
American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science &Technology (FST)

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Section: B

Software Quality Assurance and Testing

# Vehicle Parts and Services

A Report submitted
By



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# Software Test Plan

for

# Vehicle Parts and Services

Version 1.0 approved

Prepared by

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26 April, 2023

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# Revision History

| Revision | Date | Updated by | Update Comments |
|---|---|---|---|
| 0.01 | 2023.04.02 | Mahamodul Hasan Mahadi | First Draft |
| 0.02 | 2023.04.05 | Minhaz Ahmed Ayon | Second Draft |
| 0.03 | 2023.04.07 | Sadia Ferdous | Third Draft |
| 0.04 | 2023.04.11 | Mahamodul Hasan Mahadi | Fourth Draft |
| 0.05 | 2023.04.13 | Showrav Karmakar | Fifth Draft |
| 0.06 | 2023.04.15 | Minhaz Ahmed Ayon | Sixed Draft |
| 0.07 | 2023.04.18 | Showrav Karmakar | Seventh Draft |
| 0.08 | 2023.04.20 | Sadia Ferdous | Eighth Draft |
| 0.09 | 2023.04.25 | Mahamodul Hasan Mahadi | Nineth Draft |

# 1. TEST PLAN IDENTIFIER:VS-VehicleService-1.01

# 2. REFERENCES

- Softude Website
  https://www.softude.com/case-studies

- IEEE Project
  https://transmitter.ieee.org/makerproject/view/5e982

- Engineers Garage
  https://www.engineersgarage.com/design-of-smart-vehicle/

# 3. INTRODUCTION

The purpose of this document is to build a Smart Vehicle parts and maintenance service systems which is more benefited for people. The main purpose of this system is to customer satisfaction and provide their vehicle service, security and maintenance. When a driver faces any unwanted situations like engine not starts, Wheel punctures issue, breaking not working etc. then the driver can use this system and get many helps through the system features. The Mechanics also get notifications based on driver's various parts orders or Mechanical error request issues. This document is intended for users of the software and also potential developers and the testing team.

## Background to the Problem

Vehicles play vital role in humans' life; it helps humans to travel long distance with ease and comfort. Maintenance of the vehicle is inevitable from the start of transportation history; it evolves with the technology periods from the iron age to information age. Personal vehicle become a common medium for day-to-day transportation. On a regular basis while transportation people face different kinds of problems with their vehicle. Some of the common issues includes vehicle engine won't start due to insufficient charge in the battery, overheating due to less radiator coolant water, Anti-lock braking system not functioning properly due to faulty break lines or electrical issues, Wheels not properly aligned, Engine running lean or rich due to improper air to fuel ratio and many more. In that situation people often have to face difficult situation in getting their vehicle fixed or serviced in a good reputed vehicle workshop. Dhaka is well known for heavy traffic and mass population. If a vehicle gets overheated in the traffic than for that one defected vehicle every other vehicle has to suffer resulting in increasing of traffic. In the recent years many new popular vehicle brands has entered Bangladesh market and gained popularity in a short period of time. Customers owning these vehicles has to face issue in finding authentic vehicle parts for their vehicle. Many vehicles owner also has to face issues in repairing the vehicle if the vehicle is totaled or incapable of driving.

## Solution to the Problem

**Existing Solution:**

In present situation if a person wants to service their vehicle, then the people have to call local workshops mechanic directly and wait for a long period of time in order to get the service. If an individual wants to buy vehicle parts, he/she have to go local vendors to find our desired vehicle parts but here the problem is not every vehicle part is available and also it is time-consuming. Again, if a vehicle battery is dead than the person himself have to unplug the battery and take it to the nearest battery service and repair shop to charge it again or buy a new one if necessary. The vehicle service center can acquire data of your vehicle like oil level, coolant level, break fuel condition, power steering If anyone face an accident and if the vehicle gets totaled, then to transfer the vehicle into a repair shop a person have to search for tow truck supplier or ask another vehicle owner to help transfer the vehicle to the nearest workshop.

**Proposed solution:**

Customers should be able to order any kinds of authentic vehicle parts as per their need. Desired vehicle product must be searched and to order the customer has to add the item in the cart, after that customer has to go through payment option and follow steps accordingly. Customer can request for vehicle service from a mechanic in any unwanted situation. For the mechanic to arrive the customer must have to keep their location services turned on. Customers can also request for anti-theft technology implementation to their vehicle. Anti-theft technology will use two chips one chip will be placed in the vehicles key and another in the ECU (engine control unit). When the key is inserted to the vehicle ignition the chip will connect to the ECU and thus the car will start. Furthermore, the connection to the fuel injector of the car is deactivated to prevent the unauthorized start of the vehicle anyhow. Even duplication of the cars original key will fail to start the vehicle if out provided anti-theft technology is implemented.

The smart vehicle service allows OEMs and aftermarket suppliers to manage vehicle or part servicing done of vehicles and/or parts under or out of warranty service period by their service network.

# 4. REQUEIREMNT SPECIFICATION

## **4.1** System Features

1.System Login

Functional Requirements

1.1 The software will allow to customers/users to login with their given username and password

1.2 If the inserted username or password has been wrong for more than five times,

the verification code will be generated by the system to retry login.

1.3 If the number of login attempt exceed its limit (5 times), the system will block the customer/user account.

Priority Level: High

Precondition: The user has a valid user id and password

2. System registration

Functional Requirements

2.1 Any Customer can register into the system at any time.

2.2 The registering customer will give at least minimum information for registering into the account.

2.3 The registering customer or user should able to register only through email and password

Priority Level: High

Precondition: The user has a valid email and password

3.System payment

3.1 The card of user is must be valid.

3.2 The customer address is must in service area.

3.3 The user must use the correct username and password of the Card.

Priority Level: High

Precondition: The user has a valid card/payment system.

4.Shop Description

Functional Requirements

4.1 Shop need to provide services to Car/Bike/Bus/Truck.

4.2 Shop need to have experienced mechanic.

Priority Leve: High

Precondition: Shop name must be valid and have Trade License.

5.Vehicle Description

5.1 Vehicle need to have valid document

5.2 Vehicle need to have valid license.

Priority: Medium

6.Mechanic Description

6.1 Mechanic must have valid documents related his/her degree.

6.2 Mechanic have experience on different cars.

Priority: High

## 4.2 System Quality Attributes

Functionality: This attribute determines the software's ability to meet the functional requirements of the user. In the case of "Vehicle Parts and Services," the software should be able to manage home service request, vehicle parts inventory, process service requests, and generate reports.

Reliability: The reliability of the software is determined by its ability to perform consistently under different conditions. In the case of "Vehicle Parts and Services," the software should be able to handle a large number of users and data without crashing or producing errors.

Usability: This attribute measures the software's ease of use and its ability to provide an intuitive user interface. In the case of "Vehicle Parts and Services," the software should be easy to navigate and provide clear instructions to users.

Performance: Performance refers to the software's speed, efficiency, and scalability. In the case of "Vehicle Parts and Services," the software should be able to handle multiple requests quickly and provide fast response times.

Security: Security is critical for any software that handles sensitive data. In the case of "Vehicle Parts and Services," the software should provide proper authentication, authorization, and encryption to prevent unauthorized access and data breaches.

Maintainability: This attribute determines the software's ability to undergo changes or updates quickly and easily. In the case of "Vehicle Parts and Services," the software should be modular and easy to modify to accommodate changes in the business requirements.

Portability: Portability refers to the software's ability to operate on different platforms and environments. In the case of "Vehicle Parts and Services," the software should be able to run on different operating systems and hardware configurations.

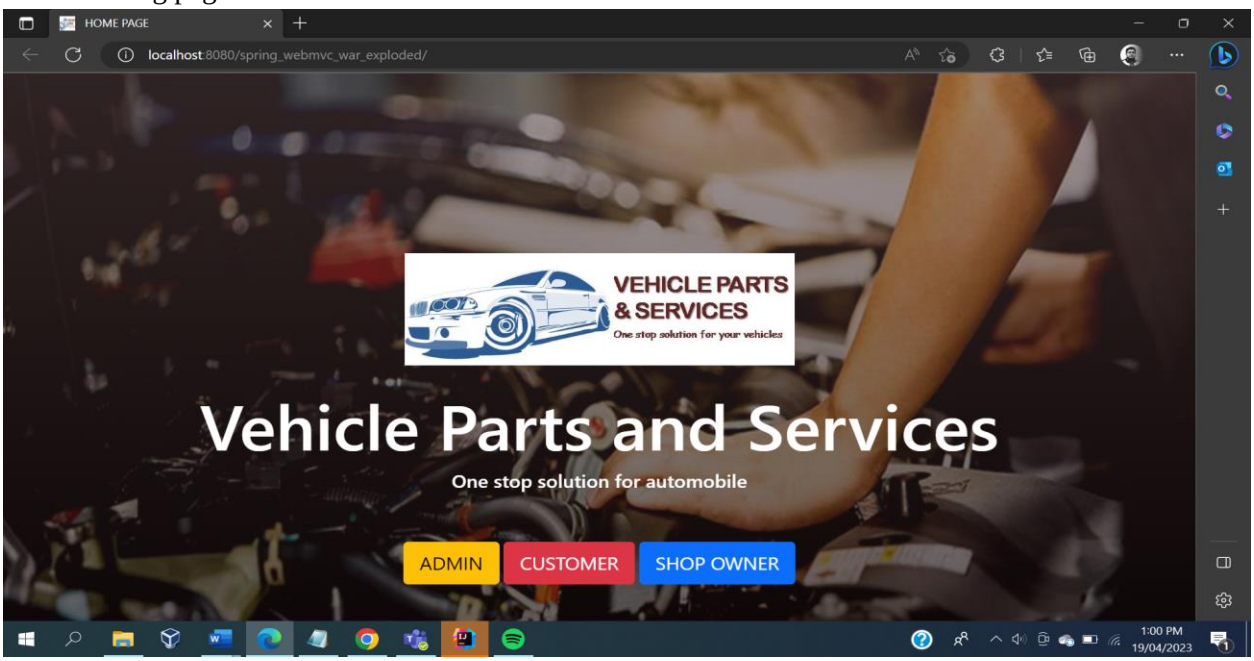
Compatibility: This attribute refers to the software's ability to work seamlessly with other systems, applications, and devices. In the case of "Vehicle Parts and Services," the software should be compatible with third-party systems and devices that are commonly used in the navigation system.

Testability: Testability is the ease with which the software can be tested to ensure its quality. In the case of "Vehicle Parts and Services," the software should be designed to allow for easy testing of its functionality, performance, and security.

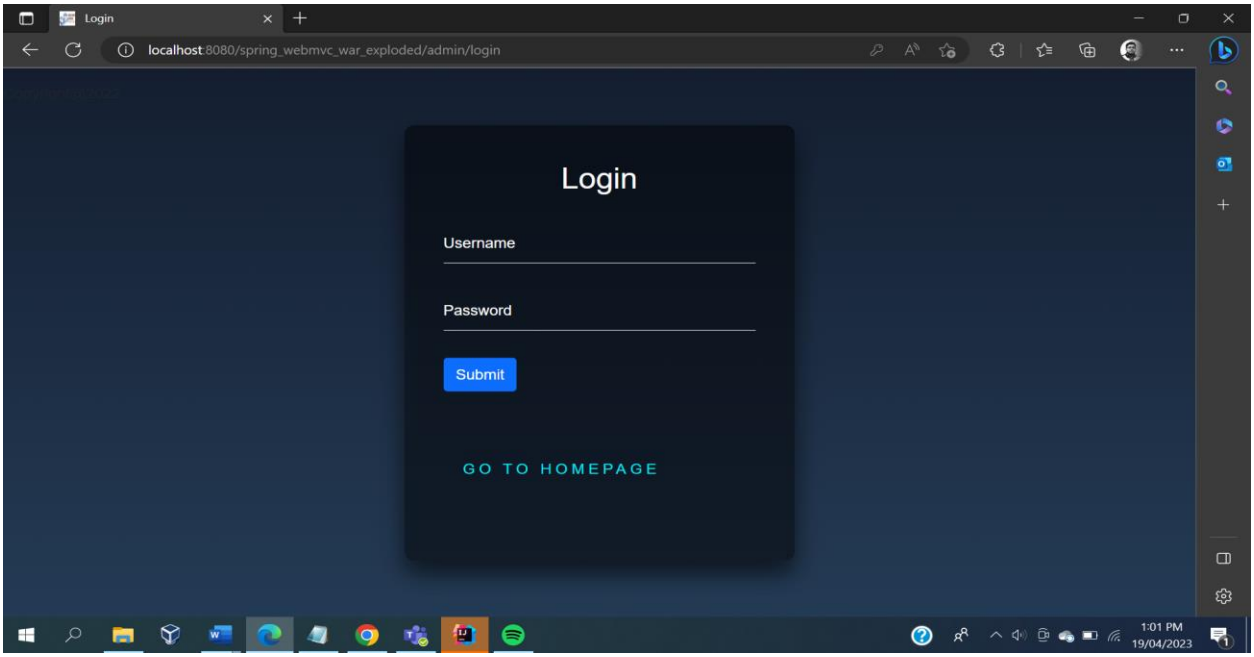
Scalability: Scalability is the software's ability to handle an increasing amount of work or users without losing performance. In the case of "Vehicle Parts and Services," the software should be scalable to accommodate the growing needs of the business, including a growing customer base and increasing data storage requirements.

## 4.3 System Interface

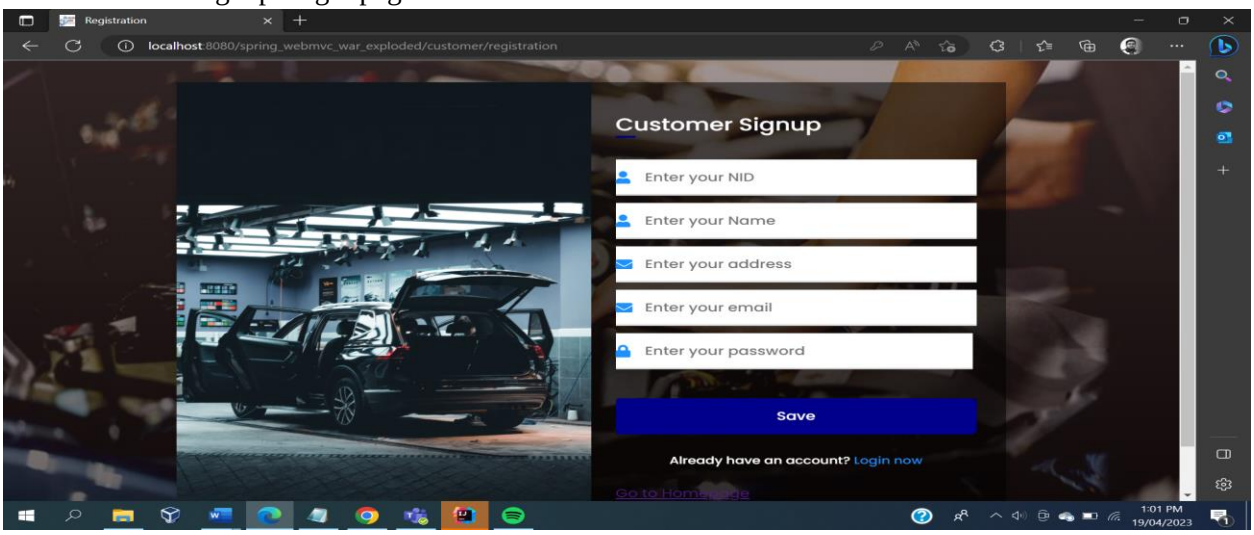
4.3.1 Landing page of Vehicle Parts and Services.



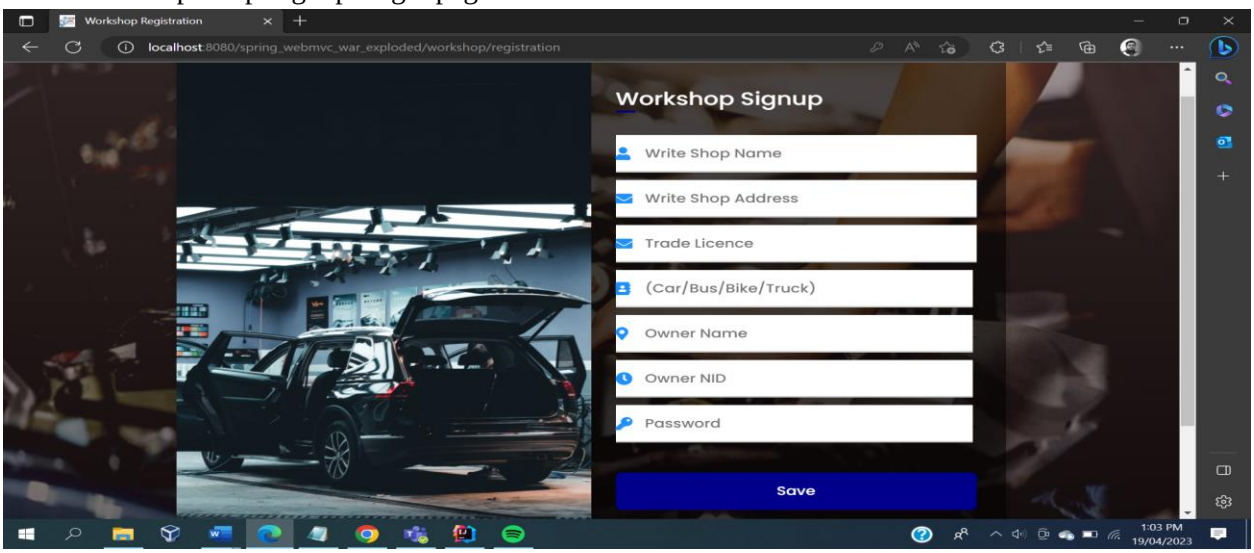

4.0.2 Login page for Admin user.



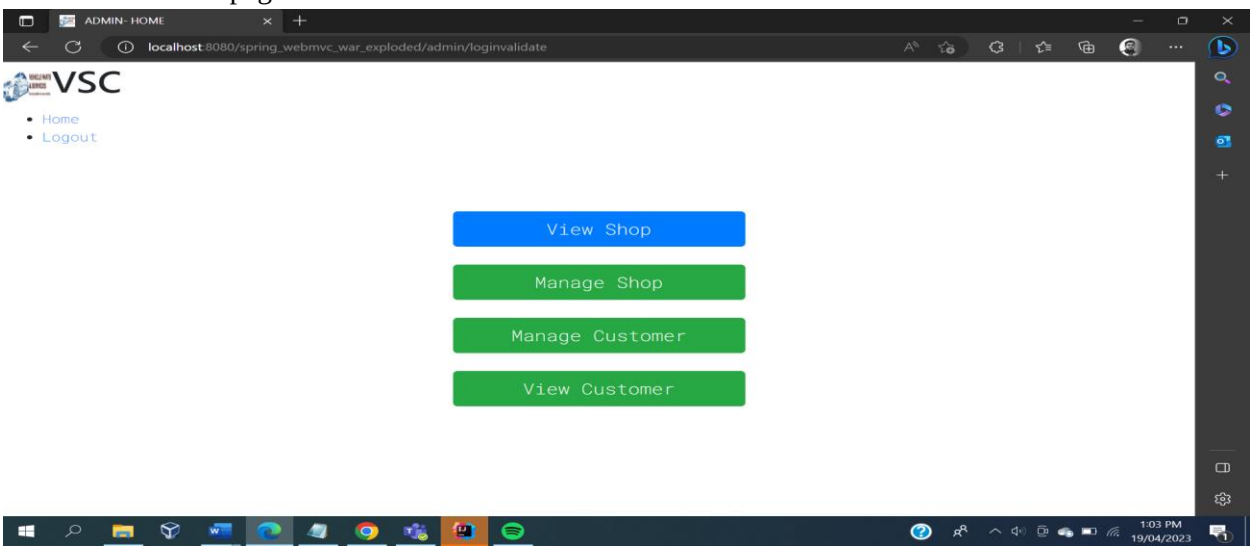
4.3.3 Customer Signup/Login page.



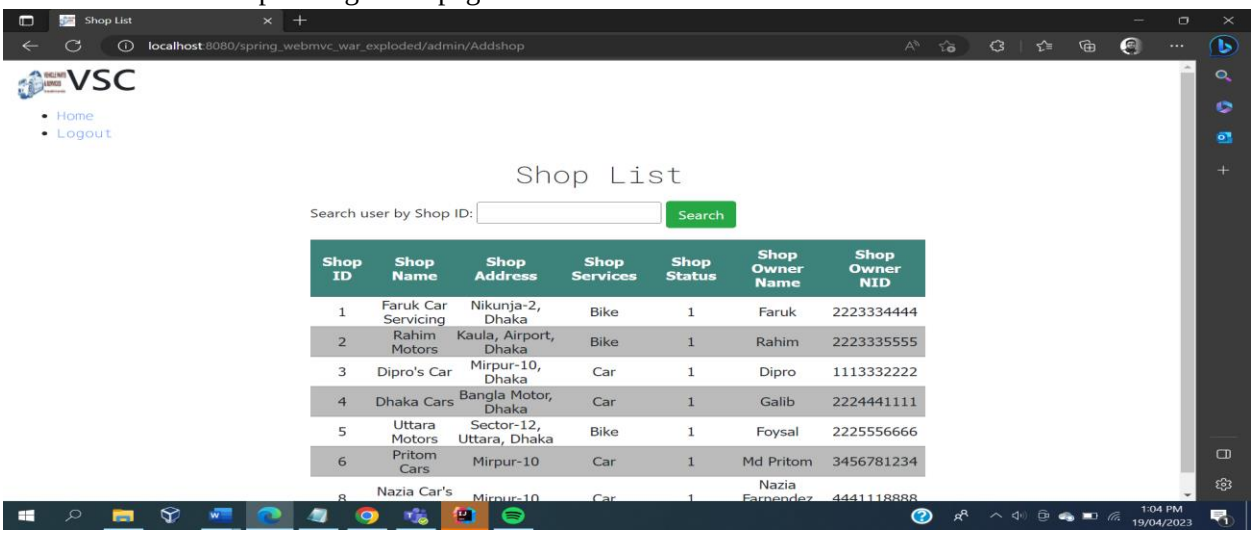

4.3.4 Workshop/Shop Signup/Login page.



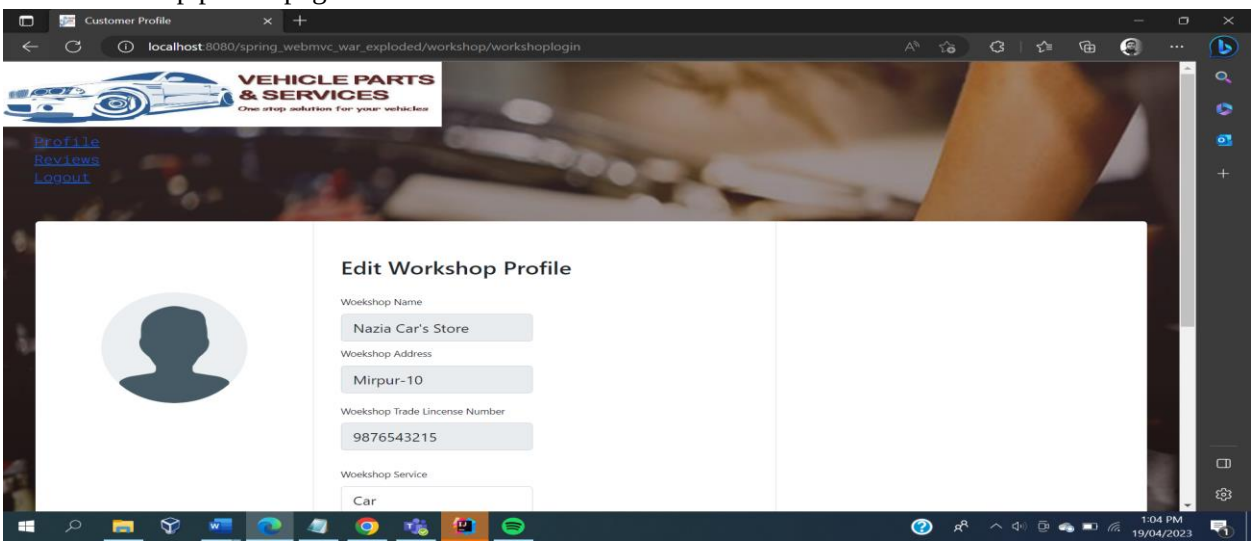

4.3.5 Admin Homepage.



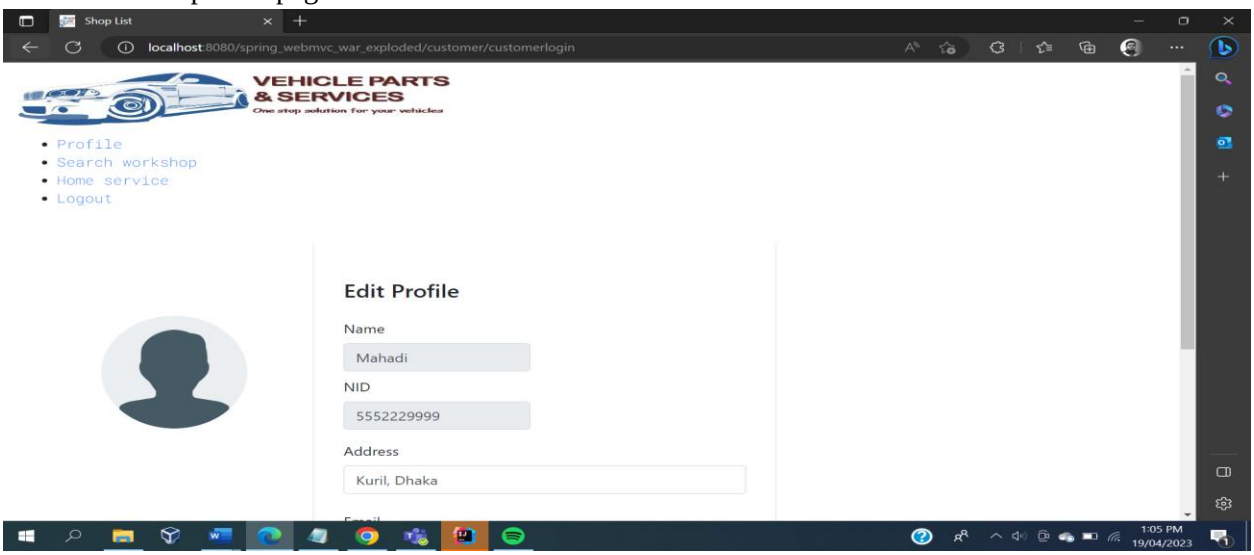
4.3.6 Admin workshop management page.




4.3.7 Workshop profile page.




4.3.8 Customer profile page.



## 4.4 Project Requirements

- Time: To complete this web-based Vehicle Parts and Services application around 3 months (90 days) can be needed.
- Budget: 6,50,000 BDT
- Size: The final size of this web-based application will not be more than 200-400 MB.
- Globally there are lots of services in the web. But we mainly focused on Bangladeshi city/town area. So, this system only for Bangladeshi people.
- Java, Rest API, HTML, CSS, JavaScript ,and Ajax will be used to build this web-based Vehicle Parts and Services application.

COCOMO (Constructive Cost Model) is a software cost estimation model that uses the size of the project, the team size, and other factors to estimate the effort required to develop software. There are three versions of COCOMO: Organic, Semi-detached, Embedded. Here, I will use the Organic version as it is the most commonly used one.

Effort = PM = Coefficient<Effort Factor>*(SLOC/1000)^P
Development time = DM = 2.50*(PM)^T
Required number of people = ST = PM/DM
PM: person-months needed for project
SLOC: source lines of code
P: project complexity (1.04-1.24)
DM - duration time in months for project
T: SLOC-dependent coefficient (0.32-0.38)
ST: average staffing necessary

Effort = PM = Cofficent<effort factor>*(SLOC/1000)^P
= 3.6*(10000/1000)^1.20
= 57.05
Development time = DM = 2.50*(PM)^T
=2.50*(57.05)^0.32
= 9.11
Required number of people = ST = PM/DM
= (57.05/9.11)
= 6.26
= 7

**Budget:**

7 developers working of 3 months:
Duration in weeks = 15 weeks
Office days = 5 days
Working hours = 8 Hours

So, per week working hours is = (5*8) hours = 40 hours
Hence, Total Working hours is = (40*15) hours
= 600 hours.
All Developer salary is = 800 BDT Per Hour
Total developers Salary = (800*600) BDT = 4,80,000 BDT

Utility cost : 50,000 BDT
Salary cost : 4,80,000 BDT
Components cost : 20,000 BDT
Revenue : 1,00,000 BDT

Total cost = 6,50,000 BDT

# 5. FEATURES NOT TO BE TESTED

The following is a list of the areas that will not be specifically addressed. All testing in these areas will be indirect as a result of other testing efforts. Below there are some modules in our project we did not perform selenium testing.

- Is the NID copy of customer valid or not.
- Is the Shop Trade License number valid or not.
- Physical location of the workshop.
- Payment system because of the system API integration.
- Mechanic's information.
- Experience and Degree of Mechanic's.
- Car's information.
- Any criminal activity record of cars.
- Customer information.
- Is the customer providing authentic information about him/her.

# 6. TESTING APPROACH

## **6.1** Testing Levels

**UNIT TESTING:** In unit testing, individual components or modules of the software are tested to ensure that they work as intended. For "Vehicle Parts and Services," this might involve testing individual functions or features of the software, such as the ability to add or remove parts from inventory.
**INTEGRATION TESTING:** Integration testing involves testing how different modules or components of the software work together. For "Vehicle Parts and Services," this might involve testing how the inventory management module integrates with the service request module.
SYSTEM TESTING: In system testing, the software is tested as a whole to ensure that it meets the functional and non-functional requirements of the project. For "Vehicle Parts and Services," this might involve testing how the software handles a high volume of requests or how it performs under different load conditions.
**ACCEPTANCE TESTING:** Acceptance testing is typically performed by the end-users or stakeholders of the project to ensure that the software meets their expectations and requirements. For "Vehicle Parts and Services," this might involve conducting user acceptance tests (UAT) to ensure that the software is easy to use and meets the business requirements.
**REGRESSION TESTING:** Regression testing is performed after changes or updates are made to the software to ensure that the existing functionality is not affected. For "Vehicle Parts and Services," this might involve testing how the software behaves after updates to the inventory management or service request modules.

**PERFORMANCE TESTING:** Performance testing involves testing the software's ability to handle a high volume of requests or data without losing performance. For "Vehicle Parts and Services," this might involve testing how the software performs under heavy load or stress conditions.

## **6.2** Test Tools

For the project required testing tools are described below –
Selenium: Selenium is the most popular open-source browser automation tool that can run scripts across multiple browsers and automate web applications for testing. It is an enhanced framework that supports cross-platform and cross-browser and can be easily integrated. It is language-independent and supports various popular languages such as Java, C#, Python, Ruby, PHP, JavaScript, etc. (we use java language to perform the Selenium testing) . It can be integrated with popular testing tools such as SauceLabs, Maven, TestNG, QMetry, Extent, JUnit and others, and run parallel testing. It is not a single tool, instead, it's a collection of tools that can later be integrated with Agile, DevOps others. We can also handle reports with selenium. Selenium itself offers different tools like Selenium IDE, Selenium WebDriver, Selenium Grid etc. Selenium also supports mobile testing. We can test hybrid, native or mobile web apps with selenium. For mobile testing, a few popular tools of selenium are Appium, Selendroid, Robotium, IOS-driver etc. supporting Android, IOS and other popular OS. Selenium is a universal use case that is good enough for testers to put forth a greater effort and ignore the codeless trend. Various third-party solutions are available for reports like TestNG, JUnit, Extend Library, and Allure to prepare reports in various formats including graphs, timelines, screenshots, pic charts, error logs and so on.

## **6.3** Meetings

The purpose of meeting for making a test plan for the software Vehicle Parts and Services is to define a comprehensive testing approach that will help ensure the quality and functionality of the software. The meeting brings together all relevant stakeholders, including project managers, developers, testers, and business analysts, to ensure that the testing plan aligns with the project's overall goals and objectives.

Some of the activities that may be undertaken during the meeting for testing the software Vehicle Parts and Services include:

1. Reviewing the project requirements and functional specifications to ensure that all aspects of the software are understood and covered in the testing plan.
2. Identifying the testing objectives and determining the scope of testing to be performed.
3. Identifying the types of testing to be performed, including unit testing, integration testing, system testing, acceptance testing, and regression testing.
4. Identifying the testing environment and testing tools that will be used to support the testing process.
5. Identifying the testing resources needed, including hardware, software, and personnel.
6. Defining the testing schedule and timeline, including key milestones and deliverables.
7. Identifying potential risks and issues that may arise during testing and developing a plan for managing them.
8. Defining the criteria for success, including how testing will be measured and evaluated.
9. Assigning responsibilities for testing tasks and ensuring that all team members understand their roles and responsibilities.
10. Developing a testing plan document that outlines the testing approach, timeline, resources, and responsibilities.

By undertaking these activities during the meeting for making a test plan, our team ensure that the testing process is well-defined, documented, and understood by all stakeholders. This can help to ensure that the software is thoroughly tested, meets the project requirements, and is delivered on time and within budget.

# 7. TEST CASES/TEST ITEMS

**Test Case: 01**

| | |
|---|---|
| Project Name: Vehicle Parts and Services | Test Designed by: MAHAMODUL HASAN MAHADI |
| Test Case ID: VPS_01 | Test Designed date: 14-04-2023 |
| Test Priority (Low, Medium, High): High | Test Executed by: MAHAMODUL HASAN MAHADI |
| Module Name: Admin module. | Test Execution date: 23-04-2023 |
| Test Title: To verify if the admin module login functionality is working as expected or not. | |
| Description: Test the admin login page. | |
| The precondition (If any): Admin has valid username and password.<br>Dependencies: None. | |
| Test setup: Admin module login screen. | |

| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
|---|---|---|---|---|
| 1. Go to the website.<br>2. Then Admin Login.<br>3. Put valid username and password.<br>4. Click Sign In button. | Username: mahadi<br>Password: mahadi | Login must be successful | As expected. | Pass |

| |
|---|
| Post Condition: Admin is validated with database and successfully login into the account. The account sessions details are logged in the database. |

**Test Case: 02**

| | |
|---|---|
| Project Name: Vehicle Parts and Services | Test Designed by: MAHAMODUL HASAN MAHADI |
| Test Case ID: VPS_02 | Test Designed date: 14-04-2023 |
| Test Priority (Low, Medium, High): High | Test Executed by: SADIA FERDOUS |
| Module Name: Customer module. | Test Execution date: 23-04-2023 |
| Test Title: Customer registration with valid information. | |
| Description: Check customer registration works properly or not. | |
| The precondition (If any): Customer must have valid information.<br>Dependencies: None. | |

| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
|---|---|---|---|---|
| 1. Go to the website.<br>2. Then Customer.<br>3. Then Registration.<br>4. Put valid information.<br>5. Click Registration button. | NID no: 4445559999<br>Full name : Md. Abdul Rahim<br>User address: Baridhara,Dhaka<br>Email: rahim@gmail.com<br>Password: 123 | Sign up must be successful. | As expected. | Pass |
| Post Condition: Redirected to Customer sign in page. | | | | |

**Test Case: 03**

| | |
|---|---|
| Project Name: Vehicle Parts and Services | Test Designed by: SADIA FERDOUS |
| Test Case ID: VPS_03 | Test Designed date: 14-04-2023 |
| Test Priority (Low, Medium, High): High | Test Executed by: MAHAMODUL HASAN MAHADI |
| Module Name: Customer module. | Test Execution date: 23-04-2023 |
| Test Title: To verify if the customer module login functionality is working as expected or not. | |
| Description: Test the customer login page. | |

The precondition (If any): Customer must have valid NID and password.
Dependencies: None.

| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
|---|---|---|---|---|
| 1. Go to the website.<br>2. Then Customer Login.<br>3. Put valid username and password.<br>4. Click Sign In button. | NID: 4445559999<br>Password: 123 | Login must be successful. | As expected. | Pass |

Post Condition: Customer is validated with database and successfully login into the account. The account sessions details are logged in the database.

**Test Case: 04**

| | |
|---|---|
| Project Name: Vehicle Parts and Services | Test Designed by: SHOWRAV KARMAKAR |
| Test Case ID: VPS_04 | Test Designed date: 15-04-2023 |
| Test Priority (Low, Medium, High): High | Test Executed by: MAHAMODUL HASAN MAHADI |
| Module Name: Workshop module. | Test Execution date: 25-04-2023 |
| Test Title: Workshop registration with valid information. | |
| Description: Check workshop registration works properly or not. | |

The precondition (If any): Workshop and the owner must have valid information.
Dependencies: None.

| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
|---|---|---|---|---|
| 1. Go to the website.<br>2. Then Customer.<br>3. Then Registration.<br>4. Put valid information.<br>5. Click Registration button. | Shop Name: Faruk Car Servicing<br>Shop Location: NUkunja-2,Dhaka<br>Trade LIcence no: 112233445<br>Services name : Car<br>Owner Name: Faruk<br>NID no: 1112223333<br>Password: 123 | Sign up must be successful. | As expected. | Pass |

Post Condition: Redirected to Workshop sign in page.

**Test Case: 05**

| | |
|---|---|
| Project Name: Vehicle Parts and Services | Test Designed by: SADIA FERDOUS |
| Test Case ID: VPS_05 | Test Designed date: 14-04-2023 |
| Test Priority (Low, Medium, High): High | Test Executed by: SHOWRAV KARMAKAR |
| Module Name: Workshop module. | Test Execution date: 23-04-2023 |
| Test Title: To verify if the workshop module login functionality is working as expected or not. | |
| Description: Test the workshop login page. | |

The precondition (If any): Workshop owner must have valid NID and password.

Dependencies: None.

| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
|---|---|---|---|---|
| 1. Go to the website.<br>2. Then Customer Login.<br>3. Put valid username and password.<br>4. Click Sign In button. | NID: 1112223333<br>Password: 123 | Login must be successful. | As expected. | Pass |

Post Condition: Workshop is validated with database and successfully login into the account. The account sessions details are logged in the database.

**Test Case: 06**

| | | | | |
|---|---|---|---|---|
| Project Name: Vehicle Parts and Services | | Test Designed by: SHOWRAV KARMAKAR | | |
| Test Case ID: VPS_06 | | Test Designed date: 16-04-2023 | | |
| Test Priority (Low, Medium, High): High | | Test Executed by: AYON, MINHAZ AHMED | | |
| Module Name: Admin module. | | Test Execution date: 20-04-2023 | | |
| Test Title: Admin registration with valid information. | | | | |
| Description: Check Admin registration works properly or not. | | | | |
| The precondition (If any): Admin must have valid information.<br>Dependencies: None. | | | | |
| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
| 1. Go to the website.<br>2. Then Admin.<br>3. Then Registration.<br>4. Put valid information.<br>5. Click Registration button. | Name: Mahamodul Hasan Mahadi<br>Username: mahadi<br>Password: mahadi | Sign up must be successful. | As expected. | Pass |
| Post Condition: Redirected to Admin log in page. | | | | |

**Test Case: 07**

| | |
|---|---|
| Project Name: Vehicle Parts and Services | Test Designed by: AYON, MINHAZ AHMED |
| Test Case ID: VPS_07 | Test Designed date: 20-04-2023 |
| Test Priority (Low, Medium, High): Medium | Test Executed by: SADIA FERDOUS |
| Module Name: Admin module. | Test Execution date: 25-04-2023 |
| Test Title: Admin search shops by valid shop type. | |
| Description: Check admin search page works correctly or not. | |
| The precondition (If any): Must give valid type of input for searching shop.<br>Dependencies: Need to have shop information in the database. | |

| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
|---|---|---|---|---|
| 1. Go to the admin search page by login as admin.<br>2. Then view shop button.<br>3. Put shop id.<br>4. Click Search button. | Shop ID: 1 | Information about Faruk Car Servicing. | As expected. | Pass |
| Post Condition: None. | | | | |

**Test Case: 08**

| | | | | |
|---|---|---|---|---|
| Project Name: Vehicle Parts and Services | | Test Designed by: MAHAMODUL HASAN MAHADI | | |
| Test Case ID: VPS_08 | | Test Designed date: 17-04-2023 | | |
| Test Priority (Low, Medium, High): High | | Test Executed by: AYON, MINHAZ AHMED | | |
| Module Name: Admin module. | | Test Execution date: 25-04-2023 | | |
| Test Title: Admin search customer by valid NID of customer. | | | | |
| Description: Check admin module customer search page works correctly or not. | | | | |
| The precondition (If any): Must give valid type of input for searching customer.<br>Dependencies: Need to have customer information in the database. | | | | |
| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
| 1. Go to the admin search page by login as admin.<br>2. Then "View Customer" button.<br>3. Put customer NID.<br>4. Click Search button. | Customer NID: 5557770000 | Show Sakif Information. | As expected. | Pass |
| Post Condition: None. | | | | |

**Test Case: 09**

| | | | | |
|---|---|---|---|---|
| Project Name: Vehicle Parts and Services | | | Test Designed by: MAHAMODUL HASAN MAHADI | |
| Test Case ID: VPS_10 | | | Test Designed date: 18-04-2023 | |
| Test Priority (Low, Medium, High): High | | | Test Executed by: MAHAMODUL HASAN MAHADI | |
| Module Name: Customer module. | | | Test Execution date: 25-04-2023 | |
| Test Title: Customer can update his/her information. | | | | |
| Description: Check customer update page works correctly or not. | | | | |
| The precondition (If any): Customer need to have account.<br>Dependencies: None. | | | | |
| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
| 1. Go to the website.<br>2. Login as customer.<br>3. Insert new updated value.<br>4. Click on the "Update" button. | Address: Nikunja-01, Dhaka<br>Password: 456 | Selected section will be updated successfully, and proper successful message will be displayed. | As expected. | Pass |
| Post Condition: Updated data will updated on database. | | | | |

**Test Case: 10**

| | |
|---|---|
| Project Name: Vehicle Parts and Services | Test Designed by: MAHAMODUL HASAN MAHADI |
| Test Case ID: VPS_10 | Test Designed date: 19-04-2023 |
| Test Priority (Low, Medium, High): High | Test Executed by: MAHAMODUL HASAN MAHADI |
| Module Name: Workshop module. | Test Execution date: 25-04-2023 |
| Test Title: Workshop owner can update the workshop information. | |
| Description: Check workshop update page works correctly or not. | |
| The precondition (If any): Workshop owner must have account in the system.<br>Dependencies: None. | |

| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
|---|---|---|---|---|
| 1. Go to the website.<br>2. Login as customer.<br>3. Insert new updated value.<br>4. Click on the "Update" button. | Workshop service: Car<br>Password: 456 | Selected section will be updated successfully, and proper successful message will be displayed. | As expected. | Pass |

| |
|---|
| Post Condition: Updated data will updated on database. |

**Test Case: 11**

| | |
|---|---|
| Project Name: Vehicle Parts and Services | Test Designed by: MAHAMODUL HASAN MAHADI |
| Test Case ID: VPS_09 | Test Designed date: 14-04-2023 |
| Test Priority (Low, Medium, High): High | Test Executed by: SADIA FERDOUS |
| Module Name: Logout module. | Test Execution date: 23-04-2023 |
| Test Title: User can logout to the system. | |
| Description: Check if admin, customer, shop-owner can logout or not. | |
| The precondition (If any): Admin, customer, shop-owner need to login to the system.<br>Dependencies: No. | |

| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
|---|---|---|---|---|
| 1. Go to the website<br>2. Login to the system.<br>3. Click logout button. | Admin:<br>Username: mahadi<br>Password: mahadi<br><br>Customer:<br>Username: 4445559999<br>Password: 123<br><br>Workshop:<br>Username: 2223334444<br>Password: 123 | Logout must be successful | As expected. | Pass |
| Post Condition: Redirect to landing page of the system. | | | | |

## 8. ITEM PASS/FAIL CRITERIA

This section's primary goal is to outline the PASS/FAIL standards for the tests included in this project. A component, unit, system, or integrated test item will be deemed to meet the pass criterion if it scores between 80% and 95%, and the failure criteria will be applied to any system or unit scoring below 80%. This measurement is what we used in our project to determine how dependable and user-satisfying it is. The test process will be completed once the initial set of distributors have successfully sent in reassigned sales data for a period of one month and the new EDI data balances with the old ZIP/FAX data received in parallel. When the sales administration staff is satisfied that the data is correct the initial set of distributors will be set to active and all parallel stopped for those accounts.

## 9. TEST DELIVERABLES

Software Requirements Specification (SRS): This document outlines the functional and non-functional requirements for the software used in a vehicle or for parts and services related to vehicles.

- Design Specification: This document describes the software design for the vehicle or parts and services, including the architecture, data structures, algorithms, and interfaces.
- User Manual: This document provides instructions for end-users on how to use the software that controls the vehicle or the software for parts and services.
- Maintenance Manual: This document provides instructions for maintaining and troubleshooting the software and any related components or hardware.
- Test Plan: This document outlines the test strategy, test cases, and expected results for the software used in a vehicle or for parts and services related to vehicles.
- Release Notes: This document provides an overview of the new features, bug fixes, and known issues with a particular release of the software.
- Technical Support Guide: This document provides information on how to obtain technical support for any issues related to the software used in a vehicle or for parts and services related to vehicles.
- Training Material: This document provides training material to users or technicians who use or maintain the software used in a vehicle or for parts and services related to vehicles.
- Service Manual: This document provides detailed information and procedures on how to repair and maintain the vehicle or its parts and services.

## 10. STAFFING AND TRAINING NEEDS

When implementing software for vehicle parts and services, it is essential to have a team with the necessary skills and knowledge to complete the work effectively and efficiently. Staffing and training are crucial components of any project, and in this article, we will discuss the staffing and training needs for a project that involves the implementation of software for vehicle parts and services.

STAFFING NEEDS: The first staffing need for this project is a team of developers with experience in developing software for vehicle parts and services. The team should be composed of at least one software architect, one lead developer, and several junior developers. The software architect will be responsible for the overall design of the software, while the lead developer will oversee the implementation and ensure that it meets the necessary standards. The junior developers will assist in the implementation and testing phases of the project. It is also recommended to have at least one full-time tester assigned to the project for the system/integration and acceptance testing phases of the project. This will require assignment of a person part-time at the beginning of the project to participate in reviews, etc., and approximately four months into the

project, they would be assigned full-time. If a separate test person is not available, the project manager or test manager should assume this role.
TRAINING NEEDS: The developers and testers will need to be trained on the specific technologies used in the software, such as programming languages, frameworks, and tools. They should also be trained on the specific requirements of the project, including the specific functionalities required for vehicle parts and services software. In addition, the sales and administration staff will require training on the new screens and reports. This training should cover the basic operations of the software, such as how to input customer information, order parts, and schedule services. The training should also include an overview of the software's features and benefits.
Also, when implementing software for vehicle parts and services, it is important to have a team with the necessary skills and knowledge to complete the work effectively and efficiently. The staffing needs should include developers, testers, and a project manager or test manager, while the training needs should cover specific technologies, project requirements, and basic operations of the software. By addressing these staffing and training needs, the project can be completed successfully and efficiently.

# 11. RESPONSIBILITIES

| Name | Role | Responsibilities |
|---|---|---|
| Mahamodul Hasan Mahadi | Project Manager | 1. Requirement analysis, make plans for designing of the project.<br>2. Observe all the documentation and make plan for development and testing of the system.<br>3. Prepare Development schedule and Test plan.<br>4. Check all the designed test case.<br>5. After execute test case check the reports.<br>6. Resource management.<br>7. Risk management.<br>8. Collaboration and communication. |
| Sadia Ferdous | Quality Analyst | 1. Analysis quality attributes based of requirements.<br>2. Prepare quality charts.<br>3. Check system quality during development and testing phase. |
| Showrav Karmakar | Developer | 1. Research, designine, implement the software.<br>2. Writing and implementing efficient code.<br>3. Module integration. |
| Minhaz Ahmed Ayon | Test Engineer | 1. Check the characteristics of the testing activities.<br>2. Execute test case and report to the project manager.<br>3. Find out system bugs and report it. |

## 12. TESTING SCHEDULE

| Task Name | Duration |
|---|---|
| Documentation | 4 Days |
| Design | 4 Days |
| Test Plan | 8 Days |
| Development | 7 Days |
| Unit Test | 5 Days |
| Integration Test | 2 Days |
| System Test | 6 Days |
| Acceptance Test | 2 Days |
| Project Completion | 5 Days |
| Feedback | 3 Days |

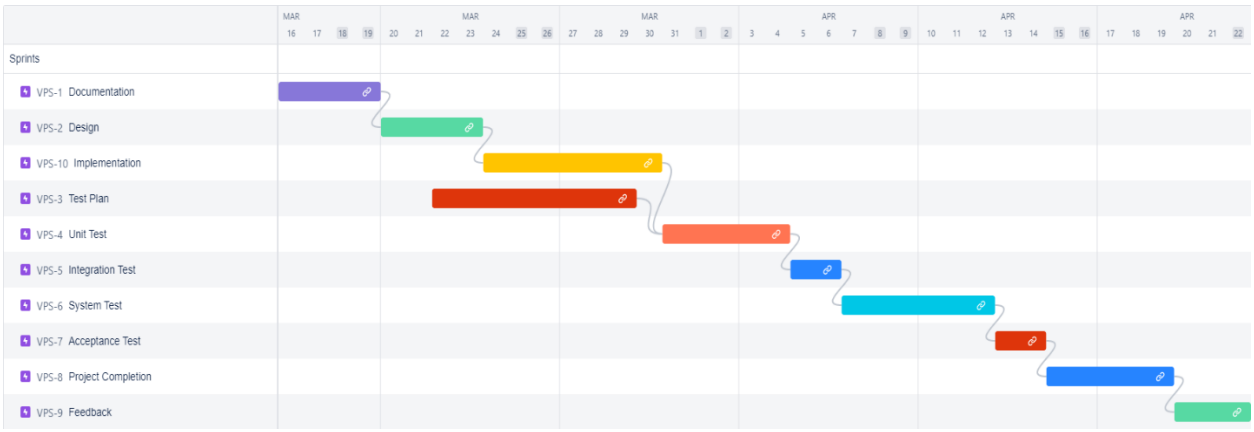



Figure: Project Schedule.

## 13. PLANNING RISKS AND CONTINGENCIES

Planning for risks and contingencies is an important aspect of any software development project, including those related to vehicle parts and services. Here's a description of how this planning might be done:

Identify potential risks: The first step is to identify the potential risks that could affect the project, such as budget overruns, technical challenges, scope creep, and changes in regulatory requirements. This can be done through brainstorming sessions, expert opinions, historical data, and other sources.

Assess the likelihood and impact of each risk: Once the risks have been identified, we need to be assessed in terms of their likelihood of occurring and their potential impact on the project. This can be done using qualitative or quantitative methods, such as risk probability and impact assessment or Monte Carlo simulations.

Develop a risk management plan: Based on the risk assessment, a risk management plan we should developed that outlines the specific actions that will be taken to mitigate, avoid, transfer, or accept each risk. The plan should also include contingency measures for dealing with unexpected events or failures.

Assign responsibilities and resources: The risk management plan should clearly assign responsibilities and allocate resources for risk mitigation and contingency planning. This includes identifying the individuals or teams responsible for specific tasks and ensuring that they have the necessary skills, tools, and support to carry out those tasks.

Monitor and update the plan: Risks and contingencies should be monitored throughout the project lifecycle, and the risk management plan should be updated as needed. This may involve re-assessing risks, adjusting mitigation strategies, or developing new contingency plans.

Overall, effective planning for risks and contingencies is critical to the success of a software development project related to vehicle parts and services. By identifying potential risks early and developing appropriate mitigation and contingency measures, project teams can minimize the likelihood and impact of negative events and ensure that the project stays on track.

| Risk | Portability | Impact | Mitigation |
|---|---|---|---|
| Error in function | Medium | Medium | Test the website continuously. |
| Loss of encrypted data | Medium | High | Maintain security checkup continuously. |
| Unauthorized access | High | High | Restrict user after 5 unsuccessful login attempts. |

## 14. APROVALS

| | |
|---|---|
| Project Sponsor | American International University-Bangladesh |
| Development Management | Mahamodul Hasan Mahadi |
| EDI Project Manager | Sadia Ferdous |
| RS Test Manager | Mahamodul Hasan Mahadi |
| RS Development Team Manager | Minhaz Ahmed Ayon |
| Reassigned Sales | Showrav Karmakar |
| Order Entry EDI Team Manager | Minhaz Ahmed Ayon |