Online Auto Advertisements Management System for Dream Vision Solution (Pvt) Ltd

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BIT Registration Number: R071868

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Client: Dream Vision Solution (Pvt) Ltd

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2018

July

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

DECLARATION

DECLARATION

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

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ABSTRACT

To increase an efficiency of an internet, nowadays many companies are using web based systems. It is very easy to use and very easy to access and may be very cheap than other solutions. Online auto classified website is very ideal project to both sellers and buyers to fulfil their requirements.

Auto classified system represent a rapidly growing requirement of automobile industry. As the number of users, who utilize online auto classified applications continues to grow, web based auto classified systems enter a critical role in an automotive resell industry. Thus, a proper project auto classified system plays a distinctive part in ensuring reliable, robust and high quality information technology applications for customers. Developing an online advertisements management system and showing how, in turns, it helps users to handle market. These processes in every day's working life, is the scope of the thesis. The reliability and robustness of a web based advertisements management system has also been set as the structure of the current thesis. Finally, a web based advertisements management system has been developed, which highly meets the standards and requirements set by the company.

Dream Vision Solution (Pvt) Ltd is a Leading Digital Marketing company in Sri Lanka. It conducts many Digital projects locally and overseas. In addition, Dream Vision have about 20 onsite workers and about 10 hired developers who are working remotely from the office site.

Proposed Online Auto Classifieds Management Tool is fully automated systems that can advertisements Manage fairly. It has also helped users to post advertisements and can update or delete advertisements to authorized Persons.in addition uses of the system can send emails and messages and all uses have username and password to log with the System.

System fulfilled different functional areas such as login, logout, user control, add post, images upload, etc. According to user's feedback final system has been analyzed and

developed to meet all Clients requirements. It is a total solution for the Client to achieve their goals and objectives.

The design and development process mainly focuses on Object Oriented methods with some structured approached as well. Evolutionary prototyping will be used as the system development life cycle.

The main development languages will be PHP/MySQL/HTML/CSS/JavaScript/Ajax, etc.

Laravel PHP frame work, Adobe Dreamweaver CS6, WAMP Sever 2.0, MySQL GUI Tools, etc. will be main design and/or development Tools.

ACKNOWLEDGEMENT

Many People Spent their time, effort and ideas in to completing this interim report. I would like to thank them all. First I would like to thank Management and all the staff of University of Colombo School of computing for giving us all the support and all the studying materials.

This interim report could have been written with support of Mr. Dinesh Rodrigo who not only served as my supervisor, but also encouraged and challenged me throughout my academic program.

I would like to give my special thanks to Mr. R.V.A Didulanka, the Director of Dream Vision Solution (Pvt) Ltd, who gave me support to create Online Advertisments Management System for to Dream Vision Solution. Other Staff Members who invested time for providing me with necessary additional details. And I would like to offer my gratitude for all those who supported me in any respect during the completion of the project.

Finally, and most especially to My Family and Friends that I owe them for their encouragement to complete this project successfully. I thank them all.

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CHAPTER 1
INTRODUCTION

CHAPTER 1- INTRODUCTION

1.1 BACKGROUND OF Dream Vision Solution (Pvt) Ltd.

Dream vision solution (Pvt) Ltd is leading Digital Marketing Company which was set-up in September 2010 by three of Co-Founders with a genuine objective of promoting excellent service to Digital Marketing Industry. Dream vision is committed to identify local and International requirements in Digital Marketing, provide directed and guided service and developed them to international standards. Dream vision mission is highly skilled team of professionals devoted to give you affordable, robust, end-to-end Digital Marketing Solutions. [1]

1.2 PROBLEM DOMAIN

Online advertisements management system enhanced the business targets of Dream Vision. According to the Dream Vision mission they aim at achieving a higher level of satisfaction of users to offer online auto classified system. To fulfill Dream vision mission, they want fairly communicate with their Users. Online classified system helps to increase participation of Digital Classified Marketing Members and it help to good communication between sellers and buyers. As a result of Online advertisement management system users can feedback at any time at anywhere. If dream vision use printed document to publish auto ads that required unable to real time communicate between Sellers and Buyers. This Project might be able to help achieve this process by reducing the manual Paper work at Dream Vision Solution.

1.3 MOTIVATION FOR PROJECT

Online media industry is a fast growing and dynamic industry. Though the author has made efforts to find as up-to-date information as possible on Sri Lanka trends in online advertising, the most recent sources available free of charge are only from 2015-2016However, these sour care considered relevant enough for the purpose of this thesis. The author does not have doubts, but

strongly believes these trends will continue in the same direction because of the general move away from print media and towards online media. Following US trends in the online

advertising/media industry are pre-scented from marketer (Laudon & Trever 2012, 45-47), except two trends in the case of which another source has been chosen, which is added in parentheses of that specific sentence

- More SMEs are expected to enter into the E-commerce marketplace.
- Internet broadband becomes more available to both households and businesses
- Growth of Sri Lankan online population will increase and amount of purchases per person will increase.
- The number of subscribers to traditional media (TV, newspapers, magazines etc.) will continue to decrease and media companies will move towards new revenue models on more advanced online platforms.
- Online business models will be fine-tuned, thus increasing its profitability.
- The number of adults present in social online networks will increase with Facebook
  gaining even more popularity.
- Mobile platforms develop further and compete more fiercely with the PC platform. By the end of this year it is predicted that every third click will come from a mobile device (AdExchanger 2012)
- Geographical tracking (GEO tracking) of mobile users on various online advertising platforms continues to expand with tracking being possible down to the zip code of the user (NetSet Media 2013)
-

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1.4 OBJECTIVES AND THE SCOPE OF THE PROJECT

Online Auto Advertisements system development is not just about writing code, that is only a part of the overall process. The customer needs are basically the most important to understand, how to analyze the requirements, produce a design and go about development and testing so that the system you deliver is a high quality and does what the client wants it to do.

As a programmer, you are unlikely to get involved in the entire system development process on every project you undertake, but regardless of how much it you are involved in, you need to understand the entire process for creating system. For that, it is needed to have a system that helps users to make accurate and well functioned projects for clients. Online Auto Advertisements system helps sellers and buyers to post advertisements and feedbacks to them.

Advertisements that will be created as web applications for clients are only worthwhile if they satisfy real needs and so will be examined how can be identified the stakeholders in a project and their objectives. Having identified those objectives, ensuring that they are met is the basis of a successful project. This, however cannot be done unless there is accurate information that can be successfully added to Online Auto Advertisements system under user information. This system can surprisingly increase performance, productivity and efficiency of the users. Since web-based applications can be accessed through any web browser, no desktop installation or updates are required. Web-based applications require to be installed on a server, which is most of the time hosted by the software developer. Moreover, certain providers even offer Intranet solutions, which can be installed on your own server.

1.5 SYSTEM REQUIREMENTS SPECIFICATION

The proposed system is developed using HTML, CSS, XML, JavaScript, jQuery, Ajax, PHP Ver 5.x & MySQL Ver 5.x. The system requires a pre-configured Apache HTTP Server 2.2.x with PHP 5.2.x and MySQL 5.x.

The users of the system, requires a personal computer or a laptop with at least 512MB of RAM/ 2.4Ghz Processor/ 40GB HD and a web browser such as Mozilla Firefox (Ver 3.4.x or above) or Google Chrome (Ver 9.x or above) or Microsoft Internet Explorer (Ver 8.x or above)

The operating system would be Windows XP or above.

CHAPTER 2

ANALYSIS

CHAPTER 2 – ANALYSIS

2.1 INTRODUCTION

Online Auto Advertisements System Tool is developed to improve online selling tasks of Dream vision solutions. The proposed system allows post and view auto advertisements. It might be help to easy and cheap service to users.

2.2 FACT GATHERING TECHNIQUES

There are different methods for fact gathering techniques. Among them, in this project used interviewing and questionnaires for fact gathering techniques. Some users were interviewed in different sides of their needs. In addition, prepare a question paper for different users to fill some important data to identify proposed functional and non-functional requirements.

2.3 PROBLEM DEFINION

This task can be formulated as an information extraction problem, define as the problem of populating a template with segments extracted from free text. Information extraction problem can be characterized as single-slot or multiple-slot extraction problems depending on the number of possible correct answers for a given attribute from a single document. Since the end goal of our project is to facilitate an improved search over the data, we choose to extract what we considered to be five of the most frequently used attributes in the domain: year of manufacture, car make, car model mileage on car and asking price. It is possible for one post to have more than one correct value for each attribute: therefore, our problem is a multi-slot one.

2.5 EXISTING SIMILAR SOLUTIONS

2.5.1 ikman.lk

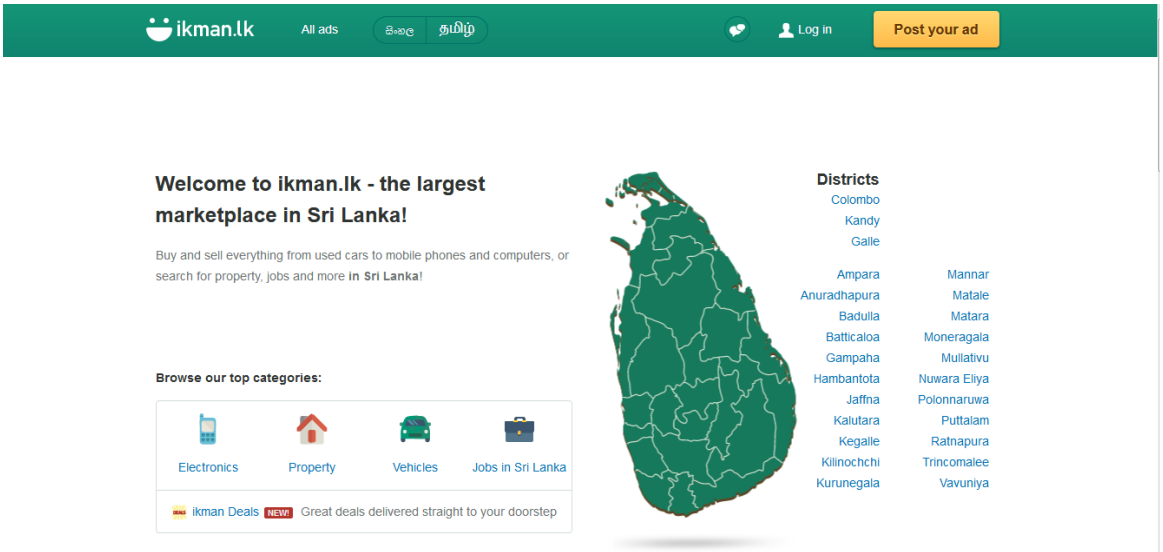

Figure 2.1 Screen Shot of ikman.lk

ikman.lk is a website where you can buy and sell almost everything. The best deals are often done with people who live in your own city or on your own street, so on ikman.lk it's easy to buy and sell locally. All you have to do is select your region.

It takes less than 2 minutes to post an ad on ikman.lk. You can sign up for a free account and post ads easily every time.

ikman.lk has the widest selection of popular second hand items all over Sri Lanka, which makes it easy to find exactly what you are looking for. So if you're looking for a car, mobile phone, house, computer or maybe a pet, you will find the best deal on ikman.lk.

ikman.lk does not specialize in any specific category - here you can buy and sell items in more than 50 different categories. We also carefully review all ads that are being published, to make sure the quality is up to our standards. [2].

2.5.2 patpat.lk

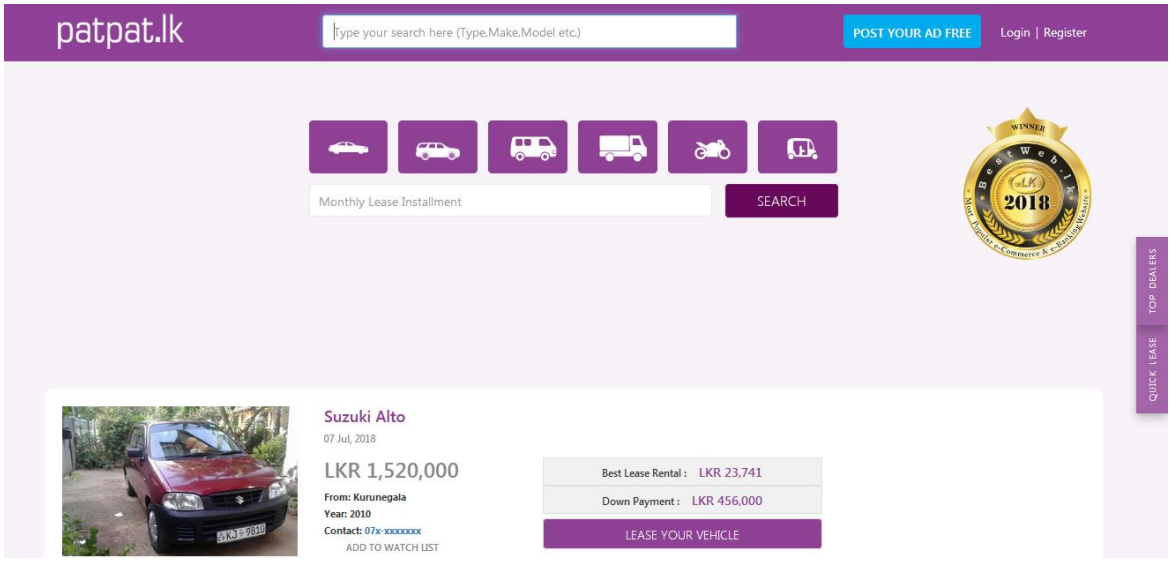

Figure 2.2 Screen Shot of patpat.lk

Patpat.lk is a web portal that helps you buy, sell and lease/finance any type of vehicle at your convenience. Affordability and aspiration are patpat.lk's two key differentiators. Using the benchmark of the monthly installment, we offer the opportunity to search and provide you with an even better vehicle option.

When you apply for a lease through patpat.lk, you will be entitled to priority service standards set by our leasing partners. This will expedite the process of addressing your financial needs and get an even better vehicle option.

Our algorithm attempts to understand your monthly commitment and matches a customised search option that displays other vehicle options with similar lease commitments. The convenience of knowing the monthly installment and searching the vehicle via this criteria is the added advantage of patpat.lk.[3].

2.6 MAIN FUNCTIONAL REQUIREMENTS OF THE SYSTEM

Functional requirements is grouping of individuals on the basis of the function each performs in the organization, such as accounting, marketing, manufacturing. [4] According to the proposed system functional requirements are:

2.6.1 User management integration to the system

Admin can manage users of the system. That means allows to admin add, delete or edit data of users. Ex: (when new member register with acxian admin can add, delete, edit, update users.)

2.6.2 To track advertisements issues

System can track some information related with the advertisements

2.6.3 Upload and delete files in a project

Relevant authorized users can Upload vehicle images and update advertisements information.

2.6.4 Create a shared database for information

In this system there are different uses in different level. Some time they use same data for their needs. Therefore, should create shared database for information.

2.6.5 Login / Logout

Different uses need Login and Logout System

2.7 NON FUNCTIONAL REQUREMENT OF THE SYSTEM

In general terms non-functional requirements defines how a system is supposed to be whereas functional requirements define what a system is supposed to do. Functional requirements are usually in the form of "system shall <do requirement>", while non-functional requirements are "system shall be <requirement>". [5]

Reliability – The system must perform in a consistent manner regardless of factors such as number of processes, number of parallel uses, etc.

Security – The system must follow strict security policies where only intended users have the rights to access the system. This will include different security levels for different systems users such as Manages, Architectures, Developers, etc.

Backup – Since this system carries hardly gained data, it must be backed up in a regular manner to avoid unnecessary, unexpected data losses.

Scalability – The system should be easily expandable to cater ever growing Members, Projects in much effective manner.

Interoperability – The system should be work greatly with other applications such as servers, databases without hindering any performances.

User-friendliness – The system should be easily handled by a novel as well as existing users. It means the learning curve of the new systems must be relatively low.

2.8 SELECTED METHODOLOGY

Object oriented design techniques are used for designing the system. Because there are lot of advantages of using object-oriented methods such as module can be repeated, code reuse, easy code maintainability, modularity etc.

CHAPTER 3
DESIGN OF SOLUTION

CHAPTER 3 – DESIGN OF SOLUTION

3.1 INTRODUCTION

Object oriented design techniques are used for designing the system. because there are lot of advantages of using object-oriented methods such as module can be repeated, code reuse, easy code maintainability, modularity etc. there are several object oriented process models like RUP (Rational Unified Process), Rapid Application Model (RAD) etc. RUP model is used to design this proposed system. As a result of that Use Case Diagram, Entity Relationship diagram, Class diagram, Activity diagram are used as object models.

3.2 HIGH LEVEL SYSTEM ARCHITECTURE

PHP used as the programming language and MySQL used to handle database querying and related communications. This web based system will be running on a Apache HTTP web server, given by the client.

3.3 THE USE CASE DIAGRAM

The main purpose of a use case diagram is to show what system function are performed for which actor. It presents a graphical overview of the functionality provided by a system in terms of actors, their goals and any dependencies between those use cases. Following shown on actors and their main processors related to the system.

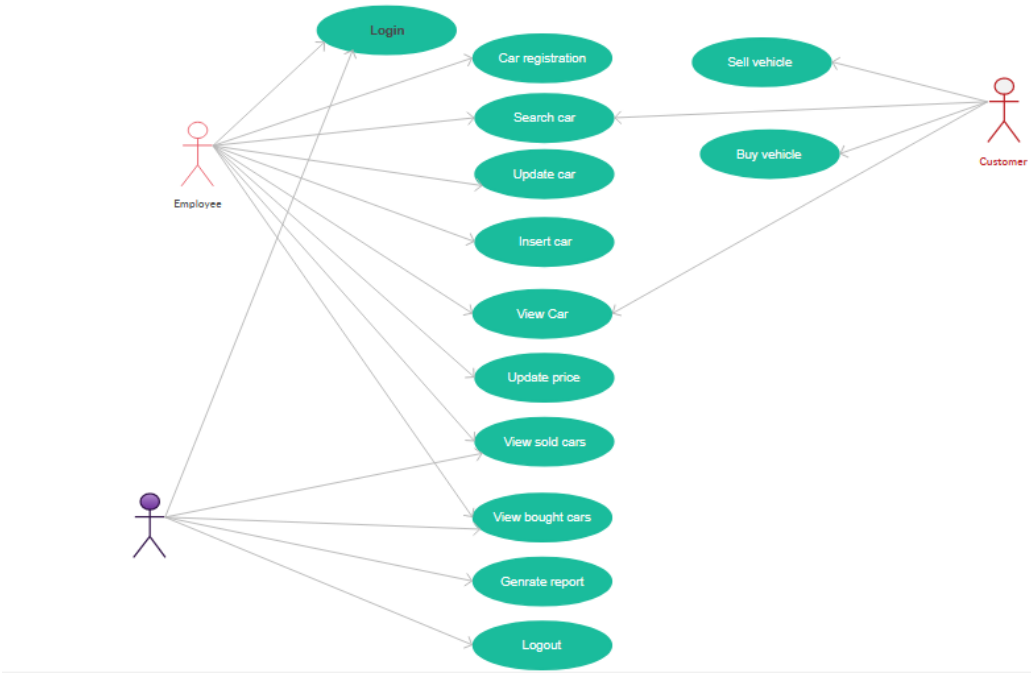

Figure 3.1 Use Case Diagram of Online Auto Advertisements System

3.4 THE ER MODEL

"In software engineering, an entity-relationship model (ERM) is an abstract and conceptual representation of data. Entity-relationship modeling is a database modeling method, used to produce a type of conceptual schema or semantic data model of a system, often a relational database, and its requirements in a top-down fashion"[6].

3.4.1 ENTITIES OF THE SYSTEM

3.4.1.1 Administrator

3.4.1.2 Software Project Managers

3.4.1.3 Software Architectures

3.4.1.4 Software Developers

3.4.1.5 Login

3.4.1.6 Feedbacks

3.4.1.7 View Data

3.4.2 ER DIAGRAMS

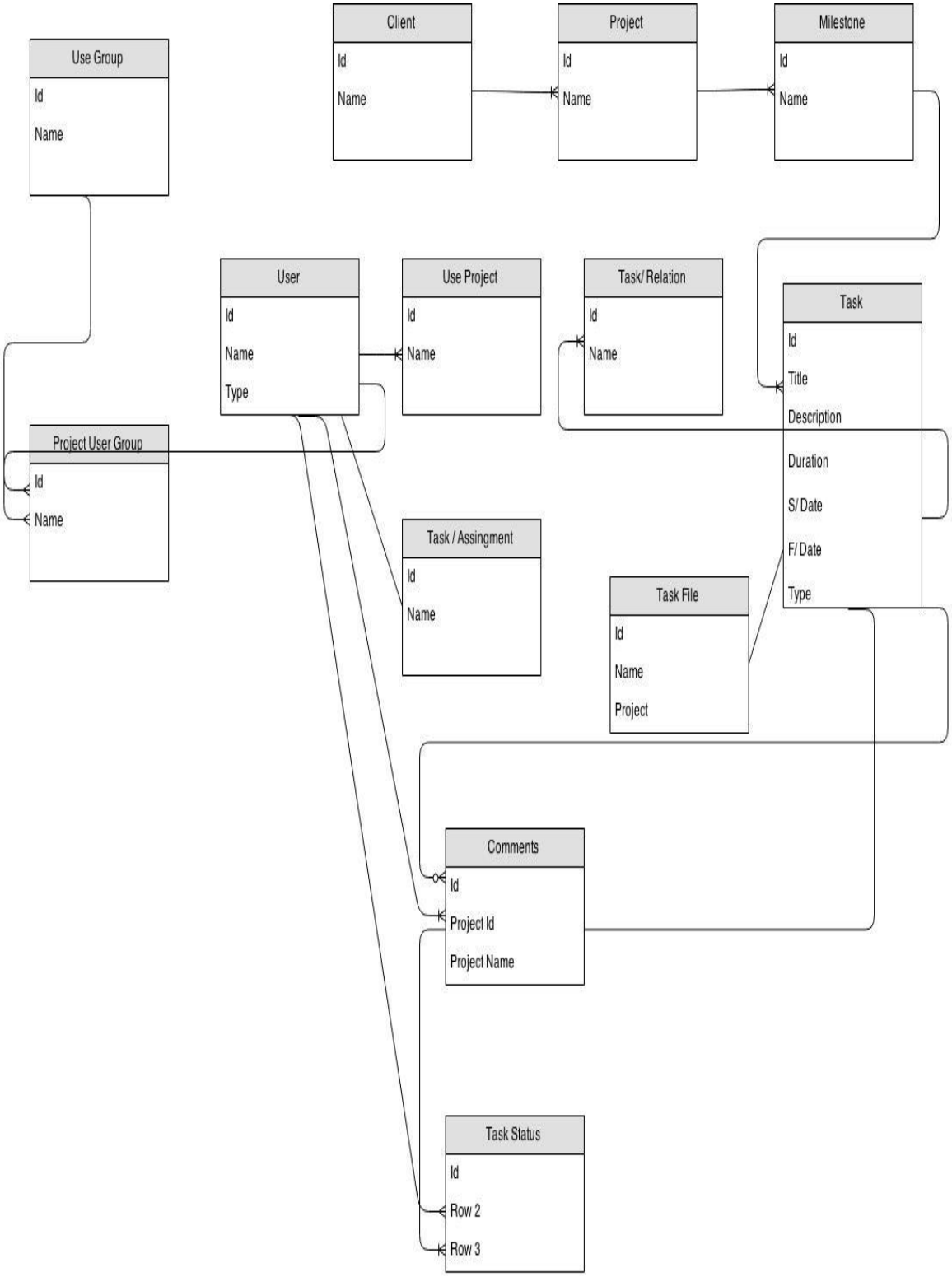

Figure 3.3 ER Diagram of Online Auto Advertisements System

3.5 SEQUENCE DIAGRAM

A Sequence diagram is an interaction diagram that shows how processes operate with one another and what is their order. It is a construct of a Message Sequence Chart. A sequence diagram shows object interactions arranged in time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario. Sequence diagrams are typically associated with use case realizations in the Logical View of the system under development. Sequence diagrams are sometimes called event diagrams or event scenarios. [7].

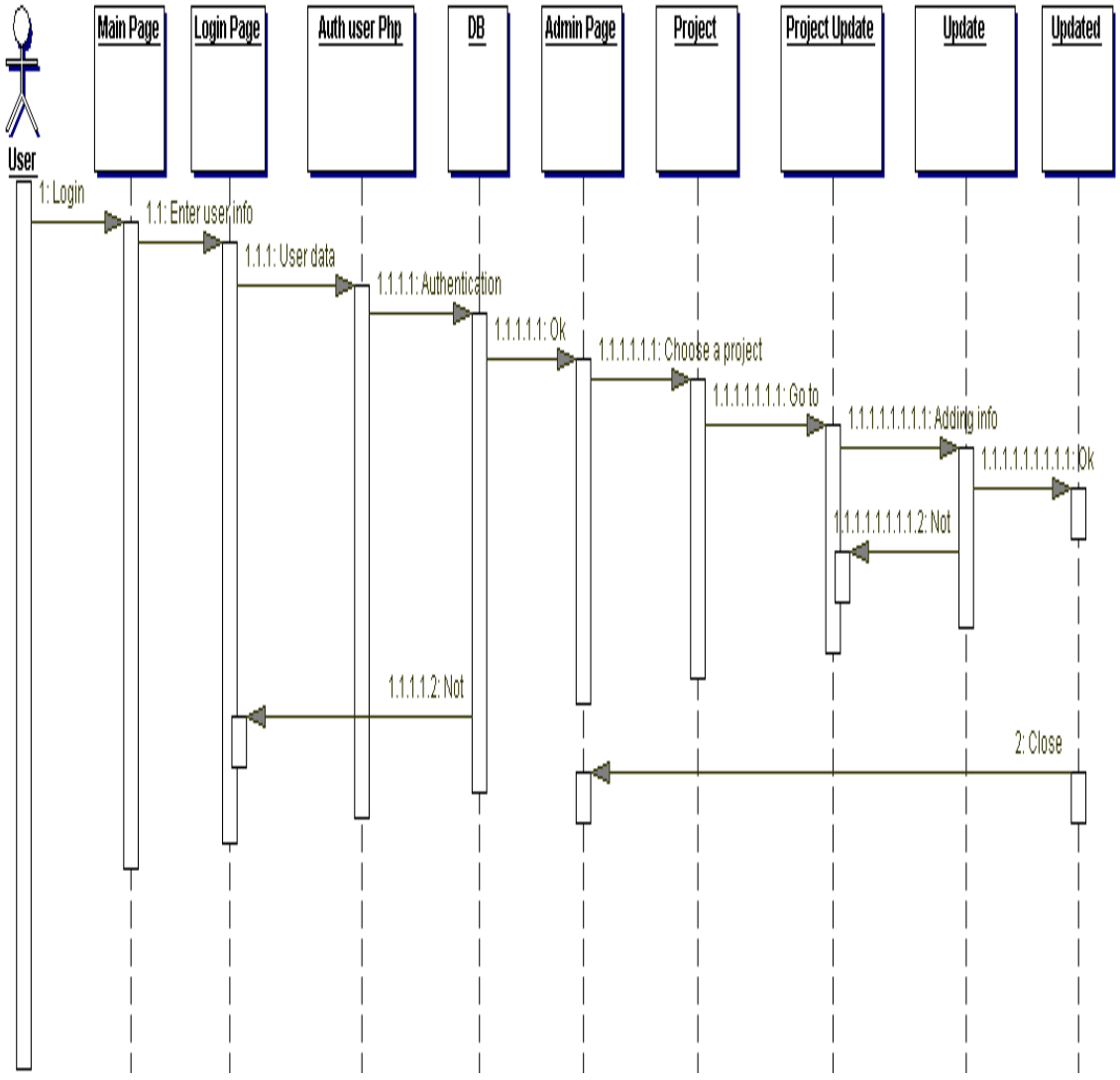

Figure 3.4 Sequence Diagram of File Upload

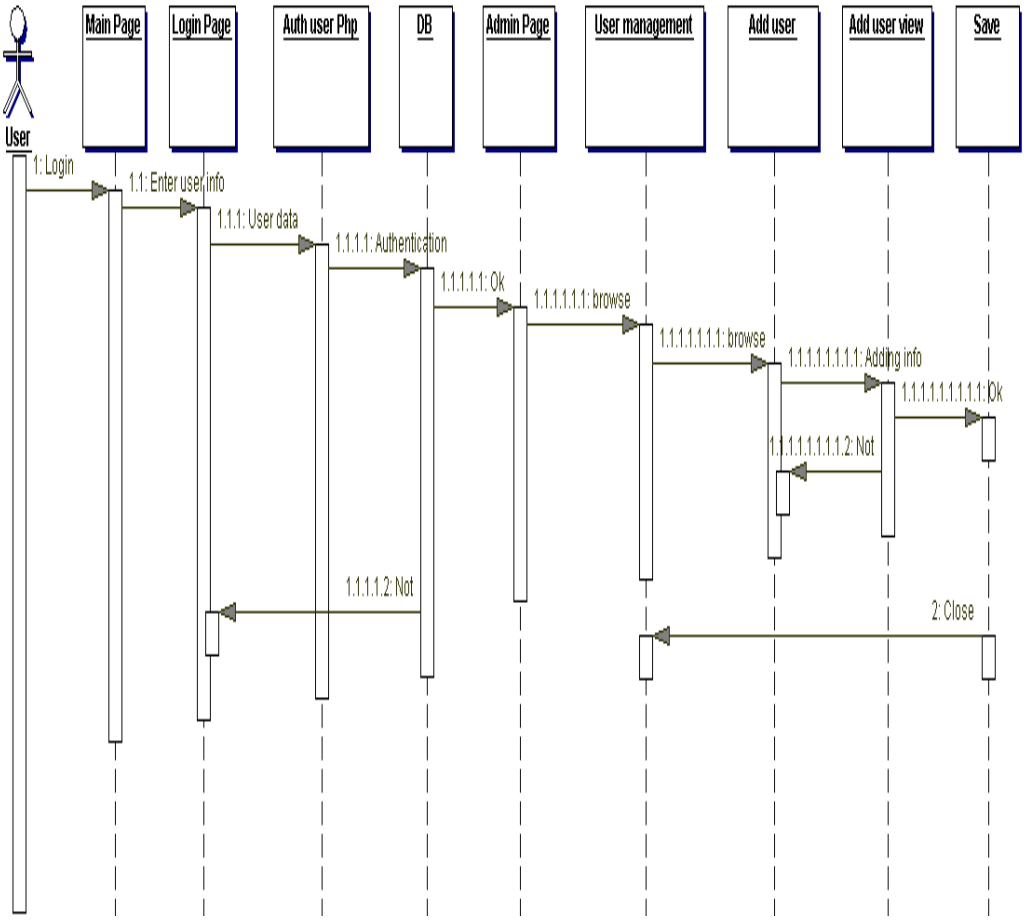

Figure 3.5 Sequence Diagram of adding user

3.6 USER INTERFACE DESIGN

User interface design is the key factor for usability of the system. So the labels, textboxes, etc. must be properly placed with appropriate decent colors to ensure high level of user friendliness.

“The goal of user interface design is to make the user's interaction as simple and efficient as possible, in terms of accomplishing user goals – what is often called user-centered design. Good user interface design facilitates finishing the task at hand without drawing unnecessary attention to itself.” [8].

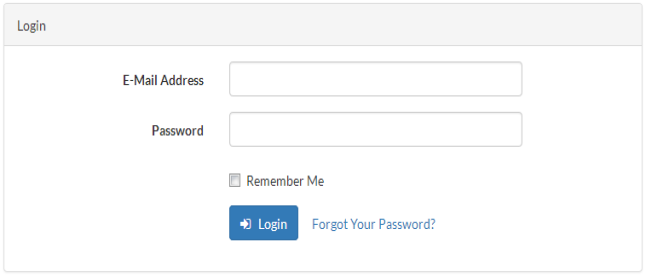

Figure 3.6 User Login interface

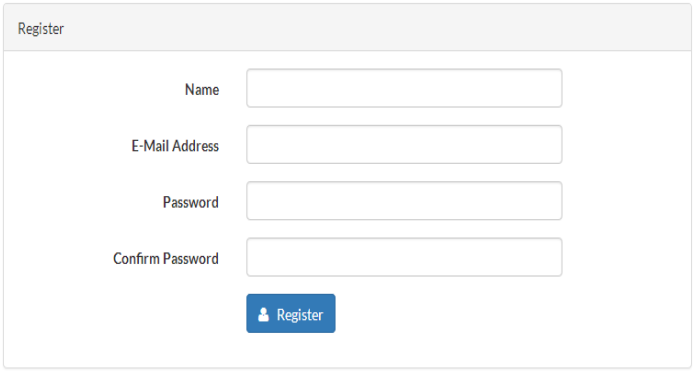

Figure 3.7 User Register interface

CHAPTER 04

IMPLEMENTATION

CHAPTER 4 - IMPLEMENTATION

4.1 INTRODUCTION

This chapter describes about the development environment of the designed system and how system implemented, language that is used for development, standards and development tools that used, also all major codes and development modules and reused components are discussed here.

4.2 DEVELOPMENT ENVIRONMENT

The software environment on which the web based software was developed and tested

Microsoft Windows 7.1 Professional (64 bit)

Apache HTTP Server 2.4.33

PHP 7.2.4

MySQL Server 5.7.21

WampServer 3.1.3 were used to configure the Apache, MySQL and PHP environments.

Other software tools used in the development

- Laravel php Framework 5.6
- Sublime Editor
- Notepad++
- MySQL Query Browser 1.2.17
- MySQL Workbench 5.2

The development machine had the following hardware configuration

- Intel(R) Core(TM) i5-2450M CPU @ 2.50GHz 2.50GHz
- 500GB Hard disk
- 4GB RAM

4.3 IMPLEMENTATION ENVIRONMENT

Web based project management system will be implemented on a local server machine which is being supplied by the client. The server is WAMP server which is currently running on Windows 8.1 (64 bit) platform with the following web environments

- Apache 2.4.9
- MySQL 5.6.17
- PHP 5.5.12

4.3.1 WAMP SERVER

- WAMP server is a powerful independent software package of web development environments which includes Apache, MySQL, PHP and dedicated for Windows environment. It also comes with PHPMyAdmin to easily manage your databases and we can call PHPMyAdmin via http://localhost/phpmyadmin. [9].
-
- The WAMP server is free open source software which can be downloaded via internet under GPL License.

4.3.2 APACHE HTTP SERVER, MYSQL AND PHP

The **Apache HTTP Server** Project is a collaborative software development effort aimed at creating a robust, commercial-grade, featureful and freely-available source code implementation of an HTTP (Web) server. The project is jointly managed by a group of volunteers located around the world, using the Internet and the Web to communicate, plan, and develop the server and its related documentation. This project is part of the Apache Software Foundation. In addition, hundreds of users have contributed ideas, code, and documentation to the project. [10]

MySQL is a relational database management system (RDBMS) that runs as a server providing multi-user access to a number of databases. The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. Free-software-open source projects that require a full-featured database management system often use MySQL. [11]

PHP is a general-purpose scripting language originally designed for web development to produce dynamic web pages. For this purpose, PHP code is embedded into the HTML source document and interpreted by a web server with a PHP processor module, which generates the web page document. It also has evolved to include a command-line interface capability and can be used in standalone graphical applications. PHP can be deployed on most web servers and as a standalone interpreter, on almost every operating system and platform free of charge. [12]

4.3.3 LARAVEL PHP FRAMEWORK

Laravel is a free, open-source PHP web framework, created by Taylor Otwell and intended for the development of web applications following the model–view–controller (MVC) architectural pattern. [13]

4.4 MAJOR CODE SEGMENTS

The main code modules developed in the system have been mentioned here with briefly describing their functionality. Laravel php framework is used model, view, controller (MVC) architecture to handle the system. Here are comments to identify the specific reason of a particular code line.

- **Database connection**
- Laravel php framework is used to develop the system and in laravel framework there is especial file called as .env to connect data base with the system.
-

```
DB_CONNECTION=mysql
```

```
DB_HOST=127.0.0.1
DB_PORT=3306
DB_DATABASE=acxian // database name
DB_USERNAME=root // username of the database
DB_PASSWORD=123456 // database password
```

- **User login handling**

Every users are used to login page to access the system.

```
<div class="form-group{{ $errors->has('email') ? ' has-error' : '' }}">
 <label for="email" class="col-md-4 control-label">E-Mail Address</label> <div class="col-md-6">
<input id="email" type="email" class="form-control" name="email" value="{{ old('email') }}"> // e-mail field
@if ($errors->has('email'))
<span class="help-block">
 <strong>{{ $errors->first('email') }}</strong>
 </span>
 @endif
</div>
</div>
<div class="form-group{{ $errors->has('password') ? ' has-error' : '' }}">
<label for="password" class="col-md-4 control-label">Password</label>
<div class="col-md-6">
<input id="password" type="password" class="form-control" name="password"> // password field
@if ($errors->has('password'))
<span class="help-block">
<strong>{{ $errors->first('password') }}</strong>
</span>
@endif
</div>
```

Laravel is used especial function to verify registered users called as middleware. Authorized user is checked by middleware and give permission to access the dashboard.

```
<?php
namespace App\Http\Middleware;
use Closure;
use Illuminate\Contracts\Auth\Guard;
class Authenticate
{
    /**
     * The Guard implementation.
     *
```

```
     * @var Guard
     */
    protected $auth;

    /**
     * Create a new filter instance.
     *
     * @param  Guard  $auth
     * @return void
     */
    public function __construct(Guard $auth)
    {
        $this->auth = $auth;
    }

/**
     * Handle an incoming request.
     *
     * @param  \Illuminate\Http\Request  $request
     * @param  \Closure  $next
     * @return mixed
     */
    public function handle($request, Closure $next)
    {
 if ($this->auth->guest()) {
 if ($request->ajax()) {
 return response('Unauthorized.', 401);
 } else {
 return redirect()->guest('auth/login');
 }
 }
return $next($request);
}
}
```

-

```
<?php
namespace App\Http\Middleware;
use Closure;
use Illuminate\Contracts\Auth\Guard;
class RedirectIfAuthenticated
{
 /**
 * The Guard implementation.
 *
 @var Guard
  */
  protected $auth;
/**
* Create a new filter instance.
*
 @param  Guard  $auth
```

```
* @return void
*/
public function __construct(Guard $auth)
{
$this->auth = $auth;
}
/**
* Handle an incoming request.
*
* @param  \Illuminate\Http\Request  $request
* @param  \Closure  $next
* @return mixed
*/
public function handle($request, Closure $next)
{
if ($this->auth->check()) {
return redirect('/home');
}
return $next($request)
```

- **Vehicle controller**

Vehicle controller file is used to multiple functions here like new advertisement create, update, delete and save data. In this file used some model files to get some data from data tables.

```
<?php
namespace App\Http\Controllers;
use App\Car;// Car Model
use App\Upload;// Upload Model
use App\Vehicle;// Vehicle Model
use App\Town;// Town Model
use Auth;
use DB;
use Illuminate\Http\Request;
use Illuminate\Support\Facades\Response;
use Intervention\Image\Facades\Image;
```

This code segments are displayed all advertisements published in the system,

```
public function index()
   {
     $vehicles = Vehicle::with('uploads')->get();// get all advertisement with relevant images

      return view('vehicles.index')->withVehicles($vehicles);// displaying in the view file
   }
```

This code segments are used to display Auth user created advertisements.

```
public function indexpersonel()
    {
        $vehicles = Vehicle::personal()->get();// scope the relevant advertisements
       return view('vehicles.myads')->withVehicles($vehicles);// return the advertisements
    }
```

This code segments are created new advertisement and displayed message and validate the input fields.

```
public function store(Request $request)
    {
        $vehicle = new Vehicle;

        $vehicle->provinceid = $request->input('provinceid');
        $vehicle->districtid = $request->input('districtid');
        $vehicle->townid = $request->input('townname');
        $vehicle->brandid = $request->input('brandid');
        $vehicle->modelid = $request->input('modelname');
        $vehicle->modelyear = $request->input('year');
        $vehicle->condition = $request->input('condition');
        $vehicle->milage = $request->input('milage');
        $vehicle->detail = $request->input('data');
        $vehicle->price = $request->input('price');
        $vehicle->telephone = $request->input('telephone');
        $vehicle->categoryid =  $request->input('categoryid');
        $vehicle->userid = Auth::user()->id;

        $vehicle->save();// save data to the table
```

This code segments are used to show the all advertisements data in the view

```
public function show($id)
    {
        $vehicles = Vehicle::find($id);// select the advertisement id

        return view('vehicles.show')->withVehicles($vehicles);
    }
```

This code segments are used edit the advertisements data.

```
public function edit($id)
    {
        $vehicles = Vehicle::findOrFail($id);// select the advertisement id
```

```
        $town_list = Town::with('district.province')->groupBy('provinceid')->get();
         $model_list = DB::table('models')

                    ->groupBy('categoryid')
                    ->get();
        return view('vehicles.edit')->withVehicles($vehicles)->withTown_list($town_list)-
>withModel_list($model_list);
    }
```

This code segments are used to delete the advertisement.

```
public function deleteOneAd($id)
    {
        DB::table('vehicles')
            ->where('id', $id)

            ->delete();

        return redirect()->back();//->with('info', 'Project deleted successfully');
    }
```

4.5 REUSED EXISTING CODE

During the implementation process some codes has been taken from free code sharing websites. These codes include JavaScript validations codes (mentioned under the above topic) and CSS codes for better look and feel. Algolia's full suite APIs enable teams to develop unique search.[14]

CHAPTER 5

EVALUATION

CHAPTER 5-EVALUATION

5.1 INTRODUCTION

To evaluate the final system functioning through system development lifecycle good evaluation techniques required. System testing checked whether system functioning appropriately and check whether clients‟ requirements are met. This chapter describes how the system was tested. And the software bugs that found and the solutions to problems identified. Further describes the test plan and test process, also the expected output and behavior from the test plan.

5.2 WHY TESTING IS IMPORTANT

Software testing is a process of executing a program or system for finding errors. It involves some activity that determining system meets its required results. Software bugs will almost always exist in any software application. Finding the design defects in a software is difficult and testing boundaries are not sufficient to guarantee the correctness of the system.

This against the quality of software. Hence, better than the efficiency of software as a certain quality protocol and rules must be laid down and the complements of software. But testing can be used to improve quality, verification and validation and also for reliability estimation.

There are many tests that can be applied to the software like black box testing and white box testing; also the verification and validation are used for software testing.

5.3 SOFTWARE VALIDATION AND VERIFICATION

Validation typically involves actual testing and takes place after verifications are completed. Validation is about making sure building the right product. Verification gives

answers for software is achieved consistency, completeness, and correctness and its supporting documentation. Simply verification is making sure building the product right.

5.3.1 SOFTWARE VALIDATION

The process of evaluating software during or at the end of the development process to determine whether it satisfies specified requirements. [IEEE-STD-610] [14]

5.3.2 SOFTWARE VERIFICATION

The process of evaluating software to determine whether the product of a given development phase satisfy the condition imposed at the start of the phase. [IEEE-STD-610]. [15]

5.4 ITEMS / HARDWARE & SOFTWARE REQUIREMENTS FOR TESTING

Testing procedures are done by the local machine. All the hardware and software used for development was also used software for testing purpose.

5.5 TEST PLAN

5.5.1 Unit Testing

Unit testing specifies the testing of specific code, individual function and individual component of the system. This may be a snippet of validating correctness of a specific input field in presentation layer or may be a data insertion query in data layer.

5.5.2 Black box testing

It is not based on internal code or design those tests are based on the requirement and functionality of the system.

After completing the each sub system and after completing the application, black box testing was used to check whether required goals are met.

5.5.3 White box testing

Done by knowing the internal code and business logic of the system. Test is coverage of code segments, paths, conditions.

White box testing was used while developing the system and end of completing each sub system, finally after completing system full code walk through was done to find existing errors.

5.5.4 System Integration Testing

Integration testing as it name says, tests whether set of components perfectly integrate with other components and work as intended. This testing is done progressively through the development cycle until all the individual components are properly integrated until the software works as a system.

5.5.5 System Testing

System testing is carried out at the completion of the integration testing. The purpose of system is to prove that the software meets the agreed user requirements and works in the target environment. System testing covers both functional and non-functional requirements.

5.5.6 Acceptance Testing

Acceptance testing is carried out at the customer's site with the customer in attendance. The purpose of the acceptance test is to show to the customer that the software does indeed work. These tests are usually a sub set of the system test.

User Acceptance Testing (UAT) is a process to obtain confirmation that a system meets mutually agreed-upon requirements. [16]

5.6 TEST SCHEDULE

White box testing, daily smoke testing and code reviewing done while implementing phase of the system, thirty six days of the period allocated for the testing purpose.

5.7 TEST PLAN FOR THE SYSTEM

Test plan should have the ability to test the functionality of the overall system. By properly testing a system, it can identify the errors which generate from the system and can correct them. The implemented system was tested using different test cases.

Since the development started, the test plan continued by testing the system units. After completing a system unit it was completely tested to identify whether it can function according to expectations. Therefore, early detection of the errors was helped by this testing stage.

After performing the system unit testing, next integration testing was done, and this can identify the errors and the required functionality of the units after integration. System testing was performed as the final stage for the completely developed web based application to check the functionality. This performed at the client's environment with client's original data.

5.8 TEST CASES

Test cases were designed to make sure all aspects of the system functioning correctly. Several test cases were designed to check the system. System was tested by sub module vice because of the complexity of test module.

Modules that has been tested and verified.

5.8.1 TEST CASES FOR USER LOGIN

Test Number	Test	Steps	Results
1	User login	Enter correct e-mail Enter correct password	Logging with system successfully

2	User login	Enter incorrect e-mail Enter incorrect password	Print error message **"These credentials do not match our records."**
3	User login	Enter correct e-mail Enter incorrect password	Print error message **"These credentials do not match our records."**
4	User login	Enter incorrect e-mail Enter correct password	Print error message **"These credentials do not match our records."**

Table 5.1 User login test case

5.8.2 TEST CASES FOR USER REGISTER

Test number	Test	Steps	Results
1	User register	Filled all data fields with valid data	User registered successfully
2	User register	Filled data fields without name field	Print error message "**The username field is required."**
3	User register	Filled data fields with wrong e-mail	Print error message "please enter valid e-mail"
4	User register	Filled data fields without conform password field	Print error message **"The password confirmation does not match."**
5	User register	Filled data fields with password field less than 6 characters	Print error message **"The password must be at least 6 characters."**

Table 5.2 User register test case

5.8.3 TEST CASES FOR NEW PROJECT CREATE

Test Number	Test	Steps	Results
1	New project create	Create project with all fields correctly	Create project successfully
2	New project create	Create project without status	Print error message “The status field is required.”
3	New project create	Create project without name field	Print error message “The name field is required.”
4	New project create	Create project without due date	Print error message “The due-date field is required.”
5	New project create	Create project without notes	Print error message “The notes field is required.”

Table 5.3 New project create test case

5.8.4 TEST CASE FOR ADD NEW COLLABORATORS

Test number	Test	Steps	Results
1	Add new collaborator	Click add user button with “@” symbol and registered name	Add collaborator with “collaborator has been added successfully”
2	Add new collaborator	Click add user button without “@” symbol	Print error message “this user does not exit”
3	Add new collaborator	Click add user button with user name who not registered	Print error message “This user does not exist”
4	Add new collaborator	Click add user button with user name who is already collaborator	Print error message “This user is already a collaborator on this project”

Table 5.4 Add new collaborators test case

CHAPTER 6

CONCLUSION

CHAPTER 6 – CONCLUSTION

6.1 INTRODUCTION

It was interesting to develop a system that can be used to make different in the current system that can improve performance and usefulness of the staff of the organizations.

In manual vehicle classified system, managers have to face several problems to manage organizational staff performance.

In a digital marketing company, full functional website is a critical factor for success and development of the company. The developed system can be used many ways to manage auto classified advertisements properly.

This chapter describes project assessment, problems found on while developing system, lessons that learned and also future enhancement for the developed system.

6.2 PROJECT ASSESSMENT

To project to be a success, it should meet all the client requirements and fulfill all the objectives discussed in Chapter 2. After carefully evaluating problem domain, we identified requirement of web based auto classified advertisements management system. The project started with gathering and understanding the requirements of the client.

After fully understand the client's requirement, which gathered from users and from existing system, several alternative solutions were considered and implementing web based auto classified advertisements management system in php was selected as the most suitable solution to complete the project.

Client had a system to manage their advertisements, but it is a manual system. Our objective was to replace that system by developing most advanced system that can make feedback, manage staff performance and give a solution to match each worker for each advertisements.

While in the requirement gathering phase we identified the most valuable part is the generate reports of the system because, the system has to present different graphs to view each advertisements. So system developed to generate multiple graphs and data sheet regarding with each advertisement.

Management reports designed according to clients' requirements, it was designed to generate faster, with calculated total points and use graphical charts to display information to choose relevant staff.

System was designed using object-oriented methods, several entity relationship diagrams and several UML diagrams were created to get a good understanding of the system process. Many software tools were used to develop final implemented software system.

6.3 ACHIEVEMENTS

The proposed system was successfully managed to achieve each and every feature which is required by the client. The system works as expected from the user's insertion to advertisements management. The other special part is to generate user required reports in combination with vehicle types, models, districts and towns etc.

6.4 PROBLEM ENCOUNTERS

To establish some parts of the system module wanted advanced php script knowledge. So it is become more time consuming.

Some modules needed more time than previously planned. So time was major problem while developing the system.

While implementing the database and tables became some problems such as data types, primary keys, foreign keys, export and import tables etc.

While analyzing and requirement gathering it was difficult to identify correct and most suitable business logic to the system.

Interface designing was challenging; it has to modify several times to match clients required format.

6.5 FUTURE ENHANCEMENT

Developed web based auto classified advertisements management system can be developing as an advertisements management mobile app in the future.

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APPENDIX A

SYSTEM DOCUMENTATION

APPENDIX A:

SYSTEM DOCUMENTATION

Title **:** project management tool

Date **:** 2016-09-31

Version **:** 1.0

System **:** web application

SYSTEM REQUIREMENTS

Server

Recommended Hardware Requirements

processor	2.4Ghz processor with 8MB cache or more
Memory	4GB or more
Hard disk	50GB or more

Table A-1: Server Hardware Requirements

Recommended Software Requirements

Operating System	Any Operating System
Web Server	Apache 2.2.17 or later
Server Side Scripting	php 5.3.5 or later
Database	My SQL 5.5.8 or later
Additional Software	php my admin 3.3.9 or later
	Adobe flash player 10 or later

Table A-2: Server Software Requirements

Client

Recommended Hardware Requirements

Processor	Dual core 1.8Ghz with 4MB cache or more
Memory	1GB or more
Hard disk	20GB or more

Table A-3: Client Software Requirements

Recommended Software Requirements

Operating System	any operating system
Internet Browser	Mozilla Firefox 5.0 or newer Google chrome 12.0 or newer Internet explorer 9 or newer
Browser Requirements	Adobe Flash player 10 or never version should be installed Java script should be enabled

Table A-4: Client Software Requirements

INSTALLATION

Steps for installing the Web based Project Management system.

- First unzip “acxian.zip” to any local directory.
- Extracted folder and files will look similar to the following image.

Figure A-1: shows extracted folder of acxian.zip

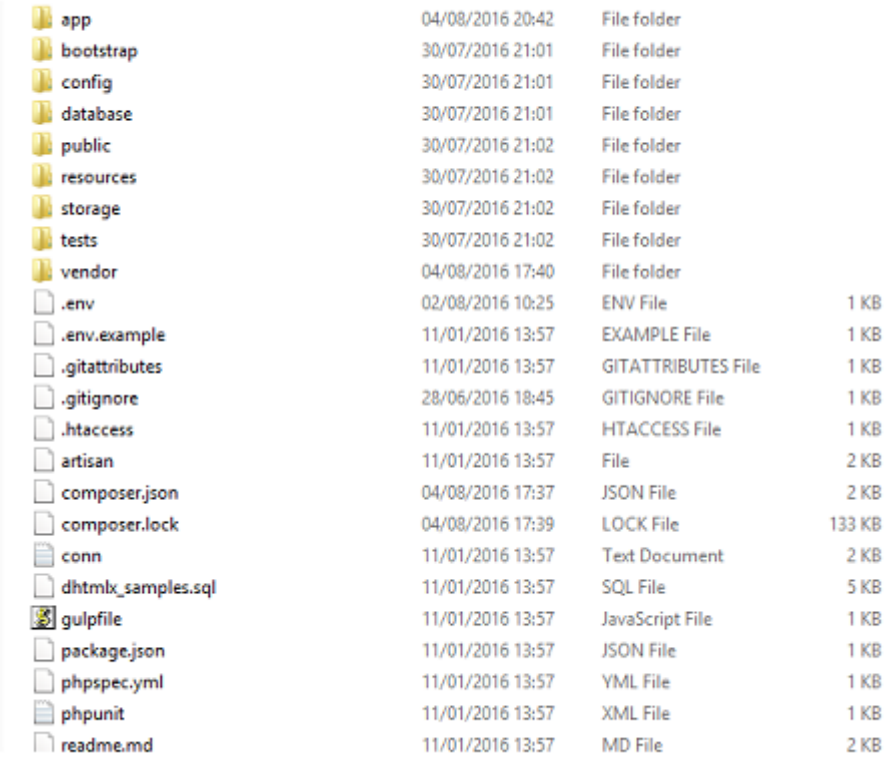


Figure A-1: extracted folder of acxian.zip

- Open the *".env"* in the directory.

DB_CONNECTION=mysql

DB_HOST=127.0.0.1 // IP for local web server it may be "localhost" or "127,0,0,1"

DB_PORT=3306

DB_DATABASE=acxian // database name, DO NOT CHANGE THIS

DB_USERNAME=root // mysql username default is “root”, it may be change

DB_PASSWORD=xxxxx // mysql password default is “ “, it may be change

Now change only following variables,

- *$host*, change this to your servers IP address
- *$username*, change this to your mysql username
- *$password*, change this to your mysql password

- After successfully configuring your mysql database settings in the previous step create a folder called “spes” in the servers root directory.

- Upload all files and folders to the previously created “spes” directory.

- The call back path would be http://192.168.1.100/spes/index.html (This may be uploaded to a sub-directory as well. If you installed into a sub directory, you should call it using the correct path. Ex:- http://192.168.1.100/ sub directory/ spes/index.html)

  Notice:- 192.168.1.100 will be the IP address of local web server.

- Open the web browser and go to http://192.168.1.100/phpmyadmin to import database content to the server.

- In phpmyadmin you will see a tab called “import” at the second line forth tab of the window, now click on it, look at the image below,

Figure A-2: shows phpmyadmin “import” tab

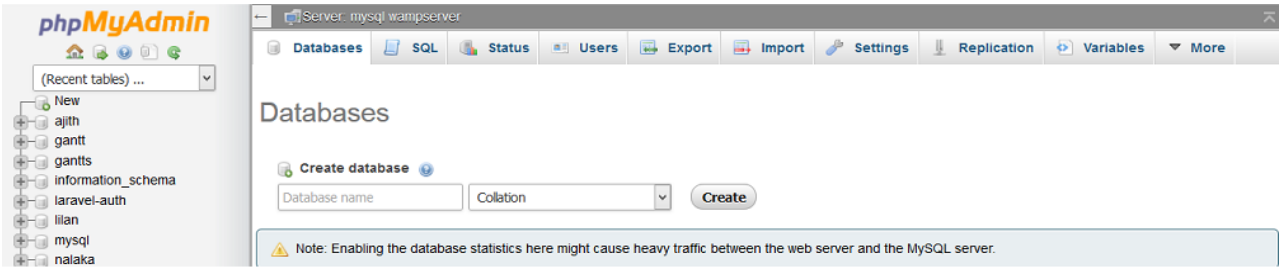


Figure A-2:phpmyadmin "import" tab

- Now you will be redirected to phpmyadmin's "import" page. In that page you will see browse button, just after the text box in "File to import" section, refer to the image below,

Figure A-3: shows phpmyadmin "import" page

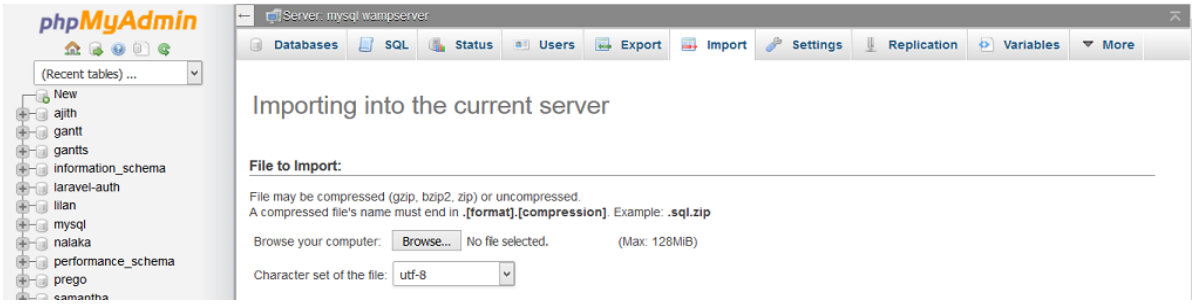


Figure A-3:phpmyadmin "import" page

- Now you will get a popup window. Just browse through the directories where you unzip "*acxian.zip*" to your local machine. Locate the "*acxian-database.sql*" file, which is inside the "*sql*" directory (this is the only file you see inside "*sql*" directory).
- After successfully locating the sql file, click on the "Go" button, which is at the bottom right corner of the same import page.
- Now the database is properly imported the server.
- Open a new tab in your web browser and type "*http://192.168.1.100/acxian*" or "*http://192.168.1.100/acxian/index.html*"
- Now you will be taken to the main landing page of the treatment and patient information improving system.

APPENDIX B
DESIGN DOCUMENTATION

APPENDIX B - DESIGN DOCUMENTATION

The Use Case Model

User Login to the System

Figure B-1: shows user login to the system

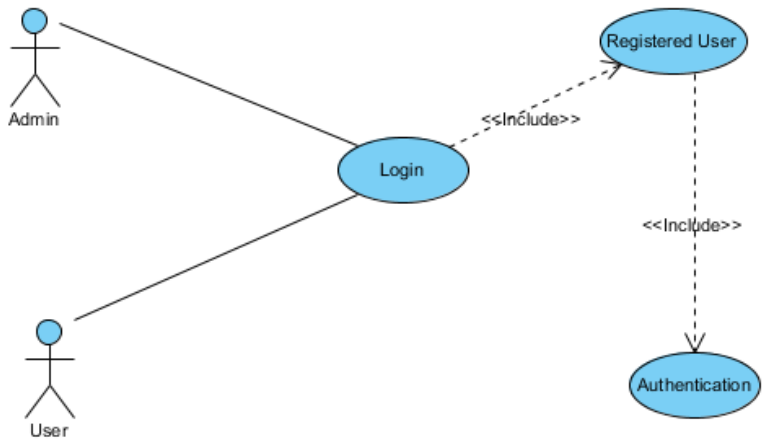


Figure B-1: User Login to the System

Use Case	User Login to the System
Actors	Admin, User
Overview	
the user log in to the System	
Per conditioners	
User should registered in the System	
Event Flow	
Go to http://192.168.1.100/acxian/ using a web browser user will type username and password to login	
Post Condition	
User will be redirect to the maim page if authentication is valid.	

User will have re-enter username and password if the authentication is not valid.

Table B-1: Use Case description for User login to the system

New user registers to the system

Figure B-2 shows new user register to the system

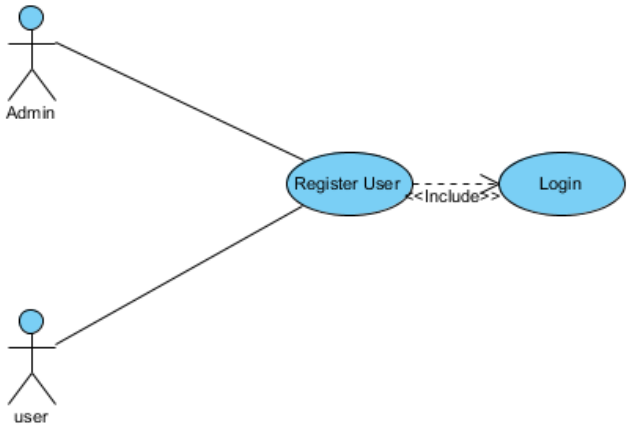


Figure B-2 new user registers to the system

Description of the "New user registers to the system" use case

Use Case	New user register to the system
Actors	Admin, User
Overview	
The new user will register to the system	
Per conditioners	
The admin should have logged in to the system The new user should not exist in the database	
Event Flow	
Go to add/edit under administrator category	

Admin will type the new user information and saved it to the system

Post Condition
User will have his/her new username and password

Table B-2: Use Case description for new user registers to the system

Update/modify User Information

Figure B-3: shows use case diagram for update/modify project information

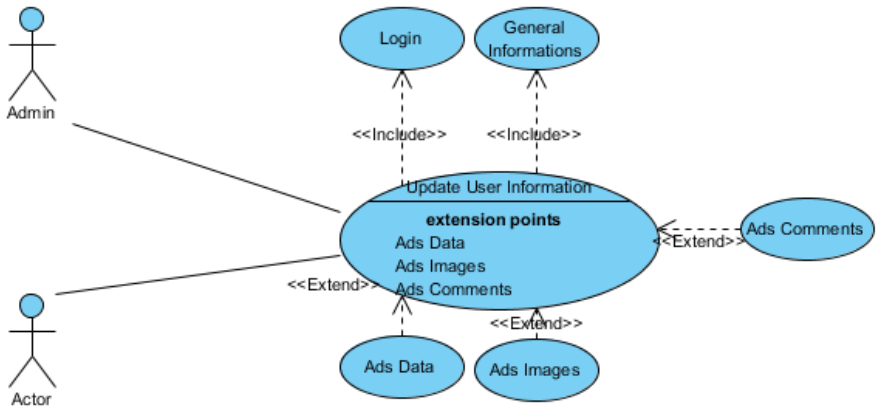


Figure B-:3 Use Case Diagram for update/modify project information

Use case	Update/modify user
Actors	Admin, User
Overview	
The user will update/modify user information	
Per conditioner	
The user should have logged in to the system User should select update button from the profile page	
Event flow	
Click “update” button in the profile page Select update columns of the profile	

Make necessary modification
Post condition
The user will be prompted to confirm the modification User information will be updated and acknowledged to the user

Table B-3: Use Case description for update/modify user information

Delete an Ads data from the system

Figure B-4: shows use case diagram for delete ads data from database

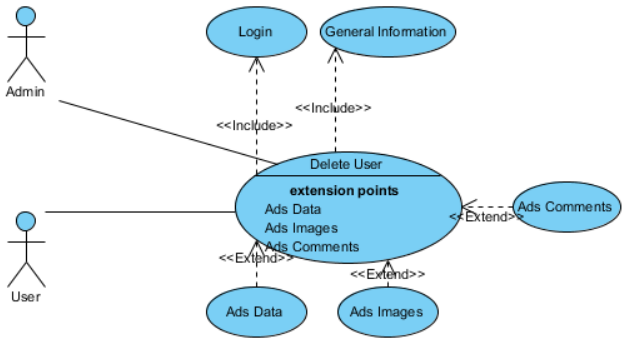


Figure B-4: Use Case Diagram for delete Ads Data from database

Use case	Delete a user from the system
Actors	Admin, User
Overview	
The user will delete from the system	
Per conditioner	

Administrator will be logged in to the system
User data will be deleting from the database
User should be select from the category
Event flow
Select the user
“click” Delete button from the screen
Delete the user
Post condition
Ads data will be deleting from the database

Table B-4: Use Case description for delete Ads Data from database

Admin feedback to the System

Figure B-5: shows use case diagram for admin feedback to the system

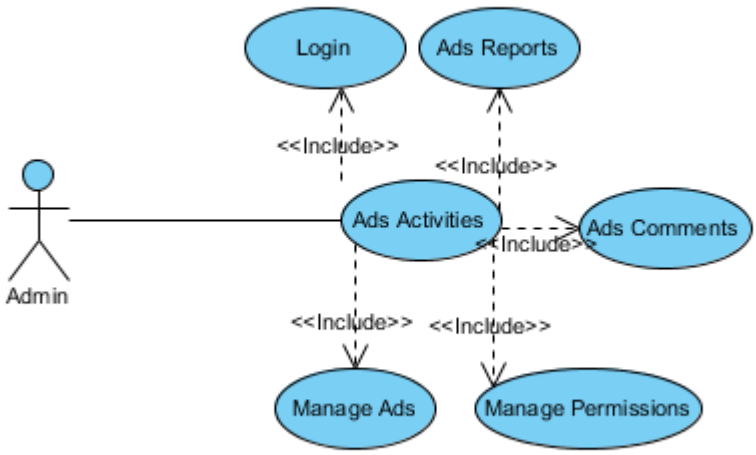


Figure B-5: Use Case Diagram for admin feedback to the system

Use case

Actors
Overview
The admin will feedback to the system
Per conditioner
Admin will be logged in to the system Admin should select feedback data from the system Admin should Rate the system
Event flow
Select the necessary feedback items “click” Project Name to add Data Save the data
Post condition
Admin can update their feedback

Table B-5: Use Case description for admin feedback to the system

Client feedback to the system

Figure B-6: shows use case diagram for client feedback to the system

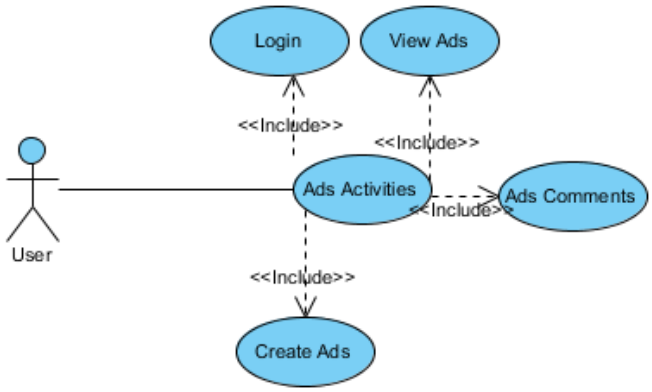


Figure B-8: Use Case Diagram for Client Feedback to the system

Use case	User Feedback to the system
Actors	Client
Overview	
The client will feedback to the system	
Per conditioner	
Client will be logged in to the system	
Client should create an advertisement	
Client should view the advertisements data	
Event flow	
Select the necessary feedback items	
“click” Advertisement on the screen	
View the data	
Post condition	
User can update their ads within two weeks	

Table B-8: Use Case description for Client feedback to the system

Analyze percentages of the vehicle’s types

Figure B-9: shows use case diagram for analyze percentages of the vehicle’s types

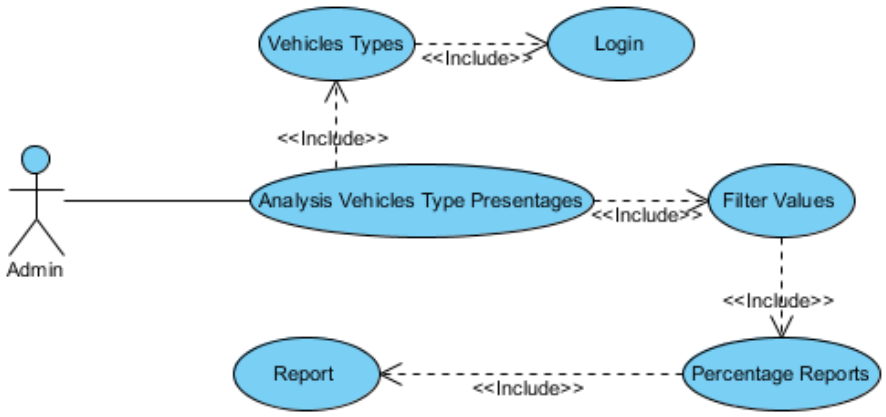


Figure B-9: Use Case Diagram for Analyze percentages of the vehicle's types

Use case	Analysis percentages of the vehicle's type
Actors	Administrator
Overview	
Administrator will analysis feedback results	
Per conditioner	
Administrator will be logged in to the system	
Administrator should select Professional feedback data from the system	
Event flow	
Select the reports from the menu	
"click" reports link from the screen	
Post condition	
-	

Table B-9: Use Case Description for Analyze progress of the task for each project

Figure B-10: shows structure of main tables

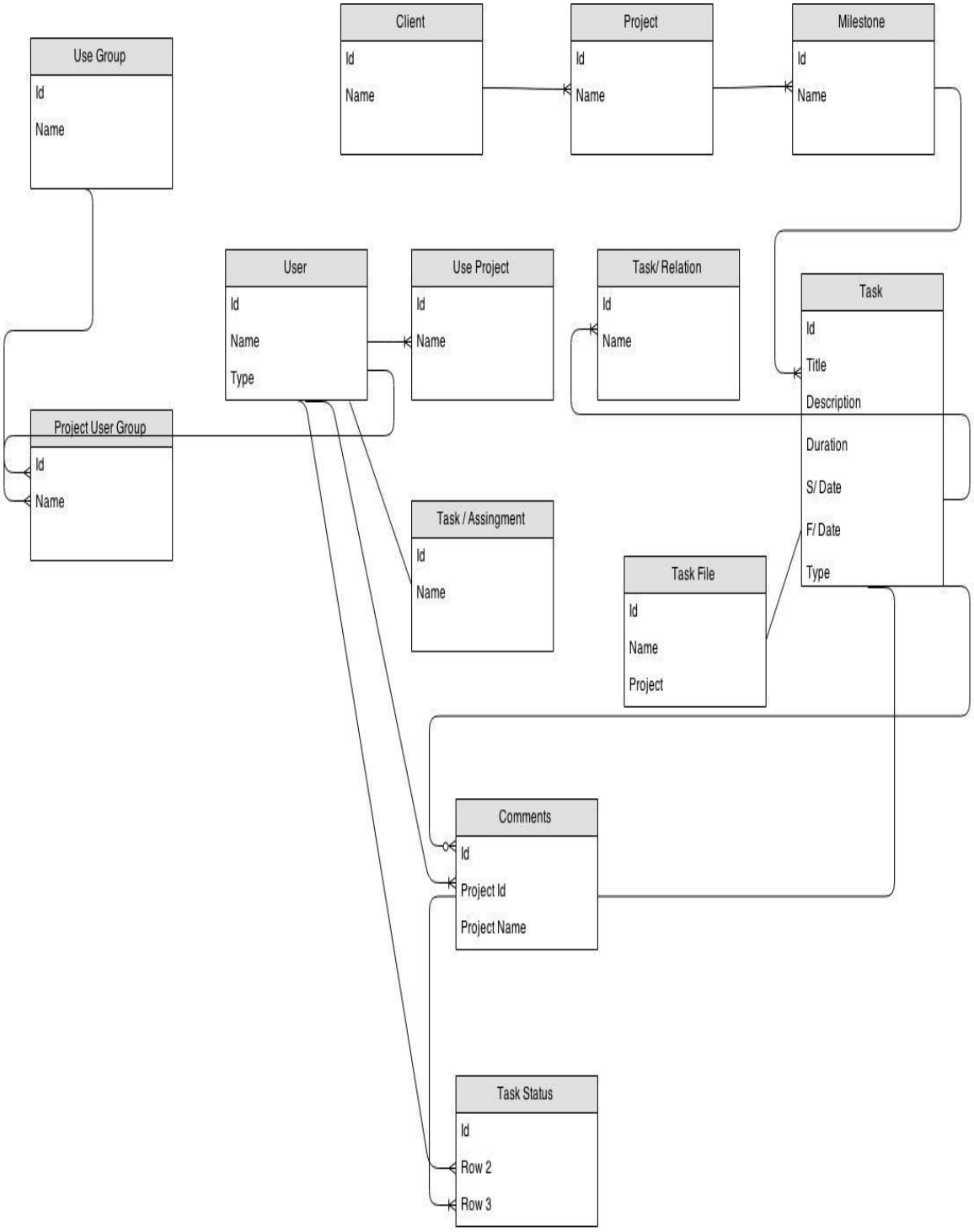


Figure B-10: Structure of main tables

APPENDIX C

USER DOCUMENTATION

APPENDIX C -USER

DOCUMENTATION

Login to the system

To access the system user should type http://localhost/acxian or http://192.168.1.100/acxian/ in a web browser. Whereas “192.168.1.100” is the IP address of local web server and could be changed to user’s local web server, which the software being installed.

There are two boxes to enter username and password in the login screen

Figure C-1: shows system main login screen

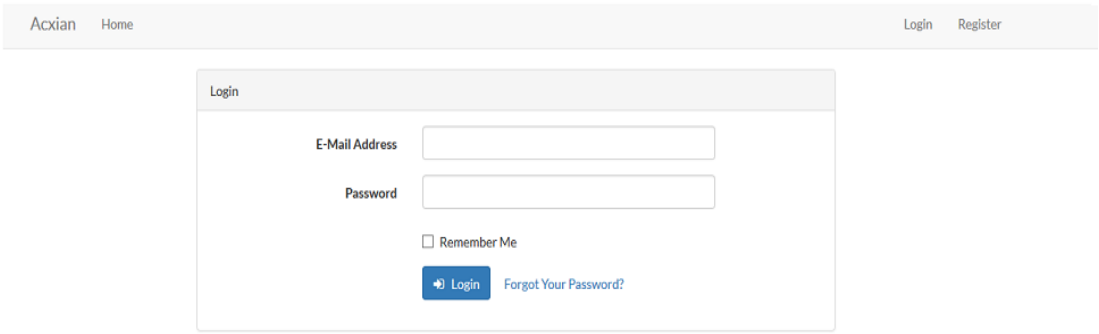


Figure C-1: System main login screen

If the authentication is failed, system will be generating an error massage and asked to re-enter authentication.

Figure C-2: shows error login screen

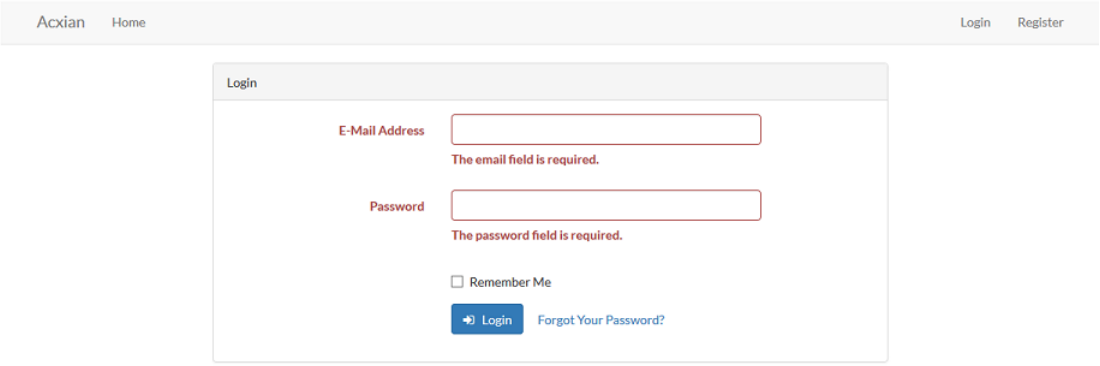


Figure C-2: Error login screen

User welcome interface

Each user when enter his/or her username and password correctly go to welcome pages. In the welcome page user can Click “Post Your Ad Here” Links and go to projects data.

Figure C-3: shows user welcome screen

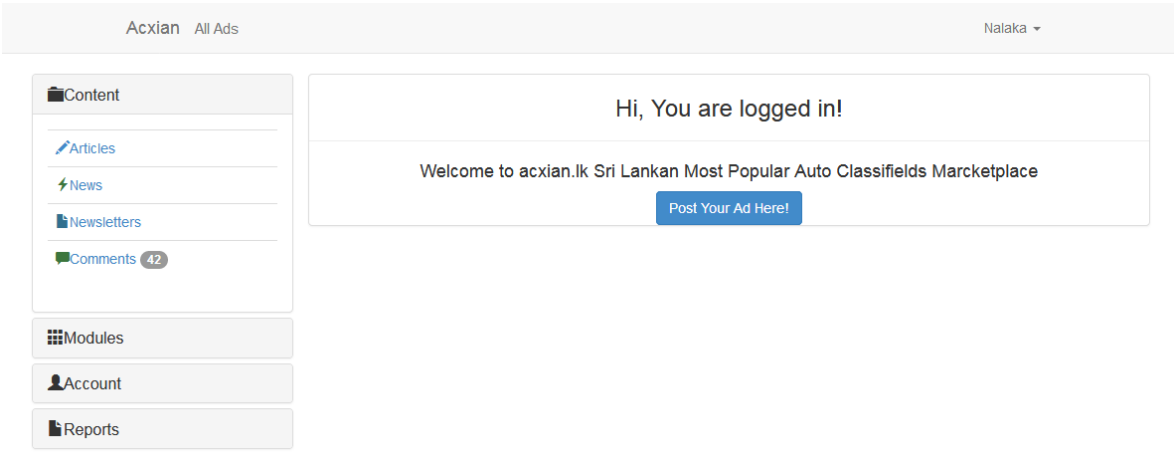


Figure C-3: User Welcome screen

User Advertisement create interface

User can add projects when “click” project button on the top of the welcome interface. Normally project creator be Administrator of the project.

Figure C-4: shows Advertisement create screen

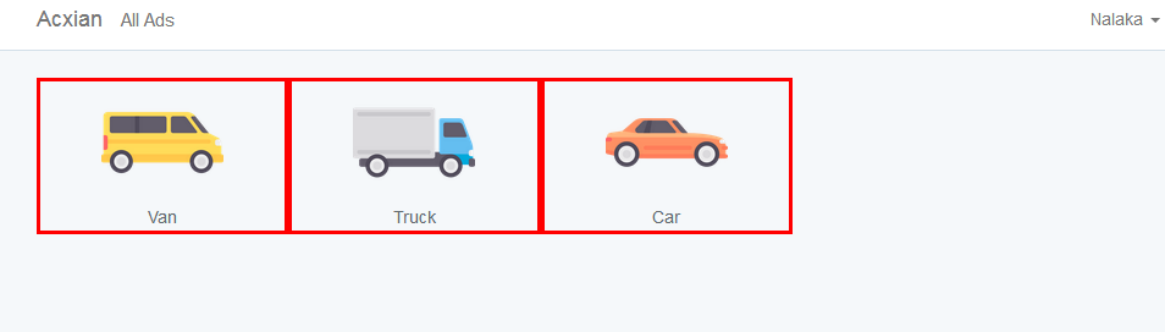


Figure C-4: Advertisement create screen

Vehicle type interface

User can post vehicles types “click” Vehicles button on the screen. Some of Vehicles types are

- Car.
- Van.
- Truck.
- Bus.

Figure C-5: shows Vehicle type interface screen

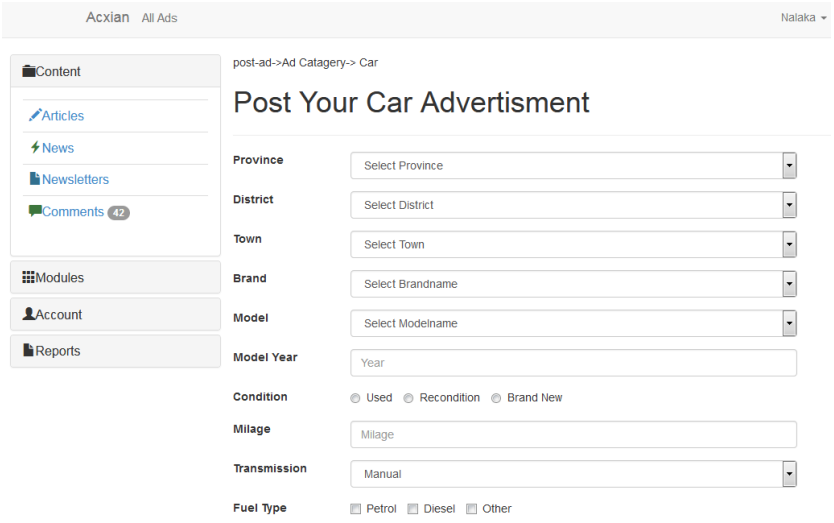


Figure C-5: Vehicle type screen

Administrator

Administers can manage Advertisements, KPI types, manage the development or evaluation programs, generate reports, delete advertisements and search, these are the main functions that administer person can handle

Add new categories to the system

Administrator can add new Categories to the System.

Figure C-6: shows add categories to the System

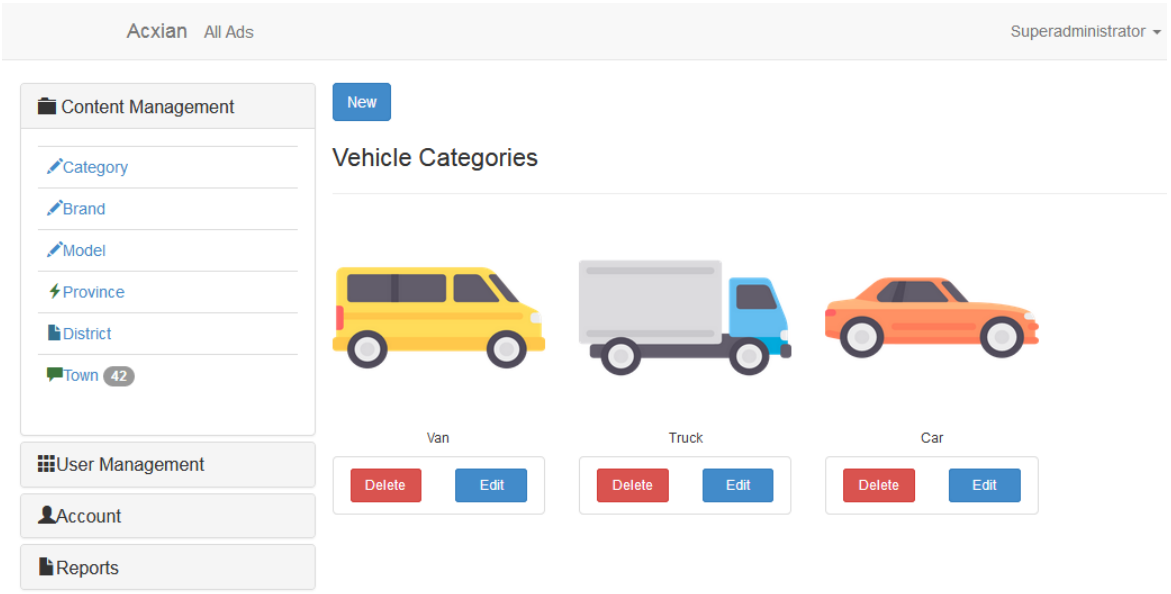


Figure C-6: Add Categories to the System

Add Brands to the System

Administrator can add new brands to the system

Figure C-7: shows add brands to the System

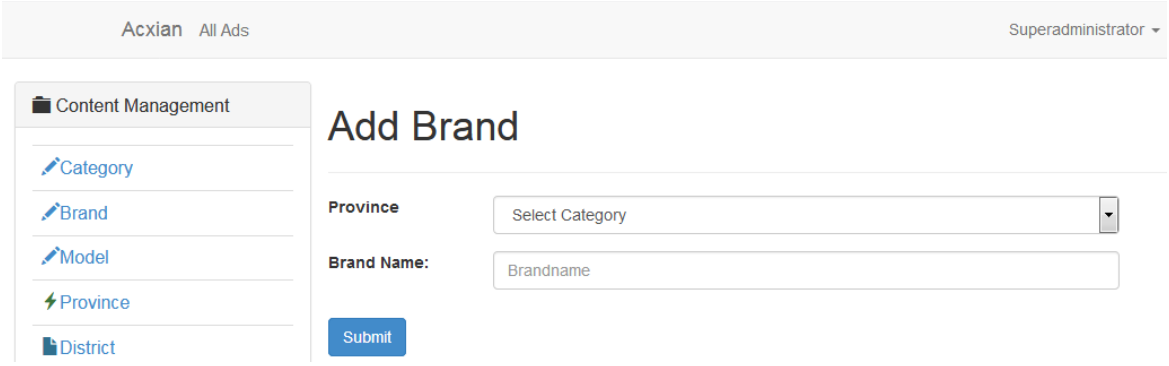


Figure C-7: Add Brand to the System

Add model to the system

Administrator can add new models to the system “click” Model link on the admin page.

Figure C-8: shows add model to the system

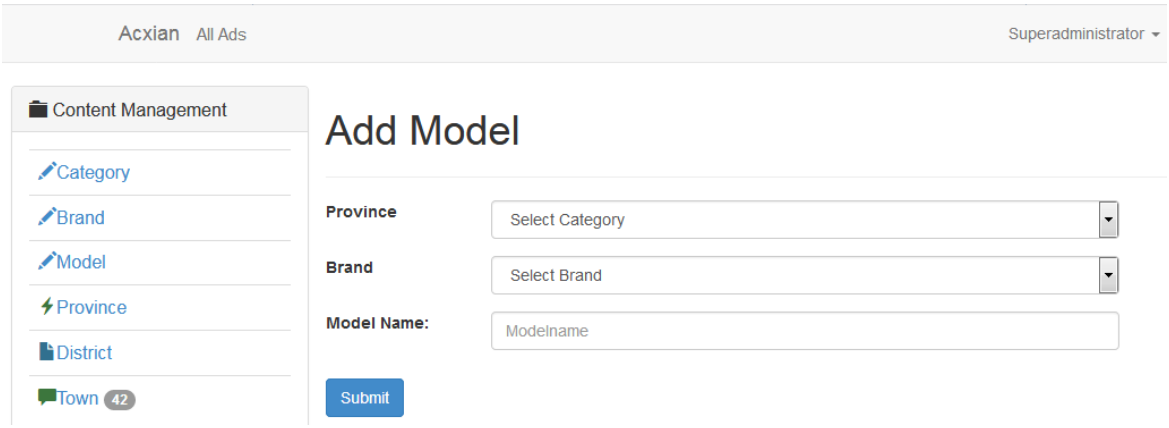


Figure C-8: Add Model to the System

Add Province to the system

Administrator can add new provinces to the system “click” Province link on the admin page.

Figure C-9: shows add province to the system

Figure C-9: Add Province to the System

Logout from the System.

Logged user can logout from the system “click” user name link and then logout button.

Figure C-11: shows logout user from the system

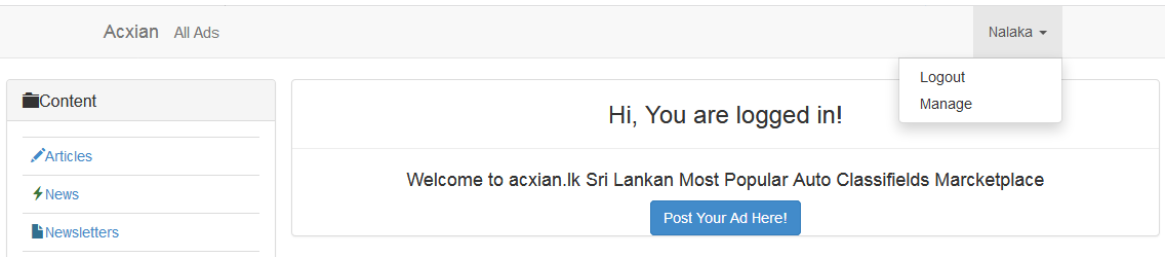


Figure C-11: Logout User from the System

APPENDIX D
MANAGEMENT REPORTS

APPENDIX D:

MANAGEMENT REPORTS

Analysis Reports

Pie Chart Outputs of each Vehicle types Presentation

Figure D – 1: Vehicles types percentage Pie Charts

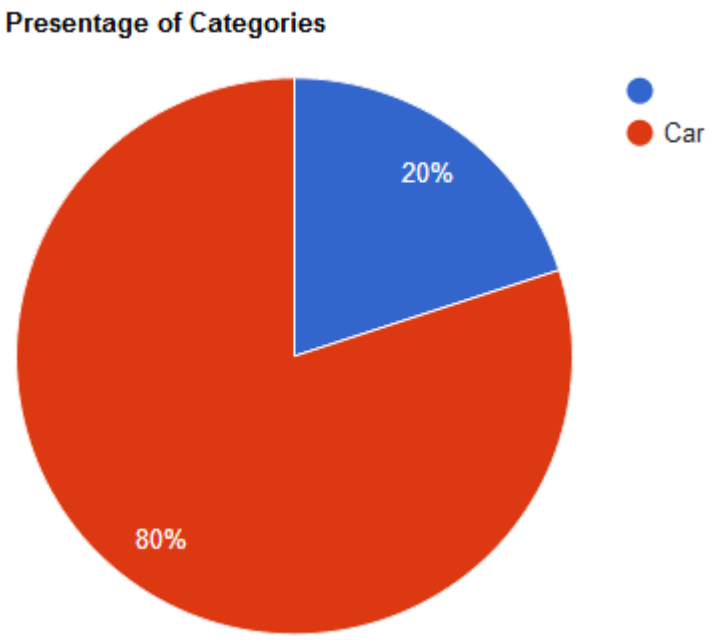


Figure D-1: Vehicles types percentage Pie Charts

PDF Output of Vehicle Data.

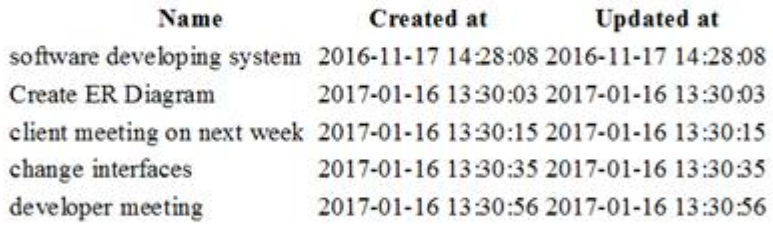
Figure D-2: PDF output of vehicle data

Name :	Start Date :	End Date :	Prograss :
Inciption	2016-02-01 00:00:00	2016-02-15 00:00:00	85.71
problem definition	2016-02-02 00:00:00	2016-02-07 00:00:00	34.99
domain analysis	2016-02-02 00:00:00	2016-02-09 00:00:00	13.21
fesibility study	2016-02-04 00:00:00	2016-02-11 00:00:00	69.99
risk analysis	2016-02-05 00:00:00	2016-02-12 00:00:00	22.04
requirement gathering	2016-02-05 00:00:00	2016-02-13 00:00:00	60.00
submit project	2016-02-03 00:00:00	2016-02-11 00:00:00	63.74
requirement analysis	2016-02-06 00:00:00	2016-02-14 00:00:00	87.32
functional analysis	2016-02-07 00:00:00	2016-02-15 00:00:00	37.5
non functional	2016-02-07 00:00:00	2016-02-16 00:00:00	15.39
domain analysis	2016-02-07 00:00:00	2016-02-17 00:00:00	40.99
use case	2016-02-07 00:00:00	2016-02-18 00:00:00	27.66

Figure D-2: PDF Output of Vehicle Data

PDF Output of each Vehicle type Information

Figure D-3: shows PDF output of each vehicle type information



Name	Created at	Updated at
software developing system	2016-11-17 14:28:08	2016-11-17 14:28:08
Create ER Diagram	2017-01-16 13:30:03	2017-01-16 13:30:03
client meeting on next week	2017-01-16 13:30:15	2017-01-16 13:30:15
change interfaces	2017-01-16 13:30:35	2017-01-16 13:30:35
developer meeting	2017-01-16 13:30:56	2017-01-16 13:30:56

Figure D-3: PDF Output of each Vehicle type Information

PDF Output of Existing Users Report

Figure D-4: shows PDF existing users report

Figure D-4: PDF Existing Users Report

APPENDIX E

TEST RESULTS

APPENDIX E

TEST RESULTS

User Register			
No	Test Case	Expected Output	Status
01	Click submit without filling any field	Show error message “Please select your login” and focus in to organization dropdown menu.	pass
02	Insert Name and password and skip email address.	Show error message “**The email field is required.**” and focus into organization dropdown menu.	pass
03	Insert Name and select email address then skip enter password value and click submit.	Show error message “**The password field is required.”** and focus into password field.	pass
04	Fill all fields but keep Password field empty and click submit	Show error message “**The password field is required.”** and focus into NIC field.	pass
05	Insert email address field without ‘@’ and click submit.	Show error message “Please enter an email address”.	pass
06	Insert email address field without ‘domain’ and click submit.	Show error message “Please enter an email address”.	pass
07	Insert Name, email and Password field without Confirm Password and Click Register Button.	Show error message “**The password confirmation does not match.”**	pass
08	Insert Confirm Password field with miss match Password.	Show error message “**The password confirmation does not match.”**	pass
09	Try to access user home page without logged in.	Redirect to error page and show error message “ Session has expired please sign in” with hyperlink to go to login page.	pass

Table E. 1: Test case for User Register

User Login			
No	Test Case	Expected Output	Status
01	Click Login without filling any field.	Display error message "**The email field is required".** And "**The password field is required".**	pass
02	Click Login with email and not filling password field.	Display error message **"The password field is required."**	pass
03	Click Login with password and not filling email field.	Display error message **"The email field is required."**	pass
04	Click email with wrong password.	Display error message "These **credentials do not match our records".**	pass
05	Click password with wrong email.	Display error message "These **credentials do not match our records".**	pass
06	Click Login button with correct email and password.	Logging with successfully.	pass

Table E. 2: Test case for User Login.

Create New Advertisement			
No	Test Case	Expected Output	Status
01	Click Create button without filling any field.	Display error message "The Province field is required.","The District field is required.","The Town field is required." **,"** The Brand field is required**.**" ,"The Model field is required .", "The Model Year field is required." , "The Condition field is required." , "The Milage field is required." , "The Transmission field is required." ,"The Fuel Type field is required." , "The Engine Capacity field is required." , "The More Detail field is required." , "The Price field is required." **,**	pass

		“The Telephone field is required.” , “The Image field is required.”	
02	Click Create button with Choose Province and not filling other fields.	Display error message The District field is required.”,” The Town field is required.” **,”** The Brand field is required**.**” ,”The Model field is required .”, ”The Model Year field is required.” , “The Condition field is required.” , “The Milage field is required.” , “The Transmission field is required.” ,”The Fuel Type field is required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	pass
03	Click Create button with Province and District but not filling other fields.	Display error message The Town field is required.” **,”** The Brand field is required**.**” ,”The Model field is required .”, ”The Model Year field is required.” , “The Condition field is required.” , “The Milage field is required.” , “The Transmission field is required.” ,”The Fuel Type field is required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	pass
04	Click Create button with Province, District, Town but not filling other field.	Display error message The **”** The Brand field is required**.**” ,”The Model field is required .”, ”The Model Year field is required.” , “The Condition field is required.” , “The Milage field is required.” , “The Transmission field is required.” ,”The Fuel Type field is required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	pass

05	Click Create button with Province, District, Town and Brand but not filling other field.	Display error message **The** ”The Model field is required .”, ”The Model Year field is required.” , “The Condition field is required.” , “The Milage field is required.” , “The Transmission field is required.” ,”The Fuel Type field is required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	pass
06	Click Create button with Province, District, Town Brand and Model but not filling other field.	Display error message **The** ”The Model Year field is required.” , “The Condition field is required.” , “The Milage field is required.” , “The Transmission field is required.” ,”The Fuel Type field is required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	Pass
07	Click Create button with Province, District, Town, Brand ,Model and Model Year but not filling other field.	Display error message **The** “The Condition field is required.” , “The Milage field is required.” , “The Transmission field is required.” ,”The Fuel Type field is required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	Pass
08	Click Create button with Province, District, Town, Brand, Model, Model Year and Condition but not filling other field.	Display error message **The** “The Milage field is required.” , “The Transmission field is required.” ,”The Fuel Type field is required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	Pass

09	Click Create button with Province, District, Town, Brand, Model, Model Year, Condition, and Milage but not filling other field.	Display error message The “The Transmission field is required.” ,”The Fuel Type field is required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	Pass
10	Click Create button with Province, District, Town, Brand, Model, Model Year, Condition, Milage and Transmission but not filling other field.	Display error message The ”The Fuel Type field is required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	Pass
11	Click Create button with Province, District, Town, Brand, Model, Model Year, Condition, Milage, Transmission and Fuel Type but not filling other field.	Display error message The “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	Pass
12	Click Create button with Province, District, Town, Brand, Model, Model Year, Condition, Milage, Transmission, Fuel Type and Engine Capacity but not filling other field.	Display error message The “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	Pass
13	Click Create button with Province, District, Town, Brand, Model, Model Year, Condition, Milage, Transmission, Fuel Type, Engine Capacity and More Details but not filling other field.	Display error message The “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	Pass
14	Click Create button with Province, District, Town, Brand, Model, Model Year, Condition, Milage, Transmission, Fuel Type, Engine Capacity, More Details and Price but not filling other field.	Display error message The “The Telephone field is required.” , “The Image field is required.”	Pass
15	Click Create button with Province, District, Town, Brand, Model, Model Year, Condition, Milage, Transmission,	Display error message The “The Image field is required.”	Pass

	Fuel Type, Engine Capacity, More Details, Price and Telephone but not filling other field.		
16	Click Create button with filling all fields	Display message The “Your Advertisements Created Successfully”	Pass

Table E. 3: Test case for Create New Advertisement.

Edit Advertisement			
No	Test Case	Expected Output	Status
01	Click Update button without filling any field.	Display error message “The Province field is required.”,” The District field is required.”,” The Town field is required.” **,”** The Brand field is required**.**” ,”The Model field is required .”, ”The Model Year field is required.” , “The Condition field is required.” , “The Milage field is required.” , “The Transmission field is required.” ,”The Fuel Type field is required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	pass
02	Click Update button with Choose Province and not filling other fields.	Display error message The District field is required.”,” The Town field is required.” **,”** The Brand field is required**.**” ,”The Model field is required .”, ”The Model Year field is required.” , “The Condition field is required.” , “The Milage field is required.” , “The Transmission field is required.” ,”The Fuel Type field is required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	pass

03	Click Update button with Province and District but not filling other fields.	Display error message The Town field is required.” **,”** The Brand field is required.**”** ,”The Model field is required .”, ”The Model Year field is required.” , “The Condition field is required.” , “The Milage field is required.” , “The Transmission field is required.” ,”The Fuel Type field is required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	pass
04	Click Update button with Province, District, Town but not filling other field.	Display error message The **”** The Brand field is required**.**” ,”The Model field is required .”, ”The Model Year field is required.” , “The Condition field is required.” , “The Milage field is required.” , “The Transmission field is required.” ,”The Fuel Type field is required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	pass
05	Click Update button with Province, District, Town and Brand but not filling other field.	Display error message The ”The Model field is required .”, ”The Model Year field is required.” , “The Condition field is required.” , “The Milage field is required.” , “The Transmission field is required.” ,”The Fuel Type field is required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	pass
06	Click Update button with Province, District, Town Brand and Model but not filling other field.	Display error message The ”The Model Year field is required.” , “The Condition field is required.” , “The Milage field is required.” , “The Transmission field is required.” ,”The Fuel Type field is	Pass

		required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	
07	Click Update button with Province, District, Town, Brand ,Model and Model Year but not filling other field.	Display error message The “The Condition field is required.” , “The Milage field is required.” , “The Transmission field is required.” ,”The Fuel Type field is required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	Pass
08	Click Update button with Province, District, Town, Brand, Model, Model Year and Condition but not filling other field.	Display error message The “The Milage field is required.” , “The Transmission field is required.” ,”The Fuel Type field is required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	Pass
09	Click Update button with Province, District, Town, Brand, Model, Model Year, Condition, and Milage but not filling other field.	Display error message The “The Transmission field is required.” ,”The Fuel Type field is required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	Pass
10	Click Update button with Province, District, Town, Brand, Model, Model Year, Condition, Milage and Transmission but not filling other field.	Display error message The ”The Fuel Type field is required.” , “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	Pass
11	Click Update button with Province, District, Town, Brand, Model, Model Year, Condition, Milage, Transmission	Display error message The “The Engine Capacity field is required.” , “The More Detail field is required.” , “The Price **field**	Pass

	and Fuel Type but not filling other field.	is required.” , “The Telephone field is required.” , “The Image field is required.”	
12	Click Update button with Province, District, Town, Brand, Model, Model Year, Condition, Milage, Transmission, Fuel Type and Engine Capacity but not filling other field.	Display error message The “The More Detail field is required.” , “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	Pass
13	Click Update button with Province, District, Town, Brand, Model, Model Year, Condition, Milage, Transmission, Fuel Type, Engine Capacity and More Details but not filling other field.	Display error message The “The Price field is required.” , “The Telephone field is required.” , “The Image field is required.”	Pass
14	Click Update button with Province, District, Town, Brand, Model, Model Year, Condition, Milage, Transmission, Fuel Type, Engine Capacity, More Details and Price but not filling other field.	Display error message the “The Telephone field is required.”, “The Image field is required.”	Pass
15	Click Update button with Province, District, Town, Brand, Model, Model Year, Condition, Milage, Transmission, Fuel Type, Engine Capacity, More Details, Price and Telephone but not filling other field.	Display error message the “The Image field is required.”	Pass
16	Click Update button with filling all fields	Display message the “Your Advertisements Updated Successfully”	Pass

Table E. 3: Test case for Edit Advertisement.

Add New Category			
No	Test Case	Expected Output	Status
01	Click Add Category Button without Category Name and Image.	Display error message “The Category Name field is required”, “The Image field is required”	pass

02	Click Add Category Button with Category Name but without Image.	Display error message “The Image field is required”	pass
03	Click Add Category Button with Category Name and Image.	Create New Category with Displaying message “New Category is Created Successfully”	pass

Table E. 5: Test case for Add New Category.

Add New Brand			
No	Test Case	Expected Output	Status
01	Click Submit button without filling Category Name and Brand Name.	Display error message “The category Name field is required.”, “The Brand Name is required.”	pass
02	Click Submit button with filling Category Name but without Brand Name.	Display error message “The Brand Name is required.”	pass
03	Click Submit button with filling both Category Name and Image	Create New Brand with Displaying message “New Brand is Created Successfully”	Pass

Table E. 6: Test case for Add New Brand.

Add New Model			
No	Test Case	Expected Output	Status
01	Click Submit button without filling Category Name and Brand Name and Model Name.	Display error message “The Category Name field is required.”, “Brand Name field is required.”, “Model Name is required”	pass

02	Click Submit button with filling Category Name but without Brand Name and Model Name.	Display error message “The Brand Name is required.”, “The Model Name field is required.”	pass
03	Click Submit button with filling Category Name and Brand Name but without Model Name.	Display error message “The Model Name field is required.”	pass
04	Click Submit button with filling all fields.	Create New Model with Displaying message “New Model is Created Successfully”	pass

Table E. 7: Test case for Add New Model.

Add New Province			
No	Test Case	Expected Output	Status
01	Click Submit button without Province Name.	Display error message “The Province name field is required.”	pass
02	Click Submit button with Province Name.	Create New Province with Displaying message “New Province is Created Successfully”	pass

Table E. 8: Test case for Add New Province.

Add District			
No	Test Case	Expected Output	Status
01	Click Submit button without filling Province Name and District Name.	Display error message “The Province Name field is required.”, “The District Name field is required.”	pass

02	Click Submit button with Province Name but without District Name field.	Display error message “The District Name field is required.”	pass
03	Click Submit button with filling all fields.	Create New District with Displaying message “New District is Created Successfully”	pass

Table E. 9: Test case for Add New District.

Add New Town			
No	Test Case	Expected Output	Status
01	Click Submit button without filling Province Name and District Name and Town Name.	Display error message “The Province Name field is required.”, “Category Name field is required.”, “Town Name is required”	pass
02	Click Submit button with filling Province Name but without District Name and Town Name.	Display error message “The District Name is required.”, “The Town Name field is required.”	pass
03	Click Submit button with filling Province Name and District Name but without Town Name.	Display error message “The Town Name field is required.”	pass
04	Click Submit button with filling all fields.	Create New Town with Displaying message “New Town is Created Successfully”	pass

Table E. 7: Test case for Add New Town.

APPENDIX F
CLIENT CERTIFICATE

APPENDIX F

CLIENT CERTIFICATE

DREAM VISION SOLUTION (PVT) LTD.
PV 83344
No: 355/C, High level Road, Pannipitiya.
+94 71 57 79 707

2018/10/11,
The Coordinator,
University of Colombo School of Computing,
Colombo 07.

Dear Sir/Madam,

Online Automobile Advertisements Management System by Mr. W.N.S Wijayasinghe (BIT Registration No: R071868)

This is to certify that Dream vision Solution (pvt) Ltd. has accepted the "Online Automobile Advertisements Management System" which has been designed and developed by the above named, as per this organization's requirements.

We understand that the above named intends to submit the above "Online Automobile Advertisements Management System" for his final year project of BIT programme of University of Colombo School of Computing and endorse that the said system is a fitting project for that programme. We are pleased to certify that the system developed by Mr. W.N.S Wijayasinghe fulfill the requirements of the company and used as our Online Automobile Advertisements Management System.

Yours faithfully,
Dream vision Solution (Pvt) Ltd
Dream Vision Solution
Authorized Signatory
Chief Executive officer

GLOSSARY

GLOSSARY

Actor – An actor in UML specifies a role played by a user or any other system that interacts with the subject.

Apache HTTP Server – Apache is an open source HTTP server developed and maintained by an open community under the Apache Software Foundation.

BMI - The body mass index (BMI), or Quetelet index, is a heuristic proxy for human body fat based on an individual's weight and height.

Cascading Style Sheets (**CSS**) - CSS is a style sheet language used to describe the presentation semantics (the look and formatting) of a document written in a markup language. It's most common application is to style web pages written in HTML and XHTML, but the language can also be applied to any kind of XML document, including plain XML, SVG and XUL.

DBMS – A Database Management System is a set of computer programs that controls the creation, maintenance, and the use of a database.

DDL – A Data Definition Language or Data Description Language is a computer language for defining data structures.

DHTML – Dynamic HTML is an umbrella term for a collection of technologies used together to create interactive and animated web sites by using a combination of a static markup **FusionCharts** – FusionCharts is a data visualization component for generating dynamic Flash charts that can be embedded in web and desktop applications.

language (such as HTML), a client-side scripting language (such as JavaScript), a presentation definition language (such as CSS), and the Document Object Model.

DML – Data Manipulation Language is a family of computer languages used by computer programs and/or database users to insert, delete and update data in a database.

ER Model – A In software engineering, an entity-relationship model (ERM) is an abstract and conceptual representation of data. Entity-relationship modelling is a database modelling method, used to produce a type of conceptual schema or semantic data model of a system, often a relational database, and its requirements in a top-down fashion.

FBS - The fasting blood glucose level, which is measured after a fast of 8 hours, is the most commonly used indication of overall glucose homeostasis, largely because disturbing events such as food intake are avoided.

Functional Requirement – In software engineering, a functional requirement defines a function of a software system or its component. A function is described as a set of inputs, the behavior, and outputs. Functional requirements may be calculations, technical details, data manipulation and processing and other specific functionality that define what a system is supposed to accomplish.

InnoDB – Innobase Oy is the developer of InnoDB, the leading transactional storage engine for the MySQL open source database. The latest edition of InnoDB offers

MySQL – MySQL is a relational database management system (RDBMS) that runs as a server providing multi-user access to a number of databases.

MySQL Workbench – MySQL Workbench is a visual database design tool that integrates SQL development, administration, database design, creation and maintenance into a single, seamless environment for the MySQL database system.

MySQL Query Browser – MySQL Query Browser is a visual database design tool that integrates SQL development and administration.

Non-Functional Requirement – A non-functional requirement is a requirement that specifies criteria that can be used to judge the operation of a system, rather than specific behaviours.

PHP – PHP: Hypertext Preprocessor is a widely used, general-purpose scripting language that was originally designed for web development to produce dynamic web pages.

PHPMyAdmin – phpMyAdmin is an open source tool written in PHP intended to handle the administration of MySQL over the World Wide Web. It can perform various tasks such as creating, modifying or deleting databases, tables, fields or rows; executing SQL statements; or managing users and permissions.

PPBS - This term is used in many contexts but also in relation to blood sugar before eating in a postprandial glucose test. (or blood glucose) levels, which are normally measured 2 hours after and

XML – Extensible Markup Language (XML) is a set of rules for encoding documents in machine-readable form.

RDBMS – A relational database management system (RDBMS) is a database management system that is based on the relations.

SQL – SQL, often referred to as Structured Query Language, is a database computer language designed for managing data in relational database management systems (RDBMS). Its scope includes data insert, query, update and delete, schema creation and modification, and data access control.

System Architecture – System architecture is the conceptual model that defines the structure, behaviour, and more views of a system.

Test Case – A test case in software engineering is a set of conditions or variables under which a tester will determine whether an application or software system is working correctly or not.

UML – Unified Modelling Language (UML) is a standardized general-purpose modelling language in the field of software engineering. UML includes a set of graphic notation techniques to create visual models of software-intensive systems.

Use Case – A use case in software engineering and systems engineering is a description of a system's behaviour as it responds to a request that originates from outside of that system.

WampServer – WampServer is a Windows web development environment. It allows you to create web applications with Apache, PHP and the MySQL

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