Final Project Report

On

Vehicle Registration & Verification System

(A web application)

Submitted by:

Muhammad Sajjad

(MCS-M2-20-28)

Supervised By

Mam Qurat-ul-Ain

Computer Science Department

University Of Sahiwal

DEDICATION

Our Parents and Teachers all who've given us their support during the development of this project and for giving good ideas to prove ourselves as intellectuals in front of our Respected Teachers.

ACKNOWLEDGEMENT

Praise to Allah Almighty, Lord of the world, the Merciful and the Beneficent, who gave me strength, power, cooperative people and knowledge to accomplish this task and fulfill the required functionalities.

This was all not possible without the guidance, continuous appreciation and moral support by "**Mam Qurat-ul-Ain"** and "**Dr. Shafiq Hussain**". They were always there whenever I need their help and ideas.

At last, I would like to acknowledge all of the assistance and contributions of University of Sahiwal for supporting me.

DECLARATION

I hereby declare that I have developed this application and accompanied report entirely on the basis of my personal efforts. Not any of the portions of the application work presented has been submitted of any application for any other qualification or degree of this or any other university or institute of learning.

(Muhammad Sajjad)

CERTIFICATE OF APPROVAL

It is to certify that the final year project of **MCS "Vehicle Registration and Verification System** (A web application)**"** was developed by **Muhammad Sajjad** under the supervision of "**Mam Qurat-ul-Ain**" and that in her opinion; it is in scope, fully adequacy and quality of the degree of Master of Science in Computer Sciences.

Supervisor

Mam Qurat-ul-Ain

Lecturer

Department of Computer Science

University of Sahiwal

External Examiner

_____

Head of Department

Dr. Shafiq Hussain

Department of Computer Science

University of Sahiwal

Abstract

An effective Vehicle Registration and Verification System is integral to providing quality Vehicle Registration service. It helps to measure Vehicle Registration satisfaction and is a useful source of information and feedback for improving services. Often Vehicle Registrations are the first to identify when it comes to the verification of vehicles.

Table of Contents

1 INTRODUCTION 9

1.1 Introduction and History: 9

1.2 Admin Panel 10

1.2.1 Admin Login 10

1.2.2 Register Vehicle 10

1.2.3 Sub Category 10

1.2.4 Vehicle Companies 10

1.2.5 Manage the Users 10

1.2.6 Change Password 10

1.3 User Panel 11

1.4 Statement of the Problem 11

1.5 Objectives 11

1.6 Proposed Solution 11

1.7 Motivation 12

1.8 Scope of Proposed Solution 12

1.9 Tools & Techniques 12

1.9.1 Hardware Details 12

1.9.2 Software Details 12

1.10 The Necessity 13

1.10.1 Confidentiality 13

1.10.2 Accurate Records 13

1.10.3 Minimum Latency 13

1.10.4 Better Communication 13

2 REQUIREMENT ANALYSIS 8

Requirements Gathering Techniques 8

2.1 Requirement Analysis 8

2.1.1 Functional Requirements 9

2.1.2 Non-Functional Requirements 9
2.2 Application Quality Attribute 9
2.2.1 Availability 9
2.2.2 Maintainability 10
2.2.3 Consistency 10
2.2.4 Portability 10
2.2.5 Database Requirements 10
2.3 Use Cases 10
2.3.1 UC2: Manage Members 12
2.3.2 UC4: Change Password 13
2.4 Use cases 14
2.5 The Necessity 15
2.5.1 High Speed Internet Connection 15
2.5.2 Signup 15
3 METHODOLOGY & WORKPLAN 19
3.1 Adopted Methodology 19
3.2 Roles & Responsibilities 20
4 SYSTEM ANALYSIS & DESIGN 22
4.1 Sequence Diagrams 22
4.2 Data flow diagram 22
4.2.1 Flow diagram 23
4.3 Class Diagram 25
SYSTEM IMPLEMENTATION 28
5 SYSTEM IMPLEMENTATION 29
5.1 Introduction 29
5.2 Screenshots 29
6 SYSTEM TESTING 38
6.1 Introduction 38

6.2 Testing Plan 38
6.2.1 Unit Testing 38
6.2.2 System Testing 39
6.2.3 Integration Testing 39
6.2.4 User Acceptance Testing 39
6.3 Test Cases 39
6.4 Testing Results 41
CONCLUSION & FUTURE WORK 43
7 CONCLUSION & FUTURE WORK 44
7.1 Conclusion 44
7.2 Future Work 44
REFERENCES: 44

CHAPTER # 1
INTRODUCTION

1 INTRODUCTION

In this chapter, we will introduce this application, software tools, problem statement, objectives, scope of this application, proposed application, motivation of this proposed solution, relevance to courses and tools & techniques which are used to implement this application

1.1 Introduction and History:

An effective **Vehicle Registration and Verification System** is **an integral for** providing quality **Vehicle Registration** service. It helps to measure **Vehicle Registration** satisfaction and is a useful source of information and feedback for improving services. Often **Vehicle Registration**s are the first to identify when things are not working properly.

The properties of the system are as follow:

1) Smooth flow of data without any hurdles.

2) Adequate validation checks for data entry.

3) Adequate security of data.

4) Facility to update data from time to time.

5) Prompt and specific retrieval of data.

6) Flexibility in the system according to the changing environment.

7) Controlling redundancy in storing the same data multiple times.

8) Accuracy, timeliness and comprehensiveness of the system output.

9) Stability and operability by people of average intelligence.

10) Enhancement in the completion of work within the constraints of time

The scope of the system is quite wide. It can be implemented on a WAP-enabled mobile handset, thus providing the Vehicle Registrations and the Providers.

Introduction About Project

1.2 Admin Panel

1.2.1 Admin Login

Admin can login through login form. Login form is same for both user and admin. But when an admin will login it will recognize him/her and give the administrator privileges.

1.2.2 Register Vehicle

Admin can register new Vehicle (Add)

1.2.3 Sub Category

Admin can manage Vehicles (update, delete)

1.2.4 Vehicle Companies

Admin can manage Vehicle Companies (Add, update, delete)

1.2.5 Manage the Users

Admin can manage the all the Users Profile.

1.2.6 Change Password

Admin can change own password

1.3 User Panel

1. User Registration
2. User can register through user registration form
3. User Login
4. User can login through login form
5. Forgot Password
6. User can retrieve password through forgot password link
7. User Dashboard
8. User Profile
9. User can manage own profile
10. Contact to admins
11. Change Password

1.4 Statement of the Problem

Public surveys and reports of government accountability and redress institutions show that the vehicle registrations are one of the most widely feared, complained against, and least trusted government institutions in Pakistan, lacking a clear system of accountability and plagued by corruption at the highest levels. District-level vehicle registrations are often under the control of powerful politicians, wealthy landowners, and other influential members of society. There are a lot of new applications being submitted for registering vehicles. Vehicle Registration authority often delay the registration procedure by having no time. And in most cases the public want to verify if the vehicle they're buying is whether registered or not.

1.5 Objectives

The **objectives** of the Vehicle Registration and Verification system are to facilitate the citizens of the state as well as the government officials by having online computerized system.

1.6 Proposed Solution

Vehicle Registration and Verification System will facilitate the citizens to check the registration of any vehicle. They can contact admin for registration of new vehicle. This will lessen the burden on the Govt. official too.

1.7 Motivation

Now days, online system is the need of hour due to panademic conditions.Every organisation needs an online police complaint system that provides multichannel capabilities, advanced reporting functionalities as well as platform for cross-functional collaboration.

1.8 Scope of Proposed Solution

The modules that are selected to be implemented in this web application (Vehicle Registration and Verification System) are the modules that are found as a prior need of citizen. This application can fulfill the requirements of online verification of any vehicle. Using this system we are creating awareness in the citizen of our society.

1.9 Tools & Techniques

Vehicle Registration and Verification System is Web based Project consists of software and hardware tools.

1.9.1 Hardware Details

- No Hardware Require except laptop/tablet/phones.
- Normal Internet Connection

1.9.2 Software Details

- HTML, CSS, Bootstrap
- JavaScript, jQuery
- MySQL
- Xampp server
- VS Code

1.10 The Necessity

There are some necessities for this website conduct assistance is as follows:

1.10.1 Confidentiality

Administrator has full control all over the system and it must be confidential.

1.10.2 Accurate Records

Vehicle Registration and Verification System must show accurate records.

1.10.3 Minimum Latency

Vehicle Registration and Verification System support minimum latency.

1.10.4 Better Communication

Vehicle Registration and Verification System must provide the facility of better communication using internet connection.

CHAPTER # 2

REQUIREMENT ANALYSIS

2 REQUIREMENT ANALYSIS

In this chapter requirements analysis is discussed. For developing any project, the major problem is requirement gathering. Asking questions from clients is straight forward than collecting requirements. We will also focus on functional and non-functional requirements.

The procedure for gathering requirements has its own defined procedure according to the complexity of the application. To define project schedule and processing, different models and techniques also focused on this chapter.

Requirements Gathering Techniques

A requirement can be defined as a condition or capability that must be processed by a product or an application. Techniques that can be used for collecting requirements are as follows:

- By questionnaire and survey
- By interview
- By observations
- Using software tools
- Using techniques for decision making
- Focus on facilitated groups and workshops
- Use of prototype

2.1 Requirement Analysis

Requirements analysis is the process of planning, forecasting and studying the overall former needs of the application requirements. Requirements analysis is further divided into two parts:

1. Functional Requirements
2. Non-Functional Requirements

2.1.1 Functional Requirements

Functional requirements are the requirements that should be provided by an application. It is defined as a service statement. Functional requirements tell how an application should behave in different situations and how it will react to a particular input. Functional requirements of the police complaint system are as follows: The main functions of our project are following

Functional requirements of the Vehicle Registration and Verification System are as follows:

REQ-F1: The administrator will be able to manage user vehicles and vehicle companies.

REQ-F2: The administrator will be able to update/remove the vehicles and companies.

REQ-F3: The project will generate separate services for logins.

REQ-F4: The project will provide facility to verify the registration of any vehicle by vehicle number.

REQ-F5: The project will be managing daily growth of data on the backend.

2.1.2 Non-Functional Requirements

Non-functional requirements are the constraints or checks on the services and functions provided by an application such as constraints on the development standards/process and constraints of time etc.

Non-Functional requirements of Vehicle Registration system are as follows:

- Website shall provide better response and performance. It shall take initial load time depending on internet connection strength.
- Application must be efficient.
- Application must be user interactive.
- Application must be secure by using different standard authentication.

2.2 Application Quality Attribute

2.2.1 Availability

- Web Application must be responsive and available at every time.

- Availability of high speed internet connection is the major requirement of the application.

2.2.2 Maintainability

Making changes or upgradeability in the site will not be that much difficult. By having some knowledge of programming, some features of the application might be converted to a new version.

2.2.3 Consistency

When an administrator is updating information consistency must hold there.

2.2.4 Portability

It is a web application that is why there is no problem in portability process.

2.2.5 Database Requirements

In this section, the database requirements for this application are mentioned:

We used MY SQL Server for database purpose.

2.3 Use Cases

An important part of the analysis phase is to drawing the diagrams of Use cases. They are used through the phase of analysis of a project to find and divide functionality of the application. Application is separated into actors and use cases.

Actors play the role that is played by the application users. Use cases define the application behavior when one of the actors sends any particular motivation. This type of behavior can be described by text. It describes the motivation nature that activates use case, the inputs and outputs to some other actors and the behavior of conversion of inputs to the outputs. Usually the use case describes everything that can go wrong during the detailed behavior and what will be helpful action taken by the application.

Some of the use cases are as follows:

UC1: Login

Actor: User

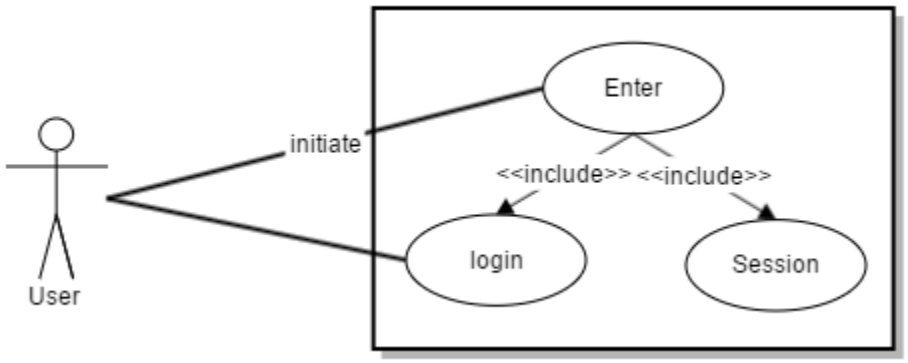


Figure 2.1: Login (use case)

Pre-Condition:

1. For the member, he/she must have registered already in application by the administrator.
2. User must enter correct Email address and password for login.

Post-Condition:

User can access to application's main features.

Basic Path:

1. Enter Email-Address and password for login.
2. The application verifies the correct format and valid email address and Password.
3. If provided inputs are correct, the application displays the all other user's content of the application and session of particular user started.

Constraints:

1. If provided email address and password are incorrect or invalid, application redirect to main page of user login and show us a message that password is incorrect.

Non-Functional Requirements:

1. Short Response Time

2. Better performance
3. Availability

2.3.1 UC2: Manage Members

Actor: Administrator

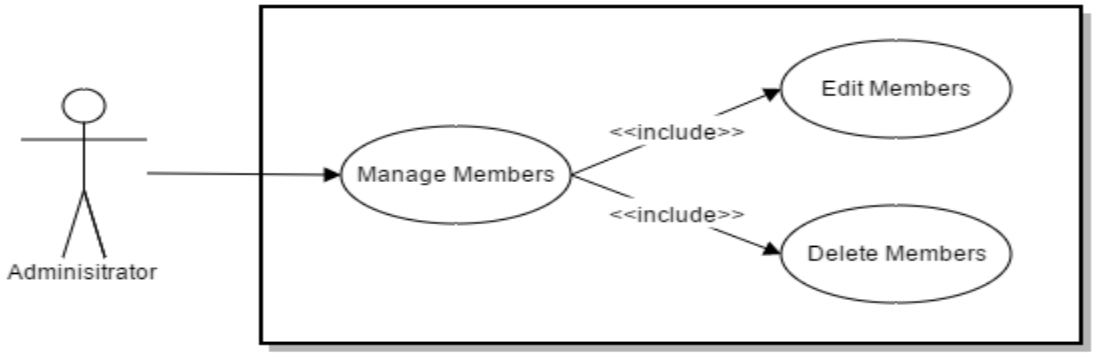


Figure 2.2: Manage Members (Use Case)

Pre-Condition:

1. UC1
2. The member's detail is required.

Post-Condition:

1. The member information should be edited and deleted.

Basic Path:

1. The administrator view the member's detail and then select a particular member to perform these activities.
2. Update information of specific member by entering updated information and click on update button.
3. The application verifies the valid entered inputs and updated.
4. For deleting information of specific member, applications display the message of confirmation.

5. Administrator clicks on delete button for deleting that member.
6. The application commits changes to the database.

Non-Functional Requirements:

1. Better response
2. Easy to use
3. Secure
4. Availability
5. Short response time.

2.3.2 UC4: Change Password

Actor: User

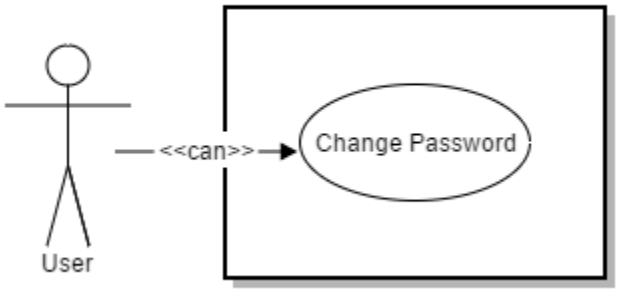


Figure 2.3: Change Password (Use Case)

Pre-Condition:

3. UC1

Post-Condition:

1. Password must be updated into the database.
2. User can view new password in a text field.

Basic Path:

1. User select change password menu from sidebar menu list.
2. User enters new password to update old password.

3. The application verifies and updated into database.
4. Click on **Logout** to check whether the password has changed or not.

CONSTRAINTS:

1. User must enter valid inputs for password.

NON-FUNCTIONAL REQUIREMENTS:

1. Short response time.
2. Efficient
3. Availability
4. Secure

2.4 Use cases

2.4.1 User Use Case Diagram

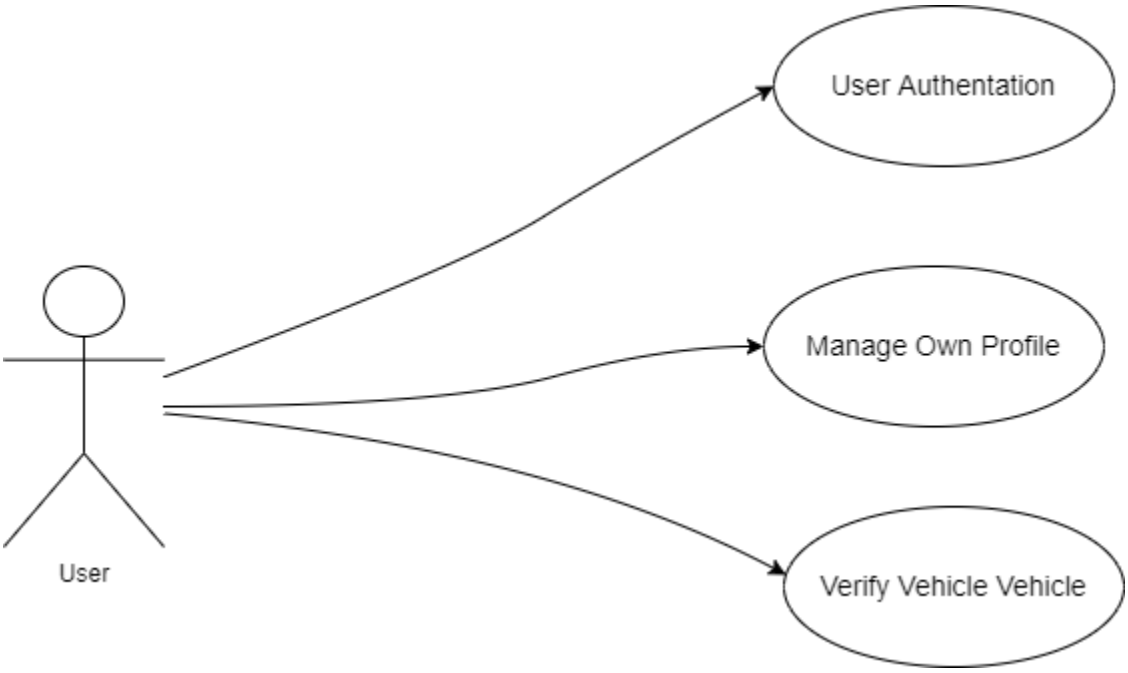
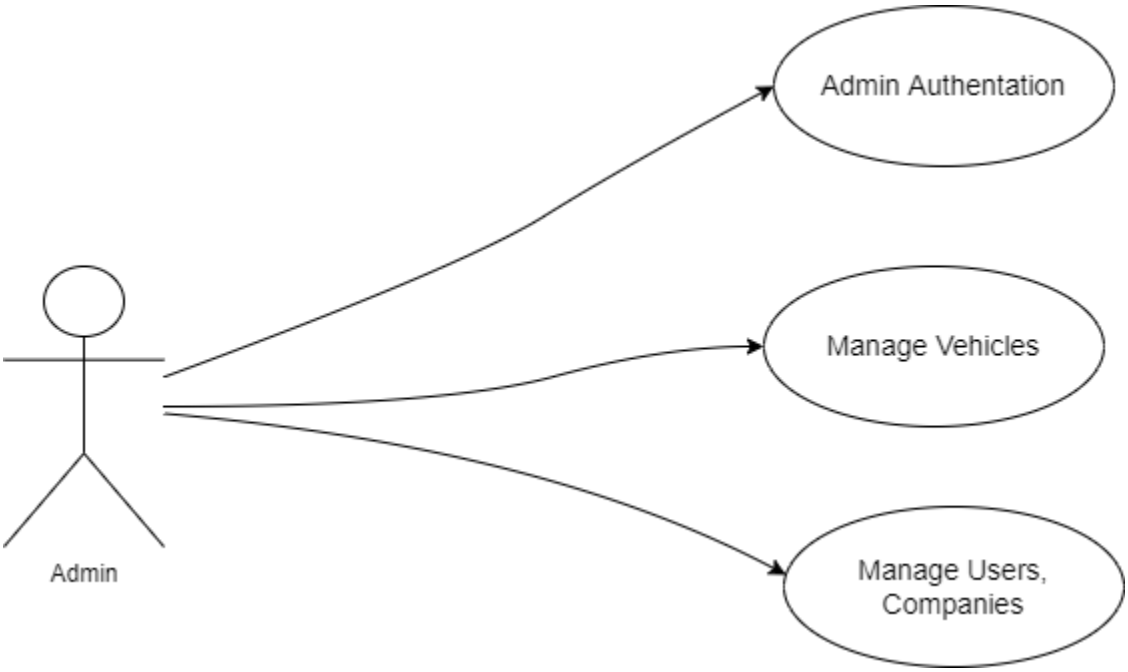


Diagram: User Use Case

2.4.2 Admin Use Case Diagram



2.5 The Necessity

There are some necessities for this online web application to run properly are as follows:

2.5.1 High Speed Internet Connection

Online complaint system requires high speed internet connection to run properly.

2.5.2 Signup

The admin must be signup with application before using application portal.

CHAPTER # 3

METHODODLOY AND WORKPLAN

3 METHODOLOGY & WORKPLAN

In this chapter, we will discuss that what are the existing methodologies and which one we have chosen for implementation of this project in an effective way, also we will discuss advantages of adopted methodology.

What is methodology and why we need it?

Whenever a small or large project has started to develop, first thing all of programmers required is methodology. Methodology is a way of developing a project, in which all of the programmers gather the user's requirements, design the project, implement it, and after all this testing and maintenance of the project, in a satisfaction of user and according to the project requirements.

Existing Methodology

There are several existing methodologies that can be used to develop this application using software development processes.

1- Waterfall Model.

2- Incremental Model.

3- Spiral Model.

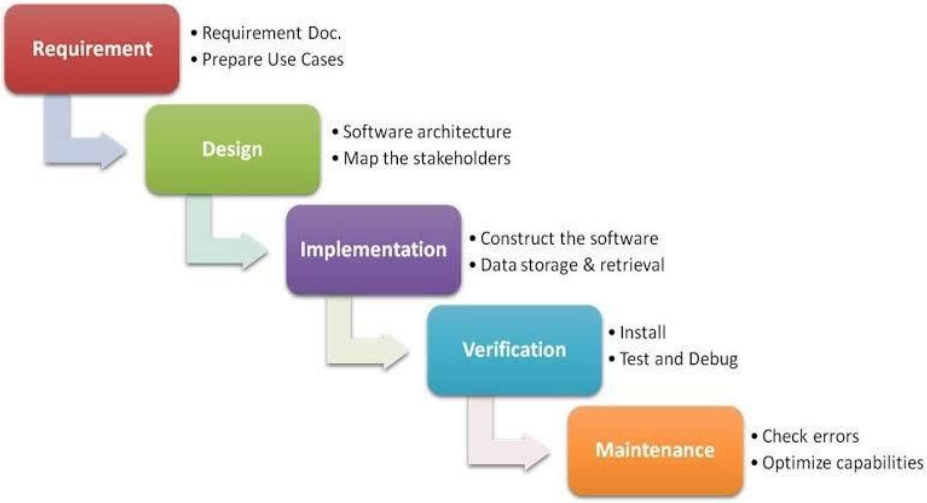
4- Agile Model

3.1 Adopted Methodology

I have chosen Waterfall model In the software development process, the very first model that is published from other engineering processes that is cascaded from one phase to another is known as Waterfall model. This model is also known as linear sequential model.

Delivered Reason behind using this model is:

1- Firstly all of the requirements gathered
2- After gathering all of the requirements and analysis of all the requirements further move to next phase that is making the design of a project and then implementation, testing and maintenance.



3.2 Roles & Responsibilities

In order to accomplish a goal, documentation and development is done by me.

CHAPTER#4

SYSTEM ANALYSIS & DESIGN

4 SYSTEM ANALYSIS & DESIGN

In this chapter requirements analysis, feasibility study, planning, forecasting, modeling, scheduling and design of the project is discussed.

The procedure for gathering requirements has its own defined procedure according to the complexity of the application.

4.1 Sequence Diagrams

Sequence diagram uses concept of a Message-Sequence-Chart. It shows interactions of objects in a sequence of time. It shows the classes and objects involved in the scenario and the message sequence between the objects which is desired to carry out the functionality of a given scenario. Sequence diagrams are usually related with the understanding of use case in the logical View of the system which is under development. “Sequence diagrams are sometimes called event diagrams, timing diagrams, event scenarios”.

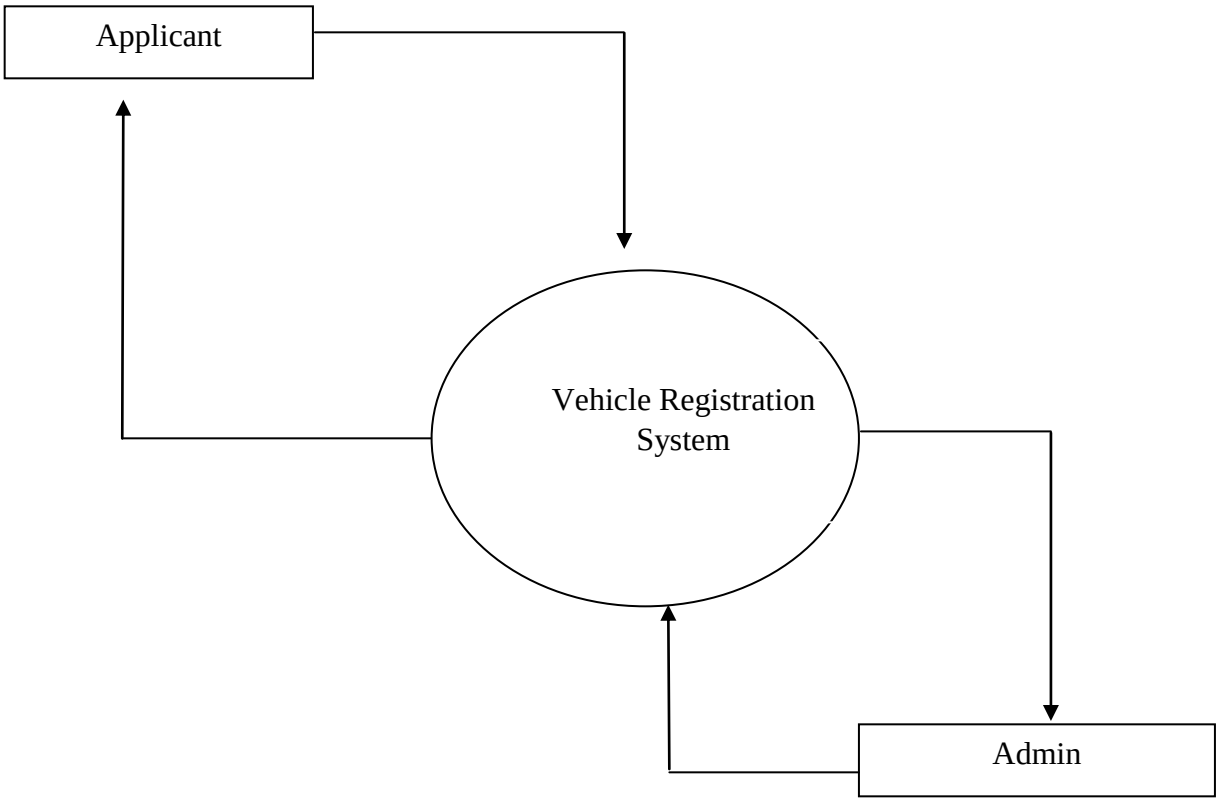
A parallel vertical line on sequence diagram is called lifeline. Different objects or processes that live simultaneously, and, on horizontal arrows, the messages exchanged, in the order in which processes occur. This allows some specification of some simple runtime scenarios in a graphical pattern.

4.2 Data flow diagram

A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modeling its process aspects. A DFD is often used as a preliminary step to create an overview of the system without going into great detail, which can later be elaborated. DFDs can also be used for the visualization of data

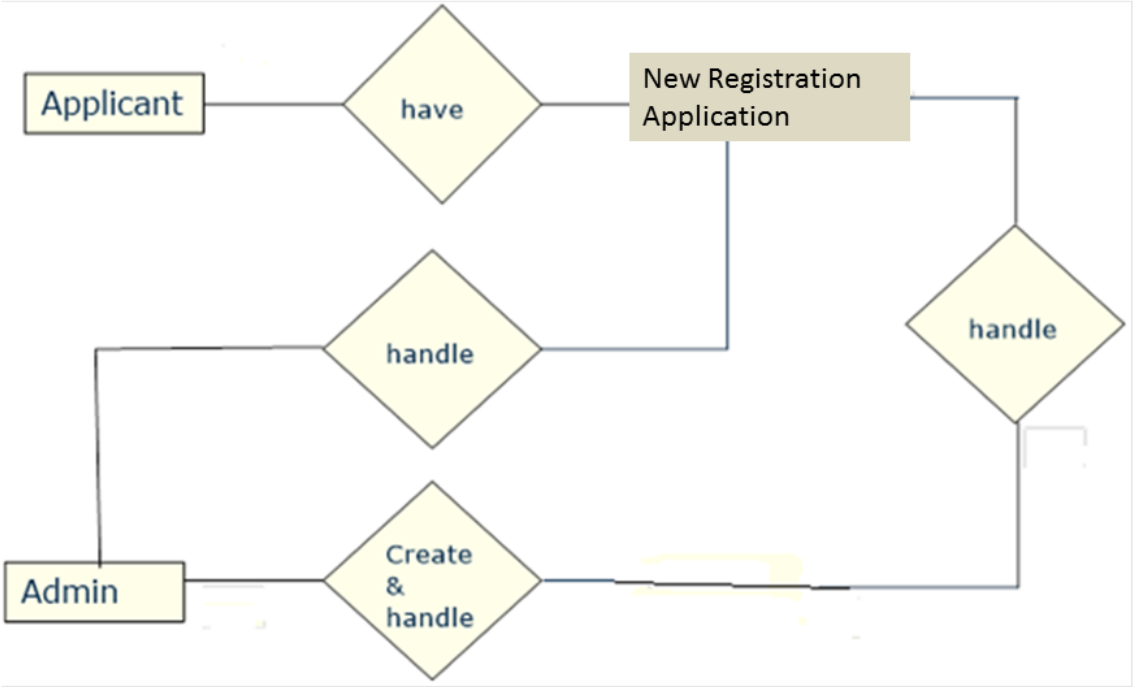
processing

4.2.1 Flow diagram



ER Diagram

An entity-relationship diagram (ERD) is a data modeling technique that graphically illustrates an information system's entities and the relationships between those entities. An ERD is a conceptual and representational model of data used to represent the entity framework infrastructure.


Applicant
have
New Registration Application
handle
handle
Admin
Create & handle

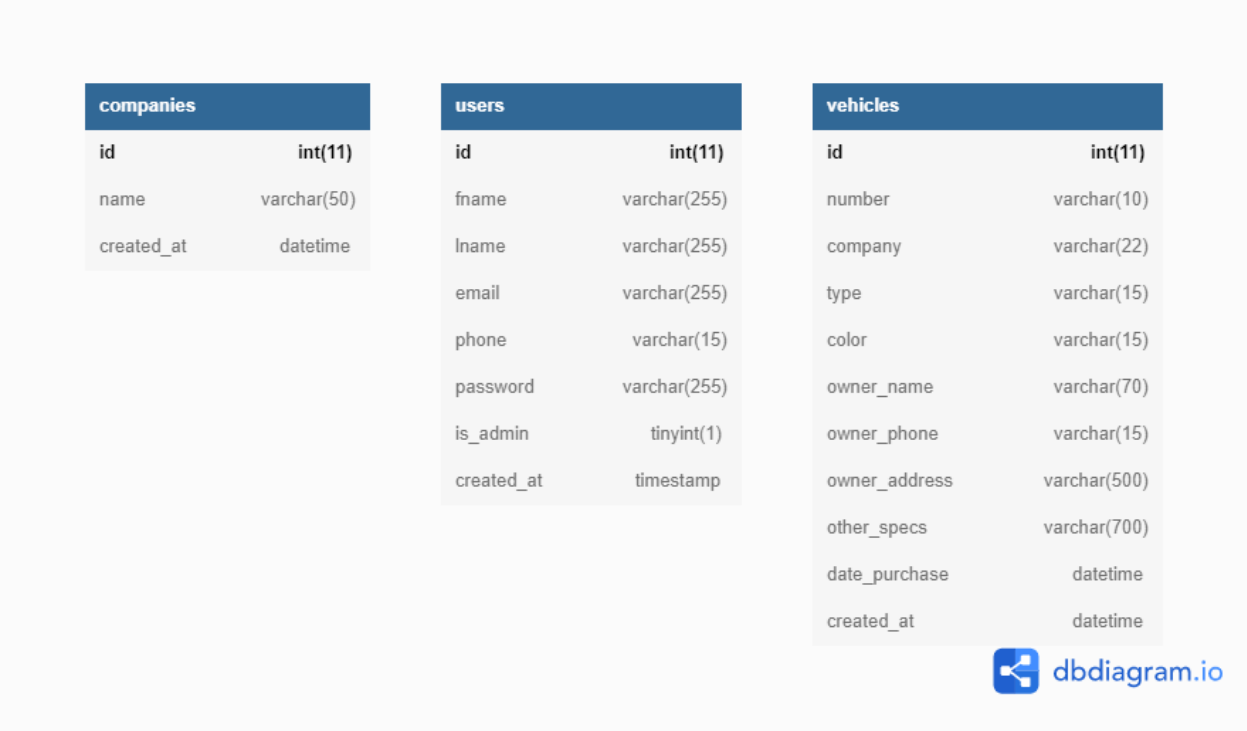
4.3 Class Diagram

The class diagram is the main building block of object direct modeling. It is used both for general conceptual modeling of the systematic of an application, and for detailed modeling translating the models into programming. Class diagrams can also be used for datamodeling.

The classes in a class diagram represent both the main objects and or interactions in the application and the objects. In the class diagram these classes are represented with boxes which contain three parts

- The upper part of holds the name of the class
- Next one holds the parameters of the class

Last one holds the methods of the class



CHAPTER#5

SYSTEM IMPLEMENTATION

5 SYSTEM IMPLEMENTATION

In this chapter, we'll focus on an implementation of "Online Police Complaint System" application. Where administrator and user can perform many activities on web application.

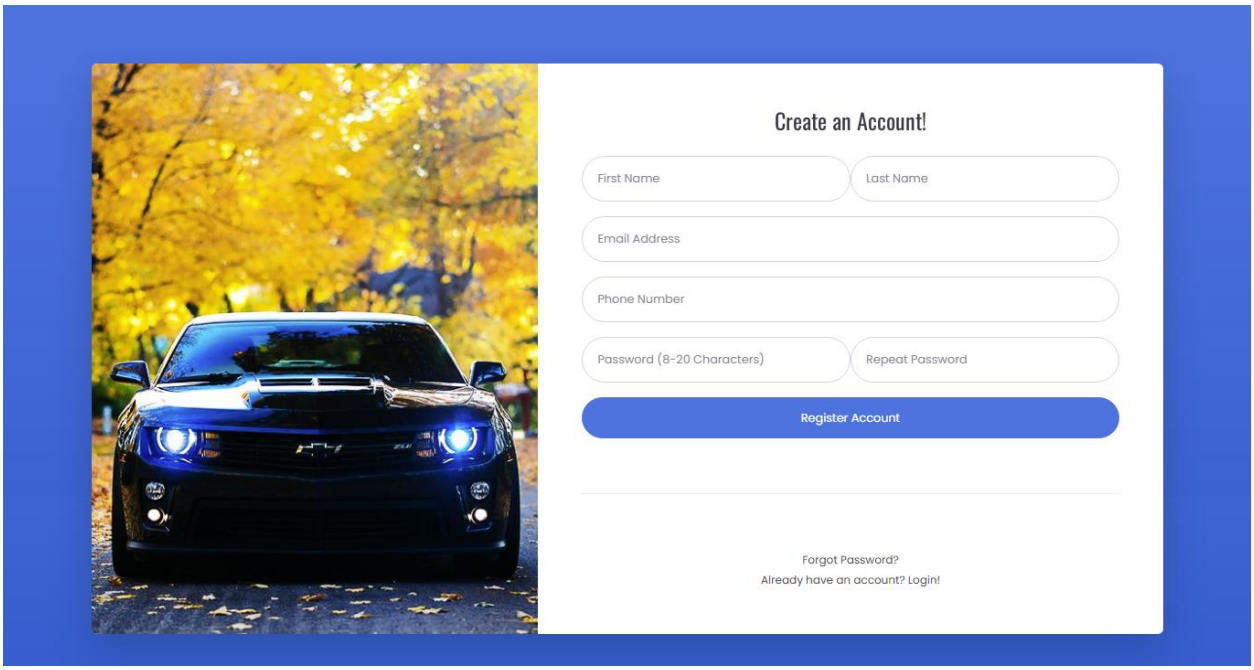
5.1 Introduction

The most important goal of this phase is to develop the application. The work in this phase should be much more straightforward as a result of the work done in the planning and design phases. This phase involves changing design specifications into executable programs. When the design is there, developers can have an idea on looks of application. All that is needed by developers is to put them at one place to understand about the intended project.

5.2 Screenshots

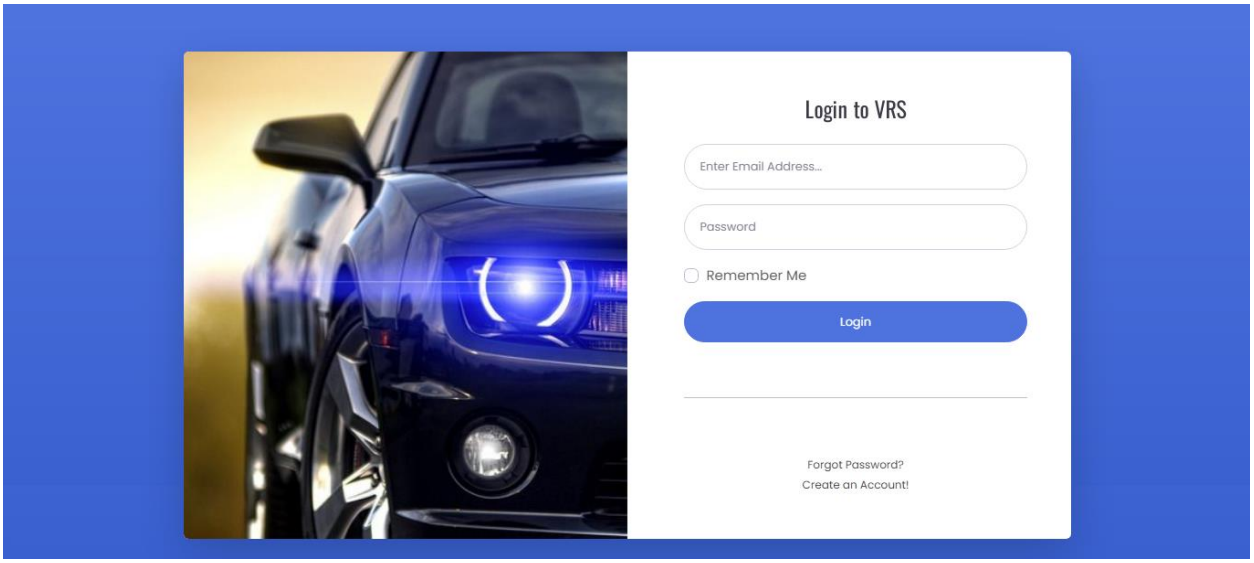
User Registration

This is sign up page for making an account. User gives information about him like name, email, and password and creates an account.

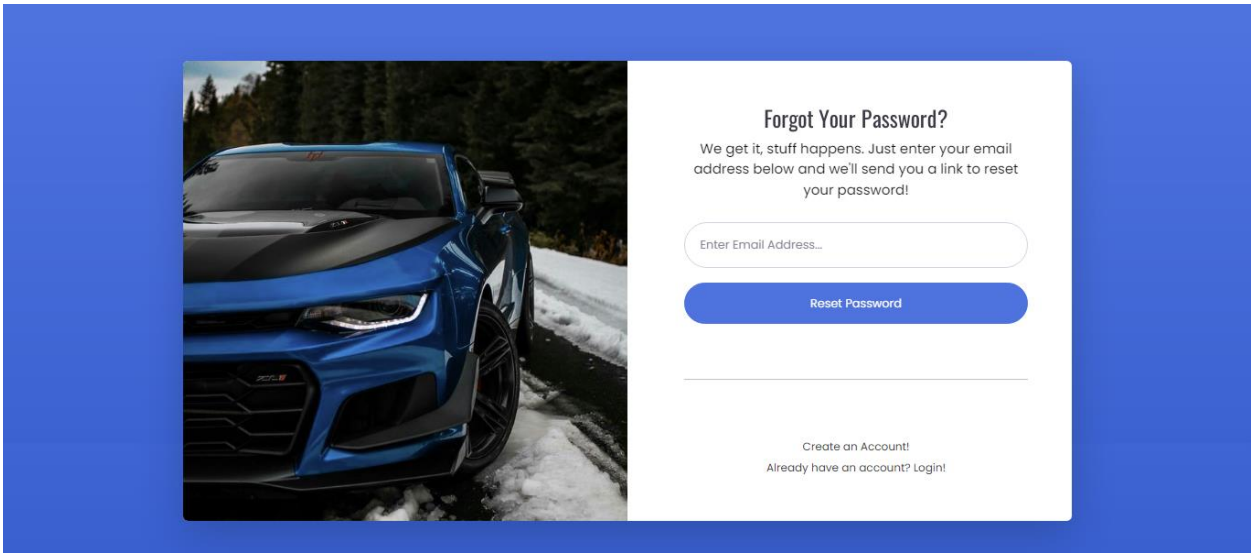


User Log In page

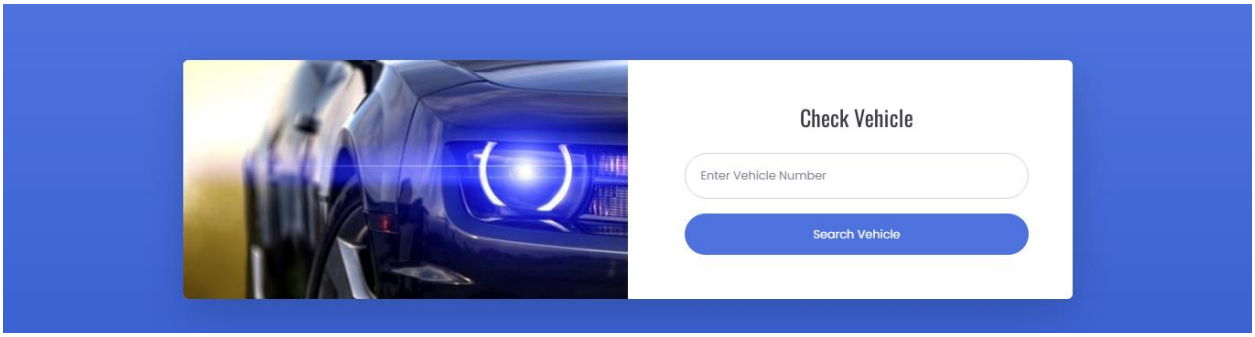
This the login page of the users. User need to enter correct username and password for login.



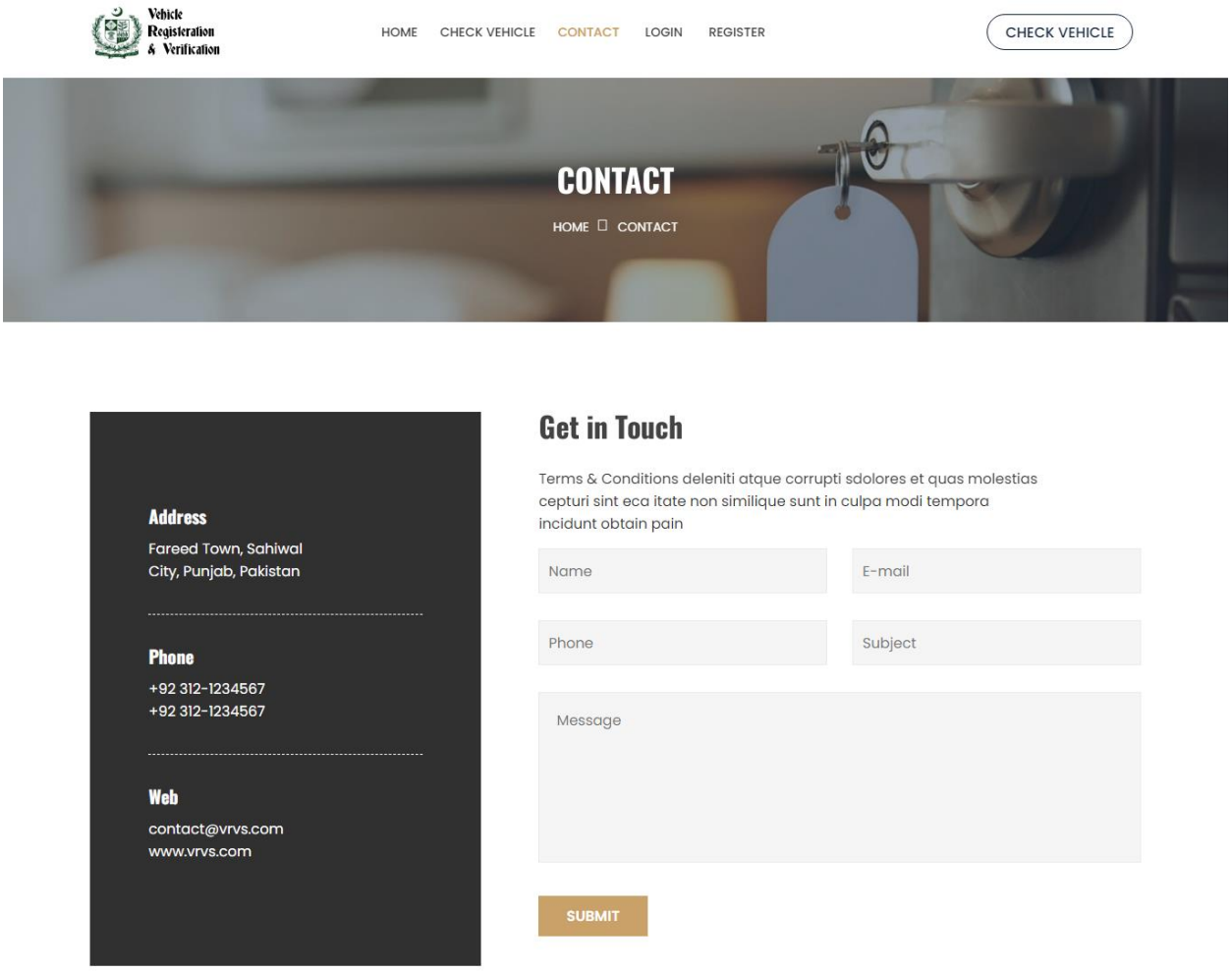
User Forget Password



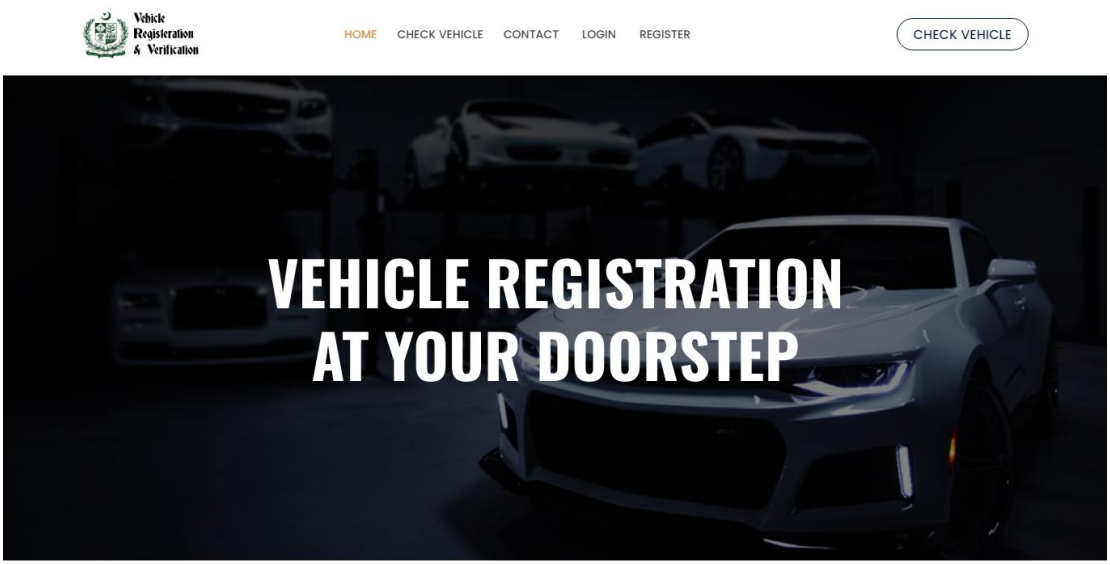
User Check Vehicle



Contact Us Page



Home Page:



Welcome to VRS Vehicle Registration And Verification System

VRS luptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione ptatem sequi esciunt. Neque porro quisquam est uptatem quia luptas sit aspernatur aut odit auted quie

EXPLORE

WE ARE "VRS"

Our Awesome Services

Registration of Vehicle

New Vehicle Registration luptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia

Super Cars

Verification of Super Cars lup provide grro tatem quia voluptas sit aspernatur aut odit aut fugit, sed quia

Permissions of Bikes

Bike Permission pool luptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia

Verify Registration

Verification luptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia

WE ARE "VRS"

Registration Fees

RS. 2500	RS. 3500	RS. 5200	RS. -----
Bike	LTV	HTV	Super Vehicle
Vehicle Verification	Vehicle Verification	Vehicle Verification	Vehicle Verification
Vehicle Registration	Vehicle Registration	Vehicle Registration	Vehicle Registration
Owner Detalis	Owner Detalis	Owner Detalis	Owner Detalis
Vehicle Information	Vehicle Information	Vehicle Information	Vehicle Information
REGISTER BIKE	REGISTER LTV	REGISTER HTV	*NOT AVAILBE

WE ARE "VRS"

Our Documentation

18 February, 2022

NEW VEHICLE

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Itaque, nostrum.

15 April, 2022

CUSTOM CLEARANCE

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Itaque, nostrum.

12 November, 2022

LAW & RULES

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Itaque, nostrum.

The ROYAL HOTEL

Luxury rooms SINCE 1929 New Bahia SAUSALITO CALIFORNIA

The lake hotel & spa montreal 1970

resort spa Florida The KING 1870 established 1987

PRESTIGE HOTEL LONG BEACH

Vehicle Registration System

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis dignissim erat ut laoreet pharetra....

Fareed Town, Sahiwal City, Punjab, Pakistan

+92 312-1234567

contact@vrvs.com

Useful Links

- About Us
- Our Office
- Delivery
- Our Store
- Guarantee
- Buy Gift Card
- Return Policy

More Links

Verify Vehicle

Enter Number

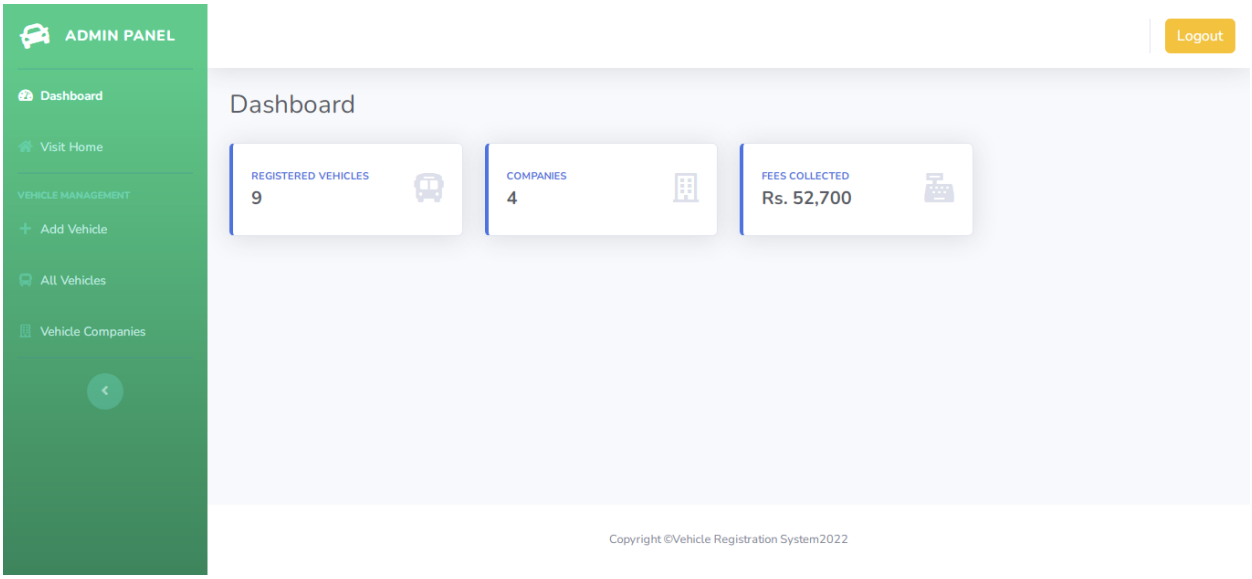
CHECK VEHICLE

Stay Connected

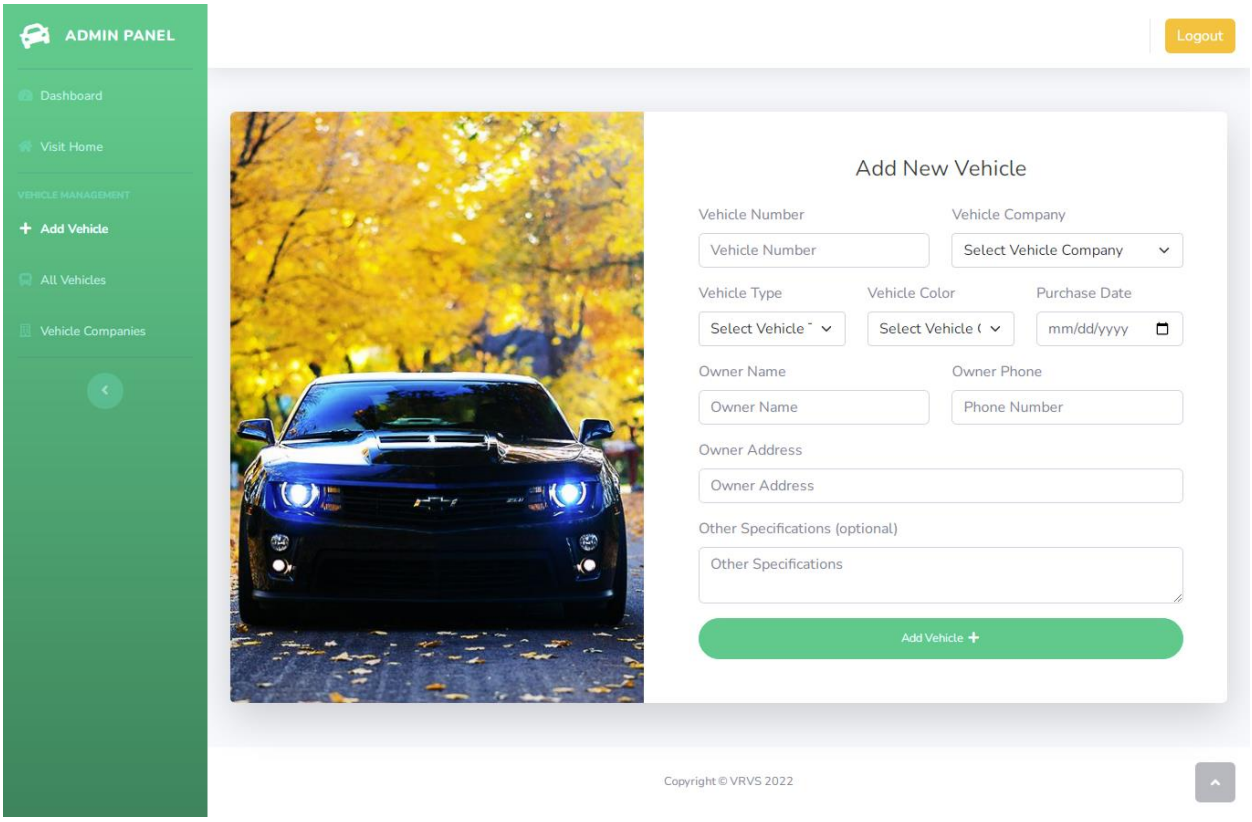
Copyright © VRVS All Rights Reserved

Designed by Muhammad Sajjad

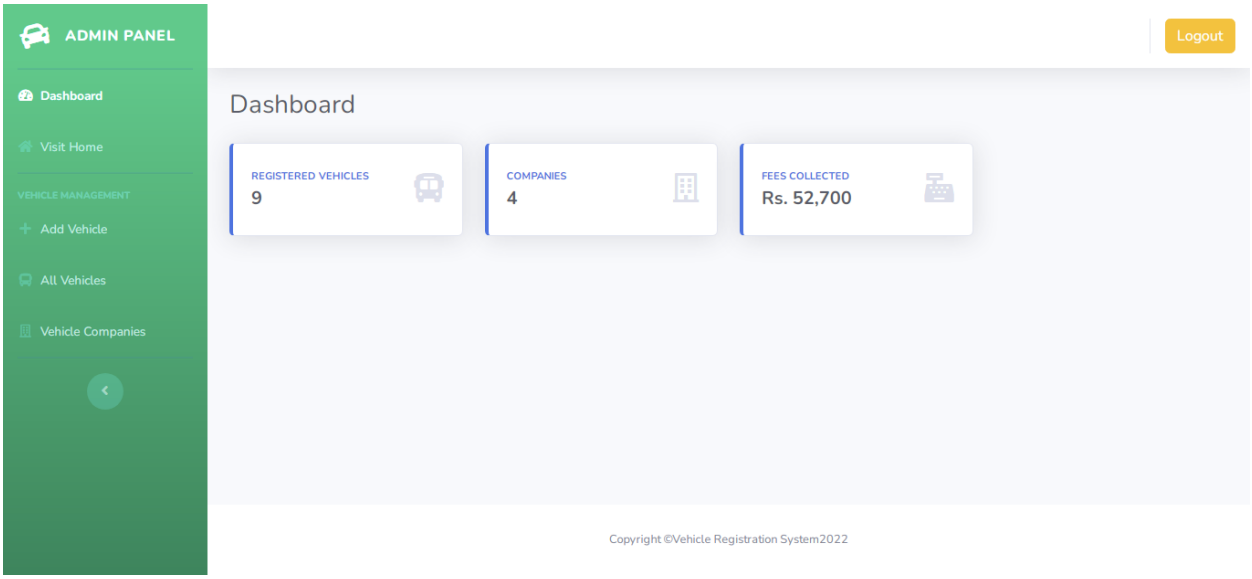
Dashboard:



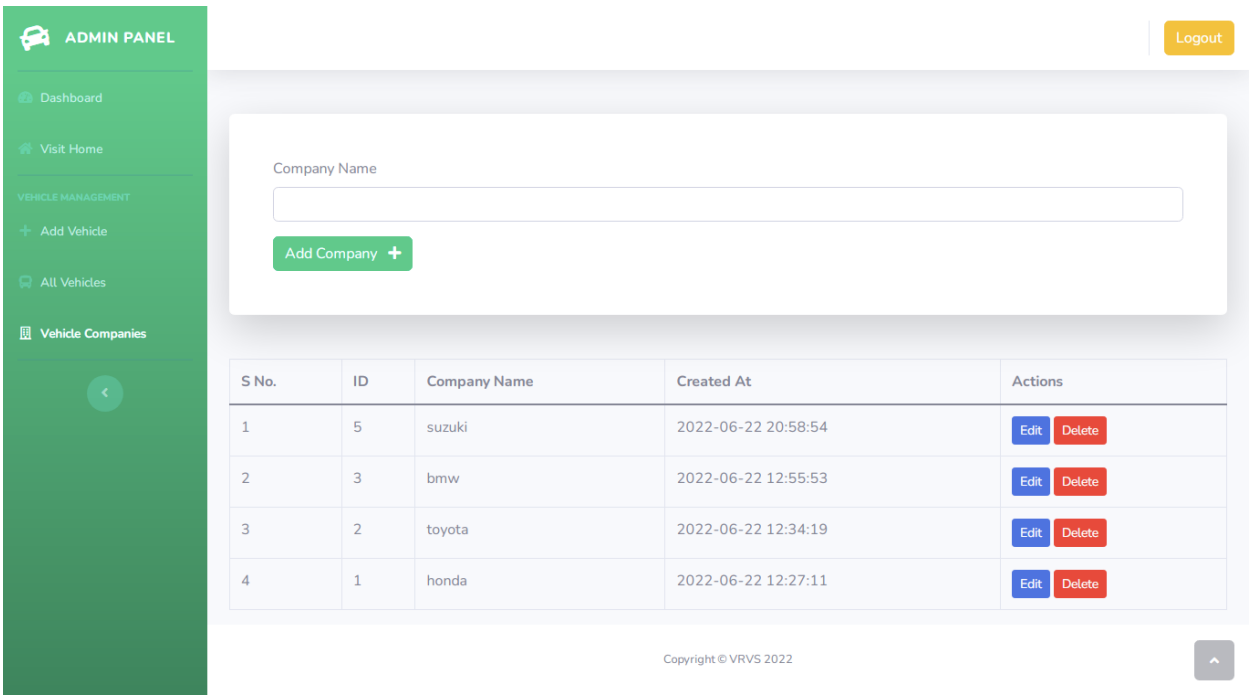
Add Vehicle:



All Vehicles:



Vehicle Companies:



CHAPTER#6

SYSTEM TESTING

6 SYSTEM TESTING

In this chapter, we will discuss the testing phase of developed application **"Online Vehicle Registration System"** in different manner to know that how much efficient and effective application is?

6.1 Introduction

A process of performing as application or program with the intention of finding errors and whether the application is fulfilling user needs. It can also be defined as the ability of a program in meeting the required or desired results.

In many methodologies of software engineering, a separate phase is called phase of testing which is performed after the completion of the implementation. There is a benefit in using this approach that it is hard to see one's own mistakes, and a fresh eye can find observable errors much faster than the person who has read the material many times.

6.2 Testing Plan

A process of performing as application or program with the intention of finding errors and whether the application is fulfilling user needs.

6.2.1 Unit Testing

The software units in an application are modules and routines that are assembled and integrated to perform a specific function. Unit testing focuses first on modules, independently of one another, to locate errors. This enables, to detect errors in coding and logic that are contained within each module. This testing includes entering data and ascertaining if the value matches to the type and size supported by php. The various controls are tested to ensure that each performs its action as required.

Commonly used method is White-Box Testing method. Every time a component of the program is changed, it can be run for testing that is the biggest and famous benefit of this testing phase. Issues that are arise during this phase, allowing to be resolved as quickly as possible. Unit testing

is familiar by software developers. It allows them to test their application units before move them to testers for formal testing.

6.2.2 System Testing

To test the complete application as a whole, system testing has been used. It is beneficial to check whether the application meets its requirements and fulfill Quality Standards.

6.2.3 Integration Testing

Integration testing allows the software developers to integrate all of the components/ units of the application within a program and then test them in a group. Basically, this testing level is used to catch the defects in the user interface between the functions/ modules. It is useful to determine how logically and efficiently all the units/ components are running together.

Here the streaming module and encoding module options are integrated and tested. This testing provides the assurance that the application is well integrated functional unit with smooth transition of data.

6.2.4 User Acceptance Testing

User acceptance of an application is the key factor for the success of any application. The application under consideration is tested for user acceptance by constantly keeping in touch with the application users at time of developing and making changes whenever required.

6.3 Test Cases

Test Cases	Objectives
1	To make sure that user can easily understand and can use the application

2	Make sure that user can easily login
3	Make sure that administrator can easily update, delete anything.
4	Make sure that admin can view detail of users.
5	Make sure that user can view the status of registered vehicles
6	Make sure that admin can easily manage the vehicles
7	Make sure that the application run at cross-platforms successfully.

6.4 Testing Results

Table 6-1: Testing Result

CRITERIA	Test Status	REMARKS
All the graphical user interface options display successfully.	Test successful	None
Enter valid login user email address and password and then press login	Test successful	None
Add, delete, update and view admin using database	Test successful	None
Admin view detail of users.	Test successful	None

CHAPTER # 7

CONCLUSION & FUTURE WORK

7 CONCLUSION & FUTURE WORK

In this chapter, we will discuss the results and discussions of this framework "Online Police Complaint System**"** with conclude remarks and will also discuss related future work of this application.

7.1 Conclusion

The System has the benefits of access because it is be developed as a platform independent web application so the admin can maintain a proper contact with the users which may be access anywhere.

This application provides such environment that is more efficient. It will improve the performance of such organizations. It is professionally beneficial.

7.2 Future Work

In next our first preference is to enhance this application by providing more new features that are as follows:

- Instant case assignment
- Notifications when a task is coming due
- Case prioritization
- Role-defined levels of access to protect sensitive data
- All complaint information and associated documents in case file
- Provide location of all police stations nearest to user's location
- Complaint send directly to officer using same system.

REFERENCES:

www.w3schools.com
*in.**php**.net*
*en.wikipedia.org/wiki/**PHP***
www.hotscripts.com/category/**php**/
www.**apache**.org/
www.**mysql**.com/click.php