-sm-offset-3 col-lg-10 col-lg-offset-2 main">

    <div class="row">
        <ol class="breadcrumb">
            <li><a href="#"><svg class="glyph stroked home"><use
xlink:href="#stroked-home"></use></svg></a></li>
            <li class="active">Contact List</li>
        </ol>
    </div><!--/.row-->

    <div class="row">
        <!--data-url="tables/data1.json"-->
        <div class="col-lg-12">
            <div class="panel panel-default">
                <div class="panel-heading">Contact List</div>
                <div class="panel-body">

```

```

refresh="true" data-show-toggle="true" data-show-columns="true" data-search="true"
data-select-item-name="toolbar1" data-pagination="true" data-sort-name="name" data-
sort-order="desc">
    <thead>
    <tr>
        <th data-field="state" data-
checkbox="true" >#</th>
        <th data-field="id" data-
sortable="true">Name</th>
        <th data-field="sender_name" data-
sortable="true">Tel</th>
        <th data-field="sender_id" data-
sortable="true">Email</th>
        <th data-
field="sender_group" data-sortable="true">Date</th>
        <th data-field="manage"
data-sortable="true">Time</th>
        <th data-field="manage"
data-sortable="true">Auto Info</th>
        <th data-field="manage"
data-sortable="true">Year</th>
        <th data-field="manage"
data-sortable="true">Km</th>
        <th data-
field="manage" data-sortable="true">Note</th>
        <th data-
field="manage" data-sortable="true">Appno</th>
        <th data-
field="manage" data-sortable="true">Labour</th>
    </tr>
    <tbody>
    <?php
        include "config.php";
        $user=$_SESSION['user'];
        $sql = mysql_query("SELECT * FROM appointment
ORDER BY id desc")
        or die(mysql_error());
        $i=0;
        $appno;
        while($row = mysql_fetch_array($sql)){
            $appno=$row['appno'];
            if($row['status']==1){

```

```

        color:yellow">';
        echo '<tr style="background-

        }else{

            echo '<tr>';

        }

        echo '<td>'.$row['id'].'</td>';
        echo '<td>'.$row['name'].'</td>';
        echo '<td>'.$row['tel'].'</td>';
        echo '<td>'.$row['email'].'</td>';
        echo '<td>'.$row['date'].'</td>';
        echo '<td>'.$row['time'].'</td>';
        echo '<td>'.$row['autoinfo'].'</td>';
        echo '<td>'.$row['year'].'</td>';
        echo '<td>'.$row['km'].'</td>';
        echo '<td>'.$row['message'].'</td>';
        echo '<td>'.$row['appno'].'</td>';
        if($row['status']==1){

            echo '<td>'.$row['labour'].'</td>';

        }else{
            echo '<td>Not Assign</td>';

        }
        echo '<td><a data-toggle="modal" data-
target="#myModal'.$i.'" href="assign_labour.php?id='.$row['id'].'" class="btn btn-
success">Assign Labour</a>

        </td>';

        ?>

        <!--

Modal -->
<div id="myModal<?php echo $i; ?>" class="modal fade" role="dialog">
<div class="modal-dialog">

    <!-- Modal content-->
    <div class="modal-content">
        <div class="modal-header">
            <button type="button" class="close" data-dismiss="modal">&times;</button>
            <h4 class="modal-title">Job No - <?php echo $row['appno'];?></h4>

```

```

</div>
<div class="modal-body">
  <form action="" method="POST">
    <input type="hidden" name="txtapno" value="<?php echo $row['appno'];?>" />
    <label>Select Labour</label>
    <select class="form-control" style="width:300px" name="txtcat">
      <option>Select Labour</option>
      <?php
        include "config.php";
        $user=$_SESSION['user'];
        $sql2 = mysql_query("SELECT * FROM labours
WHERE status='0' ORDER BY id desc")
        or die(mysql_error());

        while($row1 = mysql_fetch_array($sql2)){

          echo '<option
value="'. $row1['name']. "'>'. $row1['name']. ' </option>';

        }

      ?>
    </select>
    </br>
    <label>Select Item 1</label>
    <select class="form-control" style="width:300px"
name="txtitem1">
      <option>Select Item 1</option>
      <?php
        include "config.php";
        $user=$_SESSION['user'];
        $sql2 = mysql_query("SELECT * FROM items
ORDER BY id desc")
        or die(mysql_error());

        while($row1 = mysql_fetch_array($sql2)){

          echo '<option
value="'. $row1['name']. "'>'. $row1['name']. ' </option>';

        }

      ?>
    </select>

```

```

        </br>
        <label>Select Item 2</label>
        <select class="form-control" style="width:300px"
name="txtitem2">
        <option>Select Item 2</option>
        <?php
        include "config.php";
        $user=$_SESSION['user'];
        $sql2 = mysql_query("SELECT * FROM items
ORDER BY id desc")
        or die(mysql_error());

        while($row1 = mysql_fetch_array($sql2)){

        echo '<option
value="'. $row1['name']. "'>'. $row1['name']. '</option>';

        }

        ?>
        </select>
        </br>
        <label>Select Item 3</label>
        <select class="form-control" style="width:300px"
name="txtitem3">
        <option>Select Item 3</option>
        <?php
        include "config.php";
        $user=$_SESSION['user'];
        $sql2 = mysql_query("SELECT * FROM items
ORDER BY id desc")
        or die(mysql_error());

        while($row1 = mysql_fetch_array($sql2)){

        echo '<option
value="'. $row1['name']. "'>'. $row1['name']. '</option>';

        }

        ?>
        </select>
        </br>
        <label>Select Item 4</label>

```



```

name="txtitem4">
                                <select class="form-control" style="width:300px"
                                <option>Select Item 4</option>
                                <?php
                                include "config.php";
                                $user=$_SESSION['user'];
                                $sql2 = mysql_query("SELECT * FROM items
ORDER BY id desc")
                                or die(mysql_error());

                                while($row1 = mysql_fetch_array($sql2)){

                                echo '<option
value="'.$row1['name'].'">'.$row1['name'].'</option>';

                                }

                                ?>
                                </select>

```

```

</div>
<div class="modal-footer">
    <input type="submit" name="btnassign" value="Assign" class="btn btn-primary"/>
    <button type="button" class="btn btn-default" data-
dismiss="modal">Close</button>
</div>
</form>
<?php

```

```

    $i++;

```

```

    }

```

```

?>

```

```

<?php
if(isset($_POST["btnassign"])){
    include "config.php";

```

```

    $name=$_POST["txtcat"];

```

```

    $item1=$_POST['txtitem1'];

```

```

    $item2=$_POST['txtitem2'];

```

```

    $item3=$_POST['txtitem3'];

```

```

        $item4=$_POST['txtitem4'];
        $appno1=$_POST['txtapno'];
        $sql1="update appoinment SET
labour='$name',status='1' WHERE appno='$appno1'";

        $sql4="Insert into
assign_jobs(appno,labour,item1,item2,item3,item4)
VALUES('$appno1','$name','$item1','$item2','$item3','$item4')";

        $sql8="update labours SET status='1'
WHERE name='$name'";

        if (!mysqli_query($con,$sql1)) {
            die('Error: ' . mysqli_error($con));
        }
        if (!mysqli_query($con,$sql4)) {
            die('Error: ' . mysqli_error($con));
        }
        if (!mysqli_query($con,$sql8)) {
            die('Error: ' . mysqli_error($con));
        }

        echo'
<script>
window.location="job_asign.php";
</script>
';
    }
?>
</div>

</div>
</div>

</tr>
</tbody>
</thead>
</table>

```

```

                </div>
            </div>
        </div>
    </div><!--/.row-->

</div><!--/.main-->

<script src="js/jquery-1.11.1.min.js"></script>
<script src="js/bootstrap.min.js"></script>
<script src="js/chart.min.js"></script>
<script src="js/chart-data.js"></script>
<script src="js/easypiechart.js"></script>
<script src="js/easypiechart-data.js"></script>
<script src="js/bootstrap-datepicker.js"></script>
<script src="js/bootstrap-table.js"></script>
<script>
    !function ($) {
        $(document).on("click", "ul.nav li.parent > a > span.icon",
function(){
            $(this).find('em:first').toggleClass("glyphicon-minus");
        });
        $(".sidebar span.icon").find('em:first').addClass("glyphicon-plus");
    }(window.jQuery);

    $(window).on('resize', function () {
        if ($(window).width() > 768) $('#sidebar-collapse').collapse('show')
    })
    $(window).on('resize', function () {
        if ($(window).width() <= 767) $('#sidebar-collapse').collapse('hide')
    })
</script>
</body>

</html>
<?php

}else{

header('Location:http://localhost/service1/admin/login.php');
}

```

APPENDIX - G

CLIENT CERTIFICATE



Sun Lanka Auto Service Centre
High Pressure Washing Centre

Manawila, Walahanduwa, Galle. Tel : 0773 280689, 0914 920 032

Date 24th October 2017
Project Examination Board,
BIT (External) Degree Centre,
University of Colombo School of Computing,
No 221/2A, Dharmapala Mawatha,
Colombo 07.

Dear Sir/Madam,

LETTER OF CERTIFICATION

This is to certify that Miss: R.H.N.M. Weerasiri (Registration No : R091826) who is studying at University of Colombo School of Computing (UCSC) has successfully developed Web Based Automobile Service Management System for Sun Lanka Auto Service Centre.

I glad to say that this system has facilitated to increase the productivity of our business activities. She has successfully completed our business requirements.

Thank you.

Yours Faithfully,

Samantha Nanayakkara

(Name)

Sun Lanka Auto Service Centre
Manawila, Walahanduwa
Galle.
(Date) : 0914-920032

GLOSSARY

- **Use Case Diagram** - A use case diagram displays the relationship among actors and use cases.
- **Use Case** – A business event for which the system must provide a defined response
- **Activity Diagram** – A diagram used to show the flow of a business process
- **Class diagram** – shows the object classes of the system and the relationships between them
- **Black box testing** - Focusing the functions and behaviors of the system
- **Domain** - It is a term used in networking for the purpose of naming and addressing.
- **Feasibility Study** - Activity of analyzing the feasibility to carry out the proposed project
- **Framework**-It is a set of class library which provide functionalities.
- **Unit testing** - This is a code level testing which tests the units of codes.
- **User Acceptance testing (UAT)** - This involves testing the completed system by the clients.
- **Validation** – Checking whether the system satisfies user requirements.
- **Verification** - Checking whether the system satisfies system specification.
- **White Box Testing** - Focusing the internal structure and logics of the system.

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