



Daffodil International University

**Department of Software Engineering, FSIT
SWE-431 Project / Thesis**

Project: Car Parts Management Portal

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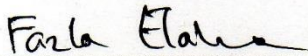
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DECLARATION

I hereby declare that project titled “**Car Parts Management Portal**” is an original record done by me under the supervision of **Afsana Begum**, Assistant Professor & Coordinator M.Sc, Department of Software Engineering, Daffodil International University, towards the partial fulfilments of requirement for the award of degree of Bachelor of Science in Software Engineering during the period of 2016-2022. I also state that this project has not been submitted anywhere in the partial fulfilments for any degree of this or any other University.



Md. Abdullah Al Mamun

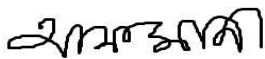
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ABSTRACT

This project is a web-based car parts management portal specifically designed for owner of parts store because managing his store's parts, sales and employees. Using this system store owner can create user as employee and their role. Three types of user role such as Admin, Manager, Salesman. Each user use this system according to their role. Using this system admin can easily manage user, parts specifications, sales parts, view sales report, view profit report, view stock report and download all report as a excel file. Manager can all what admin can but except view profit report and download. On the other hand, using this system salesman add sales information when sell parts to the buyer. Main outcomes of this project is faster working process, clear accounts information and overview of store parts, sales, and profit information at a glance.

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CHAPTER 1

INTRODUCTION

1.1 Project Overview

“**Parts Management Portal**” is a web based application which is totally online system design to deal with owner to manage his employees and their roles and overall activities. Most of the cases, when import parts from abroad than employees note al parts information in details by manual way but now employees can add and modify parts information, sales information and also easily can view sales report, stock report, profit report, and download all reports using this system.

This application summarized the information of the selling parts according to today and last thirty days basis. All summarized information show the application dashboard that application user can get an overall concept about selling parts information at a glance.

“**Parts Management Portal**” is powerful, flexible, and easy to use and is designed and developed to deliver real conceivable benefits to the owner, manager, salesman and buyer who are looking for appropriate web base solution for their manual working process.

1.2 Project Purpose

The main purpose of this project – Main purpose of this project is to mitigate parts record complexity. Second purpose is to reduce inefficient calculation and accounting of parts sales. Third purpose is to create accurate sales report, profit report and stock report. Fourth purpose is to reduce struggle that creating ‘Excel’ for report, profit report and stock report. Fifth, making easier to information visualization. Last, to reduce managing employee’s role.

1.2.1 Background

Vehicle parts selling store where many employee works for selling parts, finding parts, ordering parts, managing stock etc. End of the day need to calculate today’s sales report, profit report, stock information and so on that is time consuming and difficult to calculate manual process. For solving this problem I want to make web application where owner can manage his employees, selling parts, finding parts, sales report, profit report and available stock report.

1.2.2 Benefits

Main benefit of this project is owner of this project can add user as his employee and define his working role and also view sales report, view sales profit report and stock report. Manger can add, edit, and delete parts specification such as brand, model and category. Also add, edit and delete imported parts information and sales report and also stock report. Salesman can add sales information and view daily sales report.

1.2.3 Goals

- Reduce problems of managing employees.
- Solution of manual parts finding.
- Time saving working process.
- Accurate calculation of sales report.
- Accurate calculation of profit report.
- Accurate calculation of stock report.
- Quick generating sales, profit and stock report excel file.
- Reduce disorder of parts selling accounts.

1.3 Stakeholders

There are two types of stakeholders in this project.

1. Admin (Project Owner)
2. Manager
3. Salesman
4. Buyer

1.4 Proposed System Model

Proposed system model generally describes what developers are going to do this project. What model is followed in this project? What is the project about and what are the new features in the project than another existing project? How they are working. And these are describing details below, figure [1]

1.4.1 Why Choose Waterfall-Model?

The proposed system model for this application is waterfall model. Because-

- Requirements are very clear and fixed.
- There are no ambiguous requirements.
- Ample resources with required expertise are available freely.
- The project is short.
- It is good to use this model because the technology is well understood.

1.4.2 How I Used Waterfall-Model?

1. Ideate a plan from real life concerning issues.
2. Gathering and changing user requirements are embraced for the user's competitive advantages.
3. Concentrate on delivering working software frequently.
4. Projects must be based on people who are motivated. Give them the proper environment and the support that they need.
5. Self-organized teams usually create the best designs. Constant attention to technical excellence and good design will enhance agility.
6. Simplicity is considered to be the art of maximizing the work that is not done, and it is essential.
7. At regular intervals, the team putted their concentration on how to become more effective, and they will adjust their behaviour accordingly.
8. Regular monitoring personnel were attentive to test the system.

WATERFALL MODEL

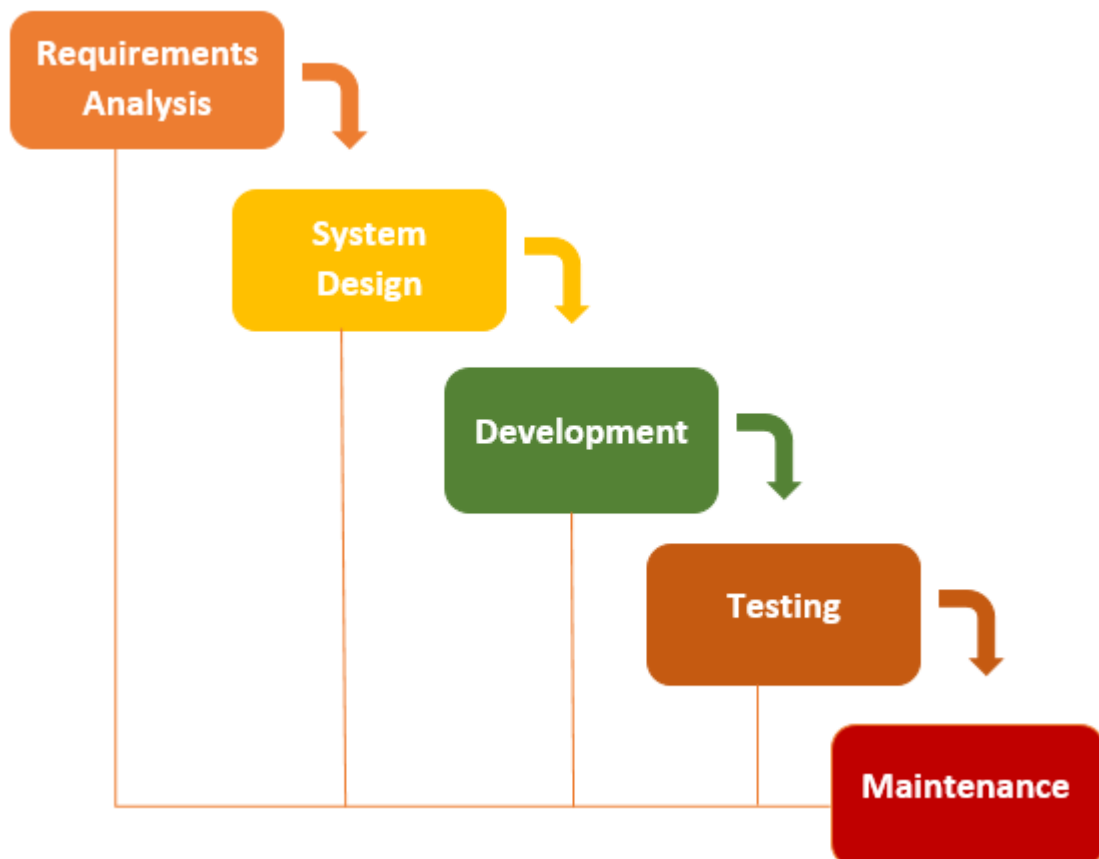


Figure 1: Project Proposed Model (Waterfall)

1.5 Project Schedule

In project management, a schedule is a listing of project's milestones, activities, and deliverables, usually with intended start and finish dates. It describes when the project started and when it will finish and how many times is spent each of the section of project model and also the release date. A schedule is commonly used in the project planning and project portfolio management parts of project management.

1.5.1 Gantt Chart

A Gantt chart is a series of horizontal lines shows the amount of work done or production completed in certain periods in relation to the amount planned for those periods, figure [2]

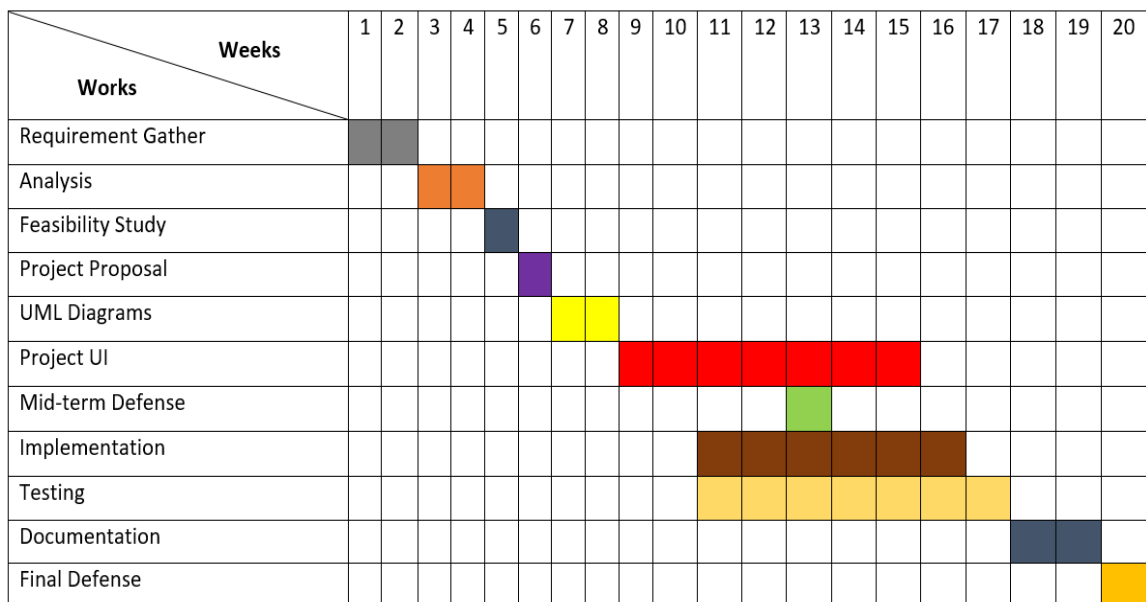


Figure 2: Gantt chart

1.5.2 WBS Planning for Development Phase

1. Project plan [16 January 2022 23 January 2022]
2. Requirement gathering [24 January 2022 to 07 February 2022]
3. Analysis [07 February 2022 to 21 February 2022]
 - Brainstorming
 - Interview
 - Observation
 - Implementation Analysis
4. Feasibility study [21 February 2022 to 28 February 2022]
5. Design [01 March 2022 to 17 May 2022]
 - System design
 - Database design and Implementation
 - UML design
 - User Interface (UI)
6. Development [5 April 2022 to 20 August 2022]
 - Admin Module
 - Manager Module
 - Salesman Module
 - Others
7. Testing [5 April 2022 to 30 September 2022 (including two phase)]
 - Test plan
 - Test Case
 - Test Execution
8. Release plan

Release	Version	Date
1 st Release	Beta Version 1.0.0	5/10/2022
2 nd Release	Beta Version 1.1.0	23/12/2022
3 rd Release	Version 2.0.0	17/02/2023

CHAPTER 2

SOFTWARE REQUIREMENTS SPECIFICATION

2.1 Software Requirements Specification

A Software requirements specification document describes the intended purpose, requirements and nature of software to be developed. It also includes the yield and cost of the software. The purpose of this SRS document is to provide a detailed overview of our software product, its parameters and goals. This document describes the project's target audience and its user interface, hardware, software, functional and non-functional requirements. It defines how user, administrator and developer see the product and its functionality.

2.2 Functional Requirements

Functional requirements are mandatory for any system. For this system functional requirements are mentioned below

Requirement ID	Requirements
FR-01	Login
FR-02	Create user
FR-03	Resend user password
FR-04	Assign user permission
FR-05	Update profile
FR-06	Change password
FR-07	Change profile picture
FR-08	Add parts brand
FR-09	Edit parts brand
FR-10	Delete parts brand
FR-11	Add parts model
FR-12	Edit parts model
FR-13	Delete parts model
FR-14	Add parts category
FR-15	Edit parts category
FR-16	Delete parts category
FR-17	Add parts
FR-18	Edit parts
FR-19	Delete parts
FR-20	Sell parts
FR-21	View parts stock report
FR-22	Download parts stock report
FR-23	View parts sales report
FR-24	Download parts sales report
FR-25	View sales profit report
FR-26	Download sales profit report
FR-27	Logout

Table 2.2.1: Functional Requirements

2.3 Dependability Requirements

2.3.1 Reliability Requirements

- A predefined range for all values that are input by the operator shall be defined and the system shall check that all operator inputs fall within this predefined range.
- The system shall check all disks for bad blocks when it is initialized.
- The system must use programming to implement the braking control system.
- The system must be implemented in a safe subset of JS and checked using static analysis.

2.3.2 Availability Requirements

- Measure of the fractions of the time that the system is available for user.
- Relevant for non-stop, continuous running system.
- Takes repair and restart time into account.

2.3.3 Robustness or Fault Tolerance Requirements

- The degree to which a system or component can function correctly in the presence of invalid inputs or stressful environmental conditions.
- The ability to deliver service that can justifiably be trusted in a software system.

2.3.4 Safety-Critical Requirements

- Every requirements should be consistent.
- Every requirements should be uniquely identified.
- Every requirements should be complete and unambiguous.
- Every requirements should be consistent, with no conflicting characteristics.
- Every requirements should be traceable.
- Every requirements should be testable.
- Every requirements should be verifiable.

2.4 Security Requirements

2.3.1 Confidentiality

- Requires information in a computer system only be accessible for reading by authorized parties.

2.3.2 Integrity

- Assets can be modified by authorized parties only.

2.3.3 Authenticity

- Requires that a computer system be able to verify the identity of a user.

2.3.4 Availability

- Assets be available to authorized parties.

2.5 Software Requirements

- Operating system: Windows 10
- Frontend: HTML, CSS, Bootstrap, JavaScript, ReactJS
- Backend: NodeJS, ExpressJS
- Database: MongoDB
- Code Editor: VS Code
- API Testing: Postman
- Data Visualization: MongoDB Compass

2.6 Hardware Requirements

- Processor: Intel core up to core i5
- RAM: 8GB
- Hard Disk: 1TB

CHAPTER 3

SYSTEM ANALYSIS

3.1 Use Case Diagram

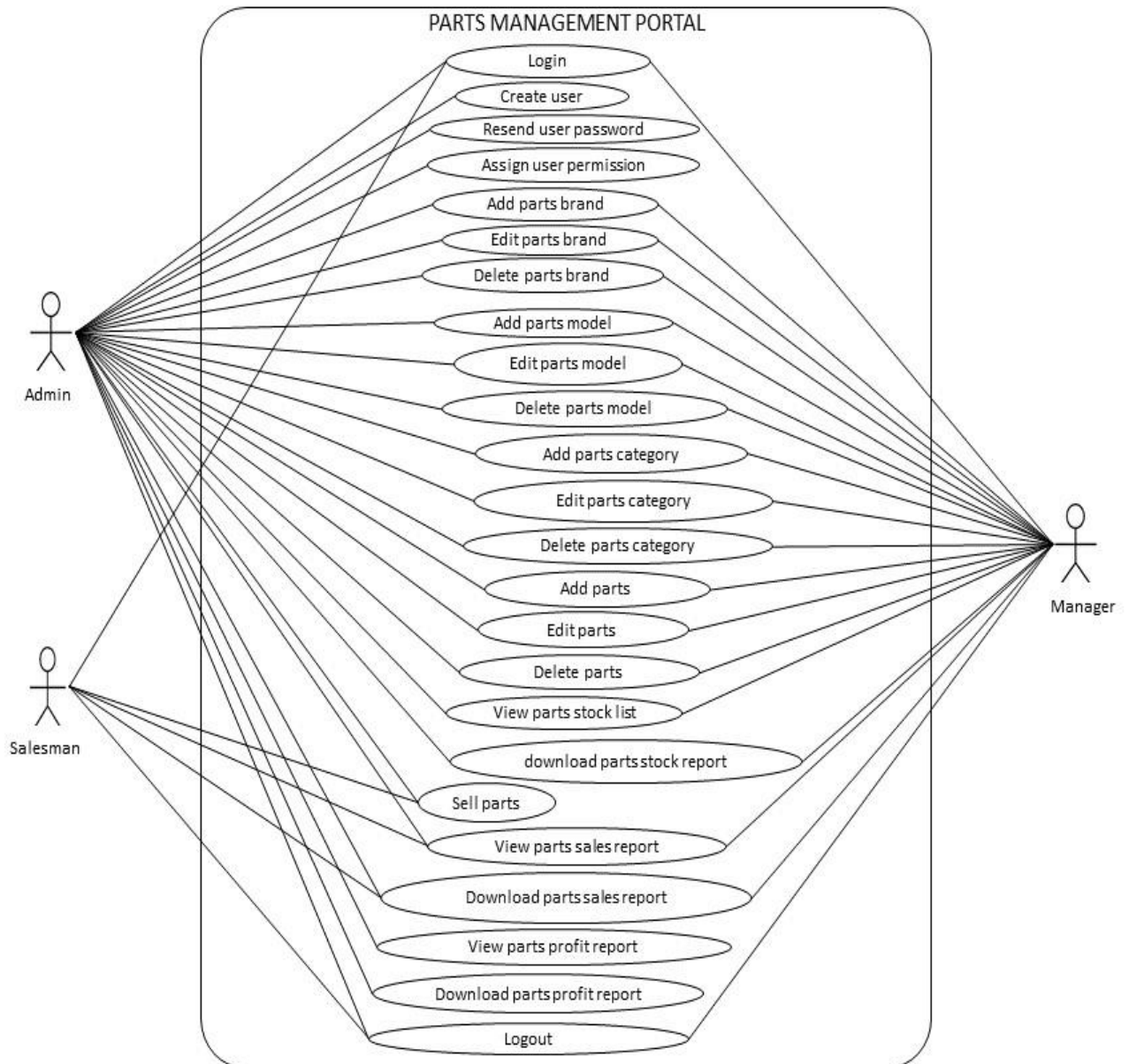


Figure 3: Use Case Diagram

3.2 Use Case Description

Table 3.2.1: Use Case Description of Login

Use Case ID.	UC-01	
Use Case Name	Login	
Actors	Admin, Manager, Salesman	
Trigger	Want to use this system must need to login first.	
Brief Description	For secure of using “Parts Management Portal” user need to authorized access to the system that’s why login needed.	
Stakeholders	Admin, Manager, Salesman	
Preconditions	1. Need authorized email and password.	
Post conditions	1. Get permission to use “Parts Management Portal”	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Input login credentials. 2. Request to login. 3. View homepage. 	<ol style="list-style-type: none"> 1.1 Validate data. 2.1 Match login credentials. 2.2 Redirect to home page.
Exception Conditions	<ol style="list-style-type: none"> 1.1.1 If invalid data show an error message. 2.1.1 If not match credential show an error message. 2.1.2 Redirect to login page with an error message. 	

Table 3.2.2: Use Case Description of Create User

Use Case ID.	UC-02	
Use Case Name	Create user	
Actors	Admin	
Trigger	Willing to create user.	
Brief Description	For managing users of the system must need to create users and define their roles	
Stakeholders	Admin, Manager, Salesman	
Preconditions	1. Admin must login as admin permission.	
Post conditions	1. After creating user, now admin can update and delete user's information, assign permission and resend password.	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on "Add User" button. 2. Input user information. 3. Request to create user. 4. Show message "Added user successfully". 	<ol style="list-style-type: none"> 2.1 Validated input data. 2.2 Save data into Database.
Exception Conditions	<ol style="list-style-type: none"> 2.1.1 If invalid input data show an error message. 2.2.1 If any error occurred then return an error message. 	

Table 3.2.3: Use Case Description of Resend User Password

Use Case ID.	UC-03	
Use Case Name	Resend user password	
Actors	Admin	
Trigger	When need to resend password to the user.	
Brief Description	When a user forget his password then again login need to resend new password to the user.	
Stakeholders	Admin, Manager, Salesman	
Preconditions	<ol style="list-style-type: none"> 1. Admin must login as admin permission. 2. User forget his password. 	
Post conditions	<ol style="list-style-type: none"> 1. Got an email with new password who forgot his password. 	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. View user list. 2. Select user and click on resend password button. 3. Request to resend password to the user. 4. Show message “Resend password successfully”. 	<ol style="list-style-type: none"> 3.1 Save new password into database. 3.2 Send email to the user with new password.
Exception Conditions	<ol style="list-style-type: none"> 3.1.1 If any error occurred then return an error message. 3.2.1 If any error occurred then return an error message email sending failed. 	

Table 3.2.4: Use Case Description of Assign User Permission

Use Case ID.	UC-04	
Use Case Name	Assign user permission	
Actors	Admin	
Trigger	When need to assign new permission to the user	
Brief Description	When a user need to change his role then who has admin permission can change user's role as a permission. .	
Stakeholders	Admin, Manager, Salesman	
Preconditions	<ol style="list-style-type: none"> 1. Admin must login as admin permission. 2. Already have user account. 	
Post conditions	<ol style="list-style-type: none"> 1. User got access according that portal according to role as a permission. 	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. View user list. 2. Select user and click on Assign permission button. 3. Input permission. 4. Request to change permission. 5. Show message "Changed permission successfully". 	<ol style="list-style-type: none"> 3.1 Validate permission data. 4.1 Save new permission data into database.
Exception Conditions	<ol style="list-style-type: none"> 3.1.1 If provide invalid then return an error message. 4.1.1 If any error occurred then return an error message. 	

Table 3.2.5: Use Case Description of Add Parts Brand

Use Case ID.	UC-05	
Use Case Name	Add parts brand	
Actors	Admin, Manager	
Trigger	When need to add brand.	
Brief Description	Brand is a parts specification so before add parts need to add that parts brand if that brand not included the brand list already.	
Stakeholders	Admin, Manager	
Preconditions	<ol style="list-style-type: none"> 1. User must login as admin or manager permission. 	
Post conditions	<ol style="list-style-type: none"> 1. Able to include that brand in a parts model. 2. Able to include that brand when add parts. 	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on add brand button. 2. Input brand information in form. 3. Request to add brand. 4. Show message “Brand added successfully”. 	<ol style="list-style-type: none"> 2.1 Validate inputted brand data. 3.1 Save brand data into database.
Exception Conditions	<ol style="list-style-type: none"> 2.1.1 If provide invalid brand data then return an error message. 3.1.1 If any error occurred then return an error message. 	

Table 3.2.6: Use Case Description of Edit Parts Brand

Use Case ID.	UC-06	
Use Case Name	Edit parts brand	
Actors	Admin, Manager	
Trigger	When need to edit brand information.	
Brief Description	Brand is a parts specification so after add parts need to edit that parts brand if add any wrong information by mistake.	
Stakeholders	Admin, Manager	
Preconditions	<ol style="list-style-type: none"> 1. User must login as admin or manager permission. 2. Exist that brand 	
Post conditions	<ol style="list-style-type: none"> 1. Got updated brand list. 	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on edit brand button. 2. Input new brand information. 3. Request to edit brand. 4. Show message “Brand updated successfully”. 	<ol style="list-style-type: none"> 2.1 Validate updated input brand data. 3.1 Update brand data into database.
Exception Conditions	<ol style="list-style-type: none"> 2.1.1 If provide invalid brand data then return an error message. 3.1.1 If any error occurred then return an error message. 	

Table 3.2.7: Use Case Description of Delete Parts Brand

Use Case ID.	UC-07	
Use Case Name	Delete parts brand	
Actors	Admin, Manager	
Trigger	When need to delete brand information.	
Brief Description	Brand is a parts specification so after add parts need to delete that parts brand if needed.	
Stakeholders	Admin, Manager	
Preconditions	<ol style="list-style-type: none"> 1. User must login as admin or manager permission. 2. Exist that brand 	
Post conditions	<ol style="list-style-type: none"> 1. Removed that brand from brand list. 	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on delete brand button. 2. Request to delete brand. 3. Show message “Brand deleted successfully”. 	2.1 Delete brand data from database.
Exception Conditions	2.1.1 If any error occurred then return an error message.	

Table 3.2.8: Use Case Description of Add Parts Model

Use Case ID.	UC-08	
Use Case Name	Add parts model	
Actors	Admin, Manager	
Trigger	When need to add model.	
Brief Description	Brand is a parts specification so before add parts need to add that parts model if that model not included the model list already.	
Stakeholders	Admin, Manager	
Preconditions	1. User must login as admin or manager permission.	
Post conditions	1. Able to include that model in a parts model. 2. Able to include that model when add parts.	
Flow Of Activities	Actor	System
	1. Click on add model button. 2. Input brand information in form. 3. Request to add model. 4. Show message “Model added successfully”.	2.1 Validate inputted model data. 3.1 Save model data into database.
Exception Conditions	2.1.1 If provide invalid model data then return an error message. 3.1.1 If any error occurred then return an error message.	

Table 3.2.9: Use Case Description of Edit Parts Model

Use Case ID.	UC-09	
Use Case Name	Edit parts model	
Actors	Admin, Manager	
Trigger	When need to edit model information.	
Brief Description	Brand is a parts specification so after add parts need to edit that parts model if add any wrong information by mistake.	
Stakeholders	Admin, Manager	
Preconditions	<ol style="list-style-type: none"> 1. User must login as admin or manager permission. 2. Exist that model 	
Post conditions	<ol style="list-style-type: none"> 1. Got updated model list. 	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on edit model button. 2. Input new model information. 3. Request to edit brand. 4. Show message “Model updated successfully”. 	<ol style="list-style-type: none"> 2.1 Validate updated input model data. 3.1 Update model data into database.
Exception Conditions	<ol style="list-style-type: none"> 2.1.1. If provide invalid model data then return an error message. 3.1.1 If any error occurred then return an error message. 	

Table 3.2.10: Use Case Description of Delete Parts Model

Use Case ID.	UC-10	
Use Case Name	Delete parts model	
Actors	Admin, Manager	
Trigger	When need to delete model information.	
Brief Description	Brand is a parts specification so after add parts need to delete that parts model if needed.	
Stakeholders	Admin, Manager	
Preconditions	<ol style="list-style-type: none"> 1. User must login as admin or manager permission. 2. Exist that model 	
Post conditions	<ol style="list-style-type: none"> 1. Removed that brand from model list. 	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on delete model button. 2. Request to delete model. 5. Show message “Model deleted successfully”. 	2.1 Delete model data from database.
Exception Conditions	2.1.1 If any error occurred then return an error message.	

Table 3.2.11: Use Case Description of Add Parts Category

Use Case ID.	UC-11	
Use Case Name	Add parts category	
Actors	Admin, Manager	
Trigger	When need to add category.	
Brief Description	Category is a parts specification so before add parts need to add that parts category if that category not included the category list already.	
Stakeholders	Admin, Manager	
Preconditions	1. User must login as admin or manager permission.	
Post conditions	1. Able to include that category in a parts. 2. Able to include that category when add parts.	
Flow Of Activities	Actor	System
	1. Click on add category button. 2. Input category information in form. 3. Request to add model. 4. Show message “Category added successfully”.	2.1 Validate inputted category data. 3.1 Save category data into database.
Exception Conditions	2.1.1 If provide invalid category data then return an error message. 3.1.1 If any error occurred then return an error message.	

Table 3.2.12: Use Case Description of Edit Parts Category

Use Case ID.	UC-12	
Use Case Name	Edit parts category	
Actors	Admin, Manager	
Trigger	When need to edit category information.	
Brief Description	Brand is a parts specification so after add parts need to edit that parts category if add any wrong information by mistake.	
Stakeholders	Admin, Manager	
Preconditions	<ol style="list-style-type: none"> 1. User must login as admin or manager permission. 2. Exist that category 	
Post conditions	<ol style="list-style-type: none"> 1. Got updated category list. 	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on edit category button. 2. Input new model information. 3. Request to edit category. 4. Show message “Category updated successfully”. 	<ol style="list-style-type: none"> 2.1 Validate updated input category data. 3.1 Update category data into database.
Exception Conditions	<ol style="list-style-type: none"> 1. If provide invalid category data then return an error message. 2. If any error occurred then return an error message. 	

Table 3.2.13: Use Case Description of Delete Parts Category

Use Case ID.	UC-13	
Use Case Name	Delete parts category	
Actors	Admin, Manager	
Trigger	When need to delete category information.	
Brief Description	Brand is a parts specification so after add parts need to delete that parts category if needed.	
Stakeholders	Admin, Manager	
Preconditions	<ol style="list-style-type: none"> 1. User must login as admin or manager permission. 2. Exist that category 	
Post conditions	<ol style="list-style-type: none"> 1. Removed that category from category list. 	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on delete category button. 2. Request to delete category. 3. Show message “Category deleted successfully”. 	2.1 Delete category data from database.
Exception Conditions	2.1.1. If any error occurred then return an error message.	

Table 3.2.14: Use Case Description of Add Parts

Use Case ID.	UC-14	
Use Case Name	Add parts	
Actors	Admin, Manager	
Trigger	When need to add parts.	
Brief Description	When import parts from abroad then need to add parts information.	
Stakeholders	Admin, Manager	
Preconditions	1. User must login as admin or manager permission.	
Post conditions	1. Show parts in a parts list	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on add parts button. 2. Input parts information in form. 3. Request to add parts. 4. Show message “Parts added successfully”. 	<ol style="list-style-type: none"> 2.1 Validate inputted parts data. 3.1 Save parts data into database.
Exception Conditions	<ol style="list-style-type: none"> 2.1.1. If provide invalid parts data then return an error message. 3.1.1 If any error occurred then return an error message. 	

Table 3.2.15: Use Case Description of Edit Parts

Use Case ID.	UC-15	
Use Case Name	Edit parts	
Actors	Admin, Manager	
Trigger	When need to edit parts information.	
Brief Description	Parts information need to edit that parts if add any wrong information by mistake.	
Stakeholders	Admin, Manager	
Preconditions	<ol style="list-style-type: none"> 1. User must login as admin or manager permission. 2. Exist that parts 	
Post conditions	<ol style="list-style-type: none"> 1. Got updated parts list. 	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on edit parts button. 2. Input new parts information. 3. Request to edit parts. 4. Show message “Parts updated successfully”. 	<ol style="list-style-type: none"> 2.1 Validate updated input parts data. 3.1 Update parts data into database.
Exception Conditions	<ol style="list-style-type: none"> 2.1.1 If provide invalid parts data then return an error message. 3.1.1 If any error occurred then return an error message. 	

Table 3.2.16: Use Case Description of Delete Parts

Use Case ID.	UC-16	
Use Case Name	Delete parts	
Actors	Admin, Manager	
Trigger	When need to delete parts information.	
Brief Description	If need to delete any parts information	
Stakeholders	Admin, Manager	
Preconditions	<ol style="list-style-type: none"> 1. User must login as admin or manager permission. 2. Exist that parts 	
Post conditions	<ol style="list-style-type: none"> 1. Removed that parts from category list. 	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on delete parts button. 2. Request to delete parts. 3. Show message “Parts deleted successfully”. 	2.1 Delete parts data from database.
Exception Conditions	2.1.1 If any error occurred then return an error message.	

Table 3.2.17: Use Case Description of View Parts Stock List

Use Case ID.	UC-17	
Use Case Name	View parts stock list	
Actors	Admin, Manager	
Trigger	When need to view parts stock information.	
Brief Description	Stock of parts is a very important things. For importing new part need to know urgently stock information.	
Stakeholders	Admin, Manager	
Preconditions	<ol style="list-style-type: none"> 1. User must login as admin or manager permission. 2. Exist that parts stock information 	
Post conditions	<ol style="list-style-type: none"> 1. Able to download parts stock report as a excel file. 	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on stock reports button. 2. Request to view stock reports. 3. Show “Parts Stock Reports”. 	<ol style="list-style-type: none"> 2.1 Get all stock data from database. 2.2 Response stock data
Exception Conditions	2.1.1 If no stock data stored in database then user can not able to view parts stock reports.	

Table 3.2.18: Use Case Description of Sell Parts

Use Case ID.	UC-18	
Use Case Name	Sell parts	
Actors	Admin, Salesman	
Trigger	When a buyer want to buy parts from the store.	
Brief Description	Selling parts is very important for a sales store. After adding parts that is needed to sell.	
Stakeholders	Admin, Salesman	
Preconditions	<ol style="list-style-type: none"> 1. User must login as admin or salesman permission. 2. Already added that parts 3. Parts in stock 	
Post conditions	<ol style="list-style-type: none"> 1. View it in sales report 	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on sales button. 2. Input sales information 3. Request to save sales information. 4. Show message “Sold parts successfully”. 	<ol style="list-style-type: none"> 2.1 Validate inputted data 3.1 Save sales information into database
Exception Conditions	<ol style="list-style-type: none"> 2.1.1 If invalid input return an error message. 3.1.1 If any error occurred in database operation return an error message. 	

Table 3.2.19: Use Case Description of Download Parts Stock Report

Use Case ID.	UC-19	
Use Case Name	Download parts stock reports	
Actors	Admin, Manager	
Trigger	When need to download parts stock reports.	
Brief Description	Stock of parts is a very important things. For importing new part need to know urgently stock information and download stock information as a excel file.	
Stakeholders	Admin, Manager	
Preconditions	<ol style="list-style-type: none"> 1. User must login as admin or manager permission. 2. Exist that parts stock information 	
Post conditions	<ol style="list-style-type: none"> 1. Got a downloaded stock reports as a excel file. 	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on download stock reports button. 2. Request to download stock reports. 3. Got a downloaded stock reports excel file. 	<ol style="list-style-type: none"> 1.1 Get all stock data from database. 1.2 Generate excel file 2.1 Response download able excel file
Exception Conditions	<ol style="list-style-type: none"> 1.1.1 If no stock data stored in database then user can not able to download parts stock reports. 1.2.1 If unable to generate excel file show an error message. 	

Table 3.2.20: Use Case Description of View Parts Sales Report

Use Case ID.	UC-20	
Use Case Name	View parts sales report	
Actors	Admin, Manager	
Trigger	When need to view parts sales information.	
Brief Description	Stock of parts is a very important things. For importing new part need to know urgently sales information.	
Stakeholders	Admin, Manager	
Preconditions	<ol style="list-style-type: none"> 1. User must login as admin or manager permission. 2. Exist that parts sales information 	
Post conditions	<ol style="list-style-type: none"> 1. Able to download parts sales report as a excel file. 	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on sales reports button. 2. Request to view sales reports. 3. Show “Parts Sales Reports”. 	<ol style="list-style-type: none"> 2.1 Get all sales data from database. 2.2 Response sales data
Exception Conditions	<ol style="list-style-type: none"> 2.1.1 If no sales data stored in database then user can not able to view parts sales reports. 	

Table 3.2.21: Use Case Description of Download Parts Sales Report

Use Case ID.	UC-21	
Use Case Name	Download parts sales reports	
Actors	Admin, Manager	
Trigger	When need to download parts sales reports.	
Brief Description	Sales of parts is a very important things. For importing new part need to know urgently sales information and download sales information as a excel file.	
Stakeholders	Admin, Manager	
Preconditions	<ol style="list-style-type: none"> 4. User must login as admin or manager permission. 5. Exist that parts sales information 	
Post conditions	<ol style="list-style-type: none"> 2. Got a downloaded sales reports as a excel file. 	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on download sales reports button. 2. Request to download sales reports. 3. Got a downloaded sales reports excel file. 	<ol style="list-style-type: none"> 2.1 Get all sales data from database. 2.2 Generate excel file 2.3 Response download able excel file
Exception Conditions	<ol style="list-style-type: none"> 2.1.1 If no sales data stored in database then user can not able to download parts sales reports. 2.2.1 If unable to generate excel file show an error message. 	

Table 3.2.22: Use Case Description of View Profit Report

Use Case ID.	UC-22	
Use Case Name	View parts sales profit report	
Actors	Admin, Manager	
Trigger	When need to view parts sales information.	
Brief Description	Profit of parts is a very important things. For importing new part need to know urgently sales profit information.	
Stakeholders	Admin, Manager	
Preconditions	<ol style="list-style-type: none"> 1. User must login as admin or manager permission. 2. Exist that parts sales profit information 	
Post conditions	<ol style="list-style-type: none"> 1. Able to download parts sales report as a excel file. 	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on sales profit reports button. 2. Request to view sales profit reports. 3. Show “Parts Sales Profit Reports”. 	<ol style="list-style-type: none"> 2.1 Get all sales profit data from database. 2.2 Response sales profit data
Exception Conditions	<ol style="list-style-type: none"> 2.1.1 If no sales data stored in database then user can not able to view parts sales profit reports. 	

Table 3.2.23: Use Case Description of Download Profit Report

Use Case ID.	UC-23	
Use Case Name	Download parts sales profit reports	
Actors	Admin, Manager	
Trigger	When need to download parts sales profit reports.	
Brief Description	Profit of parts is a very important things. For importing new part need to know urgently sales information and download sales information as a excel file.	
Stakeholders	Admin, Manager	
Preconditions	<ol style="list-style-type: none"> 1. User must login as admin or manager permission. 2. Exist that parts sales profit information 	
Post conditions	<ol style="list-style-type: none"> 1. Got a downloaded sales profit reports as a excel file. 	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on download sales profit reports button. 2. Request to download sales profit reports. 3. Got a downloaded sales profit reports excel file. 	<ol style="list-style-type: none"> 2.1 Get all sales profit data from database. 2.2 Generate excel file 2.3 Response download able excel file
Exception Conditions	<ol style="list-style-type: none"> 31.1.1 If no sales data stored in database then user can not able to download parts sales profit reports. 2.2.1 If unable to generate excel file show an error message. 	

Table 3.2.24: Use Case Description of Logout

Use Case ID.	UC-24	
Use Case Name	Logout	
Actors	Admin, Manager, Salesman	
Trigger	Want not to use this system now and prevent manipulation from other person, must need to logout.	
Brief Description	For secure of using “Parts Management Portal” user need to prevent unauthorized access to the system that’s why logout needed.	
Stakeholders	Admin, Manager, Salesman	
Preconditions	1. User must login.	
Post conditions	1. Cannot get permission to use “Parts Management Portal”, again login.	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on logout button. 2. Send request to logout. 3. View login page. 	<ol style="list-style-type: none"> 2.1 Expire login token. 2.2 Redirect to login page.
Exception Conditions	2.1.1 If invalid token show an error message.	

Table 3.2.25: Use Case Description of Change Password

Use Case ID.	UC-25	
Use Case Name	Change password	
Actors	Admin, manager, Salesman	
Trigger	When a user need to change password.	
Brief Description	For secure use of the system at times need to change password and set a password as remarkable.	
Stakeholders	Admin, Manager, Salesman	
Preconditions	1. User must login	
Post conditions	1. Use it as a new password for next login.	
Flow Of Activities	Actor	System
	<ol style="list-style-type: none"> 1. Click on change password button. 2. Input new password. 3. Request to set new password. 4. Show message “Changed password successfully”. 	<ol style="list-style-type: none"> 2.1 Validate inputted data 3.1 Save new password into database
Exception Conditions	<ol style="list-style-type: none"> 2.1.1 If invalid input return an error message. 3.1.1 If occurred any database error then return error message. 	

3.2 Activity Diagram

Login:

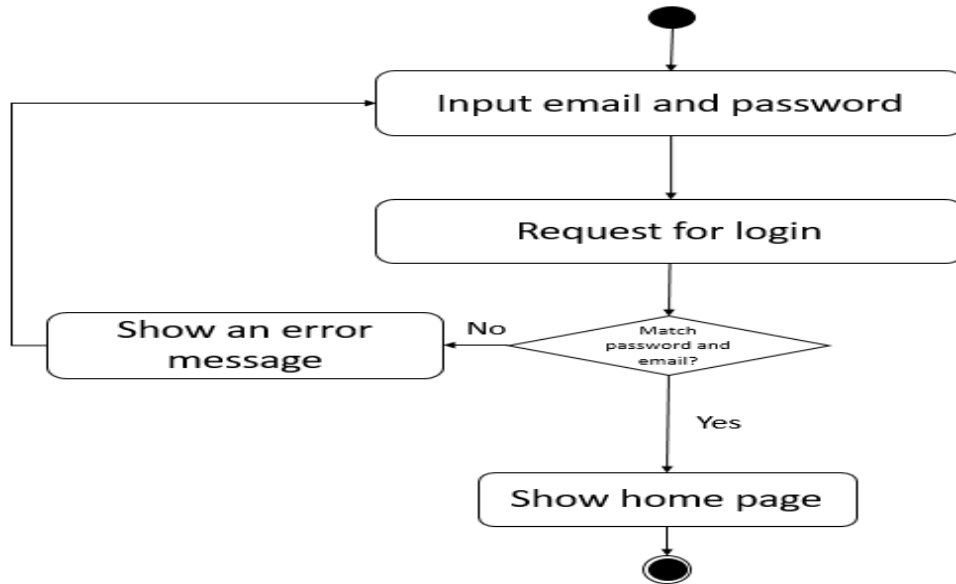


Figure 4: Activity Diagram of Login

Create User:

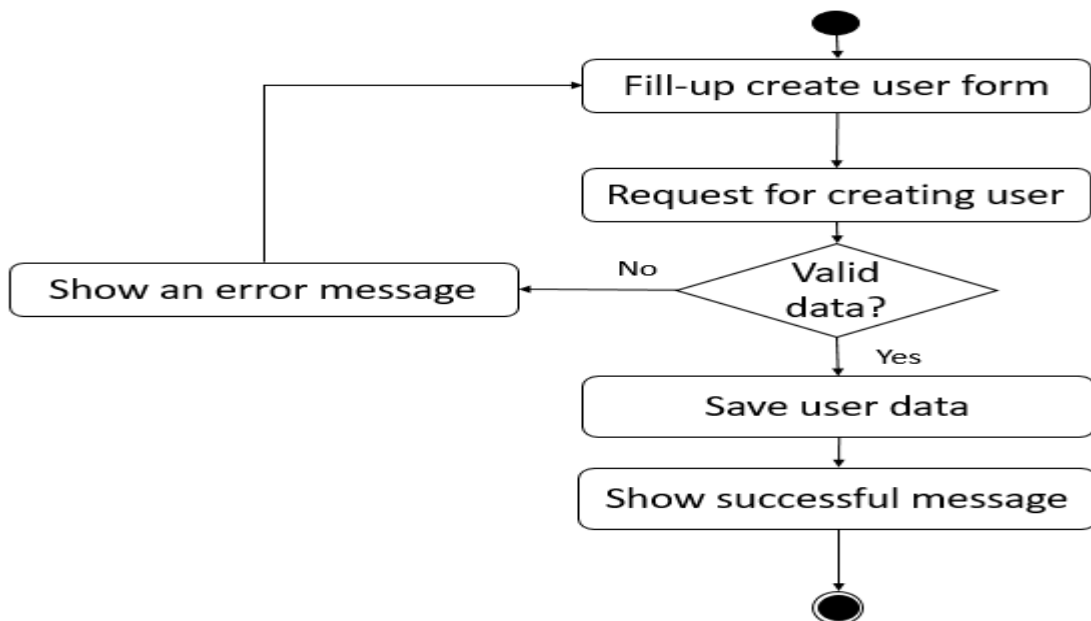


Figure 5: Activity Diagram of Create User

Resend User Password:

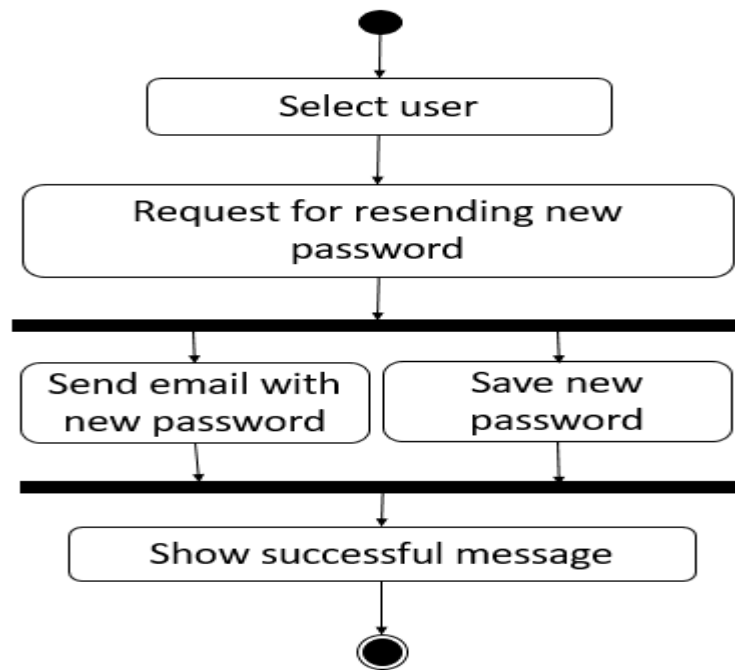


Figure 6: Activity Diagram of Resend User Password

Assign Permission:

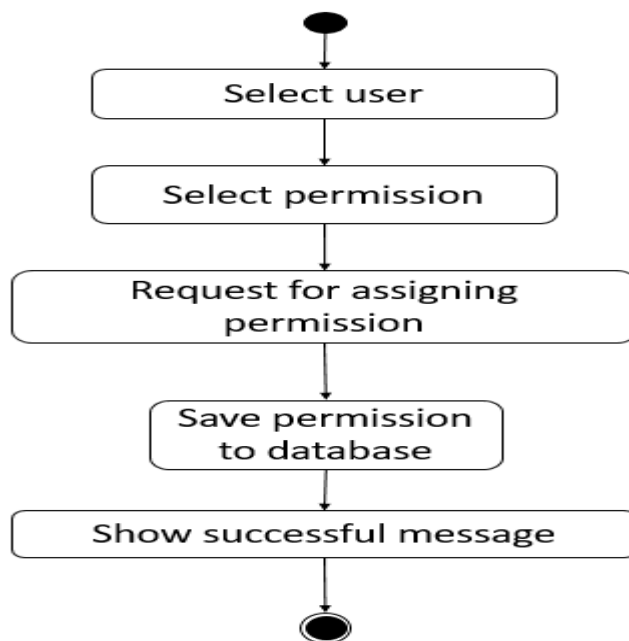


Figure 7: Activity Diagram of Assign Permission

Add Parts Brand:

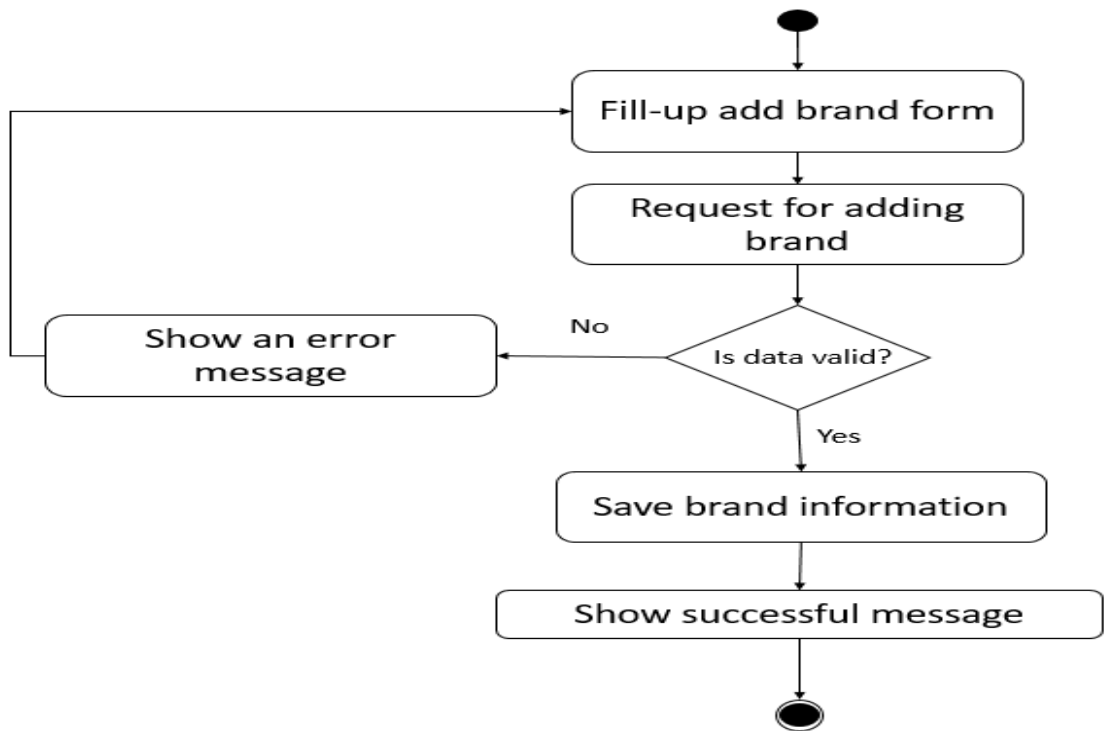


Figure 8: Activity Diagram of Add Parts Brand

Update Parts Brand:

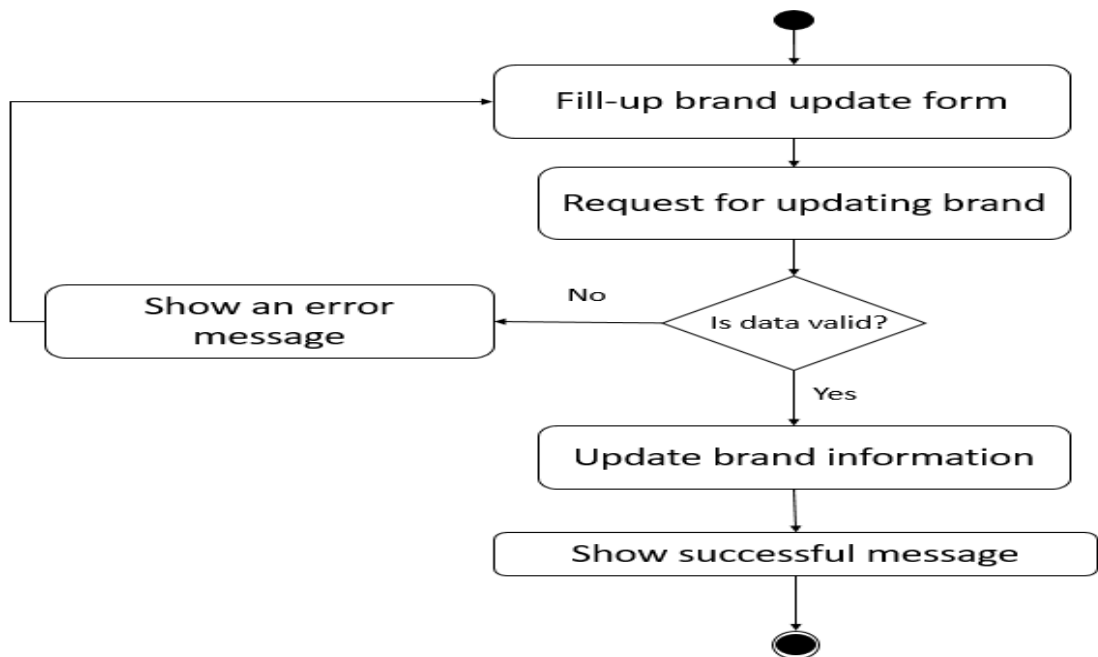


Figure 9: Activity Diagram of Update Parts Brand

Delete Parts Brand:

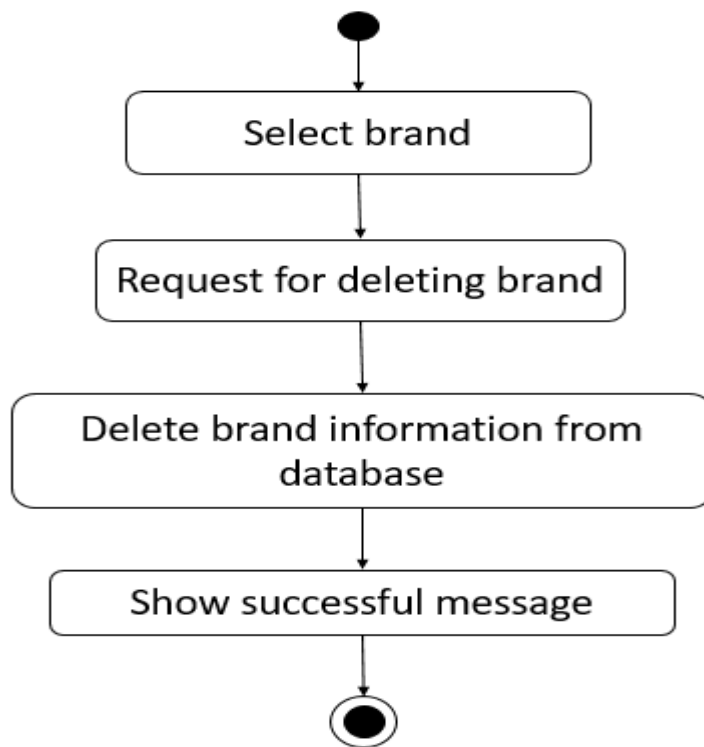


Figure 10: Activity Diagram of Delete Parts Brand

Add Parts Model:

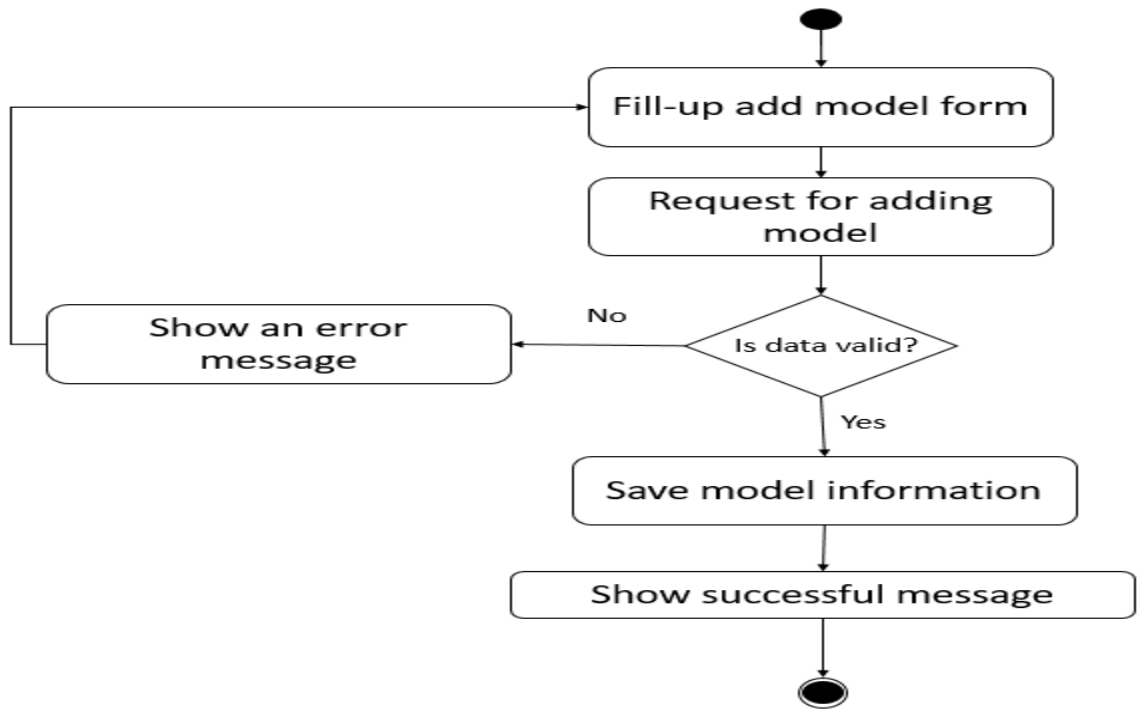


Figure 11: Activity Diagram of Add Parts Model

Update Parts Model:

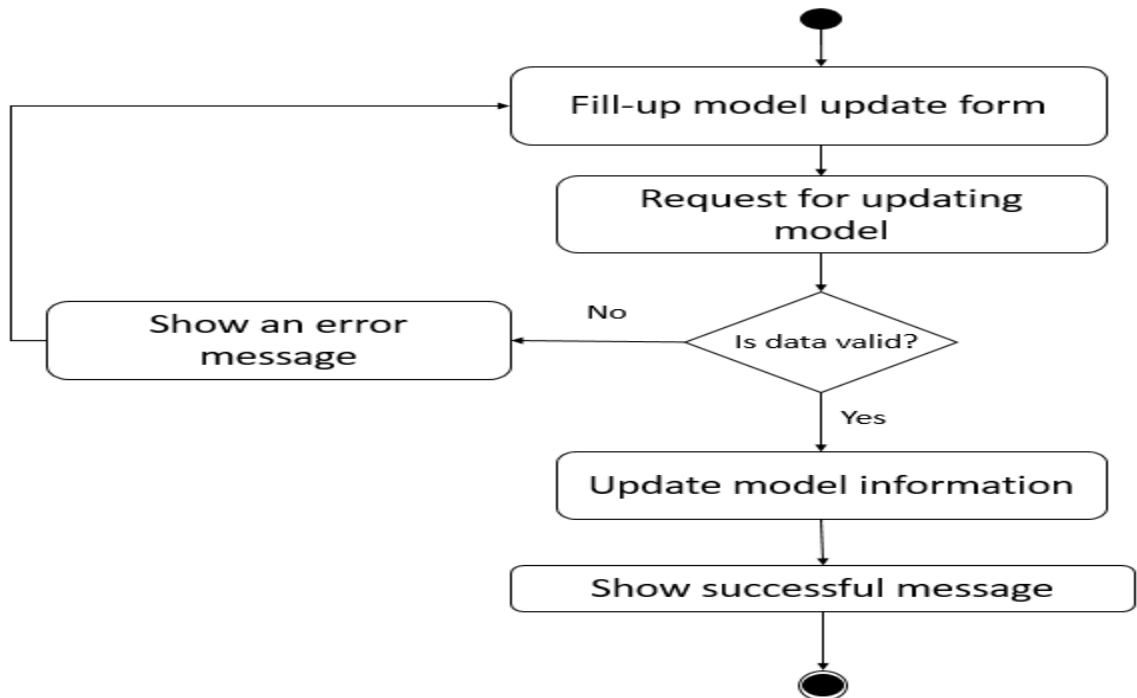


Figure 12: Activity Diagram of Update Parts Model

Delete Parts Model:

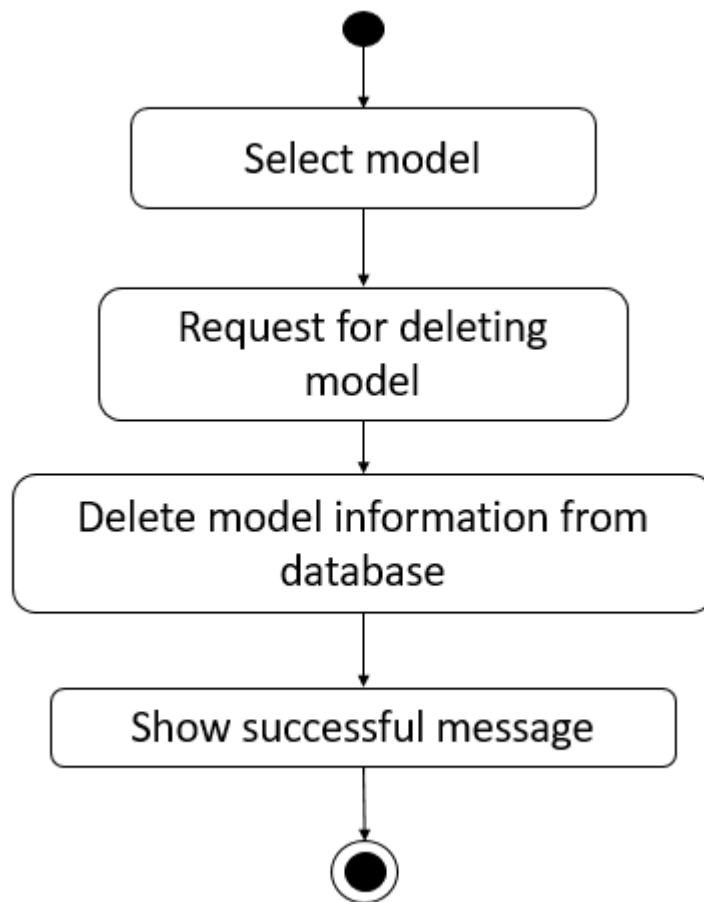


Figure 13: Activity Diagram of Delete Parts Model

Add Parts Category:

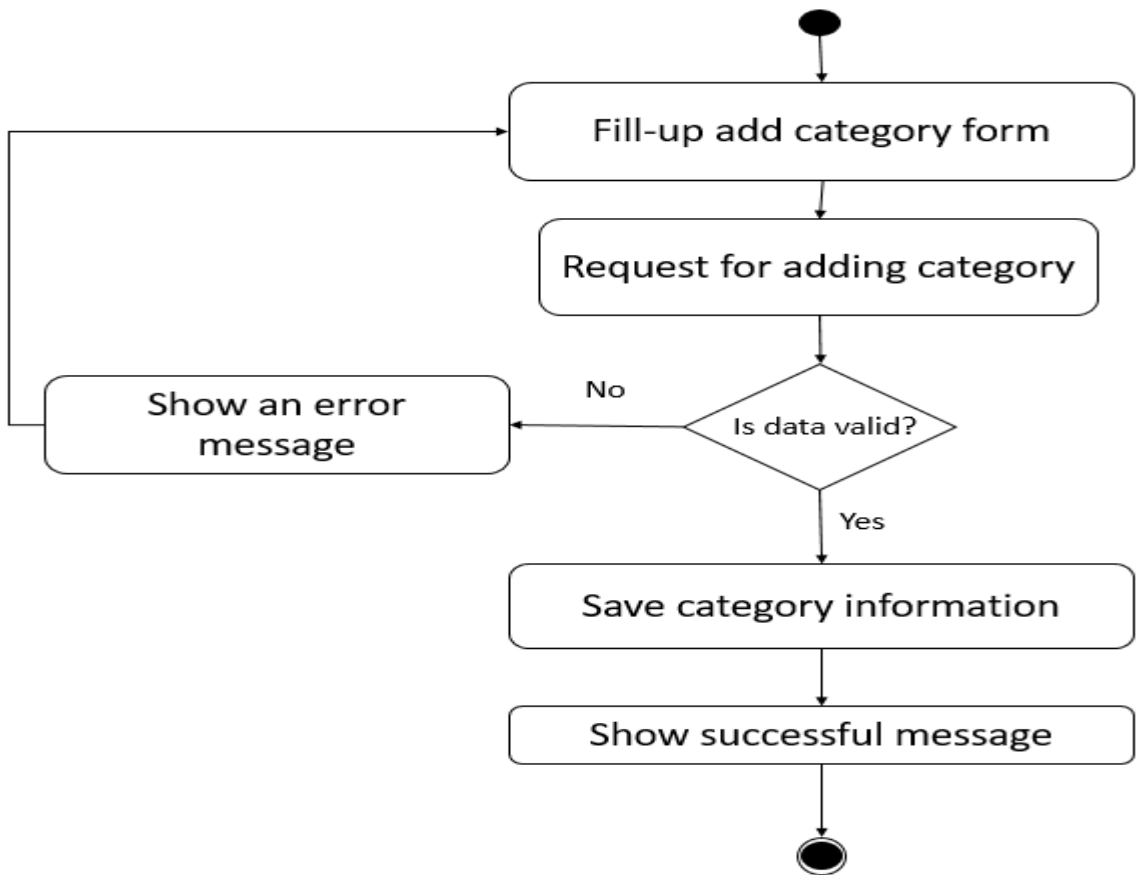


Figure 14: Activity Diagram of Add Parts Category

Update Parts Category:

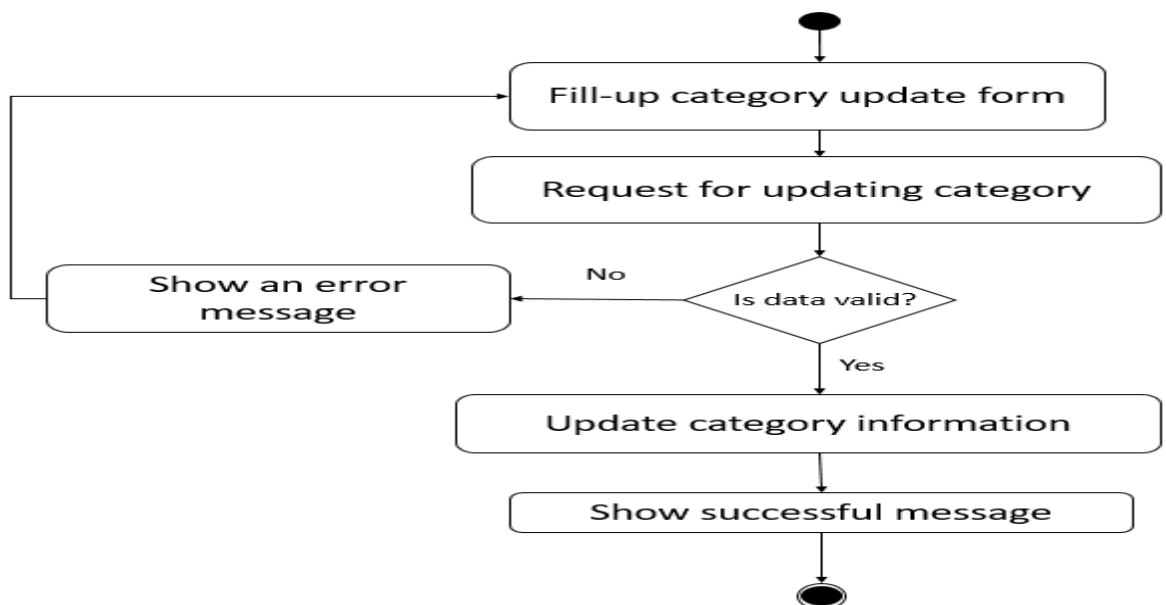


Figure 15: Activity Diagram of Update Parts Category

Delete Parts Category:

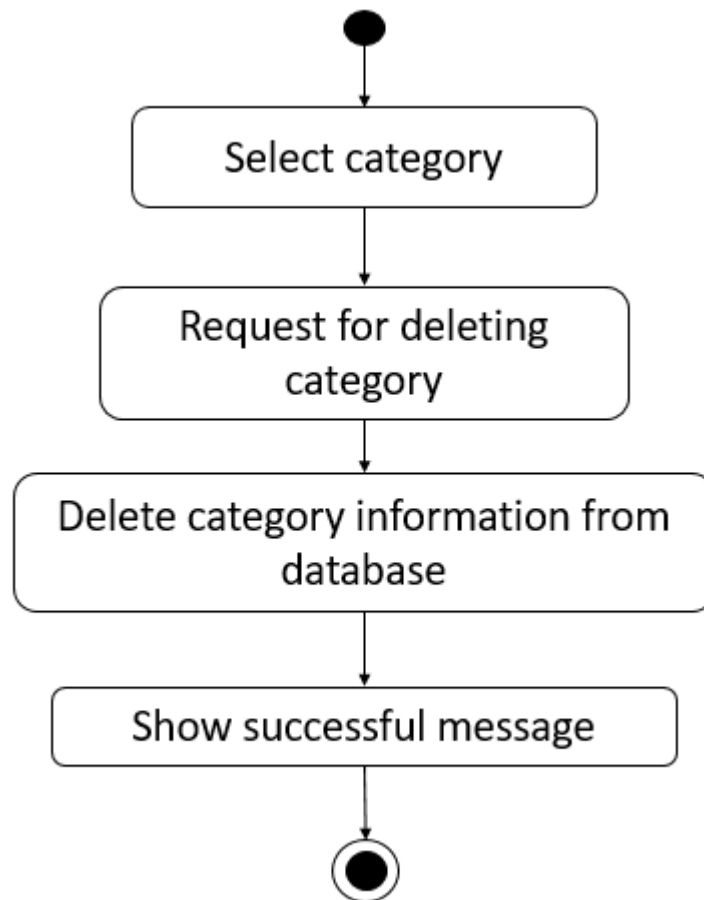


Figure 16: Activity Diagram of Delete Parts Category

Add Parts:

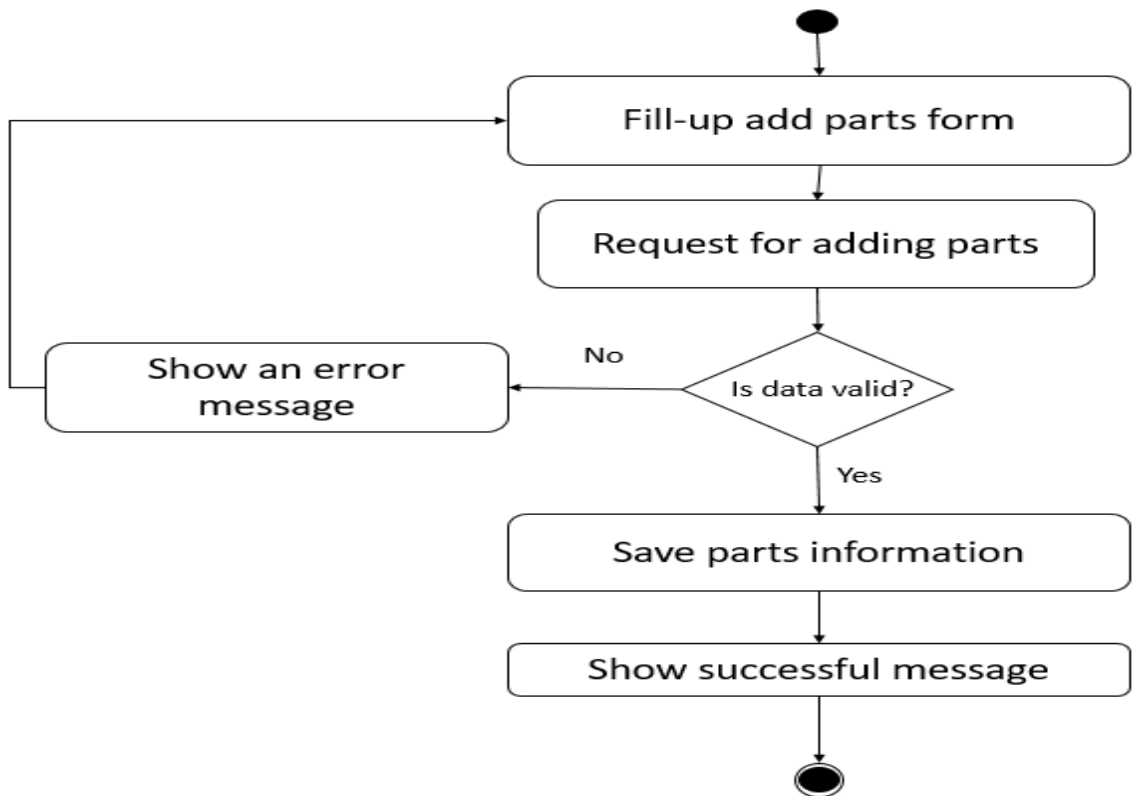


Figure 17: Activity Diagram of Add Parts

Update Parts:

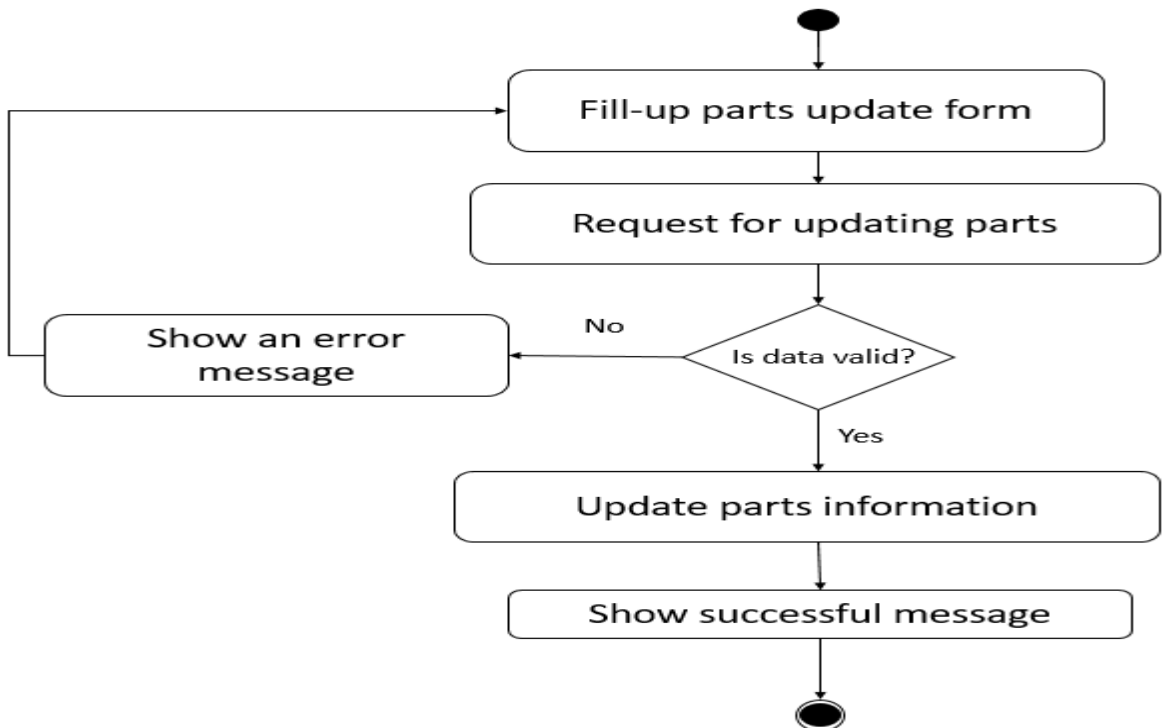


Figure 18: Activity Diagram of Update Parts

Delete Parts:

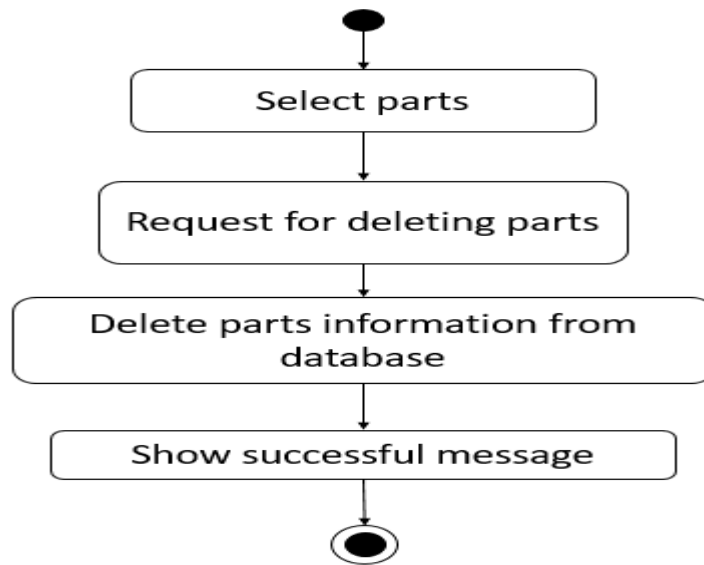


Figure 19: Activity Diagram of Delete Parts

Sell Parts:

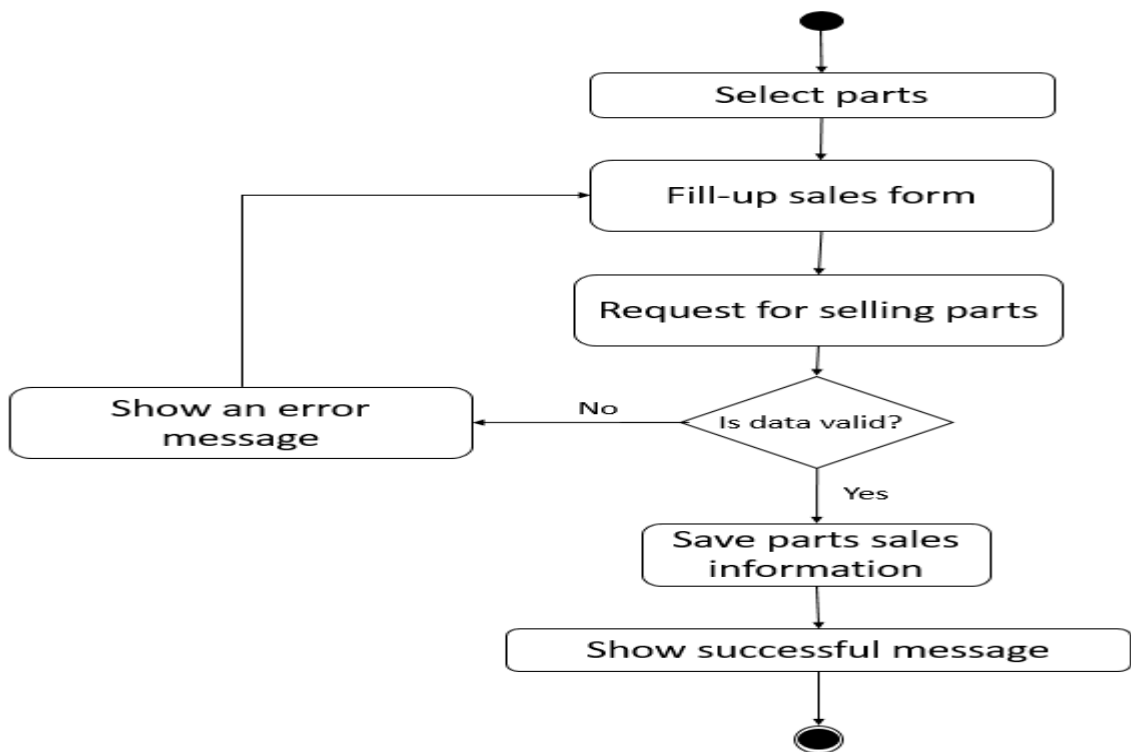


Figure 20: Activity Diagram of Sell Parts

View parts stock report:

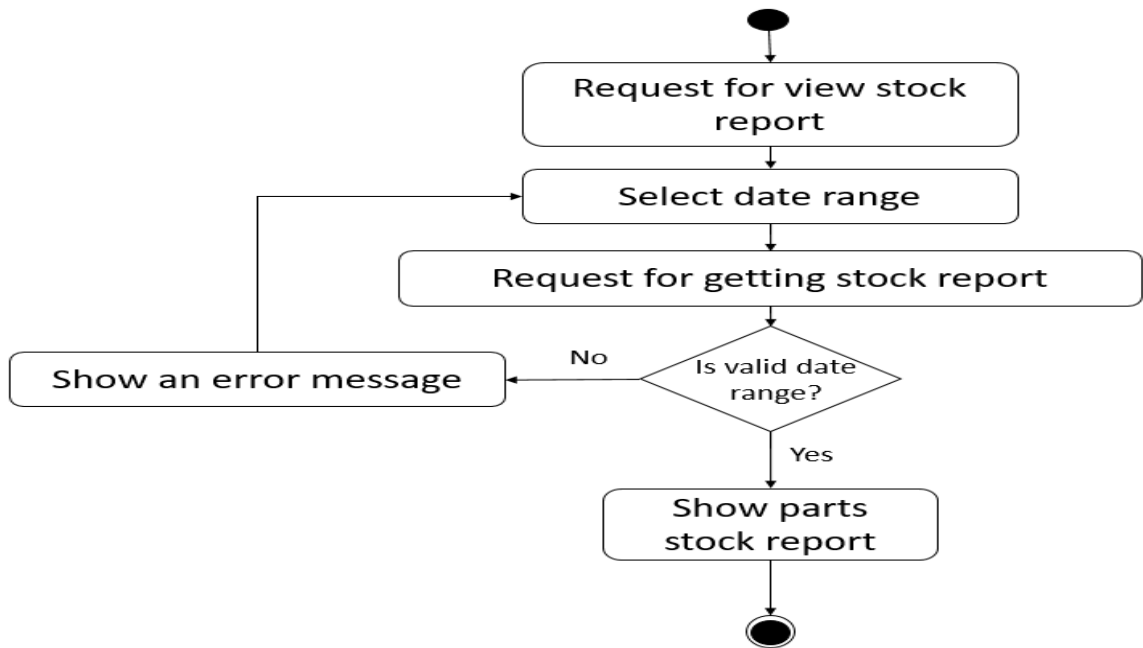


Figure 21: Activity Diagram of View Parts Stock Report

download parts stock report:

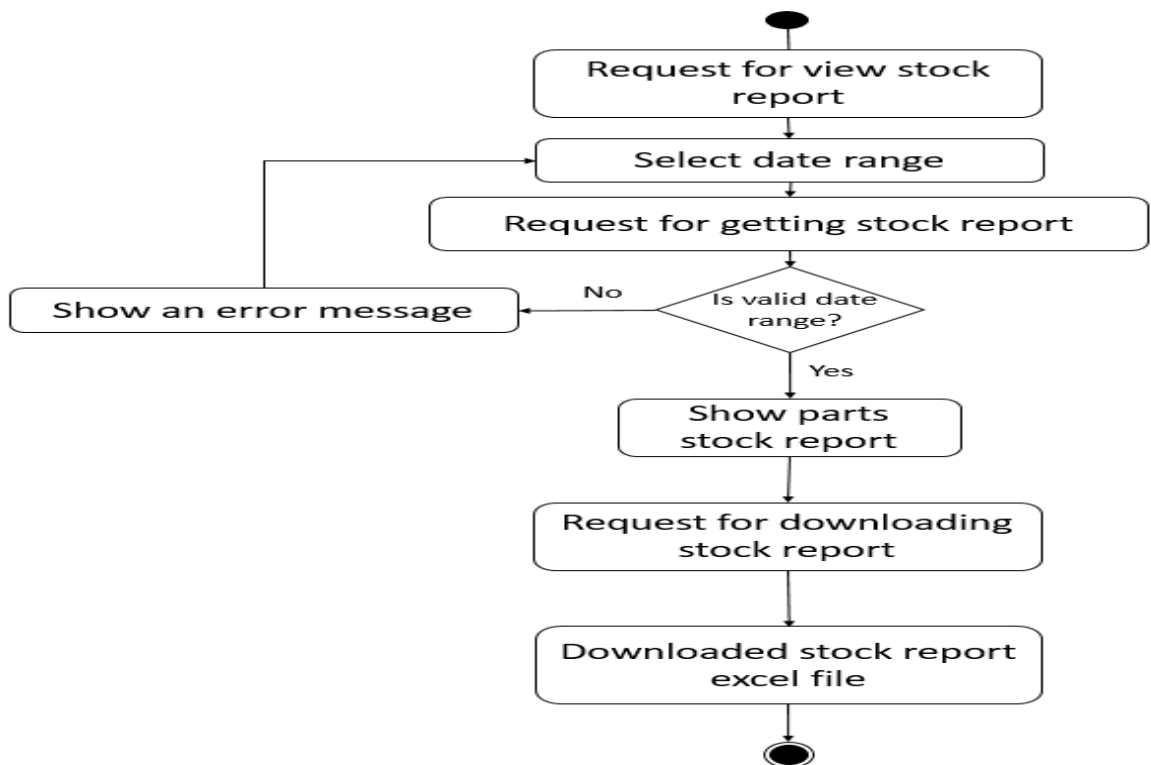


Figure 22: Activity Diagram of Download Parts Stock Report

View parts sales report:

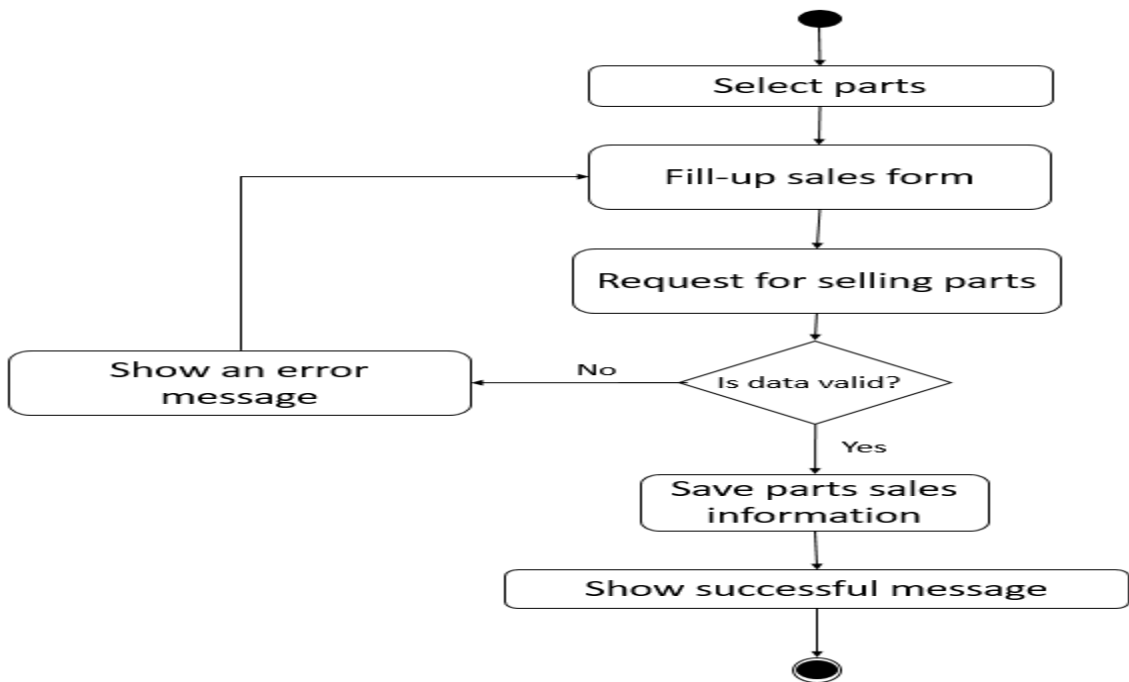


Figure 23: Activity Diagram of View Parts Sales Report

Download parts sales report:

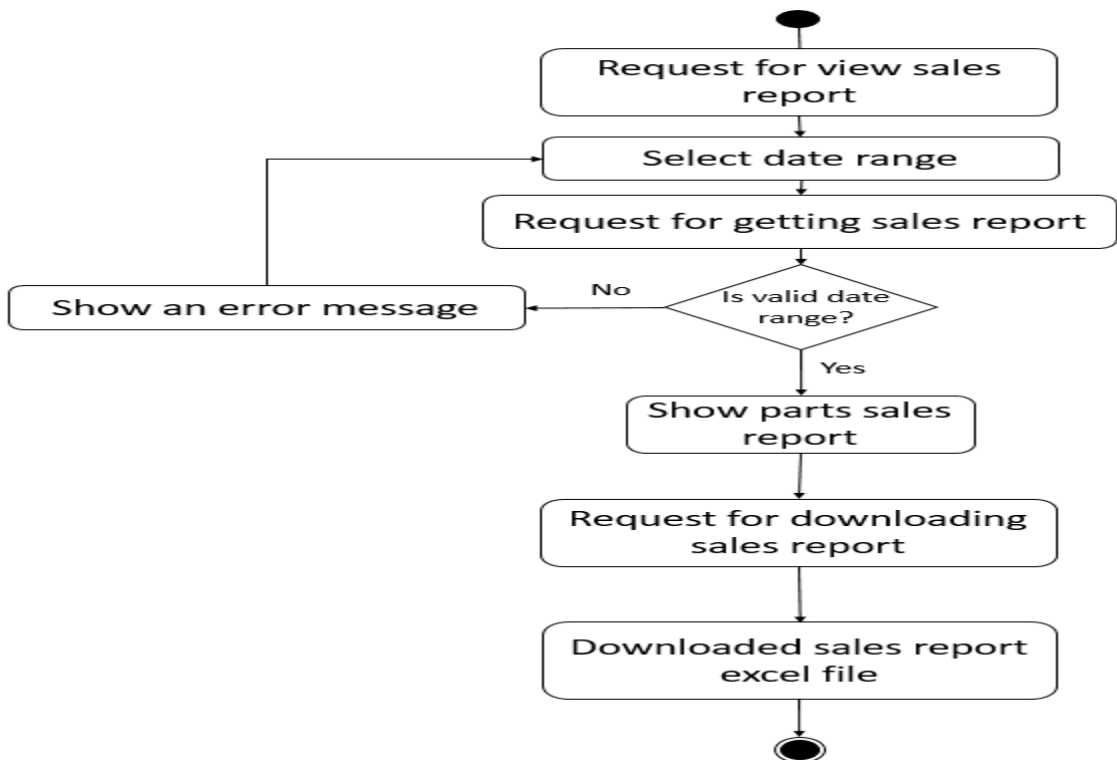


Figure 24: Activity Diagram of Download Parts Sales Report

View parts profit report:

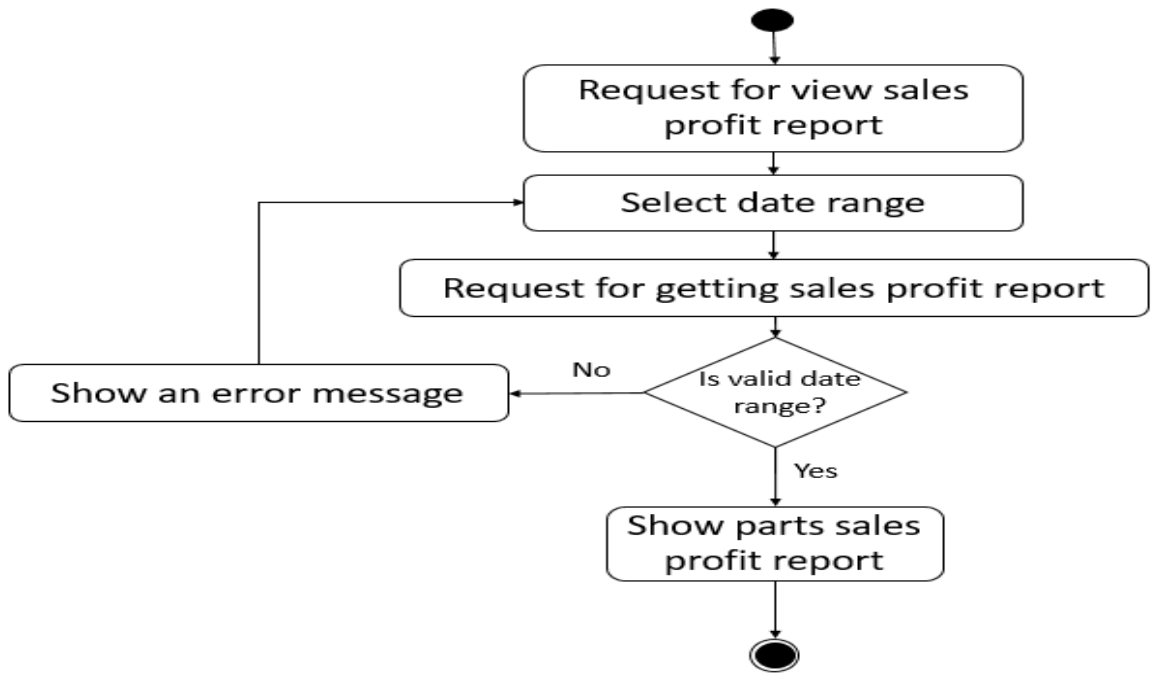


Figure 25: Activity Diagram of View Parts Profit Report

Download parts profit report:

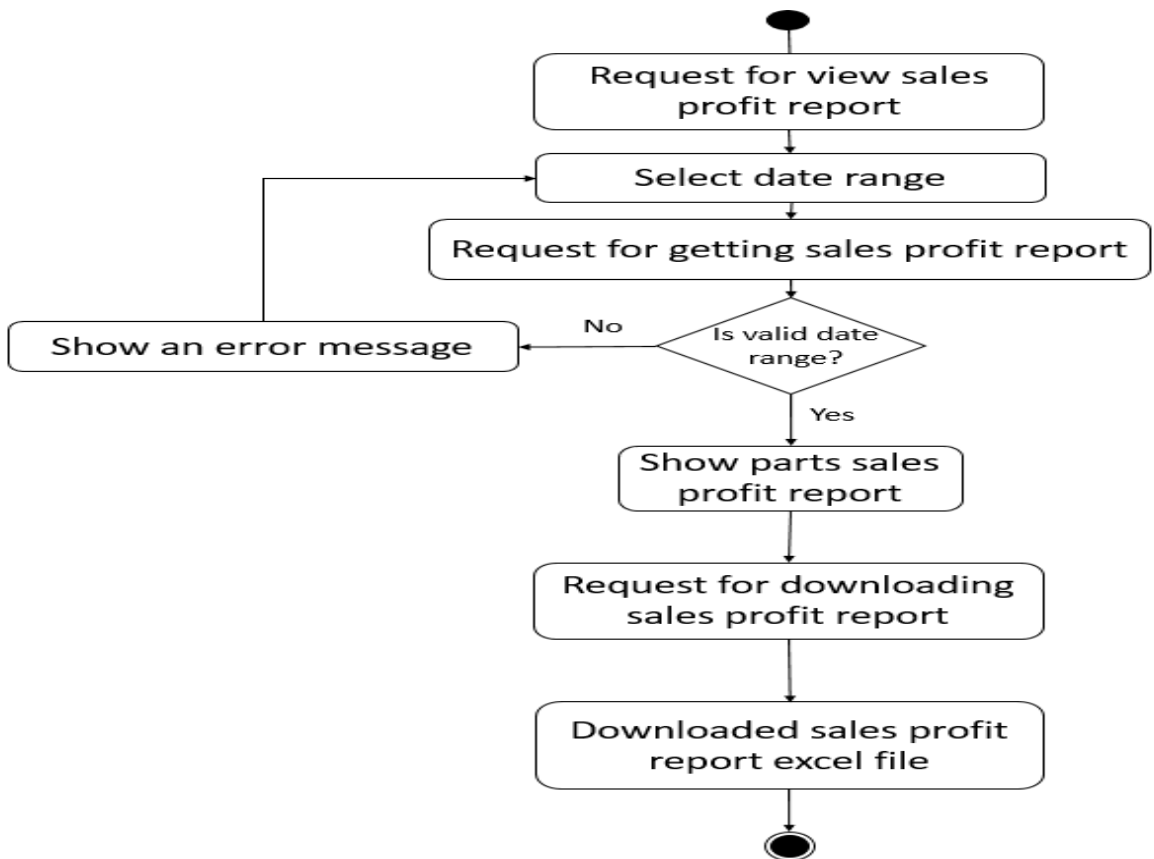


Figure 26: Activity Diagram of Download Parts Profit Report

Logout:

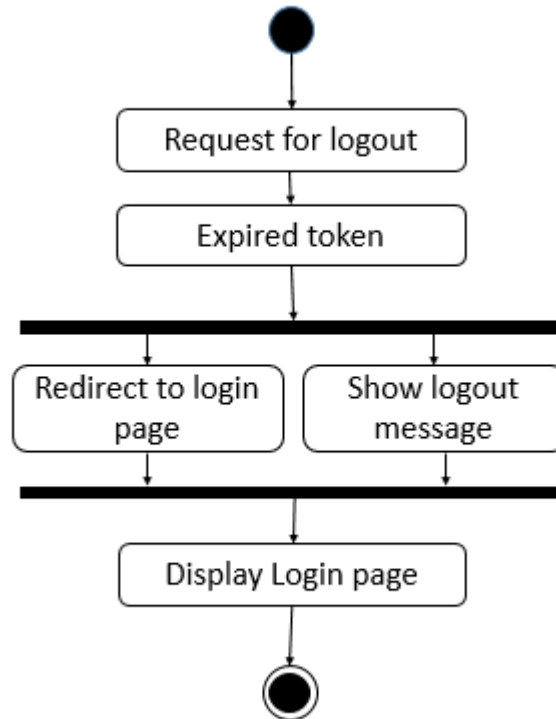


Figure 27: Activity Diagram of Logout

3.3 Sequence Diagram

Login:

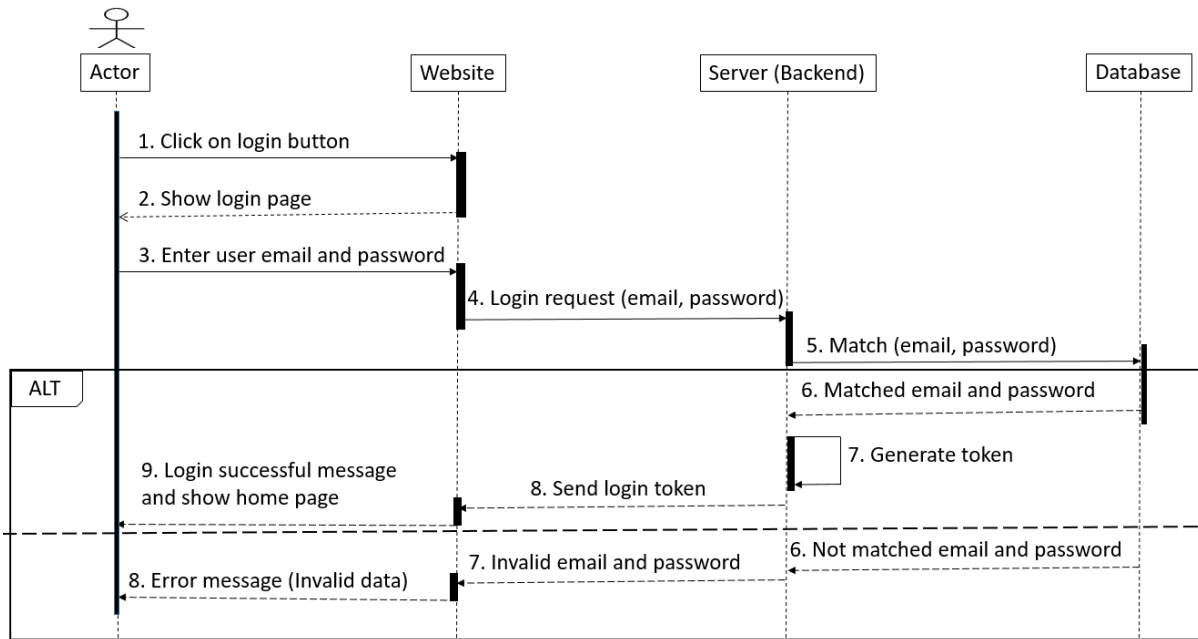


Figure 28: Sequence Diagram of Login

Create User:

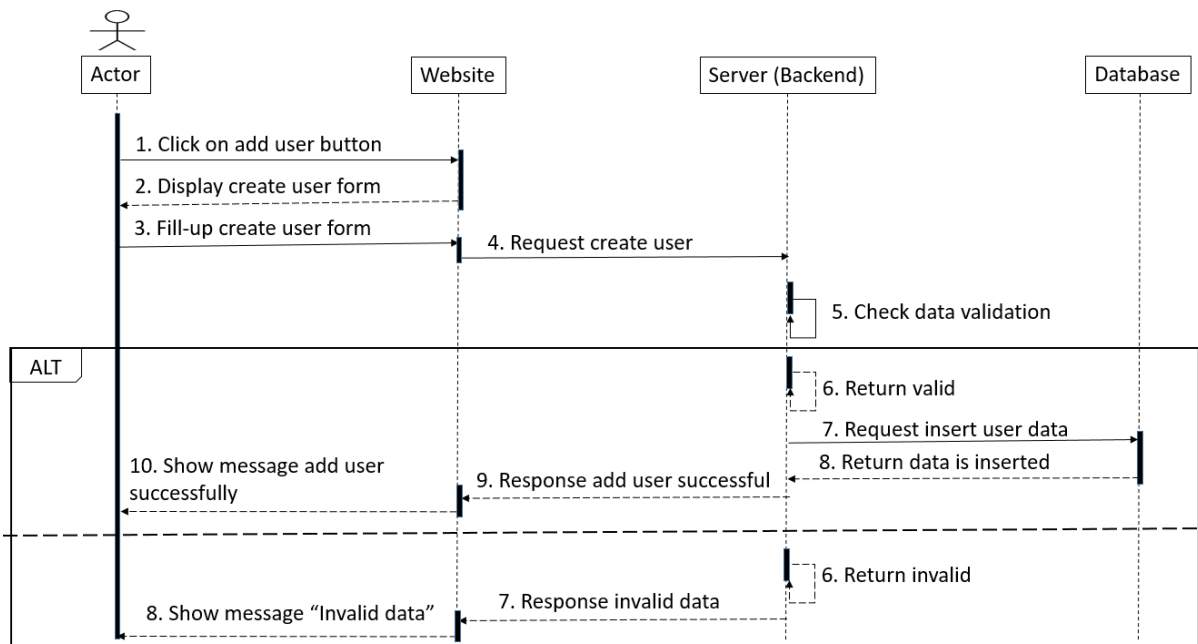


Figure 29: Sequence Diagram of Create User

Resend User Password:

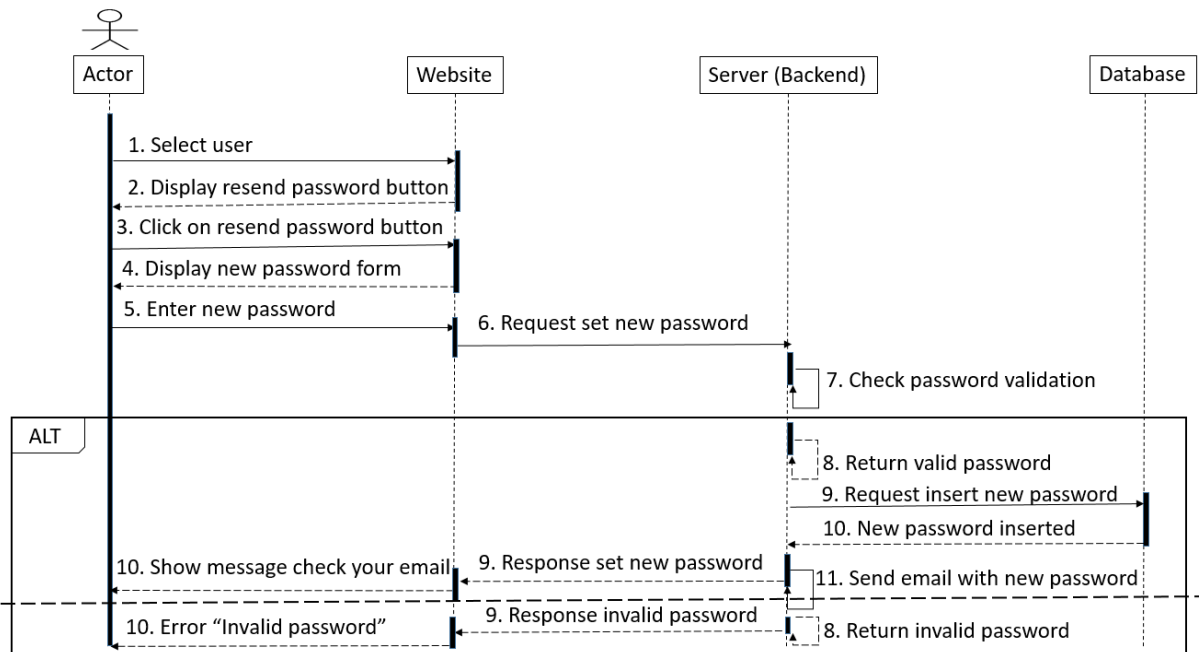


Figure 30: Sequence Diagram of Resend User Password

Assign Permission:

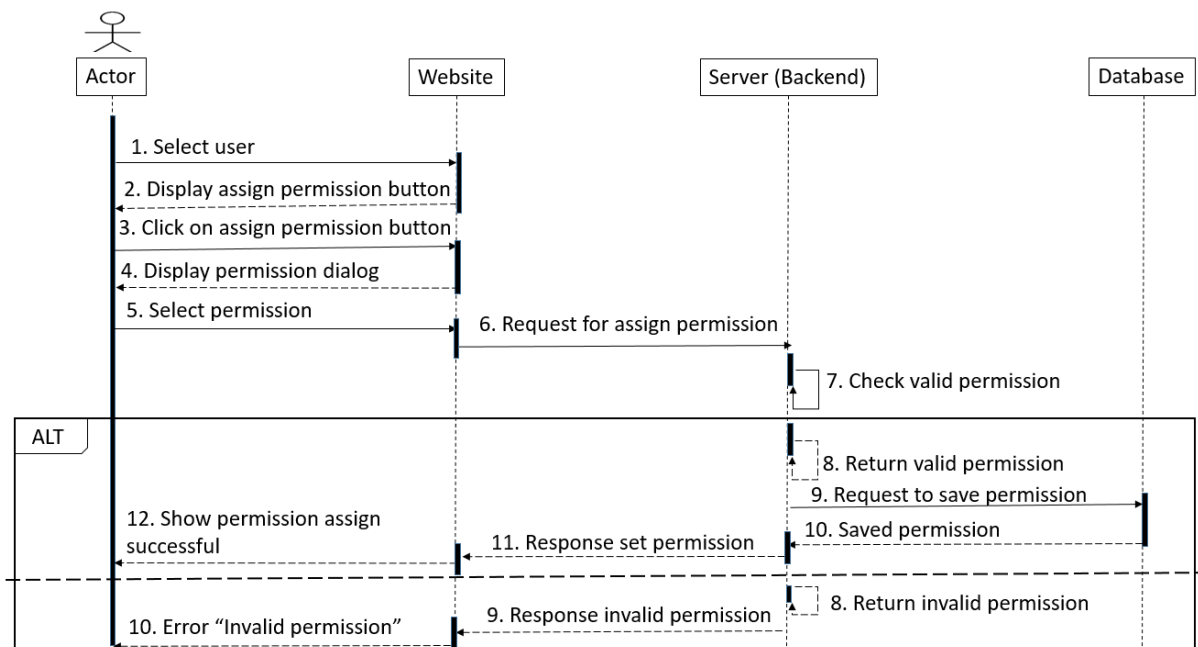


Figure 31: Sequence Diagram of Assign Permission

Add Parts Brand:

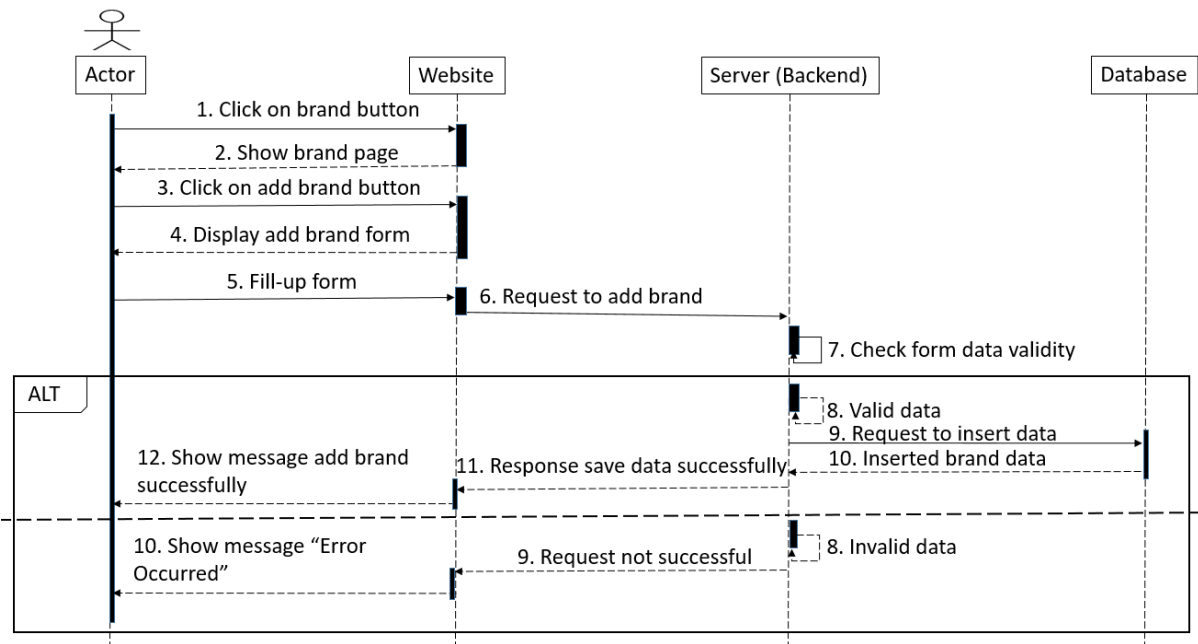


Figure 32: Sequence Diagram of Add Parts Brand

Update Parts Brand:

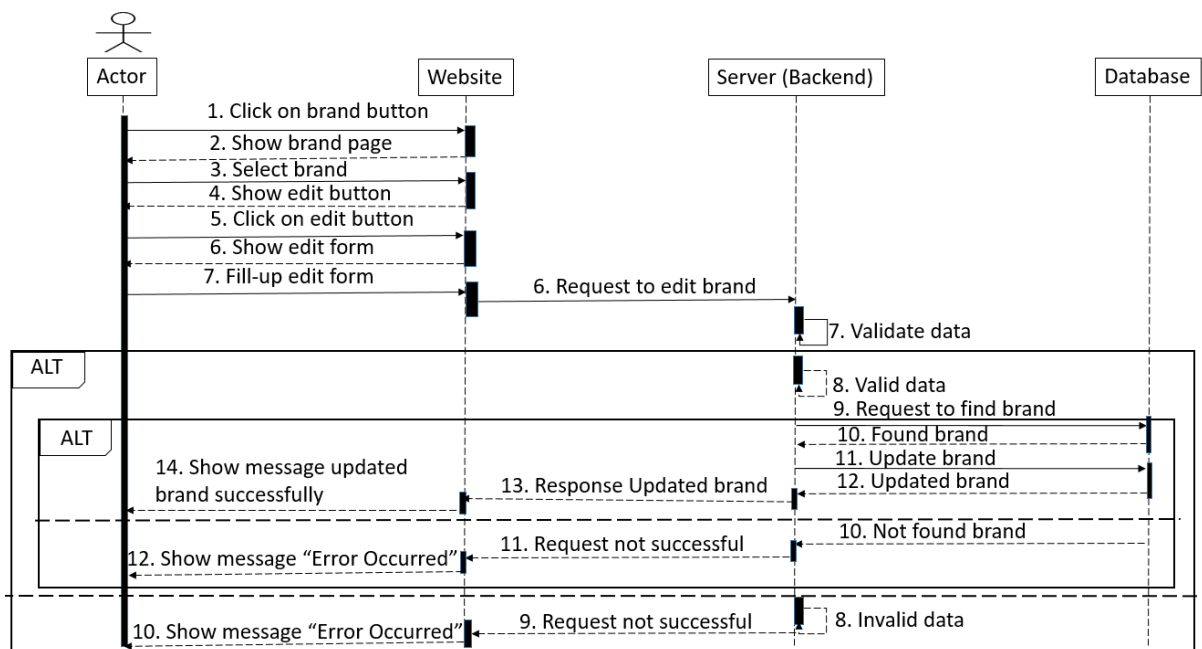


Figure 33: Sequence Diagram of Update Parts Brand

Delete Parts Brand:

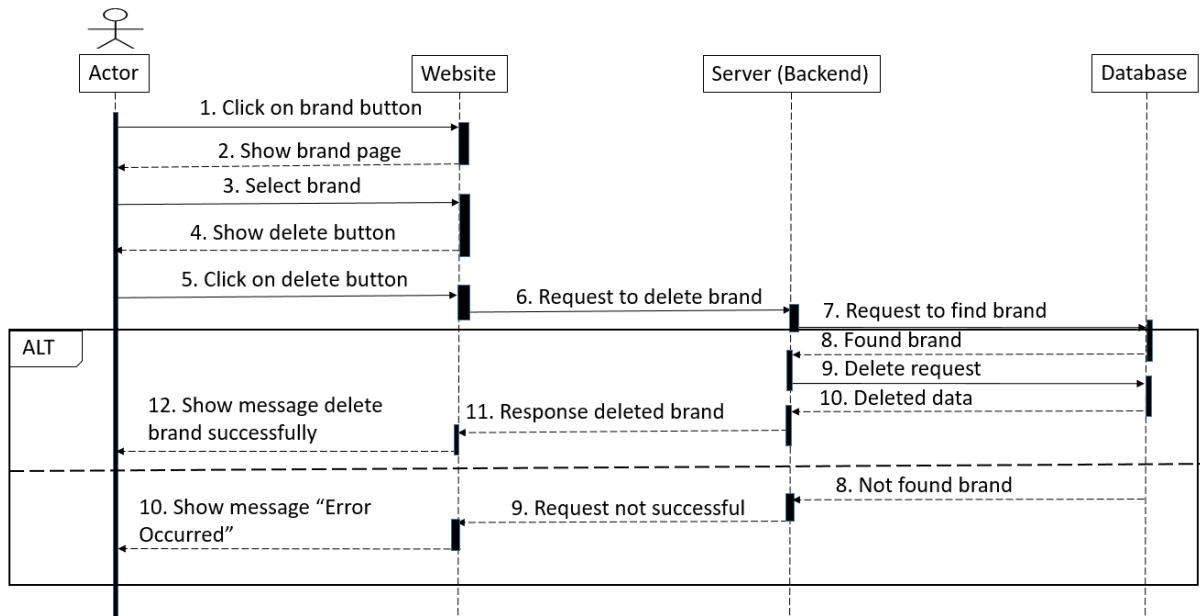


Figure 34: Sequence Diagram of Delete Parts Brand

Add Parts Model:

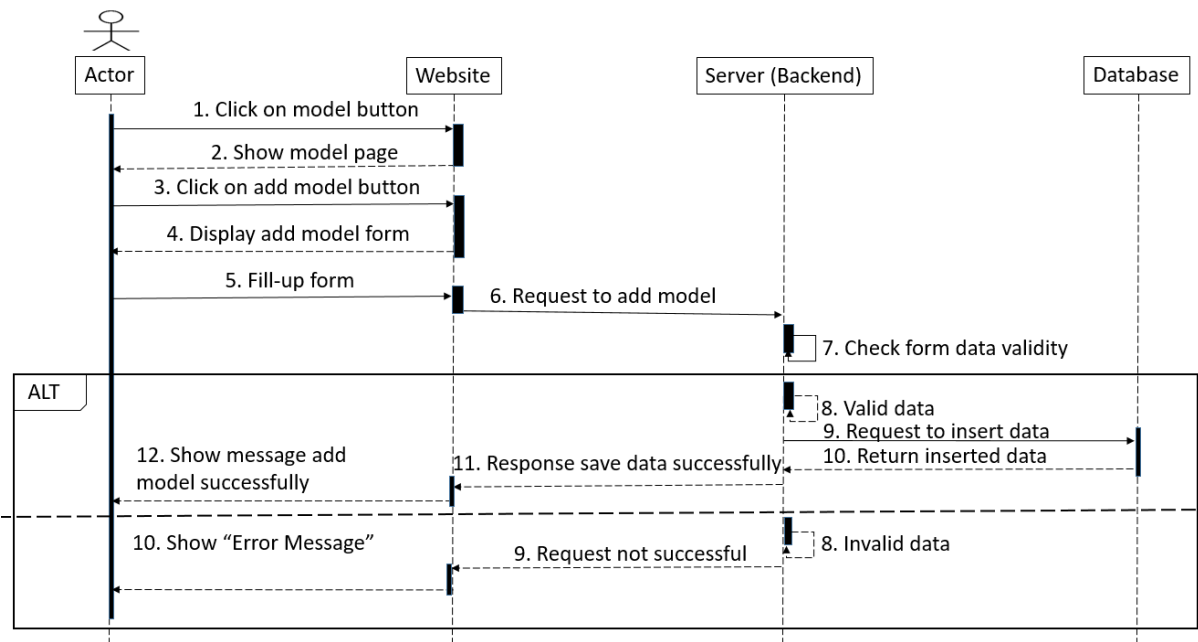


Figure 35: Sequence Diagram of Add Parts Model

Update Parts Model:

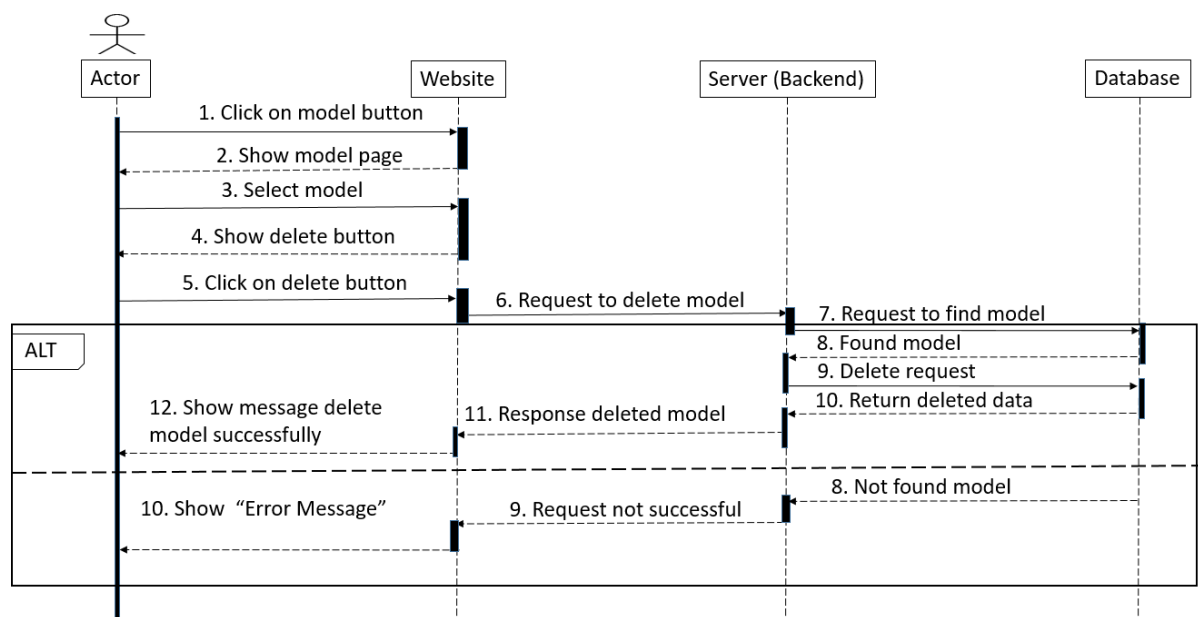


Figure 36: Sequence Diagram of Update Parts Model

Delete Parts Model:

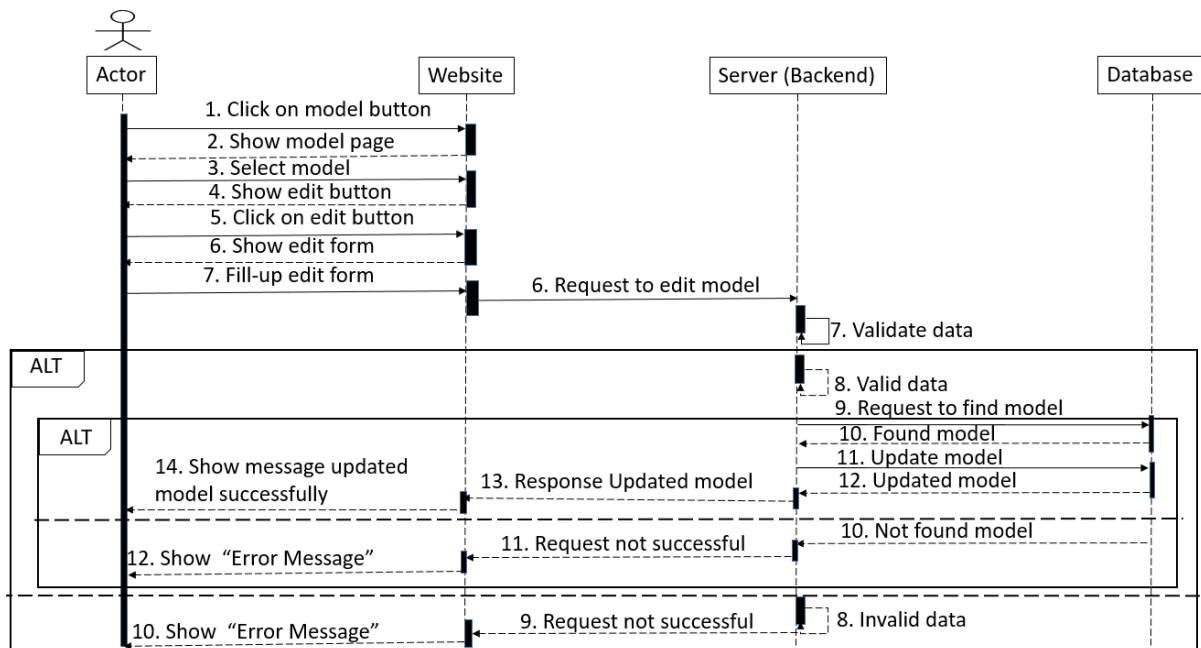


Figure 37: Sequence Diagram of Delete Parts Model

Add Parts Category:

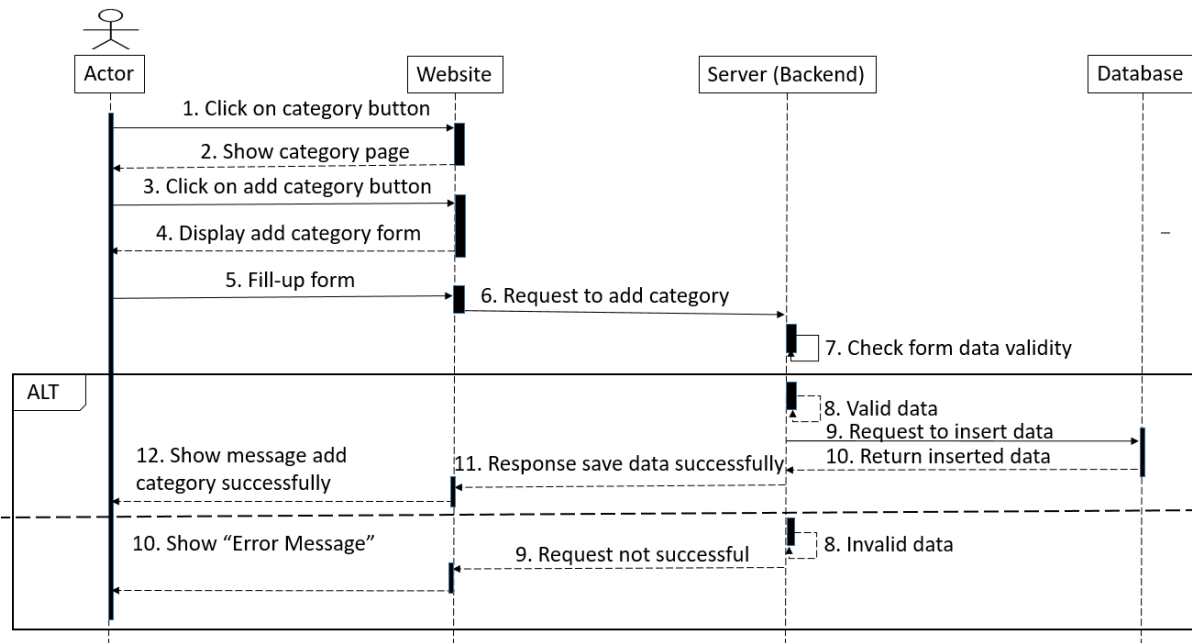


Figure 38: Sequence Diagram of Add Parts Category

Update Parts Category:

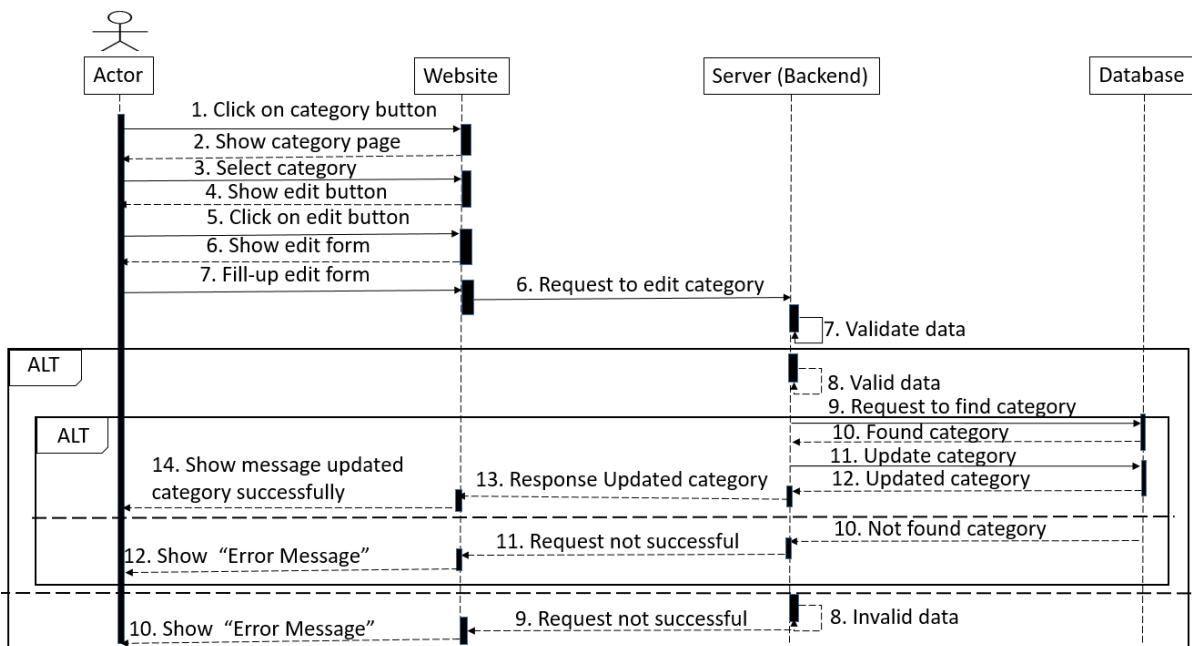


Figure 39: Sequence Diagram of Update Parts Category

Delete Parts Category:

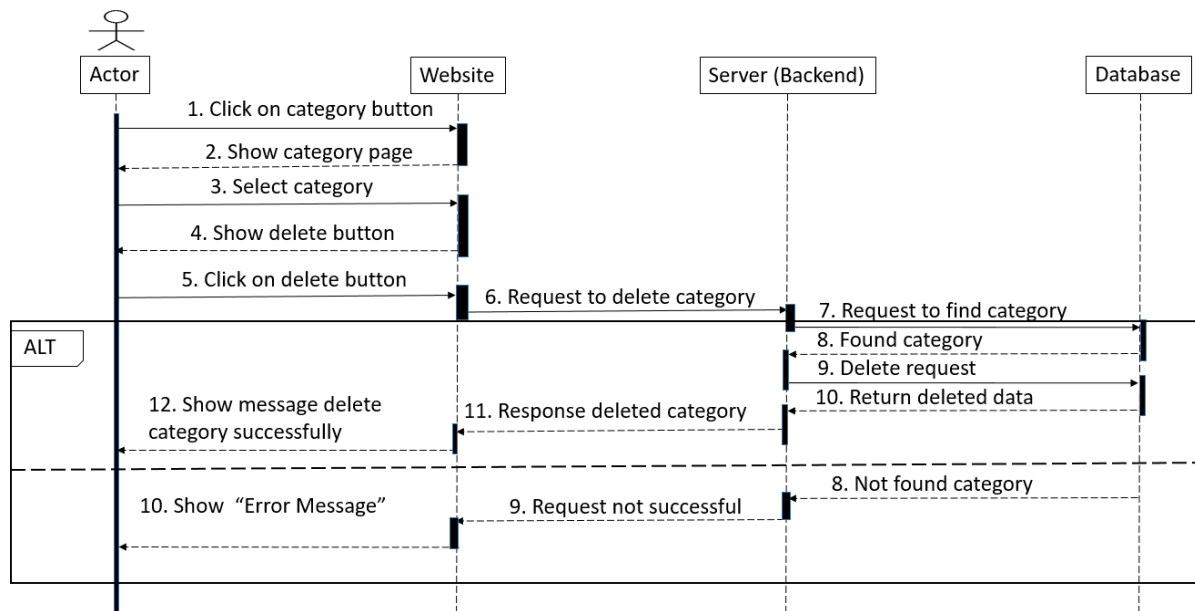


Figure 40: Sequence Diagram of Delete Parts Category

Add Parts:

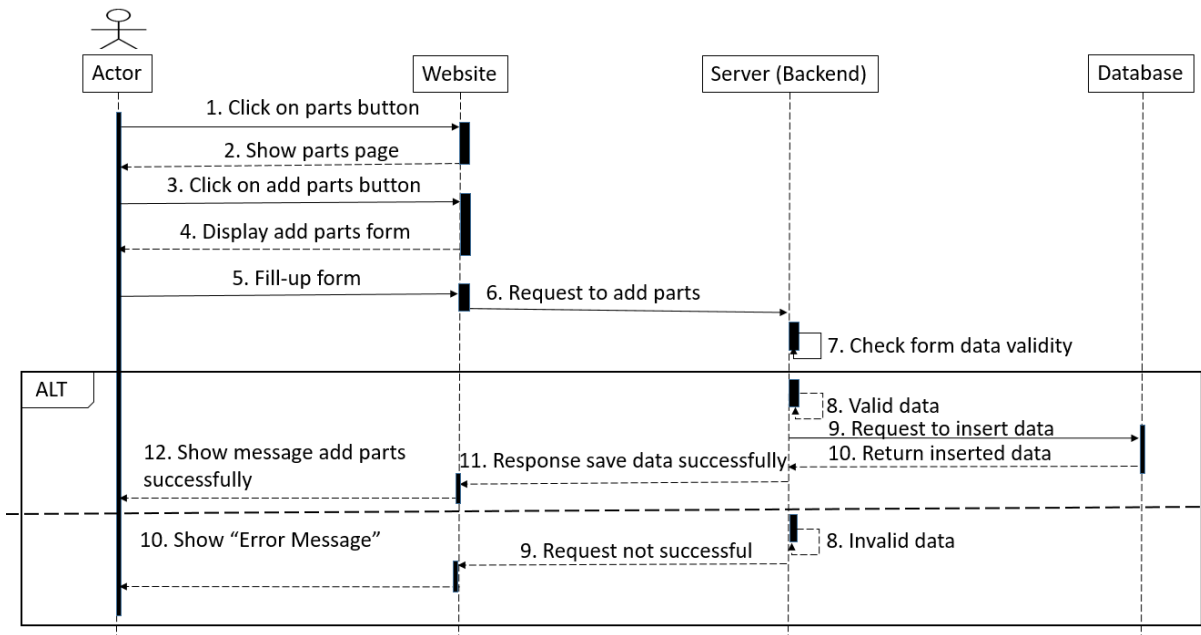


Figure 41: Sequence Diagram of Add Parts

Update Parts:

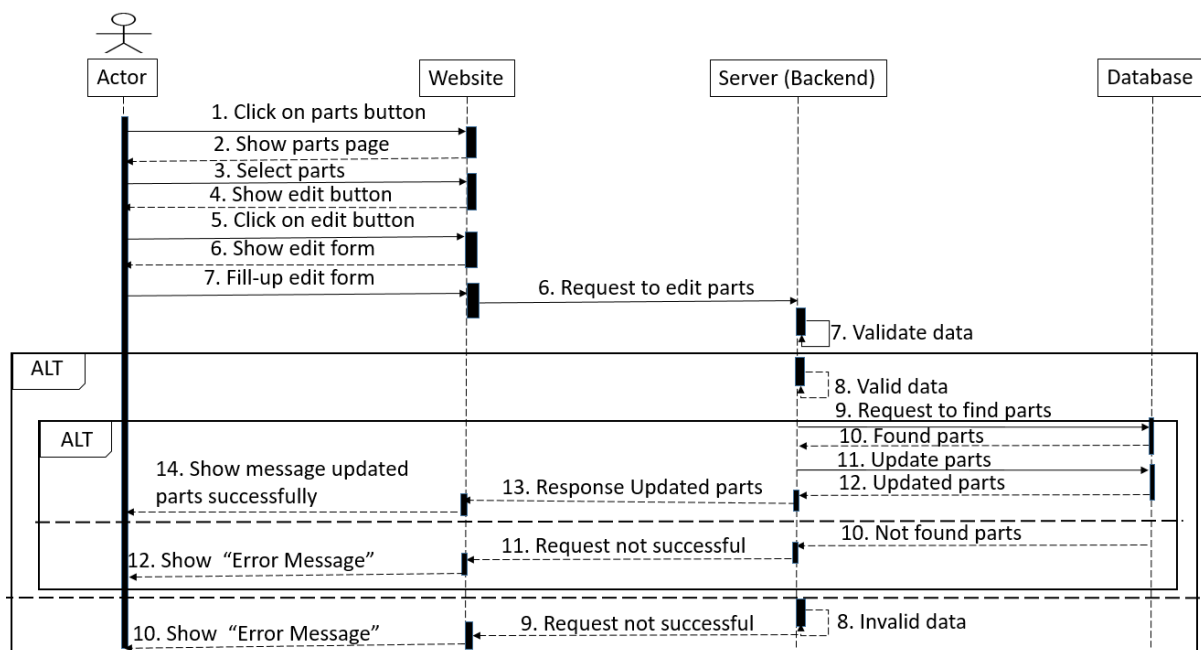


Figure 42: Sequence Diagram of Update Parts

Delete Parts:

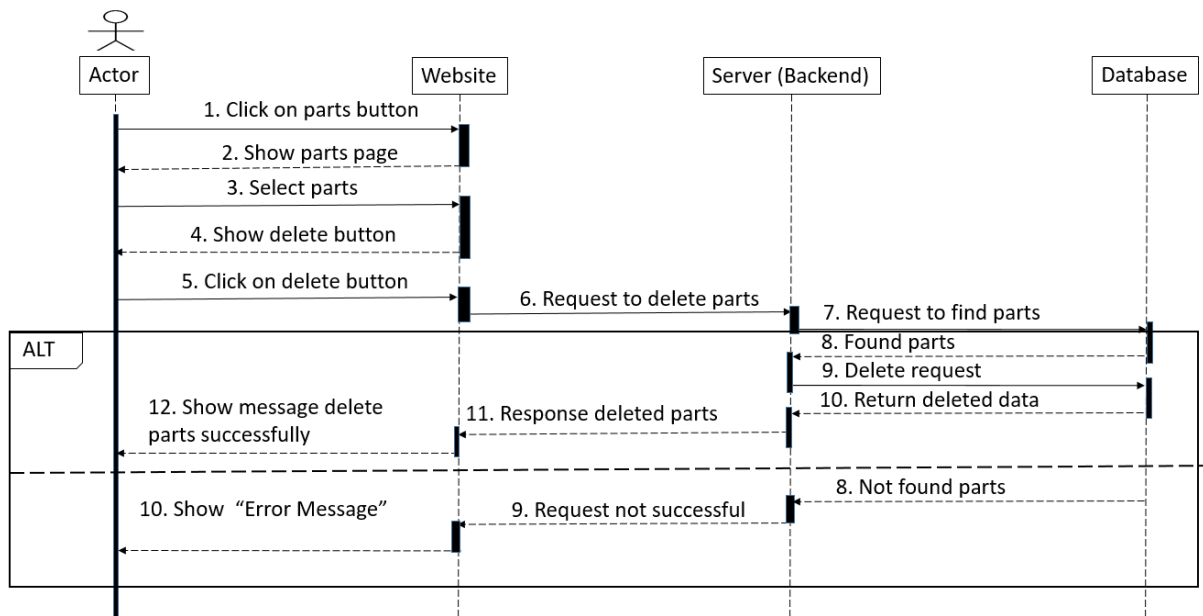


Figure 43: Sequence Diagram of Delete Parts

Sell Parts:

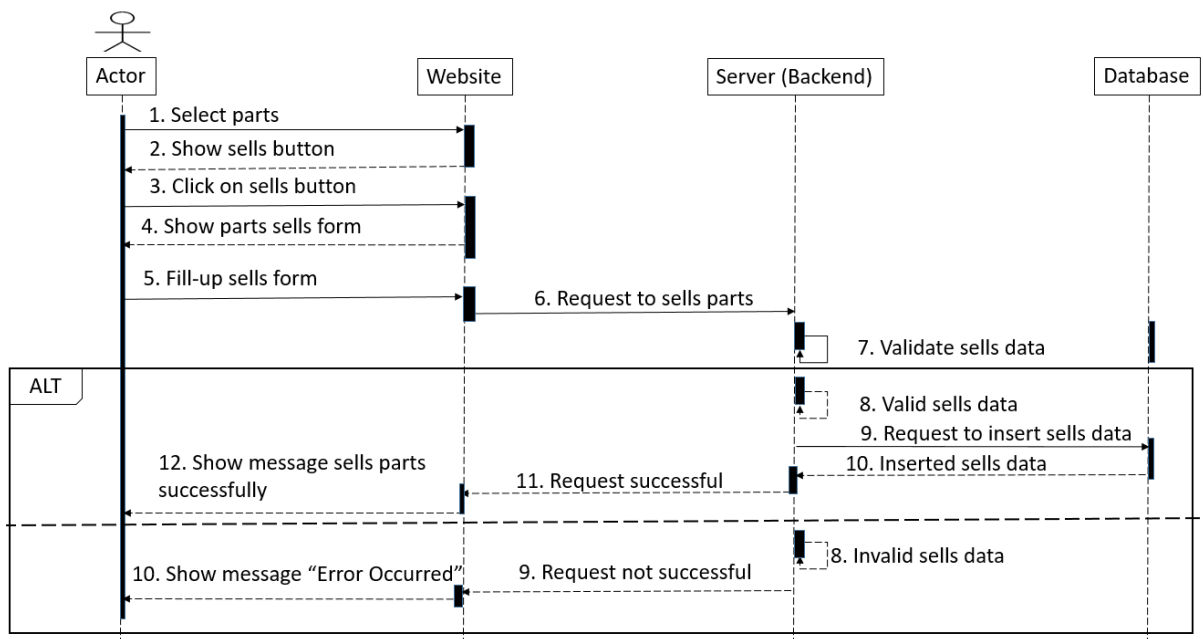


Figure 44: Sequence Diagram of Sell Parts

View parts stock report:

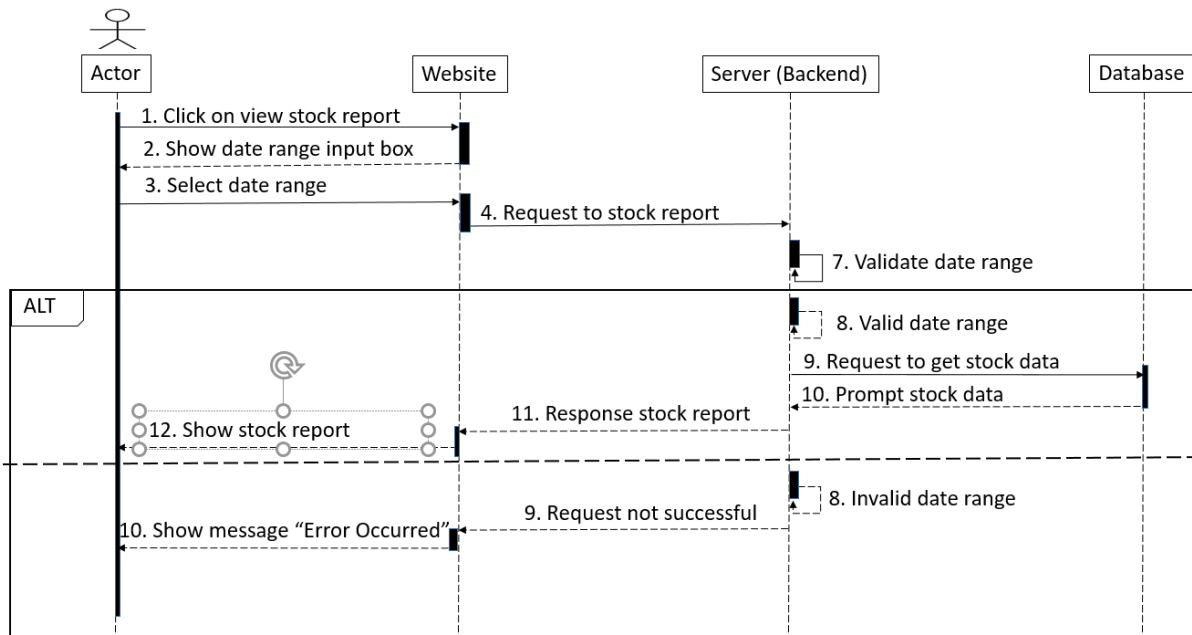


Figure 45: Sequence Diagram of View Parts Stock Report

Download parts stock report:

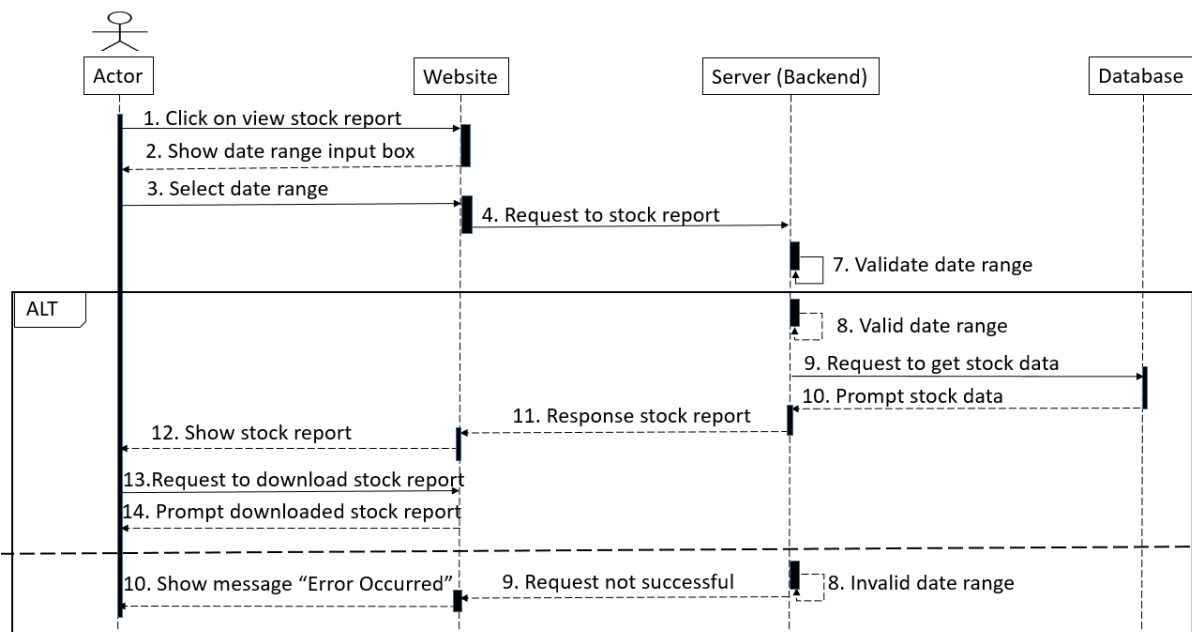


Figure 46: Sequence Diagram of Download Parts Stock Report

View parts sales report:

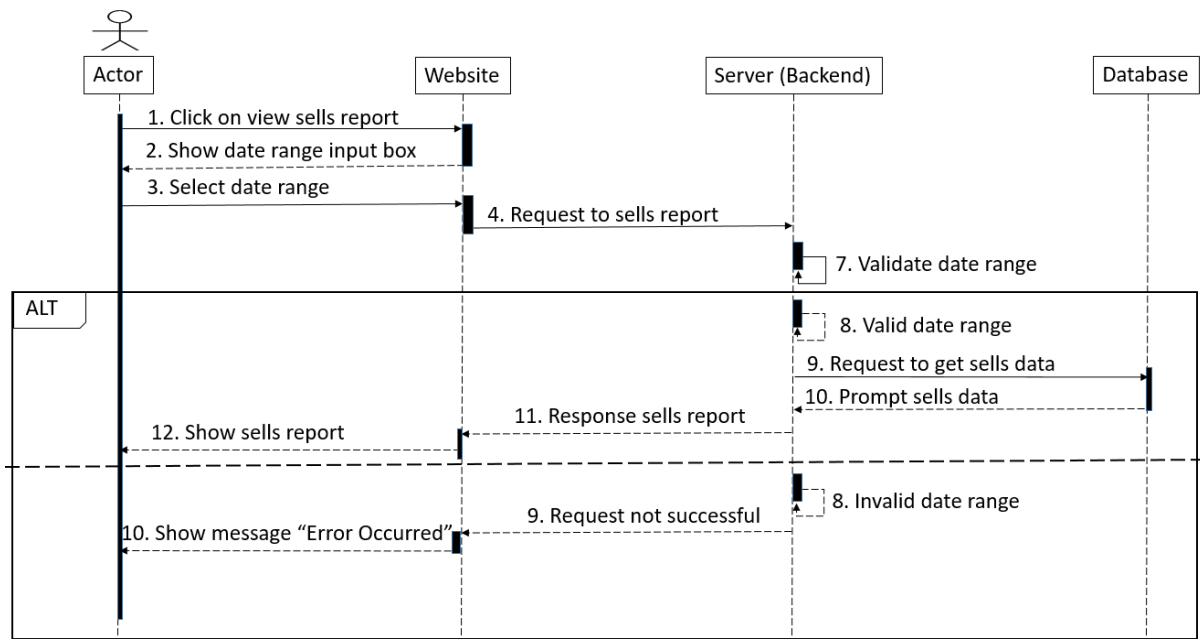


Figure 47: Sequence Diagram of View Parts Sales Report

Download parts sales report:

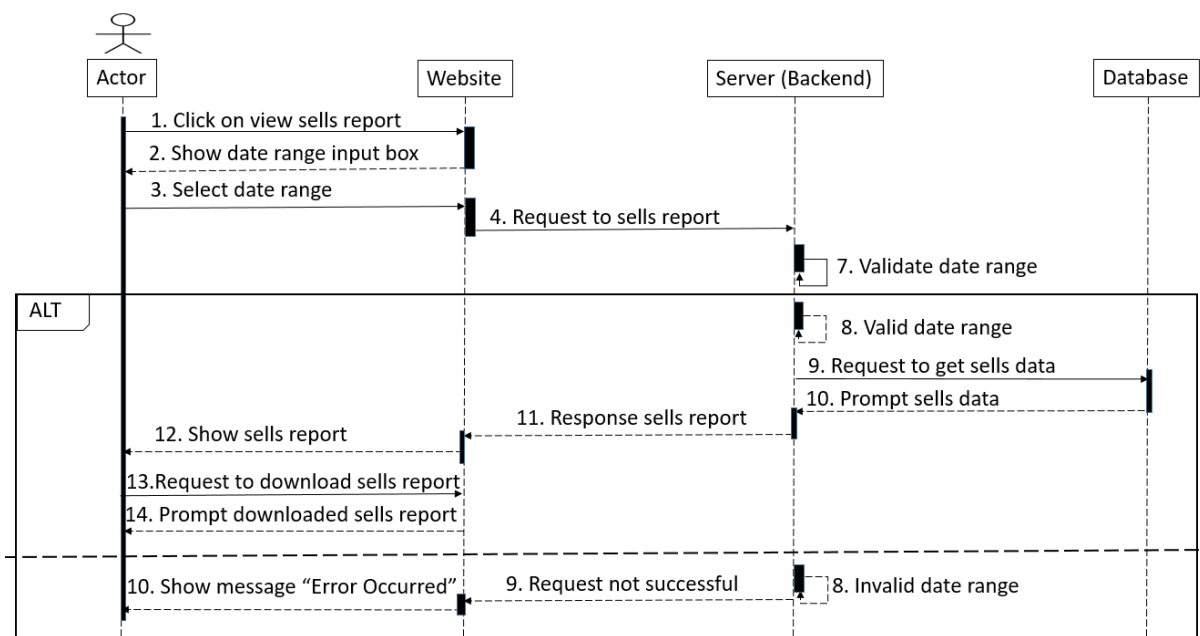


Figure 48: Sequence Diagram of Download Parts Sales Report

View parts profit report:

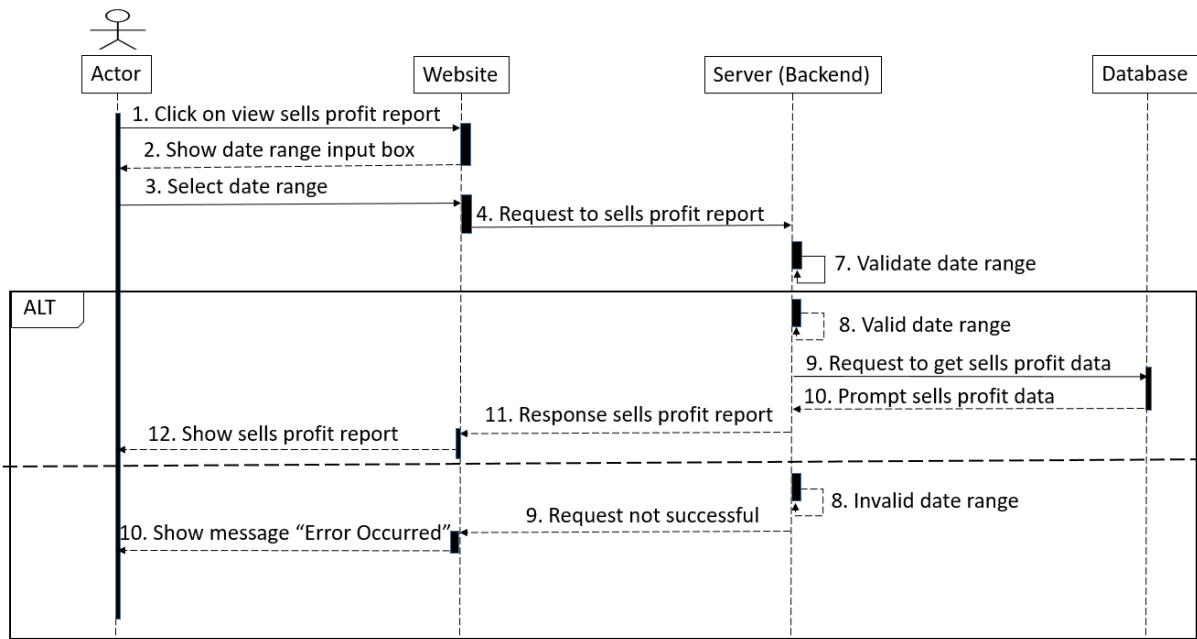


Figure 49: Sequence Diagram of View Parts Profit Report

Download parts profit report:

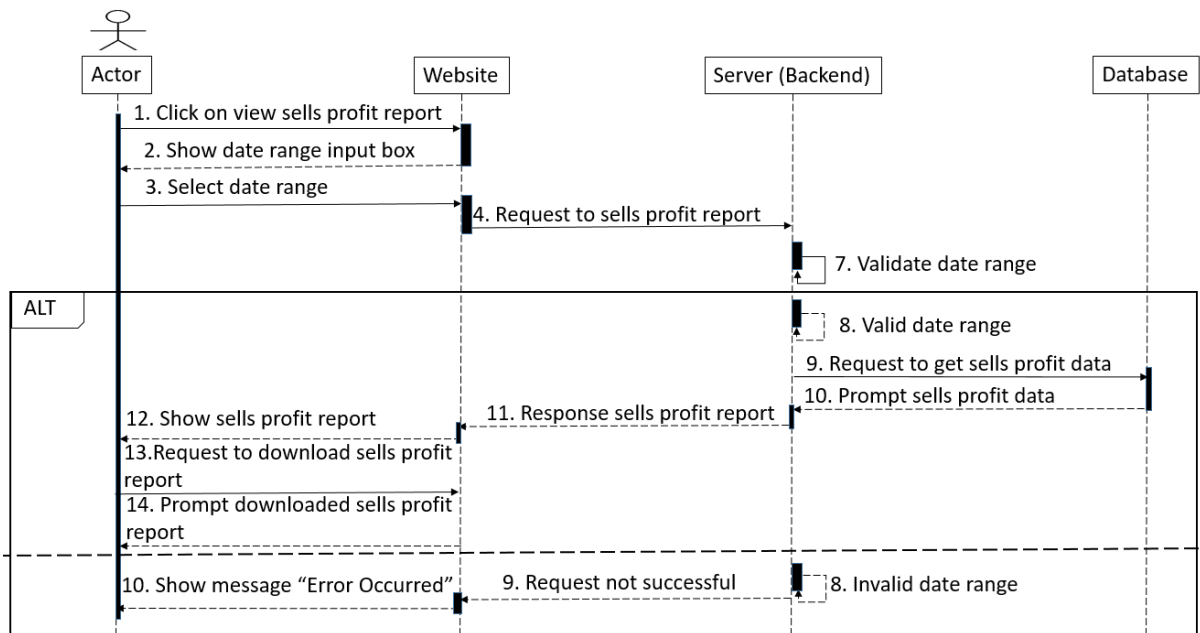


Figure 50: Sequence Diagram of Download Parts Profit Report

Logout:

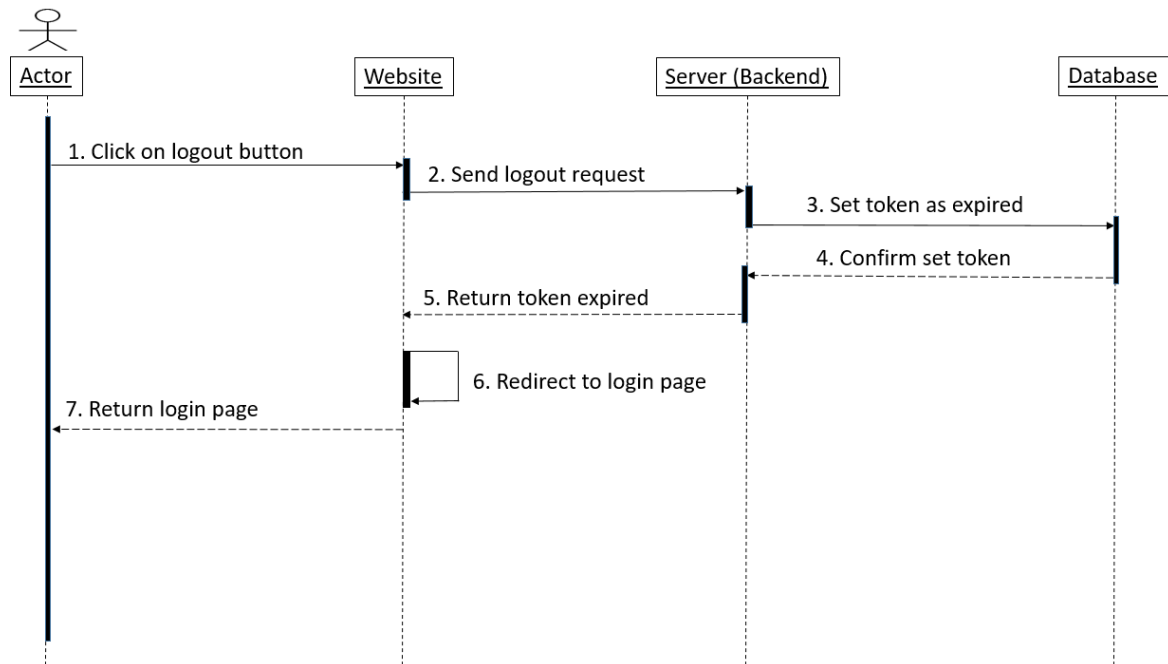


Figure 51: Sequence Diagram of Logout

CHAPTER 4

SYSTEM DESIGN SPECIFICATION

4.1 Component Diagram

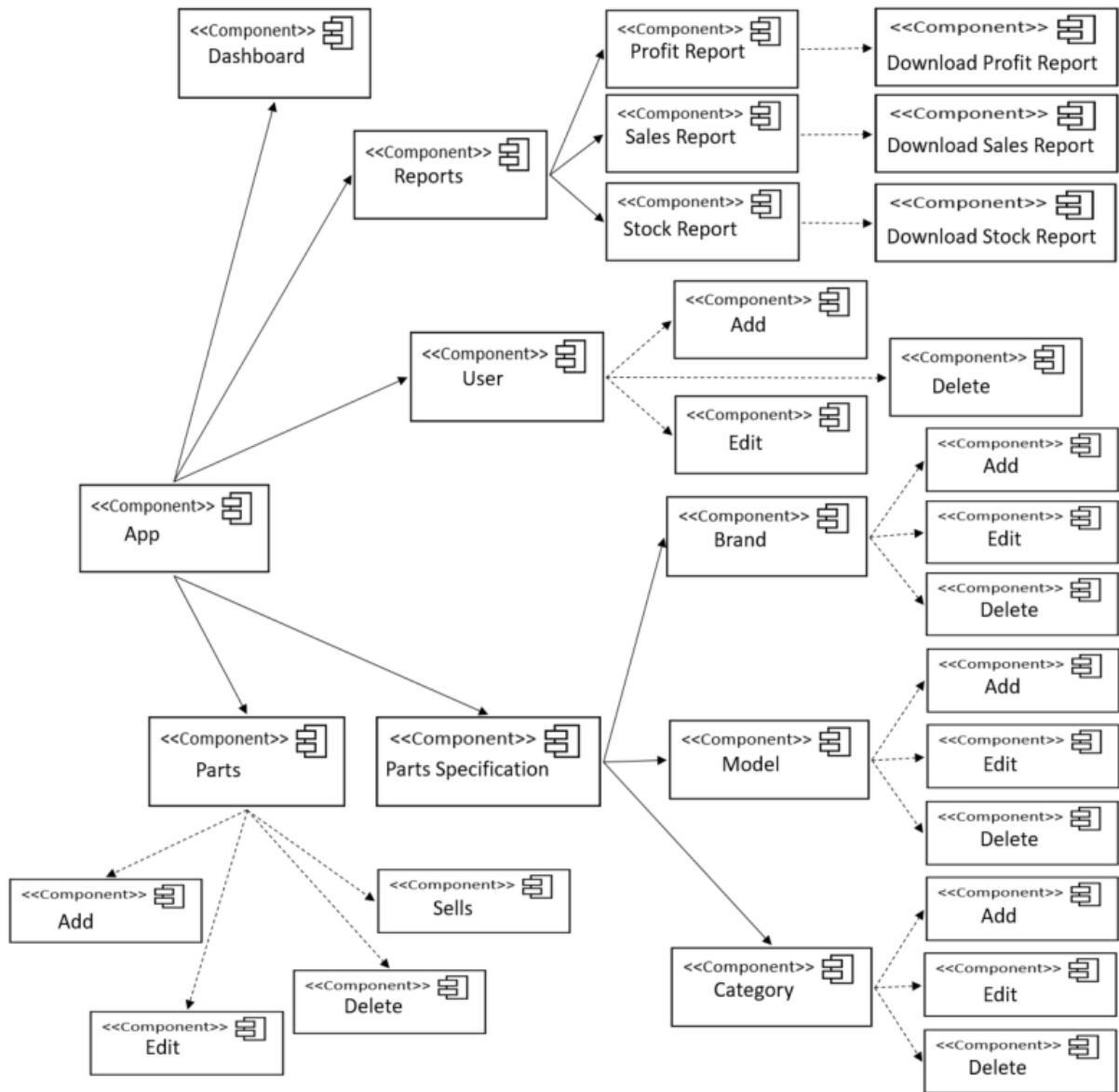


Figure 52: Component Diagram

4.2 Database Design Diagram (Schema Diagram)

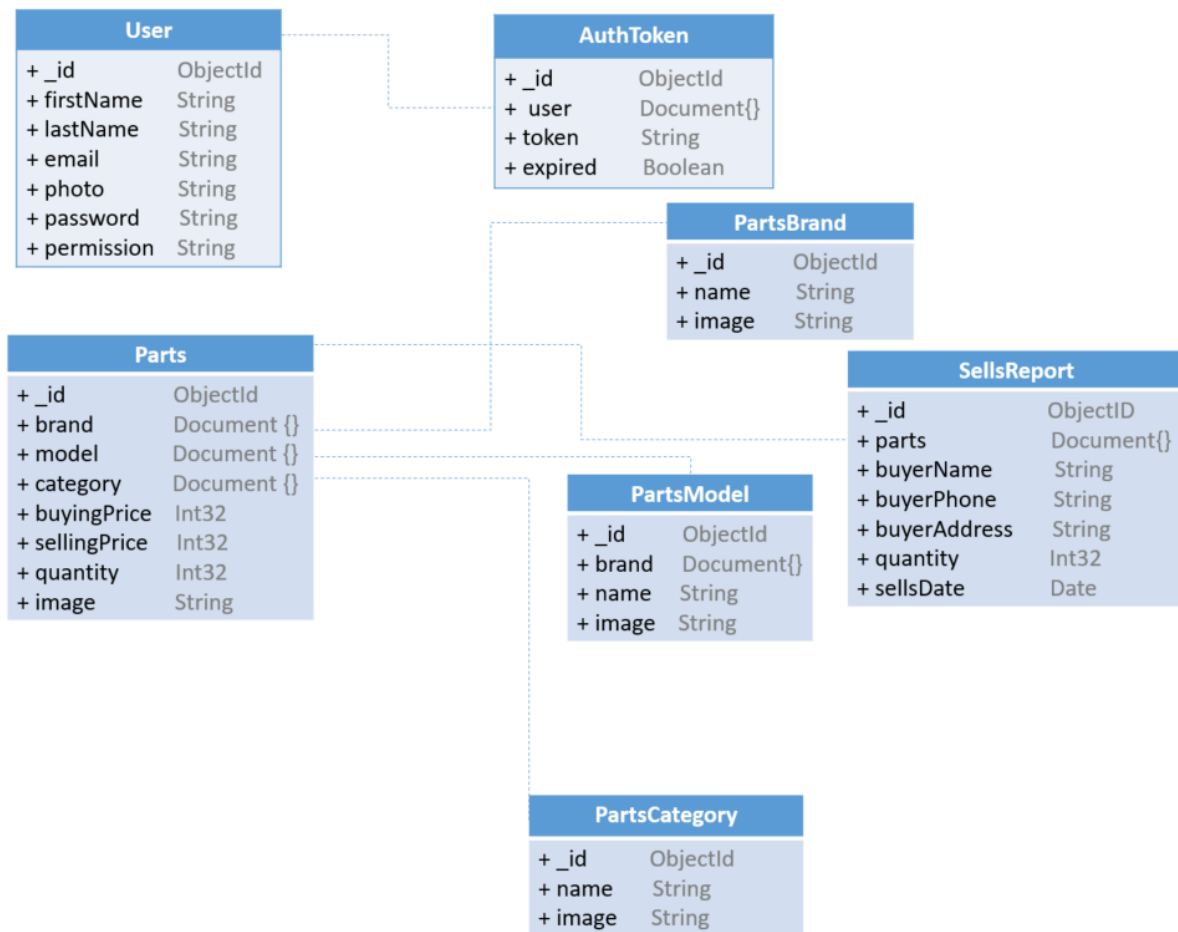


Figure 53: Database Schema Diagram

4.3 Development Tools & Technology

4.3.1 User Interface Technology

- HTML
- CSS
- SCSS
- React JS
- Chakra UI
- Fontawesome
- Formik

4.3.2 Back-End Technology

- NodeJS
- ExpressJS

4.3.3 Database Technology

- MongoDB

4.3.4 Implementation Tools & Platforms

- Visual Code Studio (VS Code)
- Postman
- MongoDB Compass

CHAPTER 5

SYSTEM TESTING

5.1 Testing Features

5.1.1 Features to be tested

Which features or functionalities of the system will be tested, it is included as “Features to be tested”. Features to be tested are given bellow.

No.	Feature/Functionality
01	User login
02	Create user
03	Resend user password
04	Assign user permission
05	Update profile
06	Change password
07	Change profile picture
08	Add parts brand
09	Edit parts brand
10	Delete parts brand
11	Sell parts
12	View parts stock report
13	Download parts stock report
14	View parts sales report
15	Download parts sales report
16	User logout

Table 5.1.1: Features to Be Tested

5.1.2 Features not to be tested

Which features or functionalities are in relation to other features that is already tested, it is included as “Features not to be tested”. Features not to be tested are given bellow.

No.	Feature/Functionality
01	Add parts model
02	Edit parts model
03	Delete parts model
04	Add parts category
05	Edit parts category
06	Delete parts category
07	Add parts
08	Edit parts
09	Delete parts
10	View sales profit report
11	Download sales profit report

Table 5.1.2: Features Not to Be Tested

5.2 Testing Strategies

5.2.1 Test Approach

Testing is an important aspect of a web application. There are many testing approaches. In main testing approach of my web application is “**Functionality Testing**”. Some of checks are given below that are executed but not confined to the below list:

- The validations on each field.
- Wrong inputs to execute negative testing.
- Invalid redirects.
- Validate HTML, CSS.
- Verify the workflow of the system.

5.2.2 Pass/Fail Criteria

When all the test cases of a feature successfully executed without any problem and got expected result then test passed.

On the other hand, when all the test cases of a feature not successfully executed with problem and did not get expected result then test failed.

5.2.3 Suspension and Resumption

Suspension can happen when the external components are not readily available or when an effective bug is traced. Suspension is also known as test-stop criteria for the testing process. Basically testing processes are suspended when actual result is not same as expected result.

When suspension criteria is met then resolve the bug of the system and resume the testing phase again, it is included as resumption. If defect is no detected then resumption closed.

5.2.4 Testing Schedule

Testing schedule refers to specify days of working week. This project main focus on functional testing.

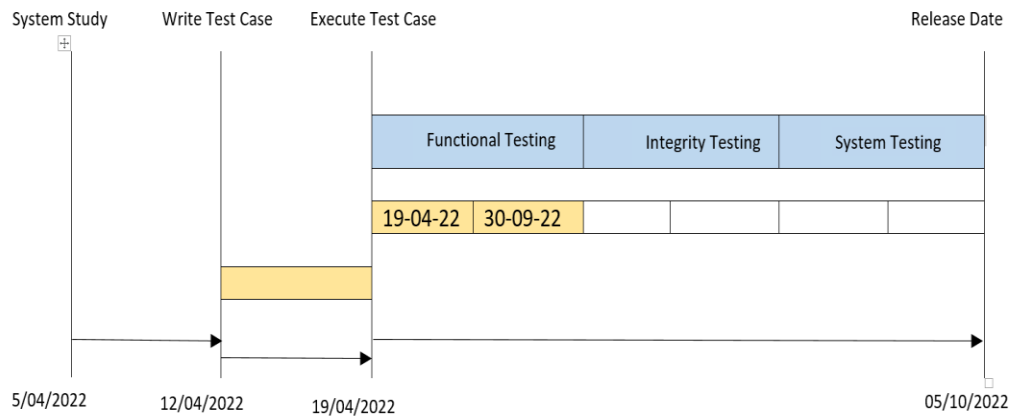


Figure 54: Testing Schedule

5.2.5 Traceability Matrix

Req. ID	Req. Description	Test Case ID	Status
FR-01	Login	TC-1, TC-2	TC-1 Pass, TC-2 Pass
FR-02	Create user	TC-13, TC-15	TC-13 Pass, TC-15 Pass
FR-03	Resend user password	TC-17, TC-18	TC-17 Pass, TC-18 Pass
FR-05	Update user profile	TC-15, TC-16	TC-15 Pass, TC-16 Pass
FR-06	Change password	TC-3, TC-4	TC-3 Pass, TC-4 Pass
FR-07	Change profile picture	TC-5, TC-6	TC-5 Pass, TC-6 Pass
FR-08	Add parts brand	TC-19, TC-20	TC-19 Pass, TC-20 Pass
FR-11	Add parts model	TC-21, TC-22	TC-21 Pass, TC-22 Pass
FR-14	Add parts category	TC-23, TC-24	TC-23 Pass, TC-24 Pass
FR-17	Add parts	TC-25, TC-26	TC-25 Pass, TC-26 Pass
FR-18	Edit parts	TC-27, TC-28, TC-29, TC-30, TC-31, TC-32, TC-33, TC-34	TC-27 Pass, TC-28 Pass, TC-29 Pass, TC-30 Pass, TC-31 Pass, TC-32 Pass, TC-33 Pass, TC-34 Pass
FR-20	Sell parts	TC-35, TC-36	TC-35 Pass, TC-36 Pass
FR-22	Download stock report	TC-11, TC-12	TC-11 Pass, TC-12 Pass
FR-24	Download sales report	TC-07, TC-08	TC-07 Pass, TC-08 Pass
FR-26	Download sales profit report	TC-09, TC-10	TC-09 Pass, TC-10 Pass

Table 5.2.5: Traceability Matrix

5.3 Testing Environment

Environment we setup for testing environment is called testing environment.

5.3.1 Hardware requirements

- Processor – Intel® Core™ i7
- CPU Frequency – 2.80GHz to 2.90GHz
- RAM – 8.00GB
- ROM – 1.00 TB
- System Type – 64-bit OS, x64-based processor

5.3.2 Software requirements

- Operating System – Windows 10
- Browser – Chrome browser
- Testing Report – MS Excel
- API Testing - Postman

5.4 Test Cases

ID	Test Case	Expected result
TC-1	Input correct email and password for login.	Login successfully and show home page.
TC-2	Input incorrect email and password for login.	Not login and show an error message.
TC-3	Incorrect old password for change password.	Not changed password.
TC-4	Correct old password for change password.	Changed password.
TC-5	Not select image for changing profile picture.	Profile picture not change and error.
TC-6	Select image for changing profile picture.	Change profile picture.
TC-7	Get wrong data for generate sales report.	Not generate sales report
TC-8	Get right data for generate sales report.	Generate sales report
TC-9	Get wrong data for generate profit report.	Not generate profit report
TC-10	Get right data for generate profit report.	Generate profit report
TC-11	Get wrong data for generate stock report.	Not generate stock report
TC-12	Get right data for generate stock report.	Generate stock report
TC-13	Incorrect email input for create user.	Not create user
TC-14	Correct email input for create user.	Create user successfully
TC-15	Incorrect email input for update user.	Not update user information
TC-16	Correct email input for update user.	Updated user information
TC-17	Incorrect user email not resend password.	User cannot get resend password
TC-18	Correct user email send password.	User will get resend password
TC-19	Input special case brand name	Show an error message
TC-20	Input English letter brand name	Brand will added successfully
TC-21	Input special case model name	Show an error message
TC-22	Input English letter model name	Model will added successfully
TC-23	Input special case category name	Show an error message
TC-24	Input English letter category name	Category will add successfully
TC-25	Input Zero quantity for add parts.	Show an error message
TC-26	Input minimum one quantity for add parts.	Parts will add successfully
TC-27	Not select brand for update parts	Show an error message
TC-28	Select brand for update parts	Parts will add successfully
TC-29	Not select model for update parts	Show an error message
TC-30	Select model for update parts	Parts will add successfully
TC-31	Not select category for update parts	Show an error message
TC-32	Select category for update parts	Parts will add successfully
TC-33	Input Zero quantity for update parts.	Show an error message
TC-34	Input minimum one quantity for update parts.	Parts will add successfully
TC-35	Input Zero quantity for selling parts.	Show an error message
TC-36	Input minimum one quantity for selling parts.	Sale done successfully

Table 5.4: Test Cases

CHAPTER 6

SYSTEM DESIGN SPECIFICATION

6. User Manual

6.1 Admin:

Dashboard:

Show here today's sales report, profit report, last 30 days sales and profit report, total profit report and number of employees.

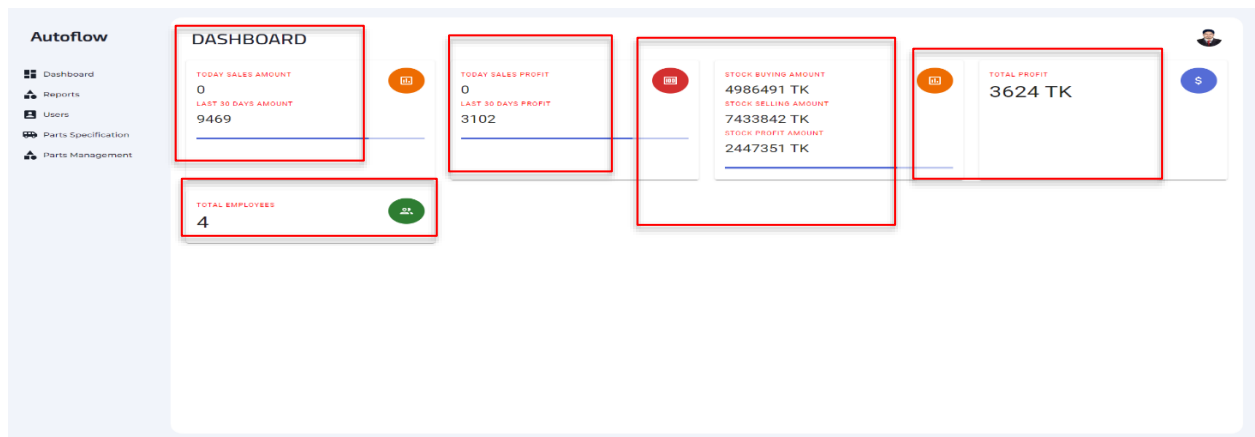


Figure 55: Interface of Admin's Dashboard

View profile:

Click on profile button than show your profile.

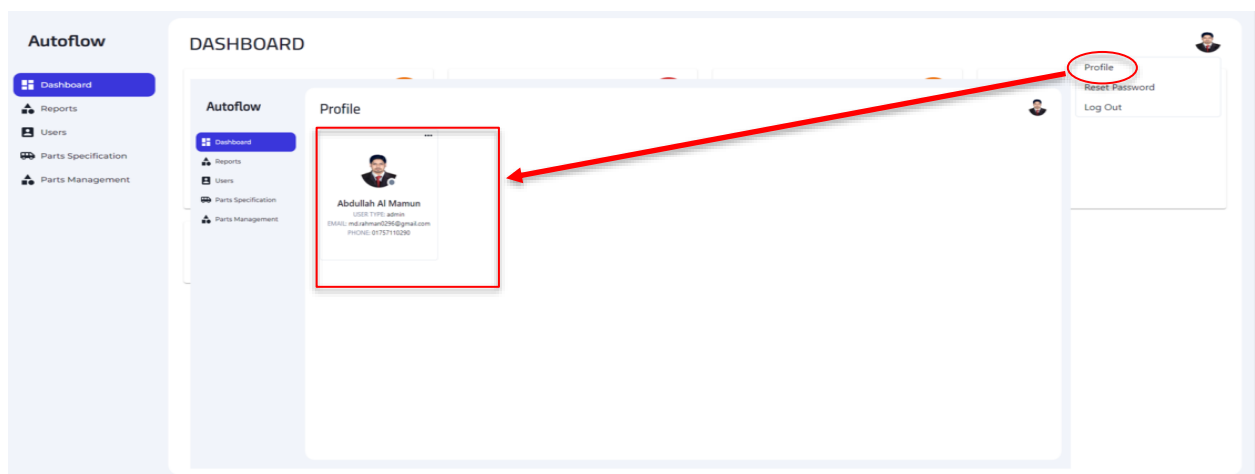


Figure 56: Interface of Admin's View Profile

Update profile:

Click on update button than show a profile update form. Fill up that form and submit.

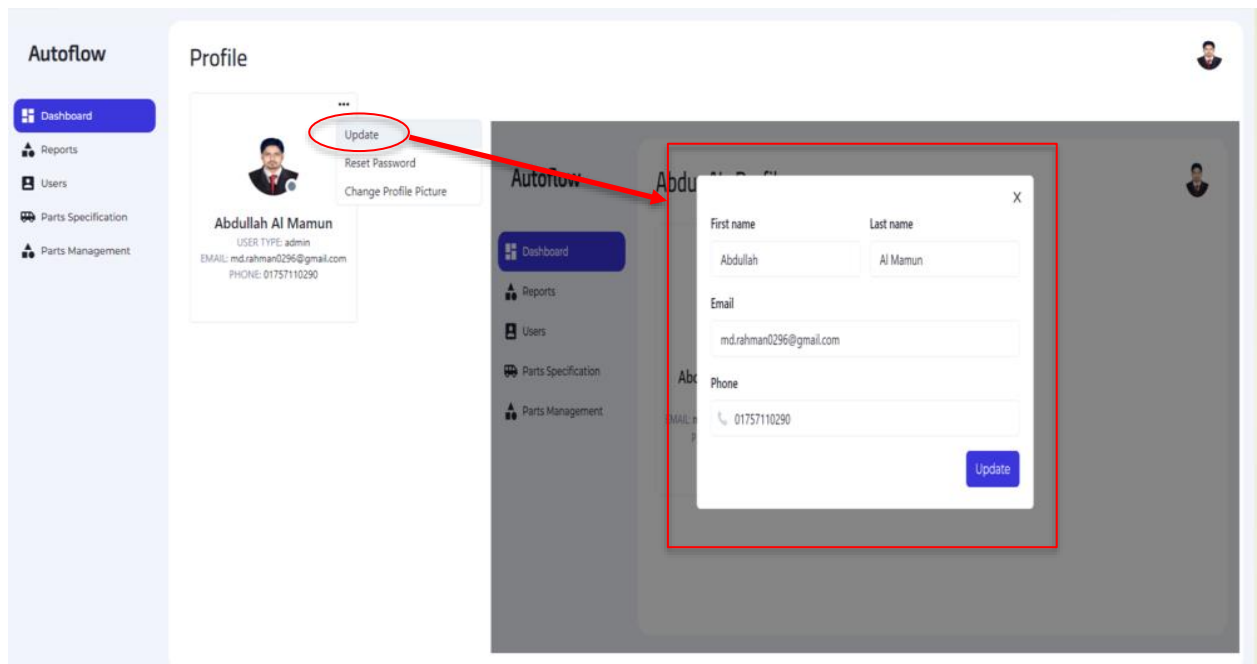


Figure 57: Interface of Admin's Update Profile

Change password:

Click on reset password button than show a form. Fill up that form and submit.

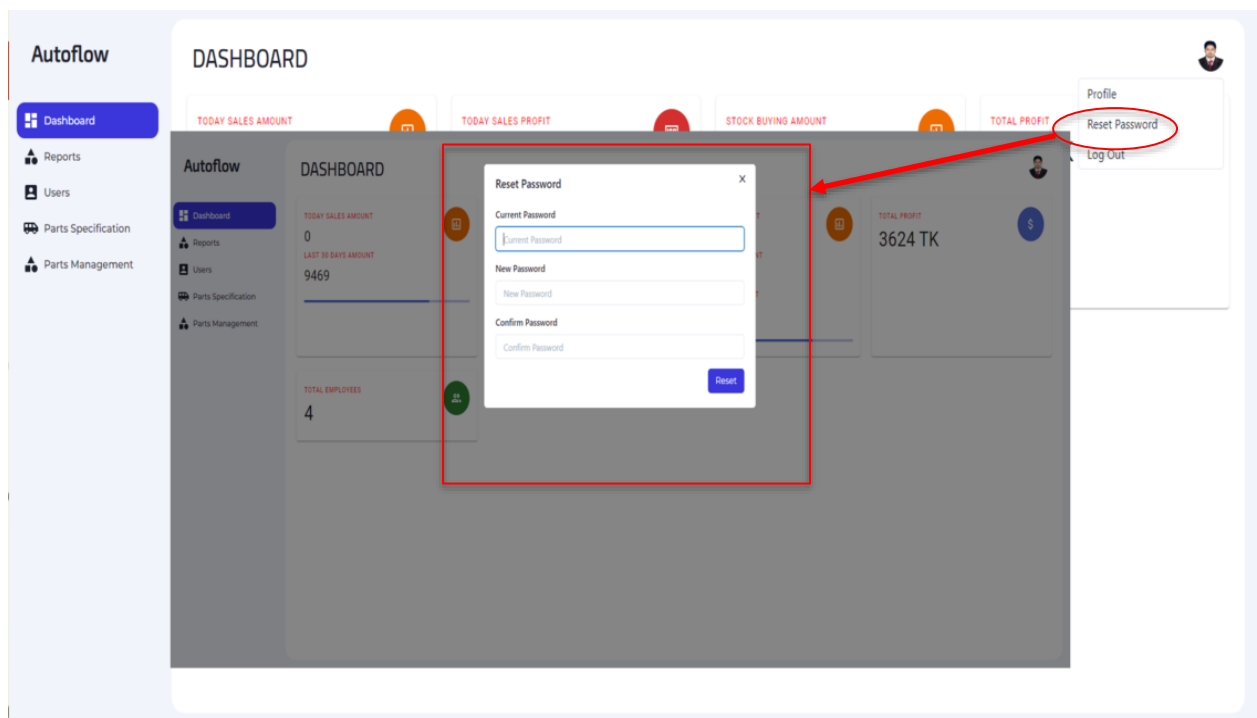


Figure 58: Interface of Admin's Update Profile

Change profile Picture:

Click on change profile picture button than show a form. Select picture and submit.

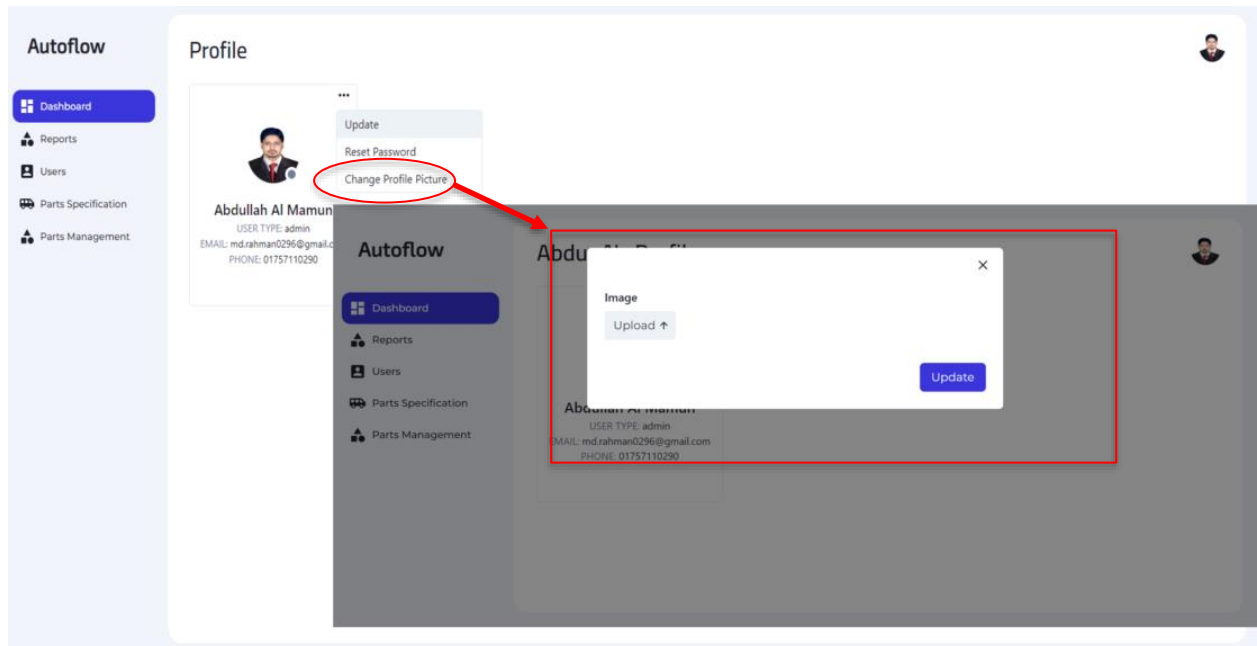


Figure 59: Interface of Admin's Change Profile Picture

Sales Report:

Click on sales report button than show sales report. If you want to download this report click on download sales report button.

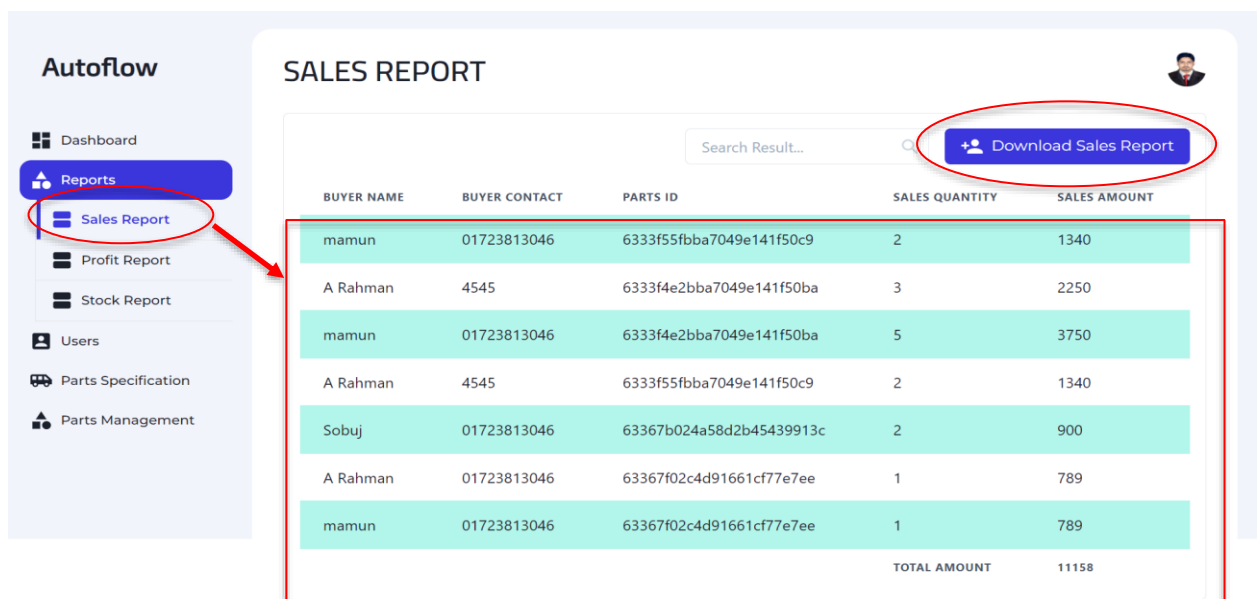


Figure 60: Interface of Admin's Sales Report

Sales Profit Report:

Click on profit report button than show profit report. If you want to download this report click on download profit report button.

BUYER NAME	PARTS ID	SALES QUANTITY	BUYING COST	SALES AMOUNT	PROFIT
mamun	6333f55fba7049e141f50c9	2	900	1340	440
A Rahman	6333f4e2bba7049e141f50ba	3	1500	2250	750
mamun	6333f4e2bba7049e141f50ba	5	2500	3750	1250
A Rahman	6333f55fba7049e141f50c9	2	900	1340	440
Sobuj	63367b024a58d2b45439913c	2	600	900	300
A Rahman	63367f02c4d91661cf77e7ee	1	567	789	222
mamun	63367f02c4d91661cf77e7ee	1	567	789	222
TOTAL PROFIT					3624

Figure 61: Interface of Admin's Sales Profit Report

Stock Report:

Click on stock report button than show stock report. If you want to download this report click on download stock report button.

BRAND NAME	MODEL NAME	CATEGORY NAME	STOCK
Hero	MV-2	Head Light Right	8995
Hero	MV-2	Head Light Right	40
Hero	MV-2	Head Light Right	199
Hero	MV-2	Head Light Right	698
Hero	MV-2	Head Light Right	45

Figure 62: Interface of Admin's Stock Report

User list:

Click on user's button than show list of users.

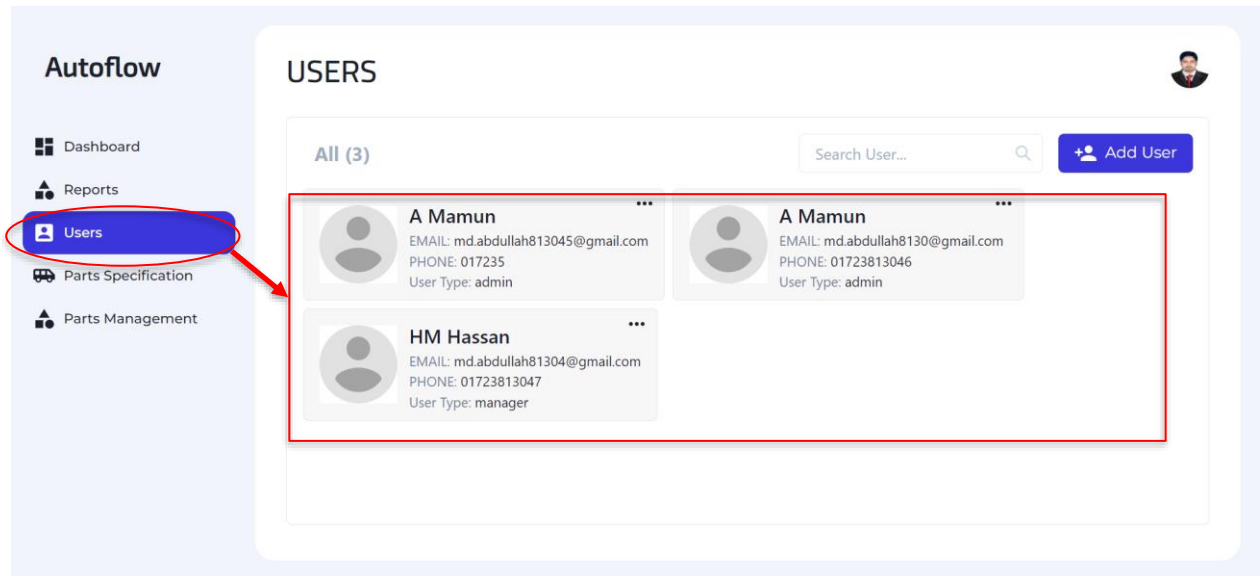


Figure 63: Interface of Admin's User List

Add User:

Click on add user button than show add user form. Fill up that form and submit.

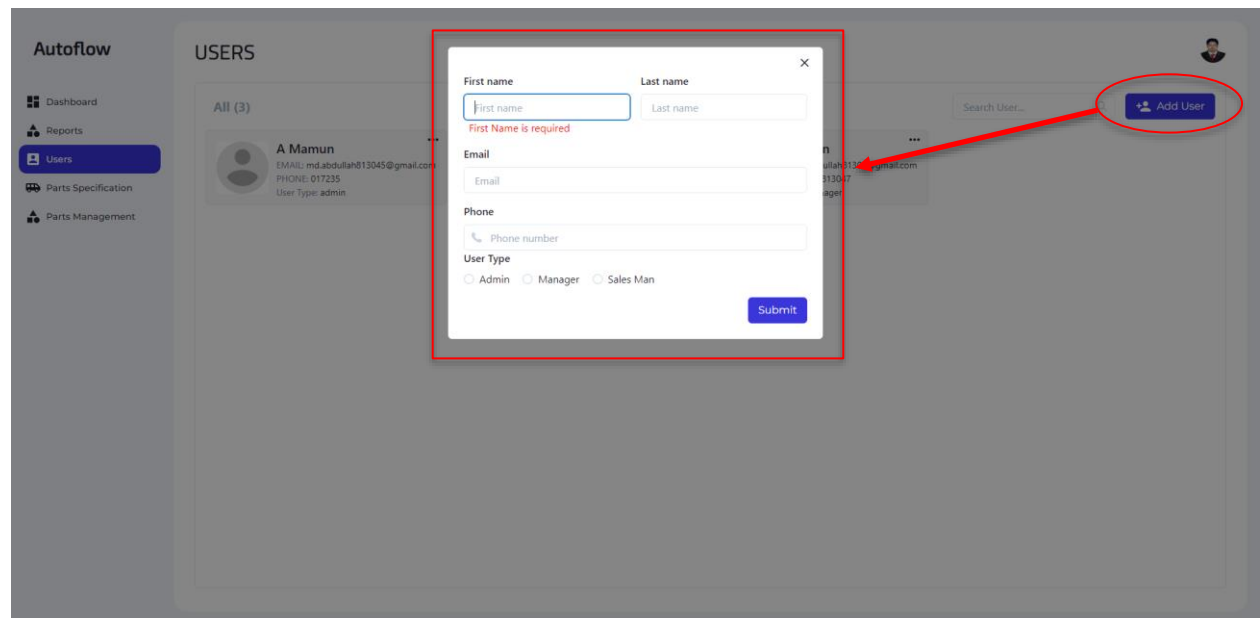


Figure 64: Interface of Admin's Add User

Edit user:

Click on update user button than show update user form. Fill up that form and submit.

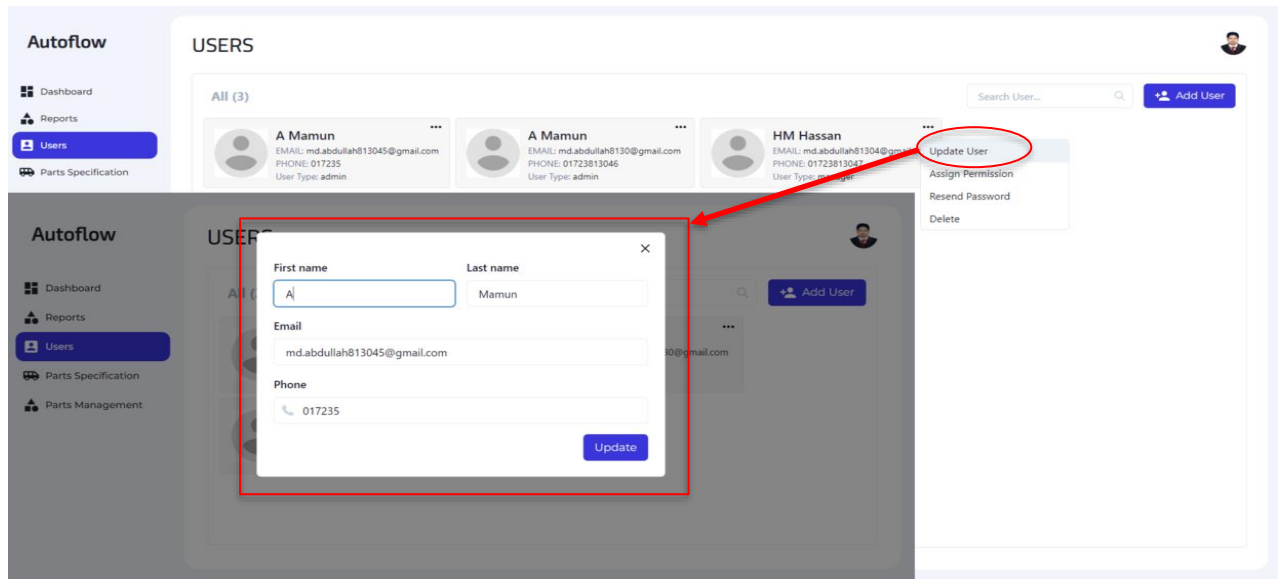


Figure 65: Interface of Admin's Edit User

Assign Permission:

Click on assign permission button than show a radio form. Select permission and submit.

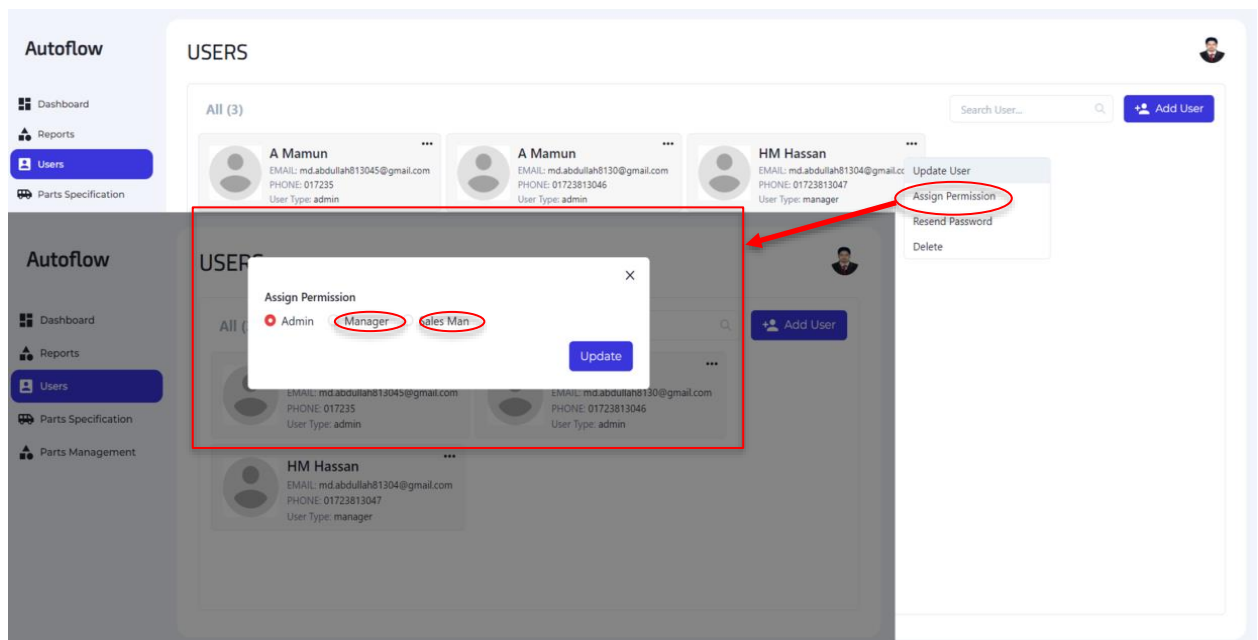


Figure 66: Interface of Admin's Assign Permission

Resend Password:

Click on resend password button than automatically sent an email to that user with new password.

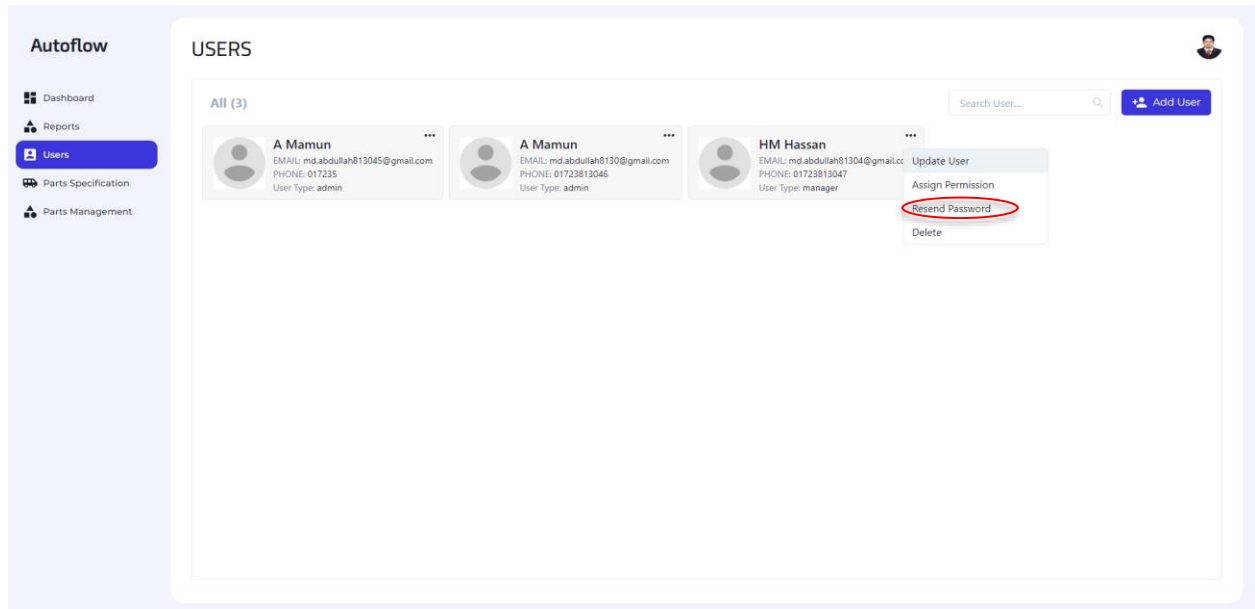


Figure 67: Interface of Admin's Resend Password

Delete User:

Click on delete button than show a conformation delete dialog box. If you finally click on delete button than delete that selected user. If you cancel than user will not delete.

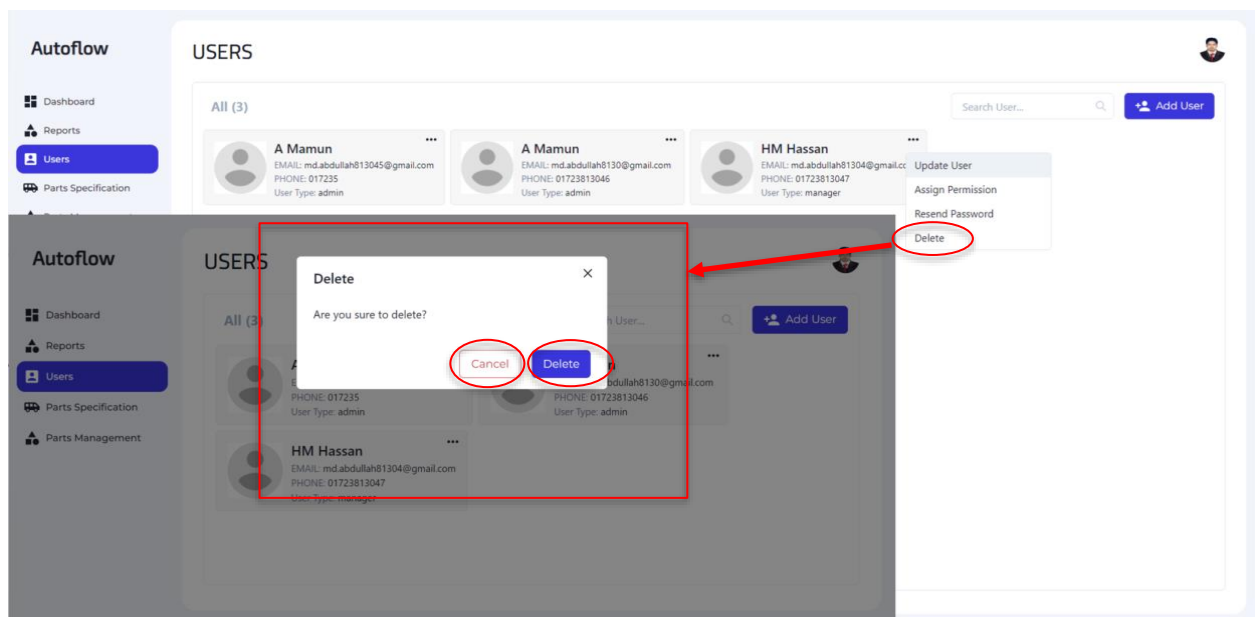


Figure 68: Interface of Admin's Delete User

Brand home:

Show here all the brand that added.

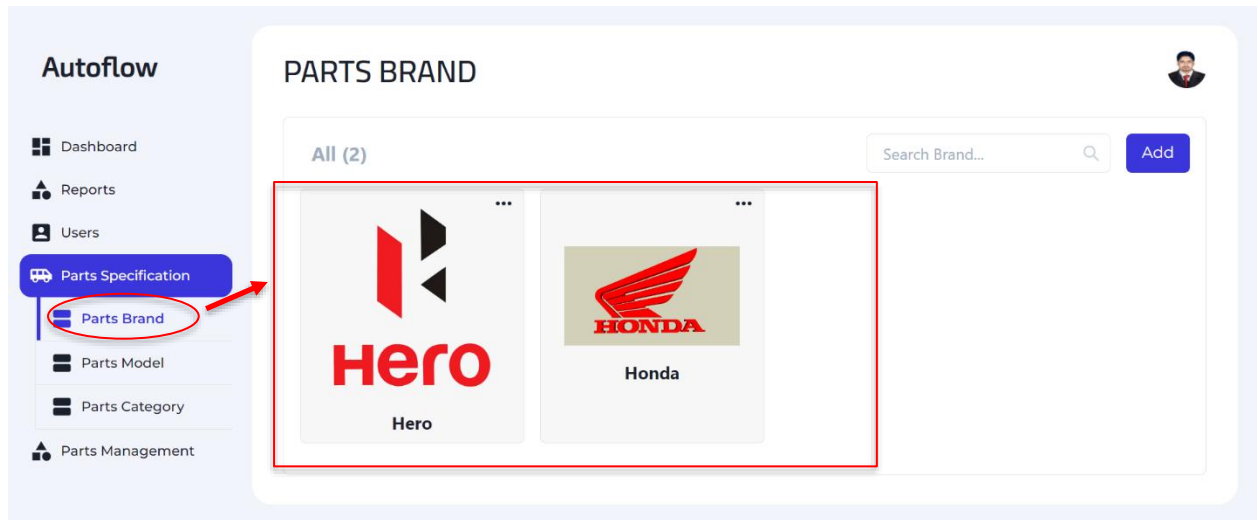


Figure 69: Interface of Admin's Brand Home

Add brand:

Click on add button than show a add brand form. Fill up that form and submit.

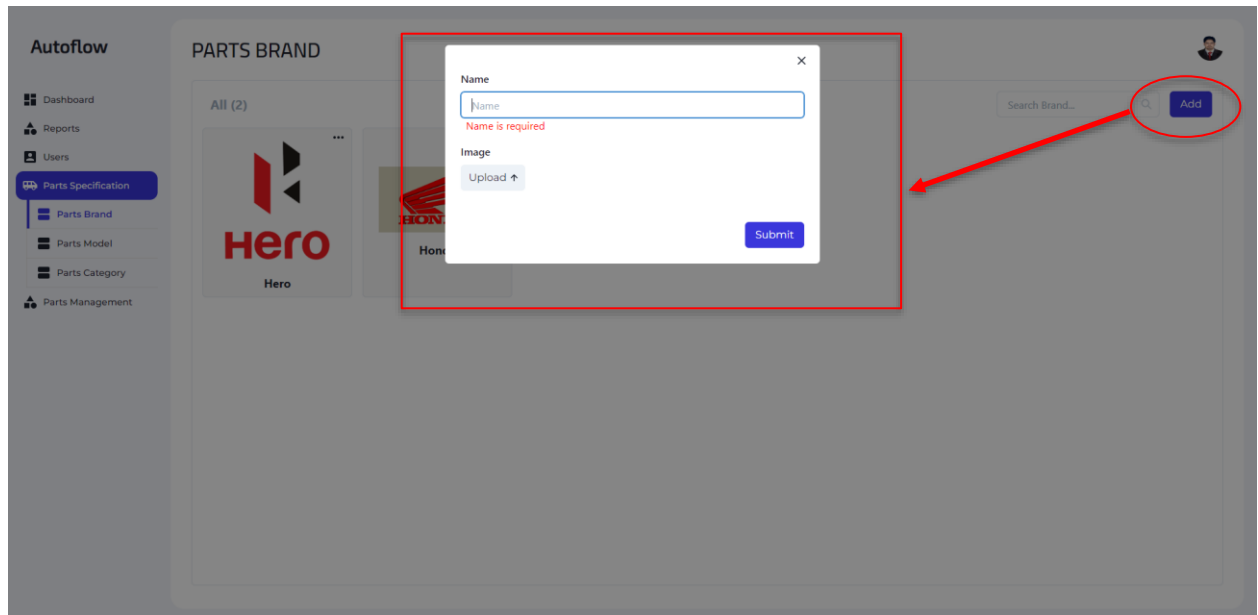


Figure 70: Interface of Admin's Add Brand

Brand Edit:

Click on edit button than show a edit brand form. Fill up that form and submit.

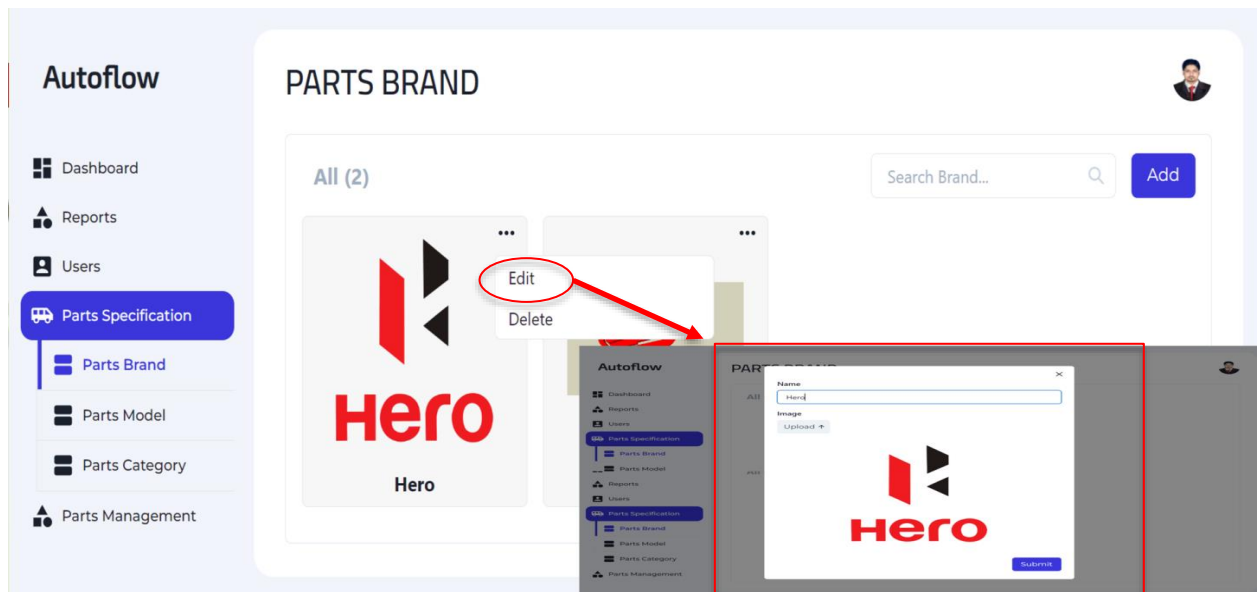


Figure 71: Interface of Admin's Edit Brand

Brand Delete:

Click on delete button than show a conformation delete dialog box. If you finally click on delete button than delete that selected brand. If you cancel than brand will not delete.

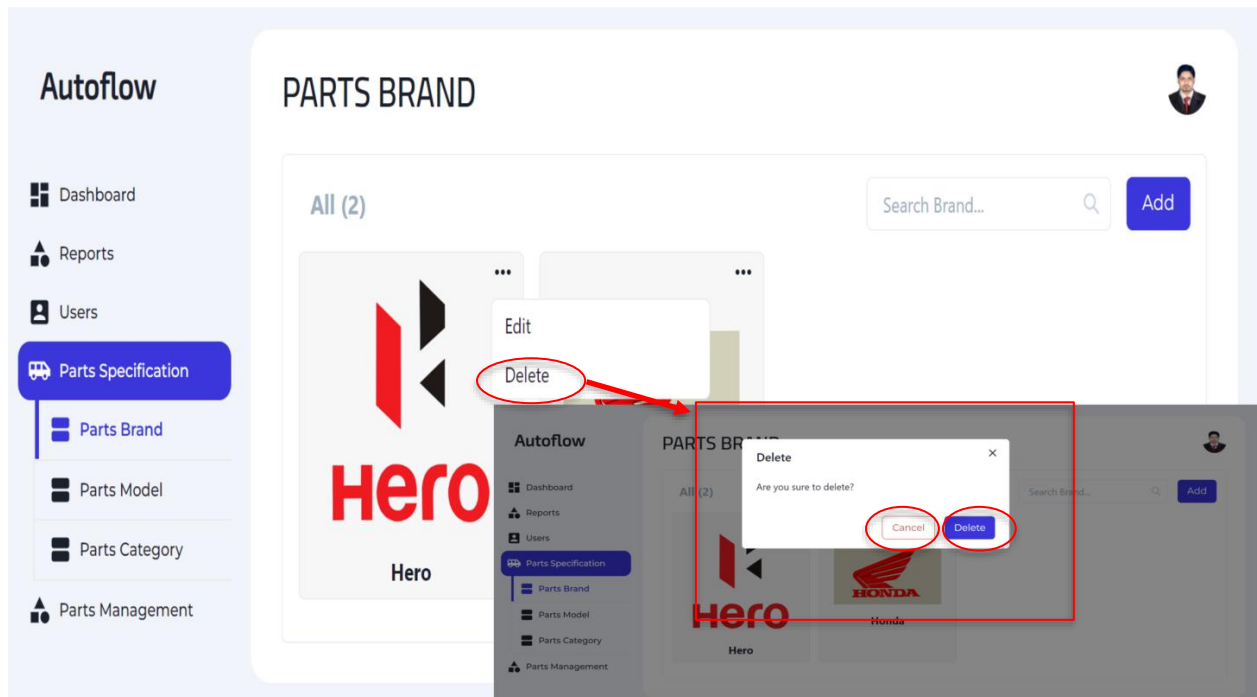


Figure 72: Interface of Admin's Delete Brand

Model Home:

Show here all the model that you added.

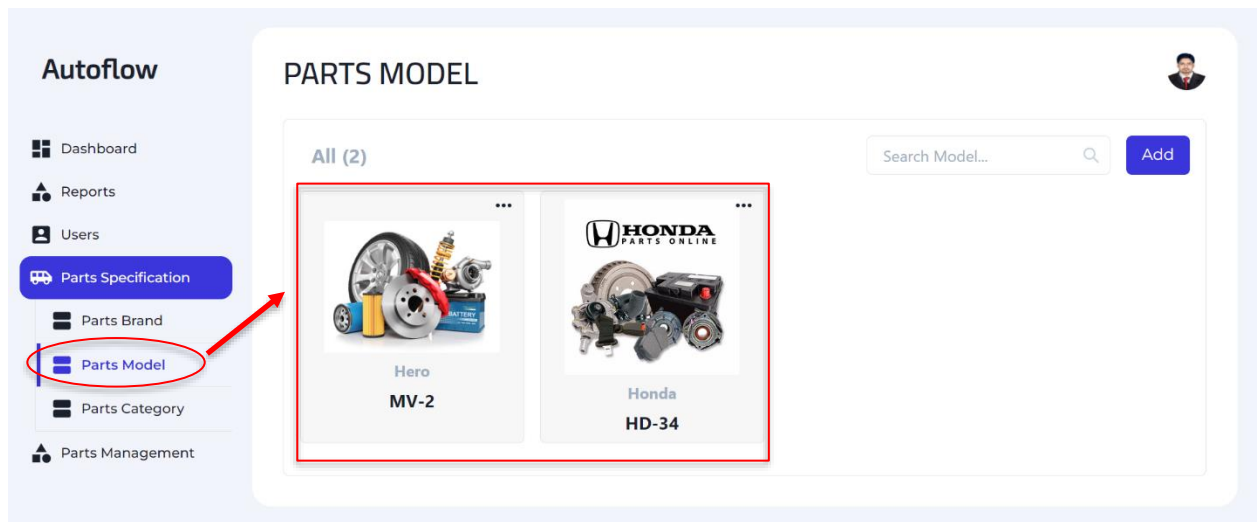


Figure 73: Interface of Admin's Model Home

Model Add:

Click on add button than show a add model form. Fill up that form and submit.

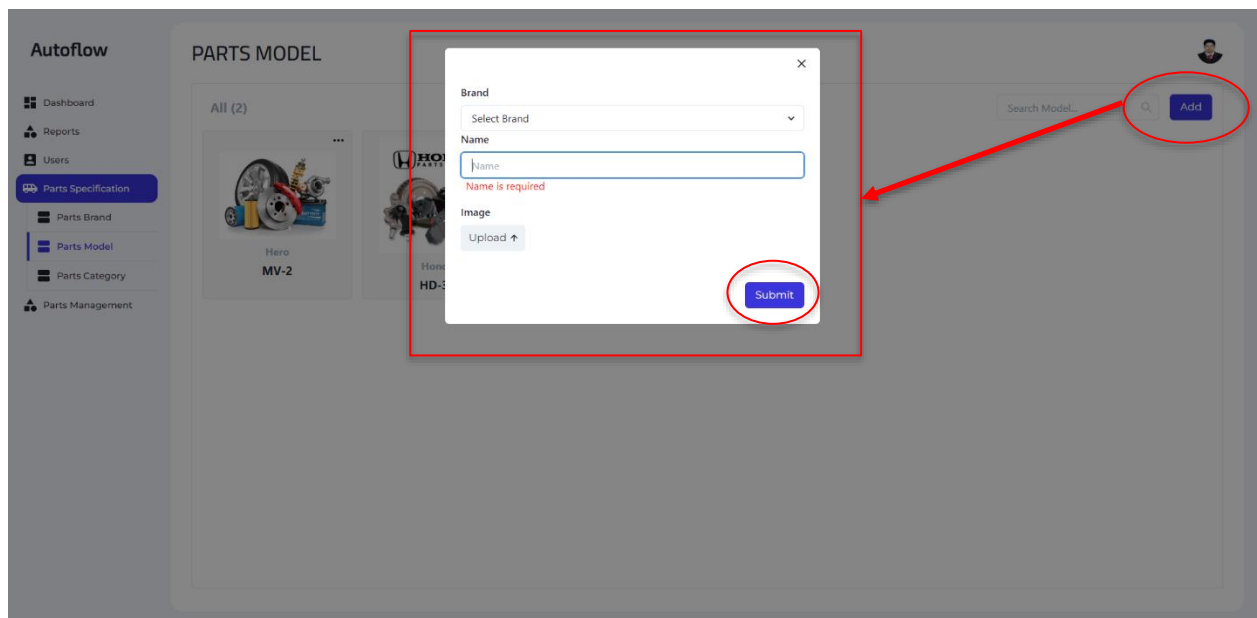


Figure 74: Interface of Admin's Add Model

Model Edit:

Click on edit button than show an edit model form. Fill up that form and submit.

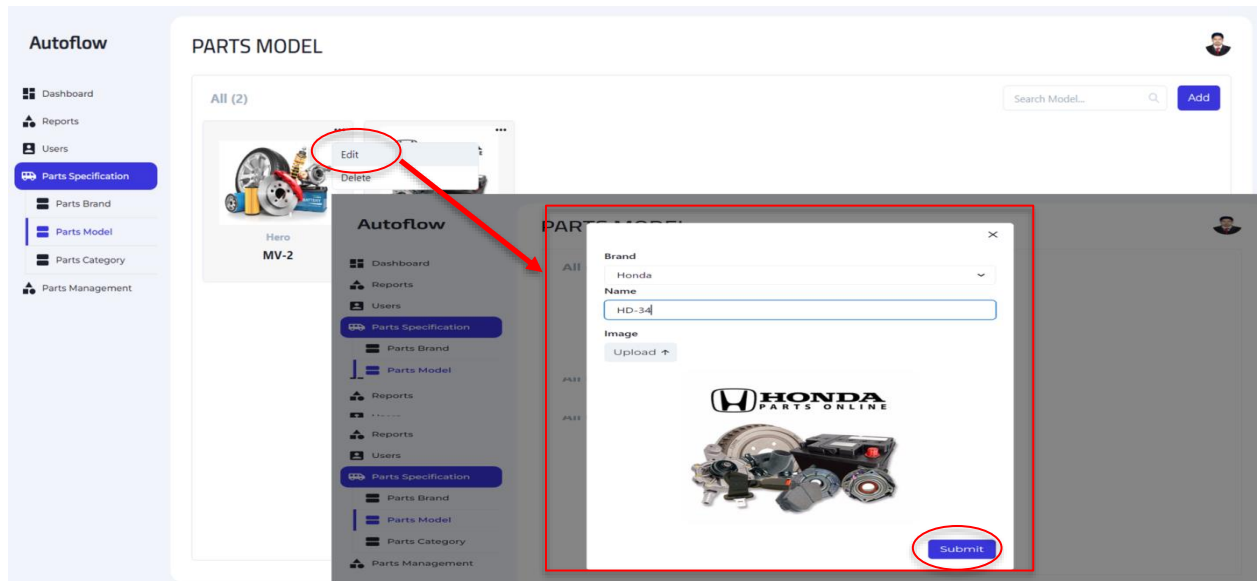


Figure 75: Interface of Admin's Edit Model

Model Delete:

Click on delete button than show a conformation delete dialog box. If you finally click on delete button than delete that selected model. If you cancel than model will not delete.

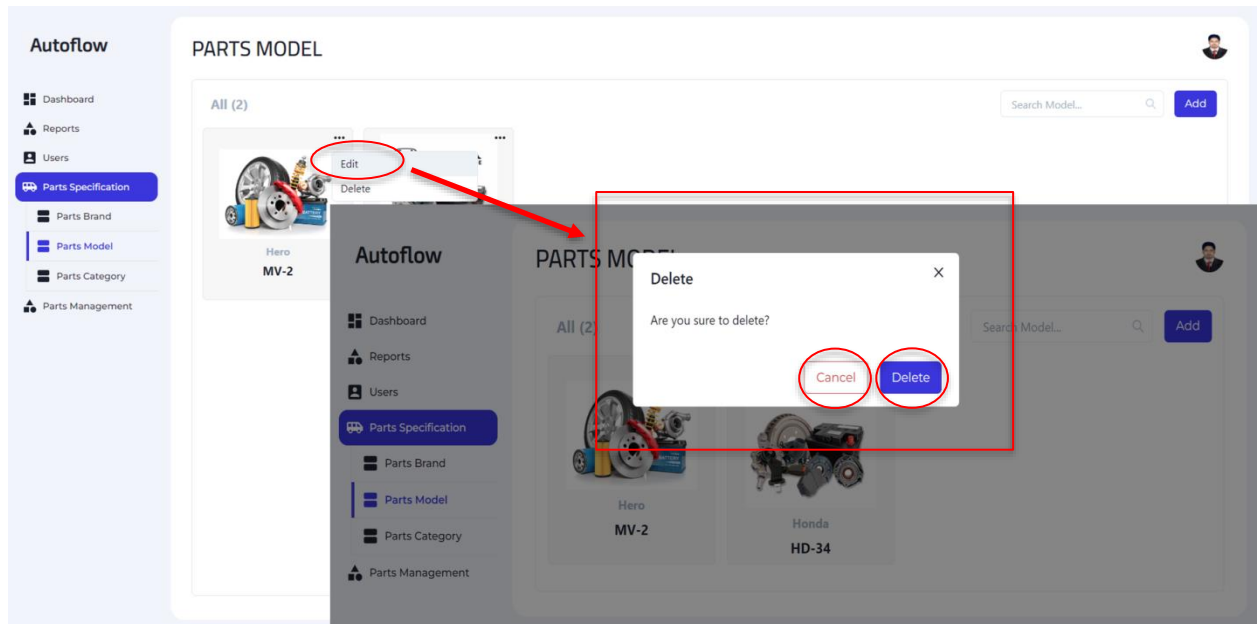


Figure 76: Interface of Admin's Delete Model

Category Home:

Show here all the category that you added.

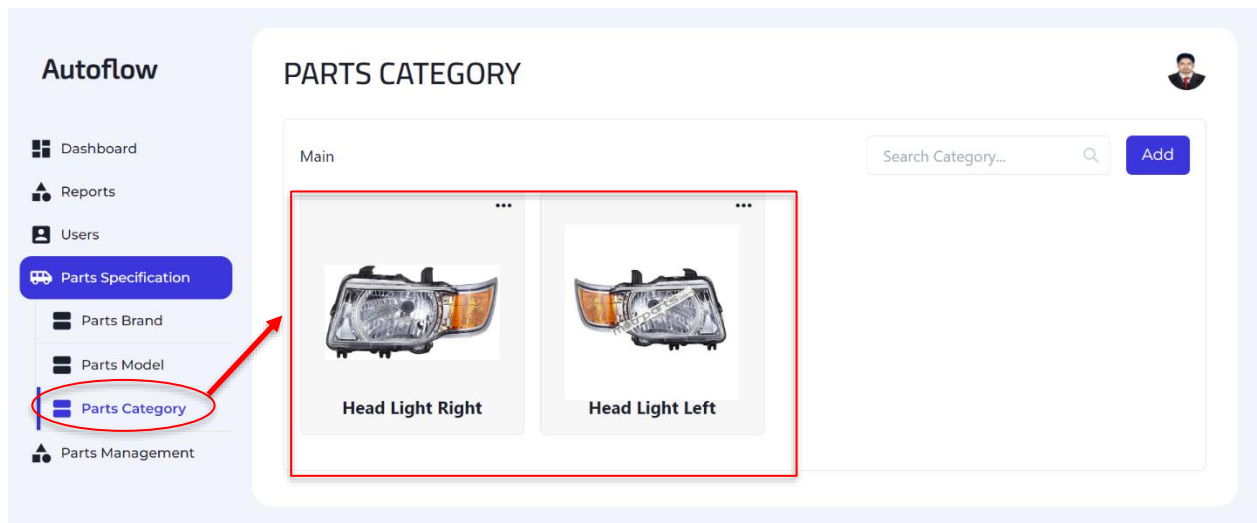


Figure 77: Interface of Admin's Category Home

Add Category:

Click on add button than show a add category form. Fill up that form and submit.

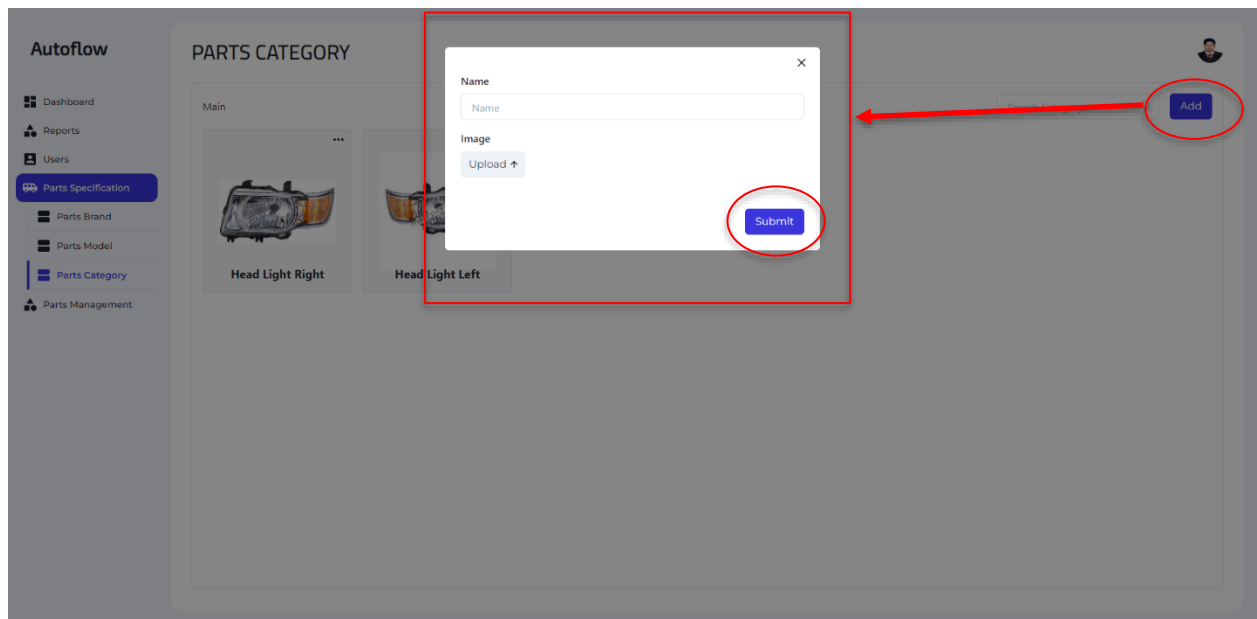


Figure 78: Interface of Admin's Add Category

Category Edit:

Click on edit button than show an edit category form. Fill up that form and submit.

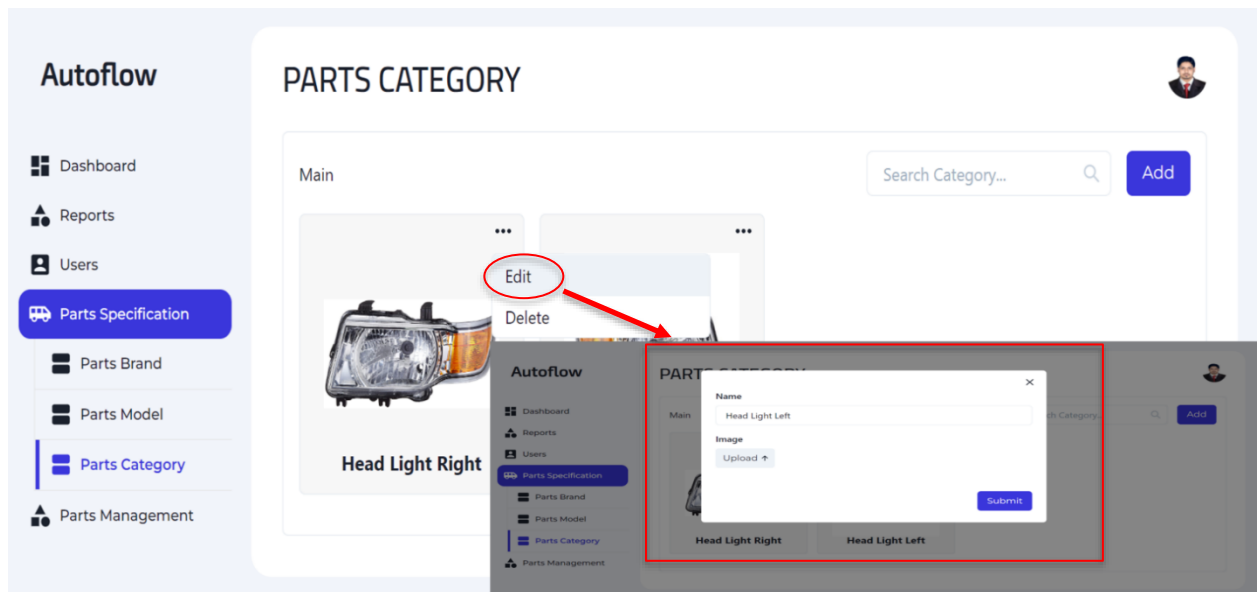


Figure 79: Interface of Admin's Edit Category

Category Delete:

Click on delete button than show a conformation delete dialog box. If you finally click on delete button than delete that selected category. If you cancel than model will not delete.

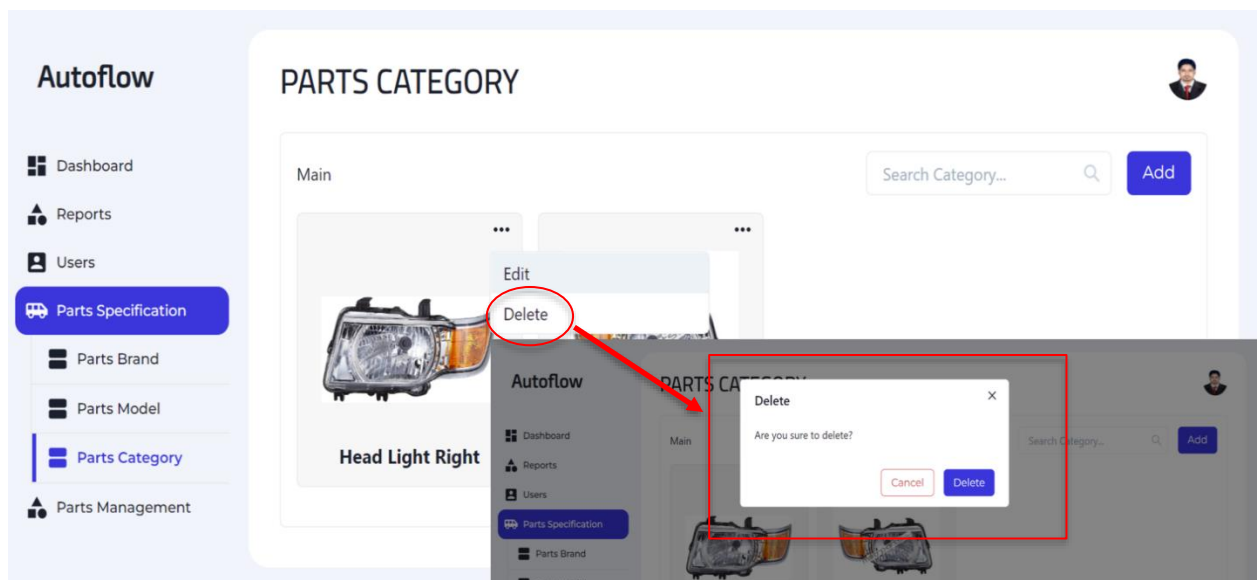


Figure 80: Interface of Admin's Delete Category

Parts home:

Show here all the parts that you added.

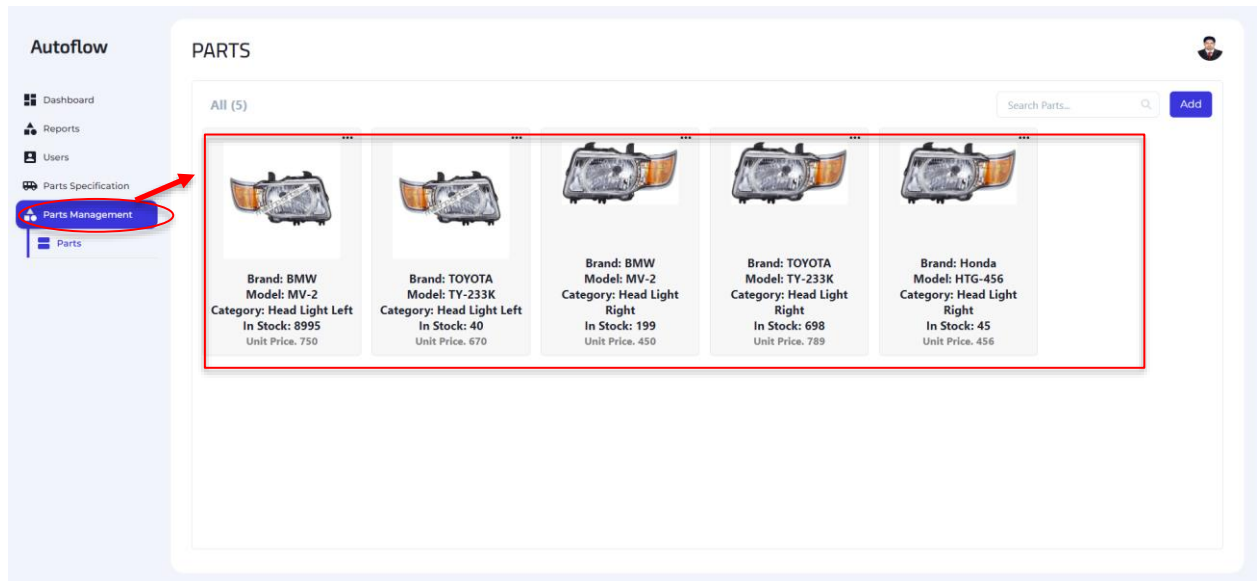


Figure 81: Interface of Admin's Parts Home

Add parts:

Click on add button than show a add parts form. Fill up that form and submit.

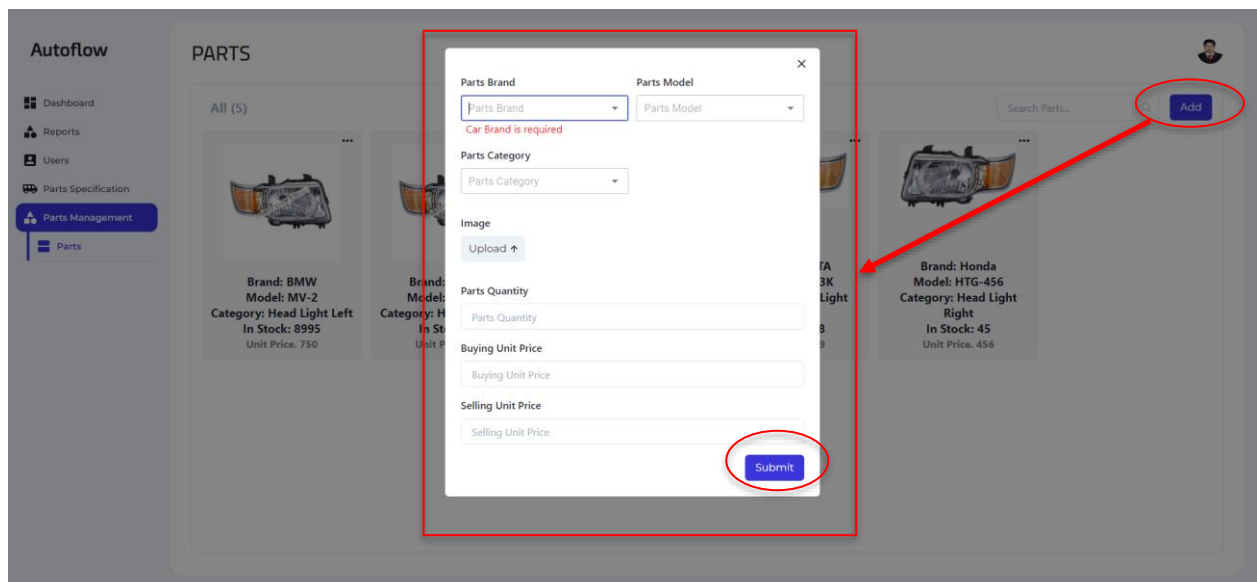


Figure 82: Interface of Admin's Add Parts

Parts Sells:

Click on sell button than show a sale parts form. Fill up that form and submit.

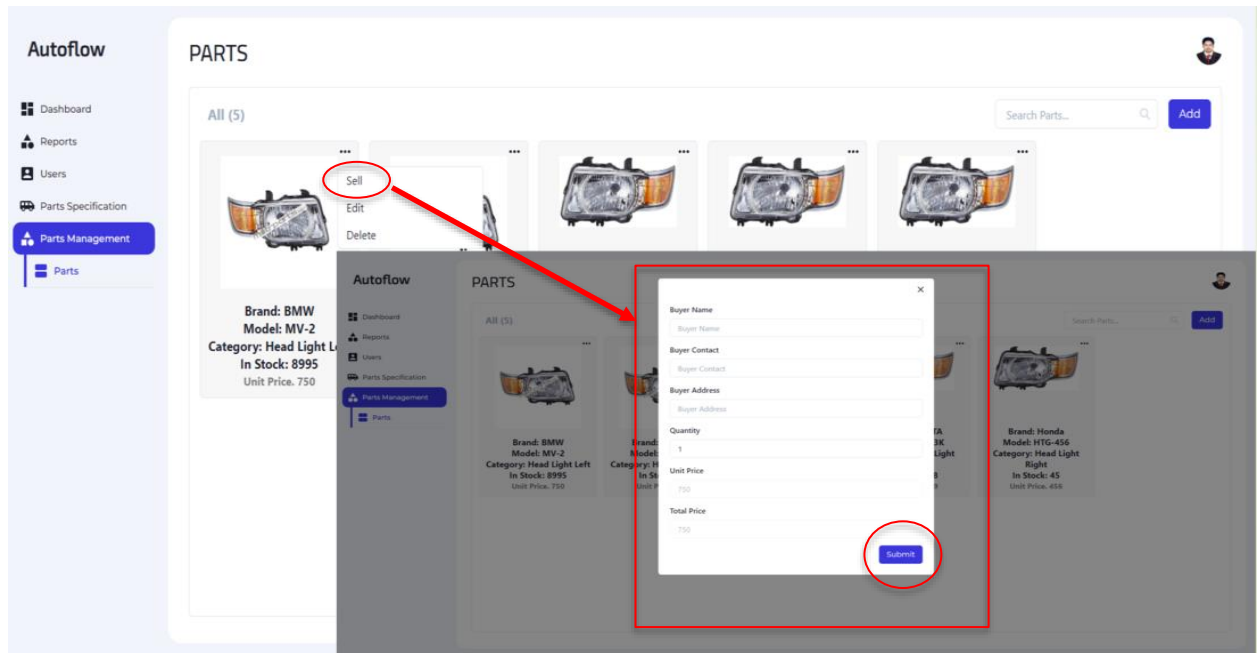


Figure 83: Interface of Admin's Sell Parts

Parts Edit:

Click on edit button than show an edit parts form. Fill up that form and submit.

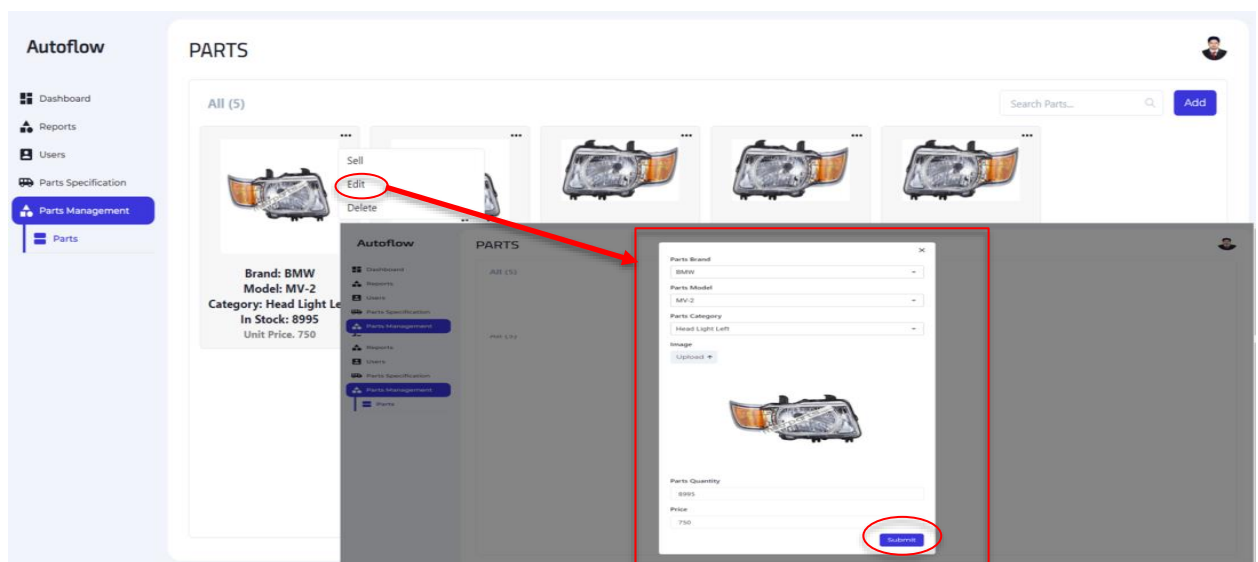


Figure 84: Interface of Admin's Edit Parts

Parts Delete:

Click on delete button than show a conformation delete dialog box. If you finally click on delete button than delete that selected parts. If you cancel than parts will not delete.

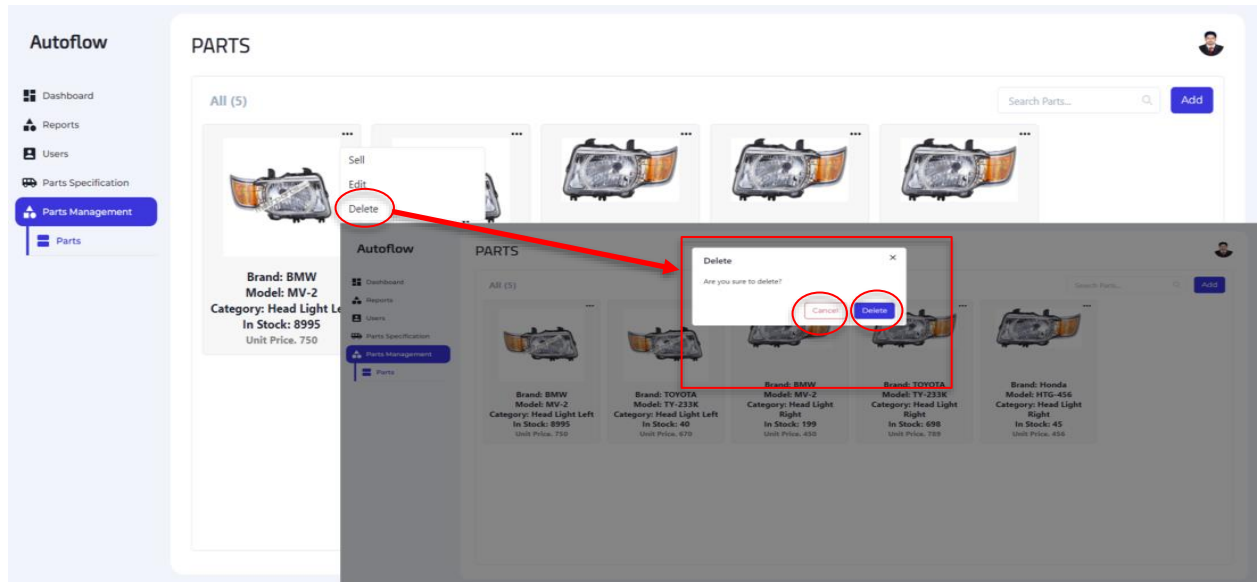


Figure 85: Interface of Admin's Delete Parts

6.2 Manager:

View profile:

Click on profile button than show your profile.

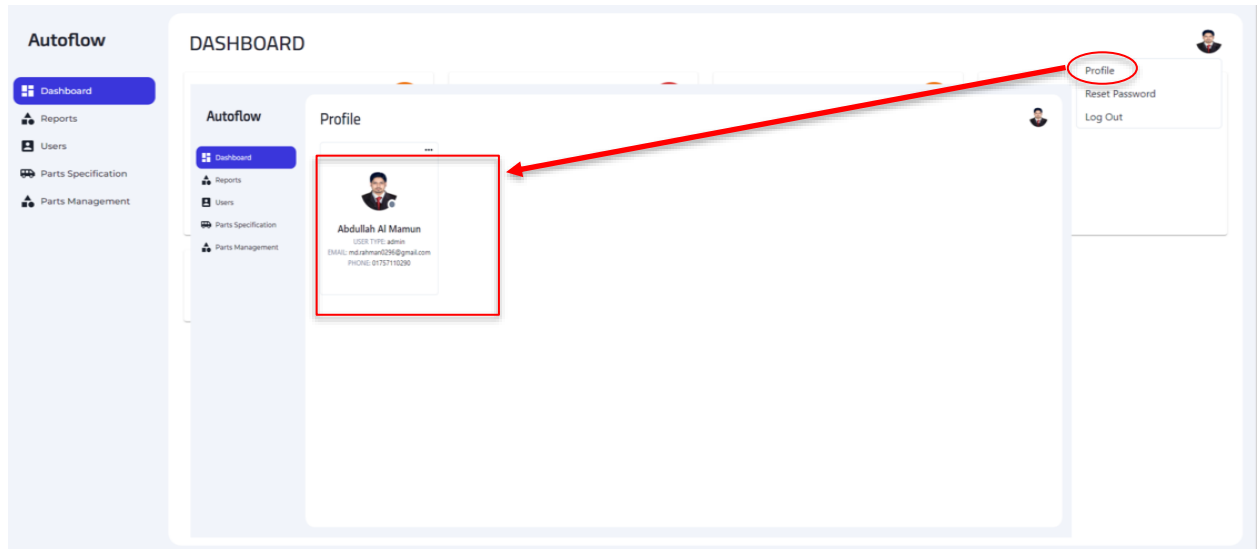


Figure 86: Interface of Manager's View Profile

Update profile:

Click on update button than show a profile update form. Fill up that form and submit.

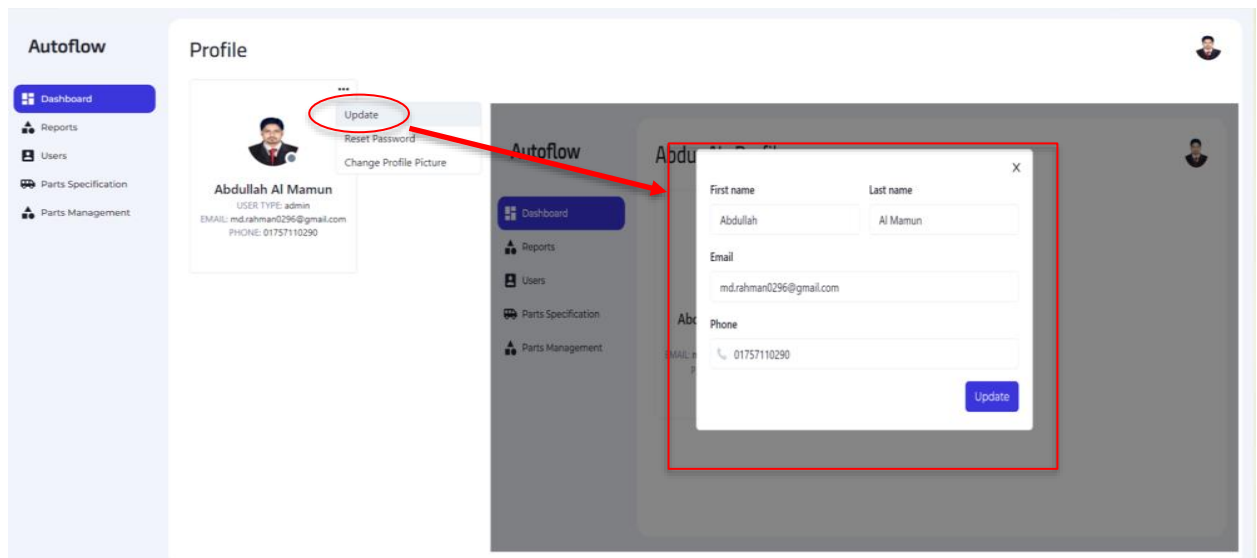


Figure 87: Interface of Manager's Update Profile

Change password:

Click on reset password button than show a form. Fill up that form and submit.

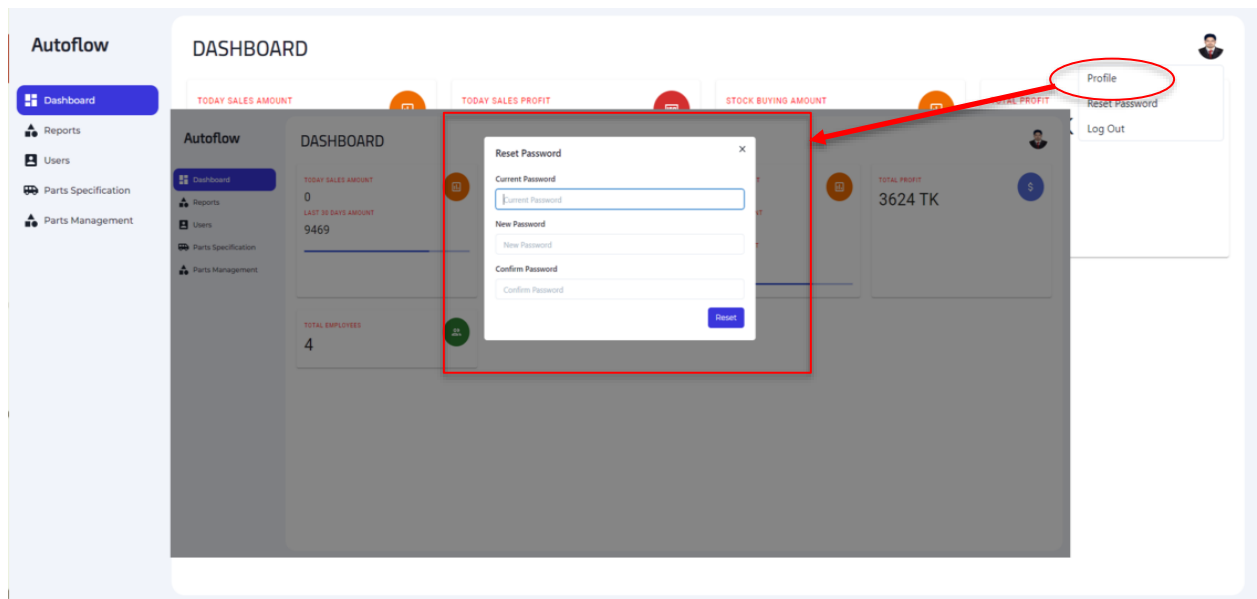


Figure 88: Interface of Manager's Change Password

Change profile Picture:

Click on change profile picture button than show a form. Select picture and submit.

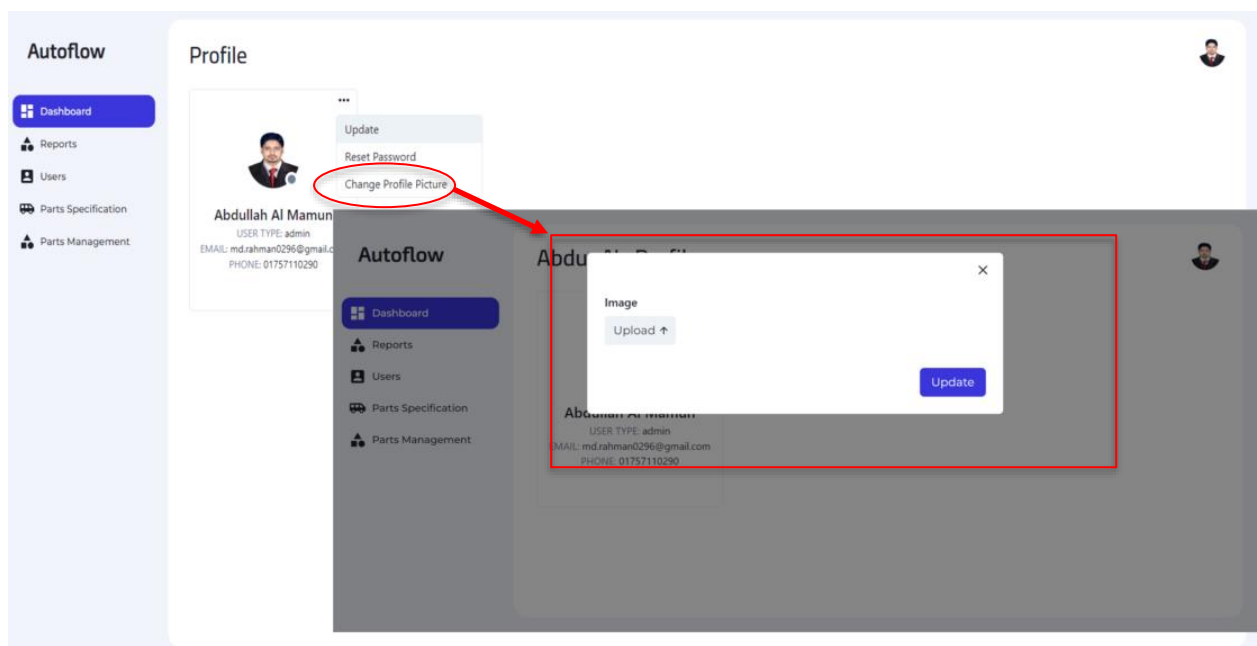


Figure 89: Interface of Manager's Change Profile Picture

Sales Report:

Click on sales report button than show sales report. If you want to download this report click on download sales report button.

The screenshot shows the 'SALES REPORT' interface. The left sidebar has a 'Reports' section with 'Sales Report' highlighted. The main content area features a search bar and a 'Download Sales Report' button. Below is a table with the following data:

BUYER NAME	BUYER CONTACT	PARTS ID	SALES QUANTITY	SALES AMOUNT
mamun	01723813046	6333f55fbb7049e141f50c9	2	1340
A Rahman	4545	6333f4e2bba7049e141f50ba	3	2250
mamun	01723813046	6333f4e2bba7049e141f50ba	5	3750
A Rahman	4545	6333f55fbb7049e141f50c9	2	1340
Sobuj	01723813046	63367b024a58d2b45439913c	2	900
A Rahman	01723813046	63367f02c4d91661cf77e7ee	1	789
mamun	01723813046	63367f02c4d91661cf77e7ee	1	789
TOTAL AMOUNT				11158

Figure 90: Interface of Manager's Sales Report

Stock Report:

Click on stock report button than show stock report. If you want to download this report click on download stock report button.

The screenshot shows the 'STOCK REPORT' interface. The left sidebar has a 'Reports' section with 'Stock Report' highlighted. The main content area features a search bar and a 'Download Stock Report' button. Below is a table with the following data:

BRAND NAME	MODEL NAME	CATEGORY NAME	STOCK
Hero	MV-2	Head Light Right	8995
Hero	MV-2	Head Light Right	40
Hero	MV-2	Head Light Right	199
Hero	MV-2	Head Light Right	698
Hero	MV-2	Head Light Right	45

Figure 91: Interface of Manager's Stock Report

Brand home:

Show here all the brand that added.

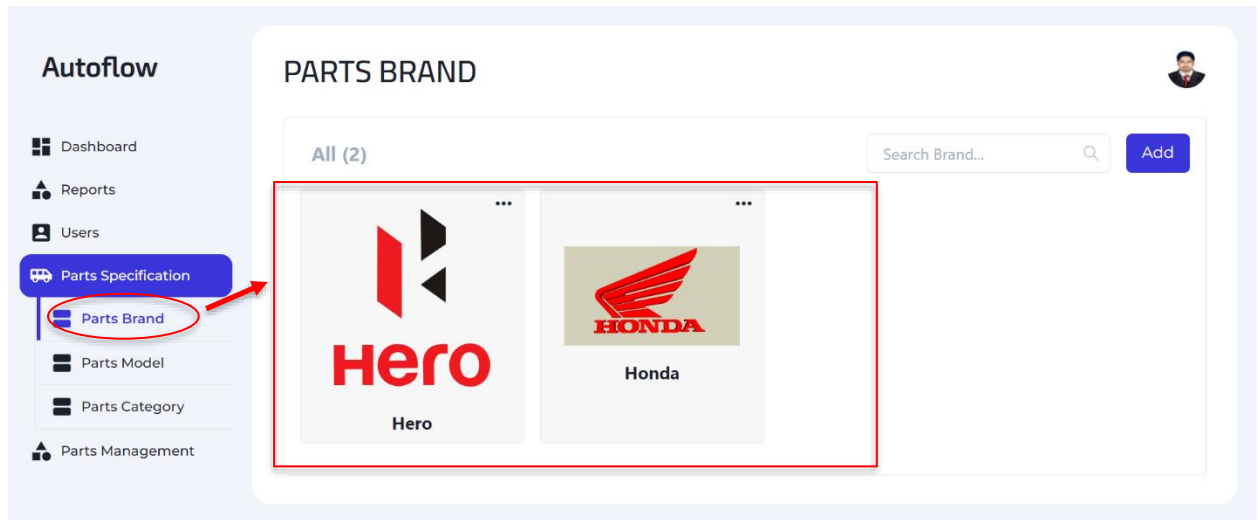


Figure 92: Interface of Manager's Brand Home

Add brand:

Click on add button than show a add brand form. Fill up that form and submit.

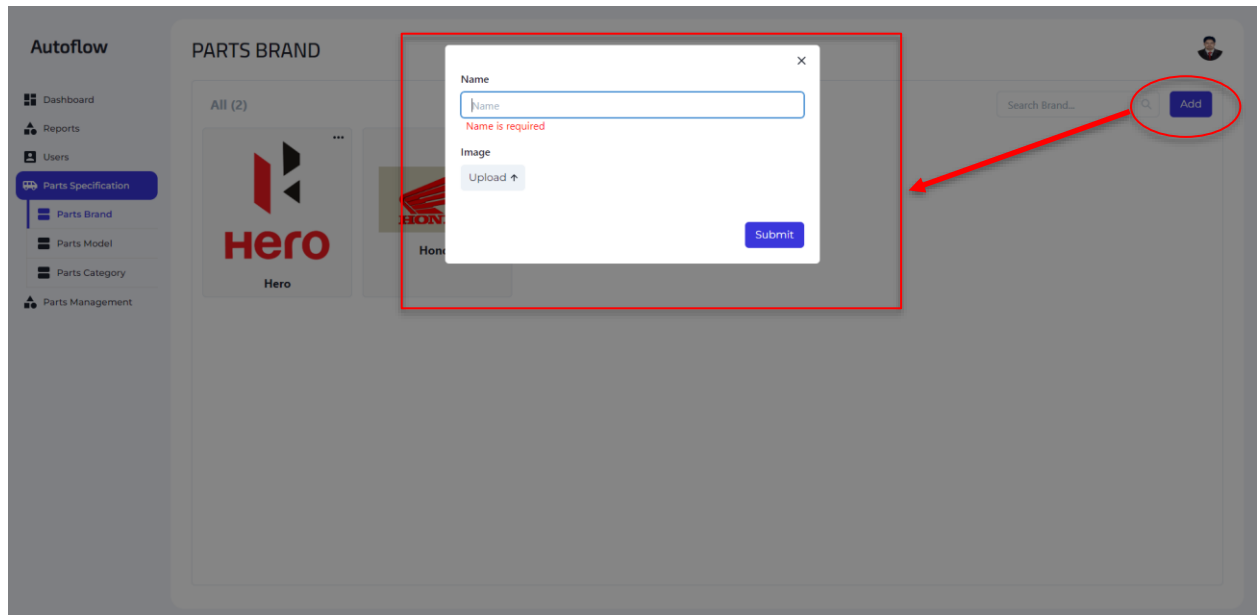


Figure 93: Interface of Manager's Add Brand

Brand Edit:

Click on edit button than show a edit brand form. Fill up that form and submit.

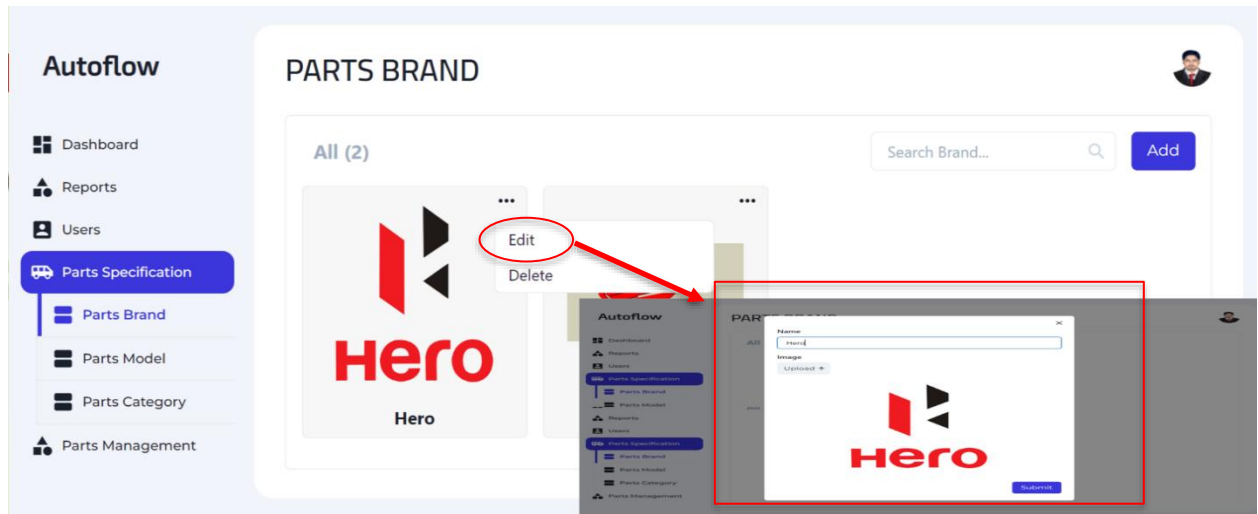


Figure 94: Interface of Manager's Edit Brand

Brand Delete:

Click on delete button than show a conformation delete dialog box. If you finally click on delete button than delete that selected brand. If you cancel than brand will not delete.

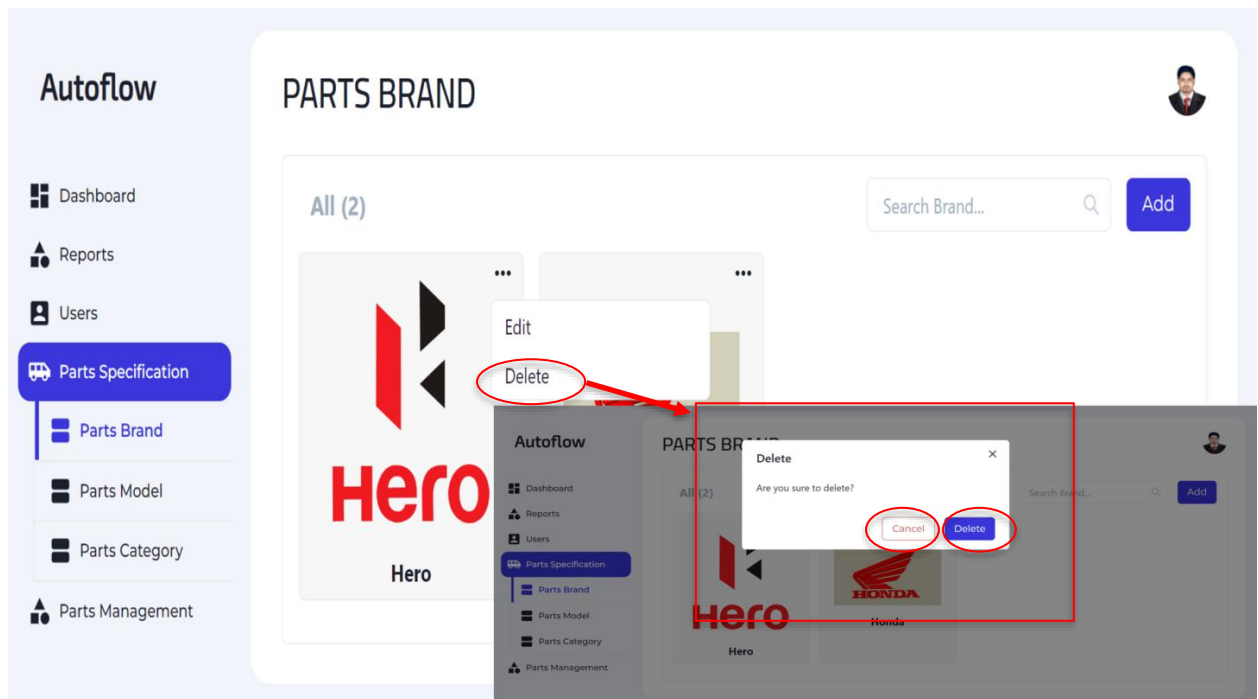


Figure 95: Interface of Manager's Delete Brand

Model Home:

Show here all the model that you added.

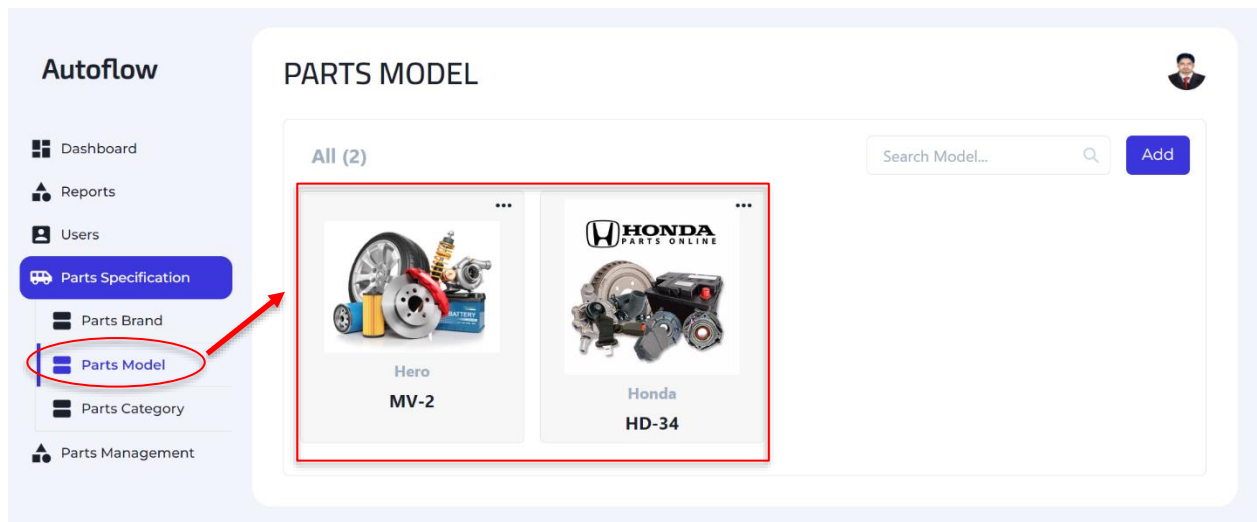


Figure 96: Interface of Manager's Model Home

Model Add:

Click on add button than show a add model form. Fill up that form and submit.

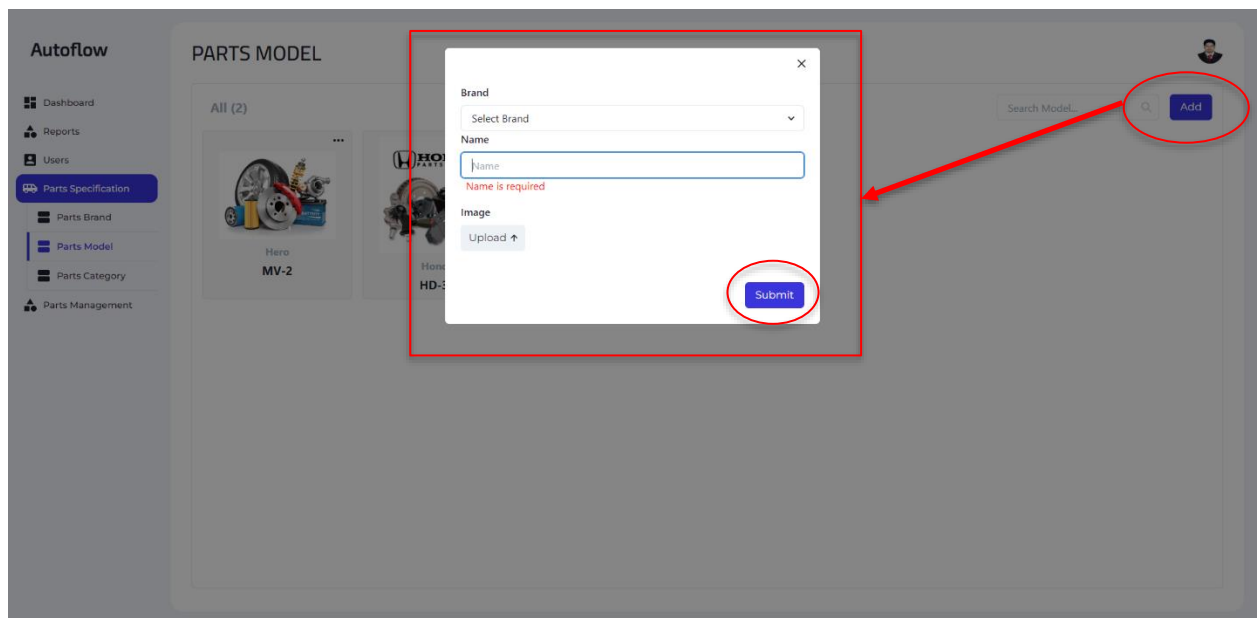


Figure 97: Interface of Manager's Add Model

Model Edit:

Click on edit button than show an edit model form. Fill up that form and submit.

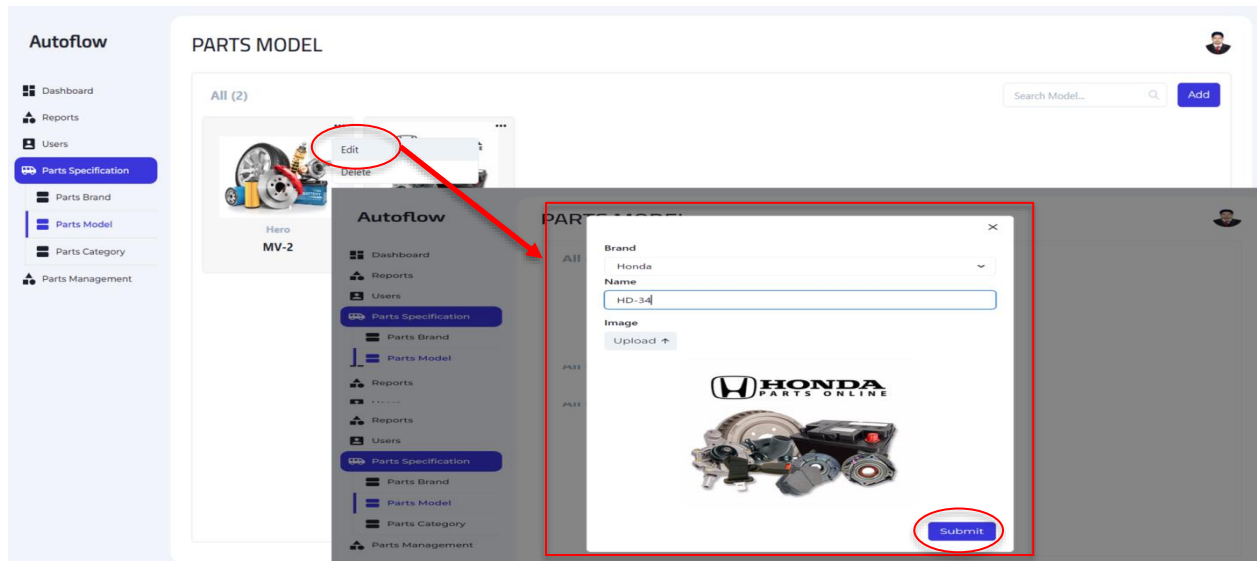


Figure 98: Interface of Manager's Edit Model

Model Delete:

Click on delete button than show a conformation delete dialog box. If you finally click on delete button than delete that selected model. If you cancel than model will not delete.

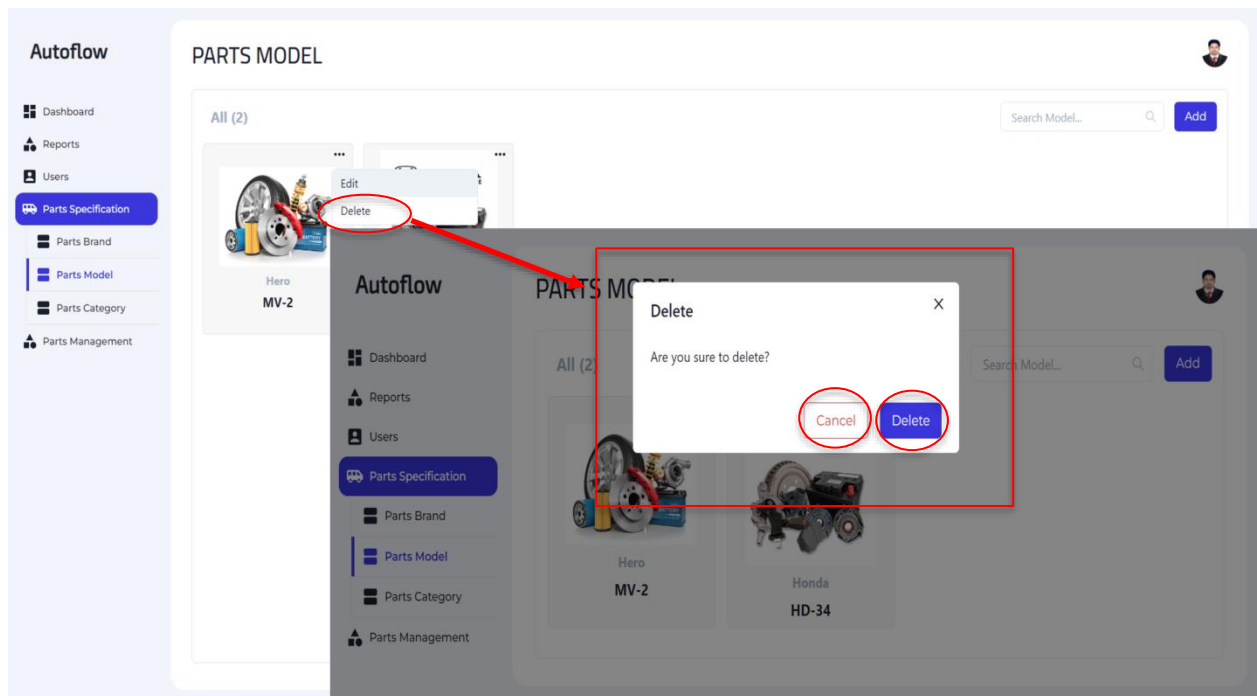


Figure 99: Interface of Manager's Delete Model

Category Home:

Show here all the category that you added.

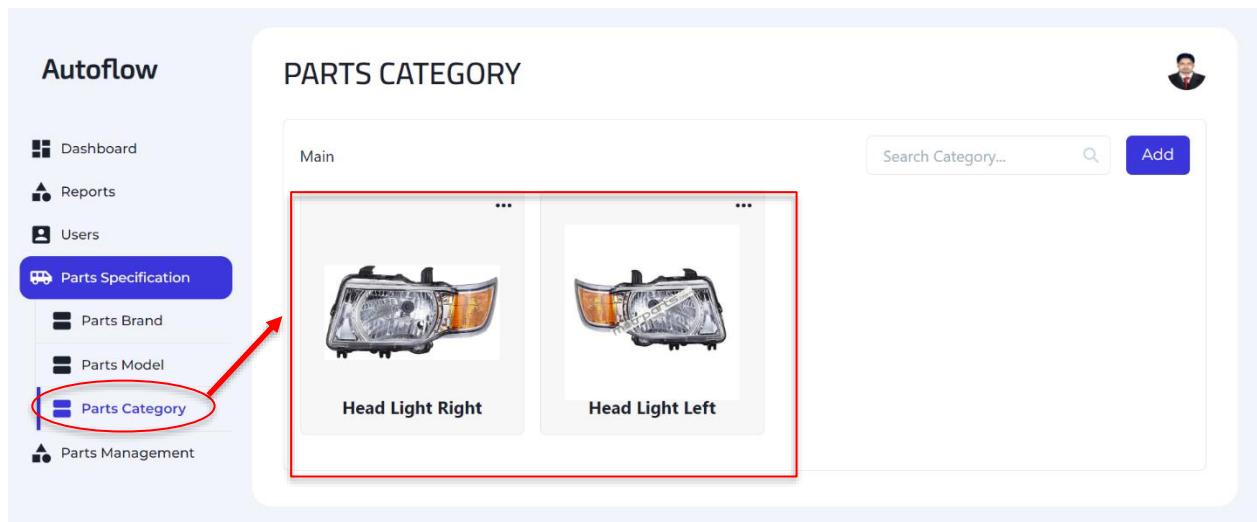


Figure 100: Interface of Manager's Category Home

Add Category:

Click on add button than show a add category form. Fill up that form and submit.

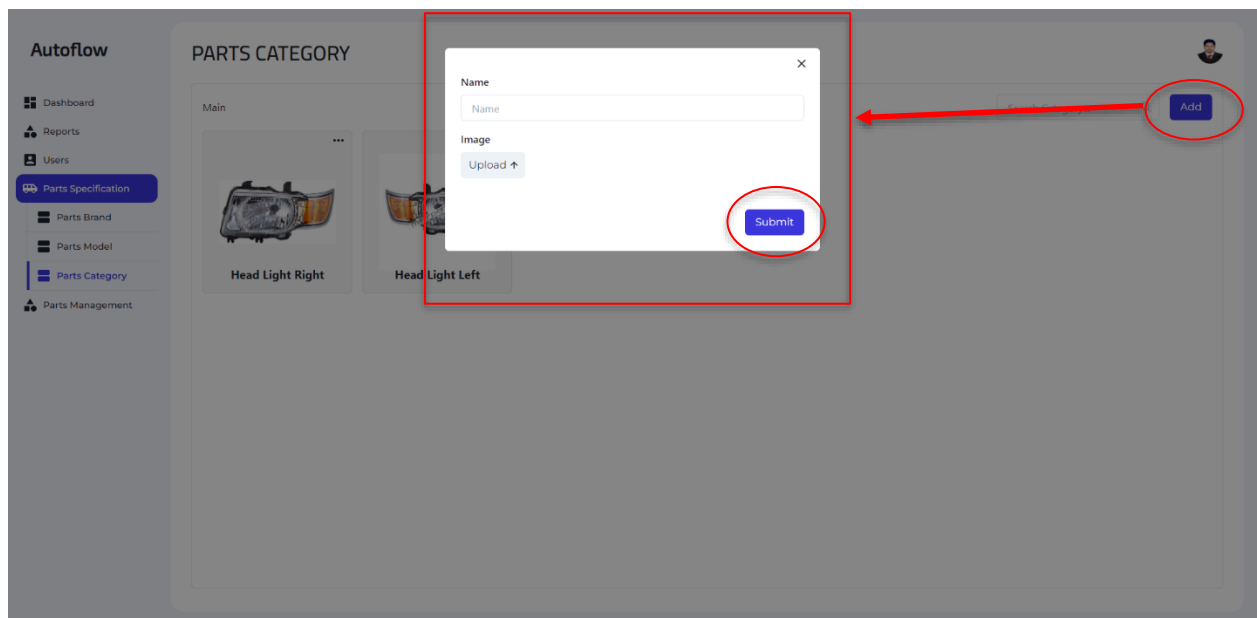


Figure 101: Interface of Manager's Add Category

Category Edit:

Click on edit button than show an edit category form. Fill up that form and submit.

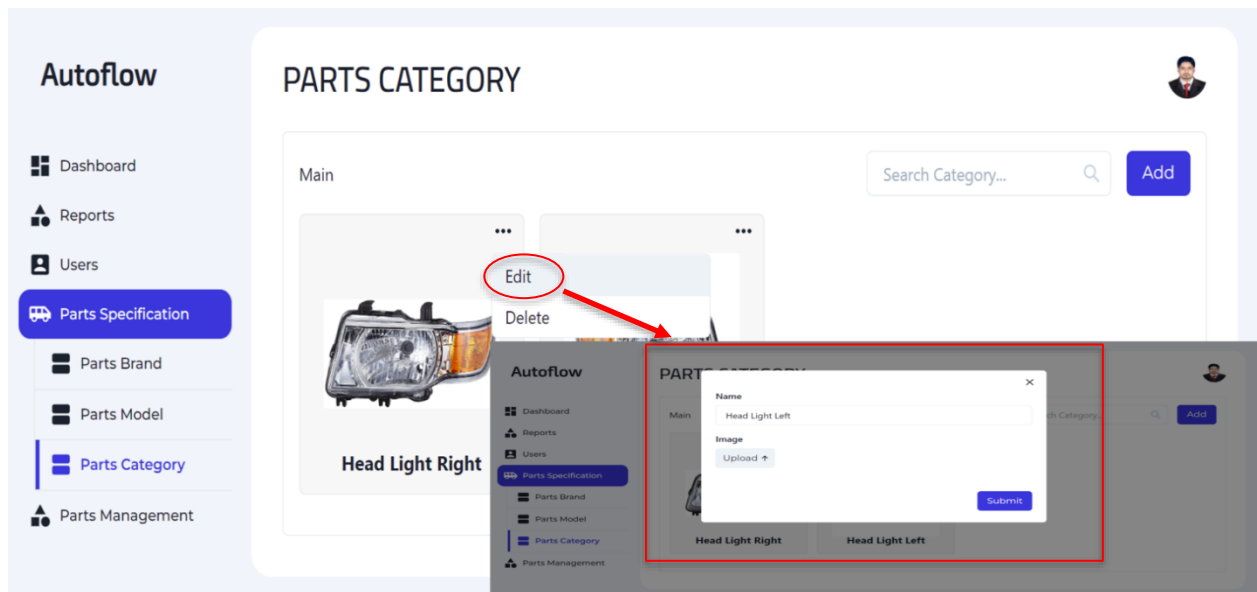


Figure 102: Interface of Manager's Edit Category

Category Delete:

Click on delete button than show a conformation delete dialog box. If you finally click on delete button than delete that selected category. If you cancel than model will not delete.

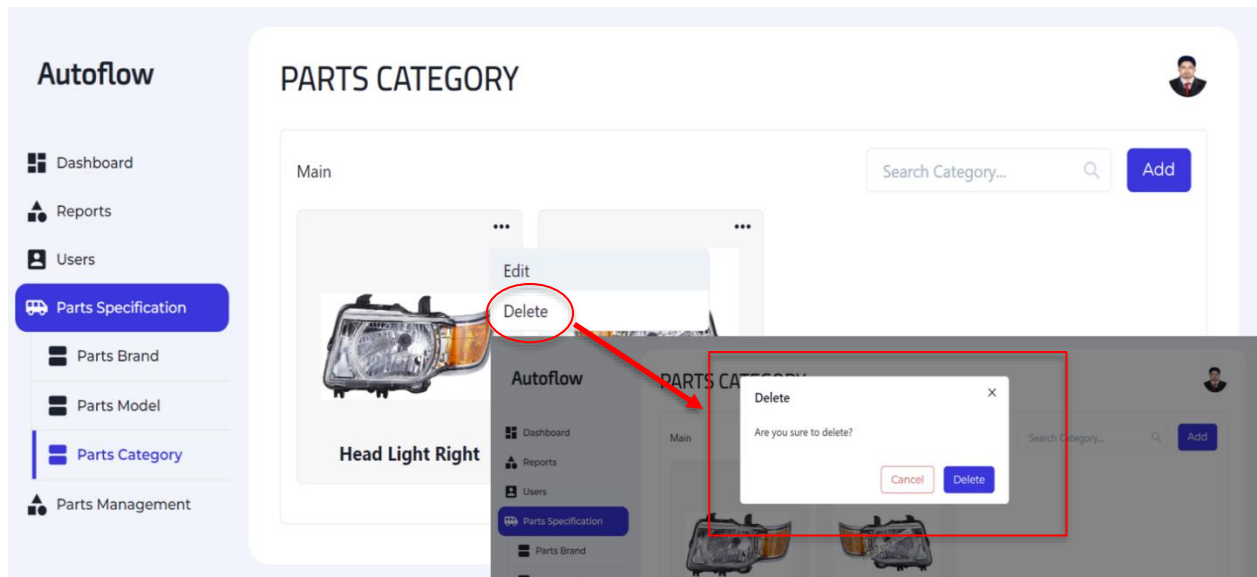


Figure 103: Interface of Manager's Delete Category

Parts home:

Show here all the parts that you added.

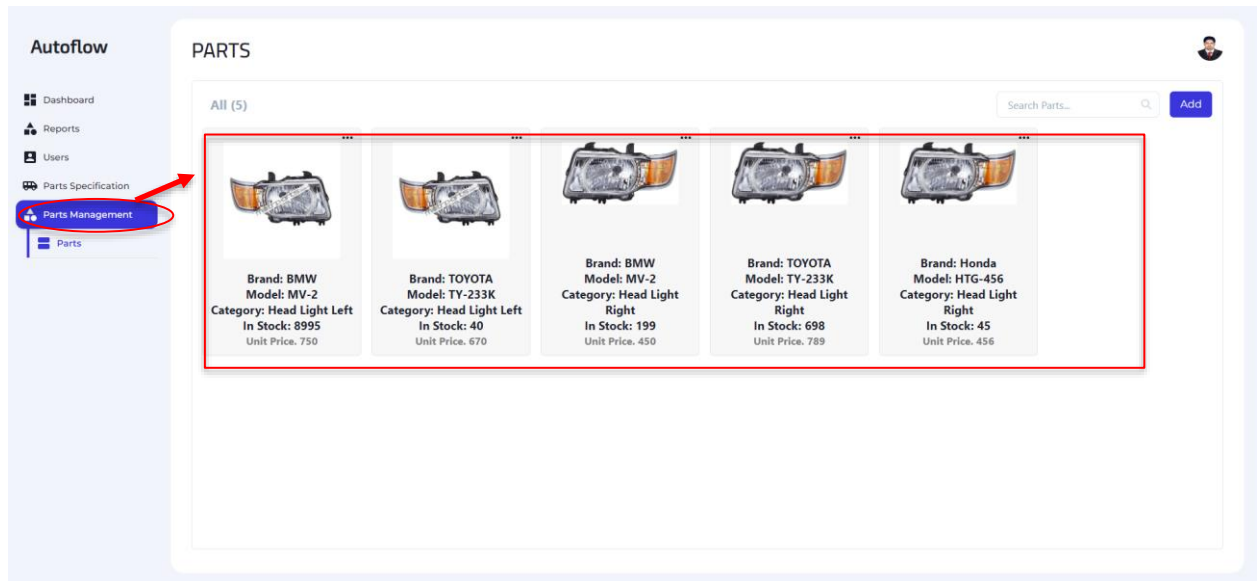


Figure 104: Interface of Manager's Parts Home

Add parts:

Click on add button than show a add parts form. Fill up that form and submit.

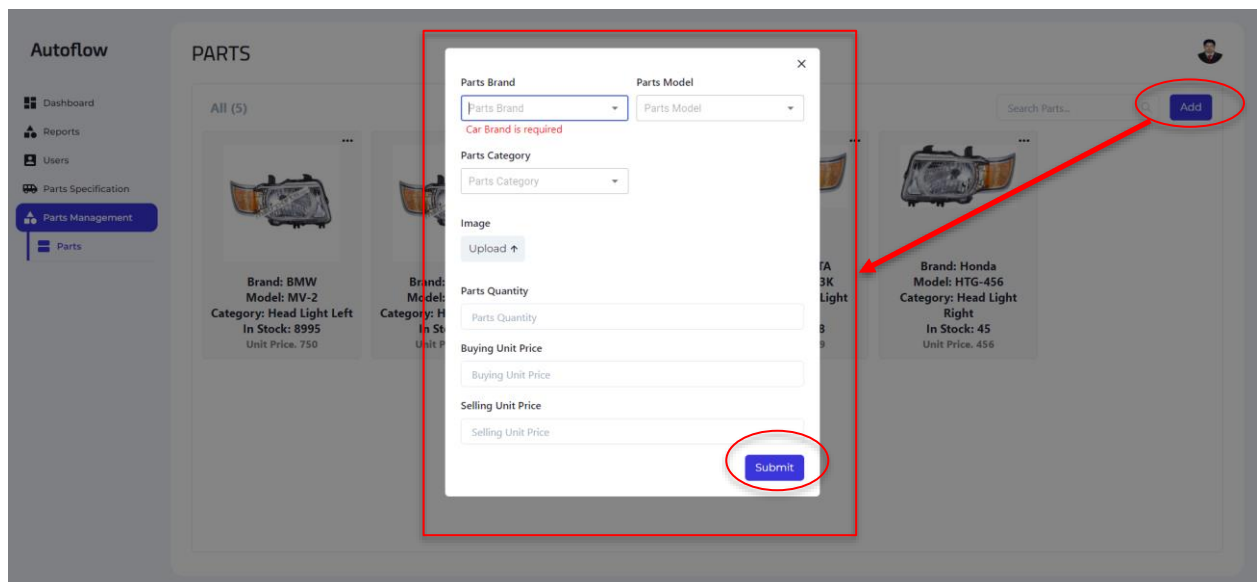


Figure 105: Interface of Manager's Add Parts

Parts Edit:

Click on edit button than show an edit parts form. Fill up that form and submit.

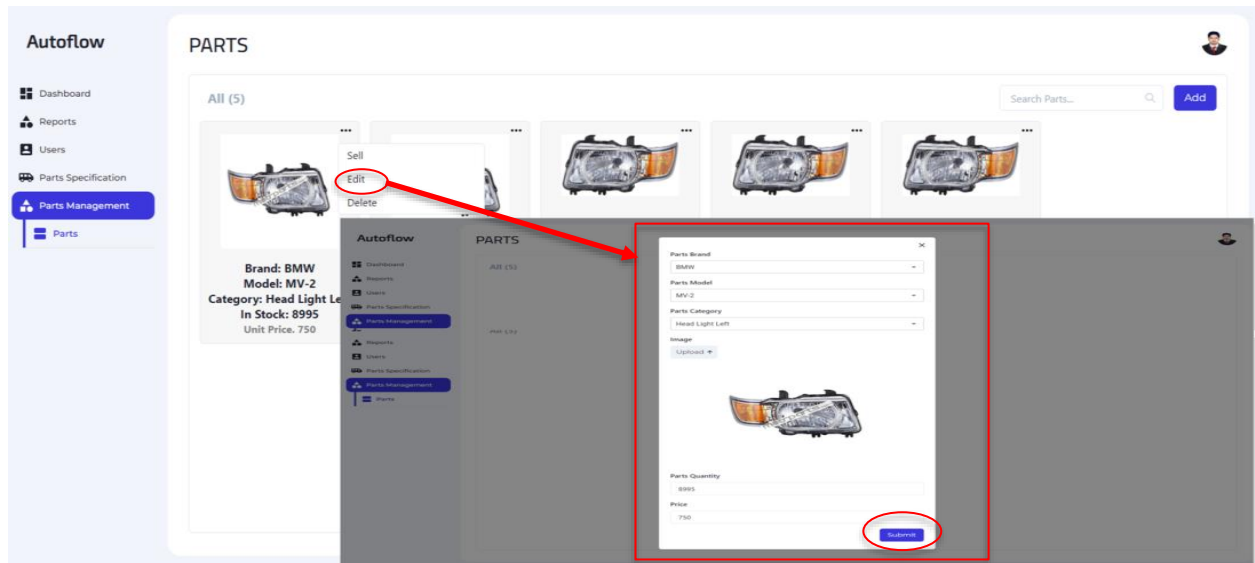


Figure 106: Interface of Manager's Edit Parts

Parts Delete:

Click on delete button than show a conformation delete dialog box. If you finally click on delete button than delete that selected parts. If you cancel than parts will not delete.

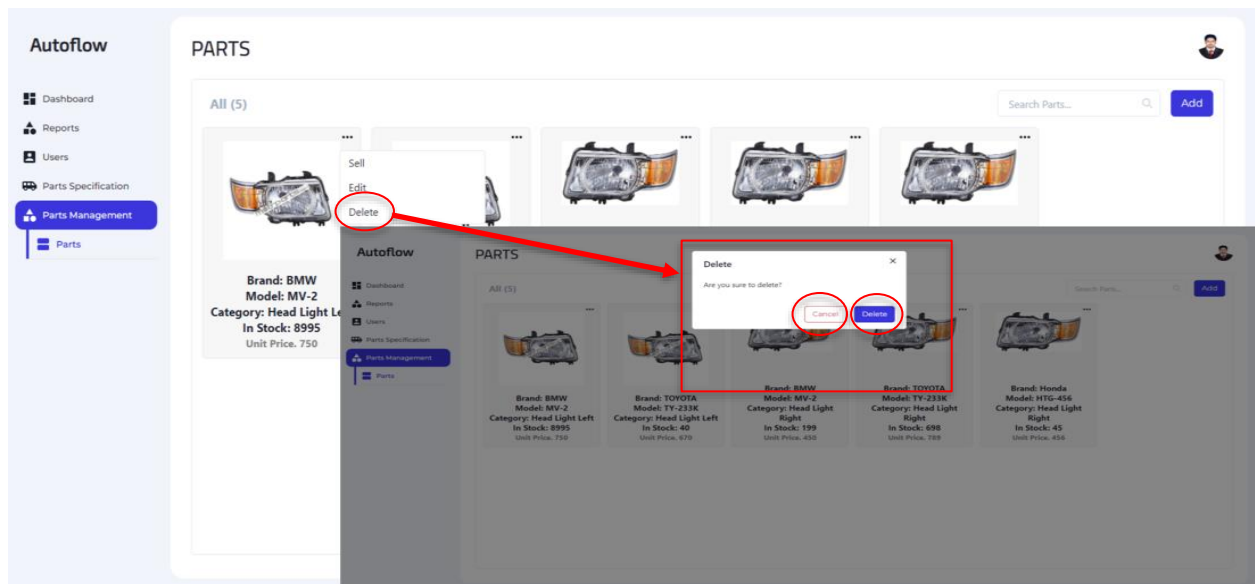


Figure 107: Interface of Manager's Delete Parts

6.3 Salesman:

View profile:

Click on profile button than show your profile.

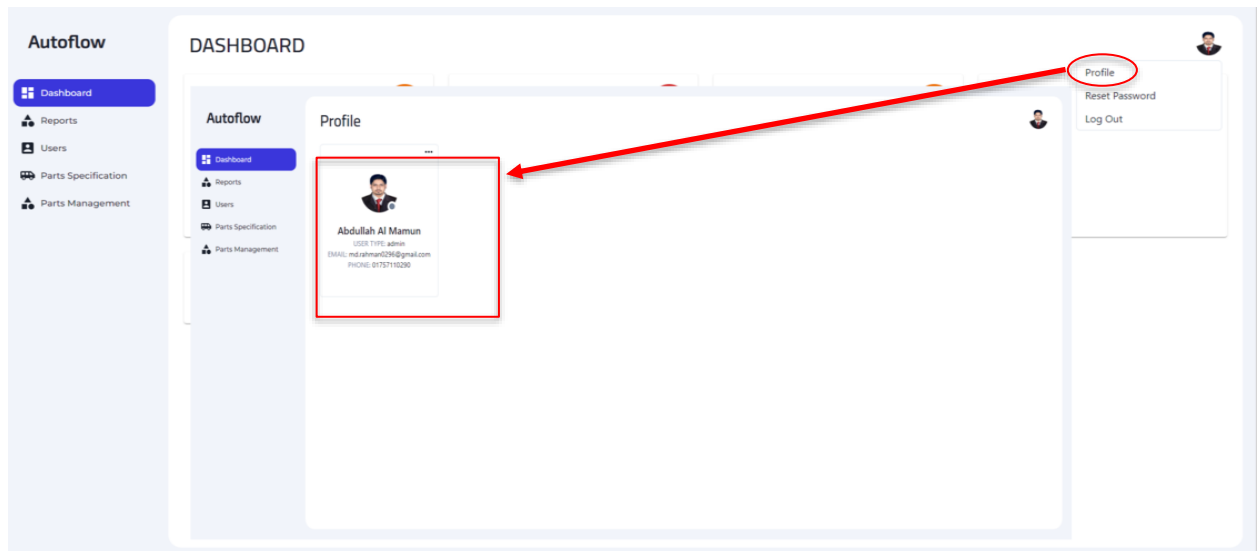


Figure 108: Interface of Salesman's view Profile

Update profile:

Click on update button than show a profile update form. Fill up that form and submit.

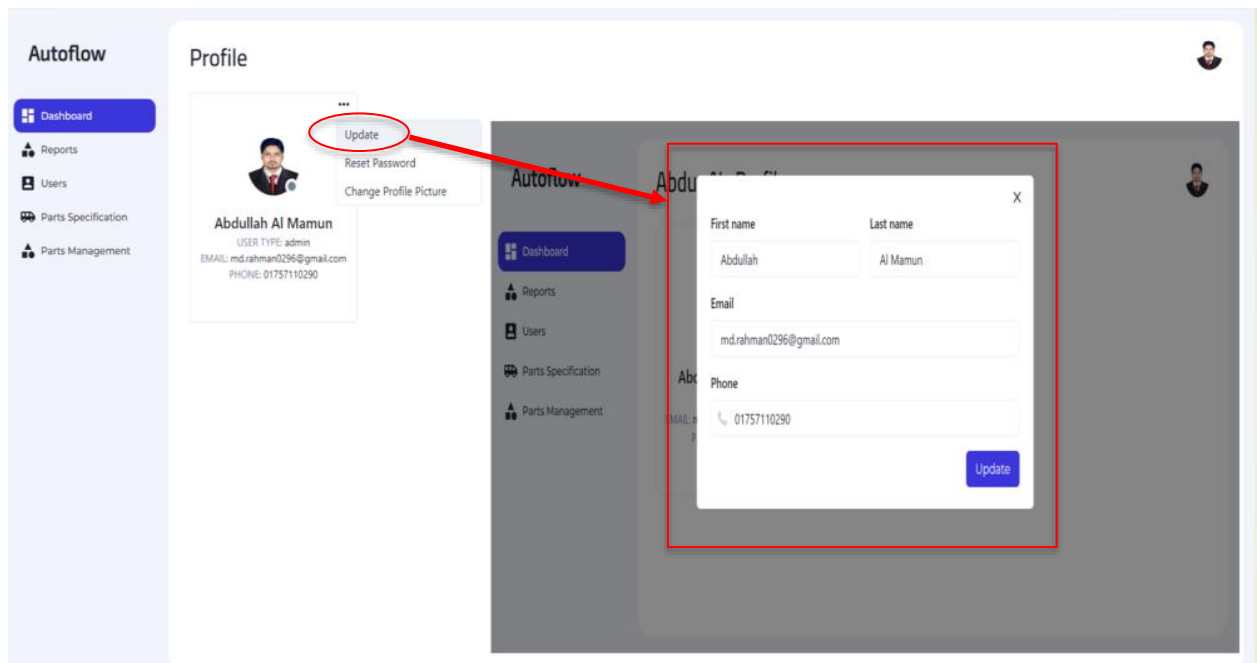


Figure 109: Interface of Salesman's Update Profile

Change password:

Click on reset password button than show a form. Fill up that form and submit.

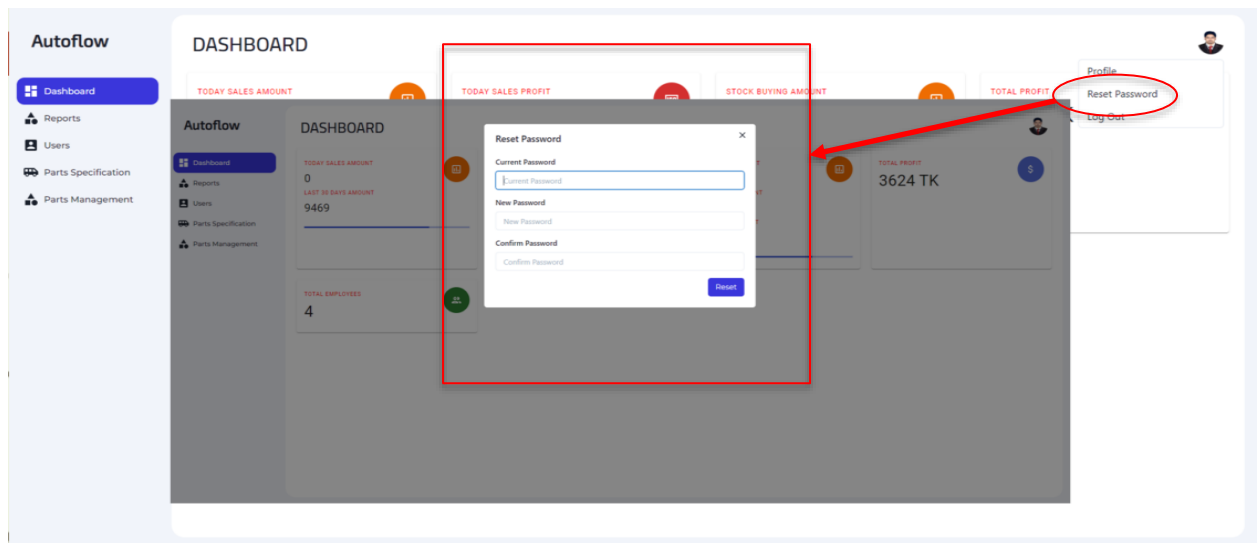


Figure 110: Interface of Salesman's Change Password

Change profile Picture:

Click on change profile picture button than show a form. Select picture and submit.

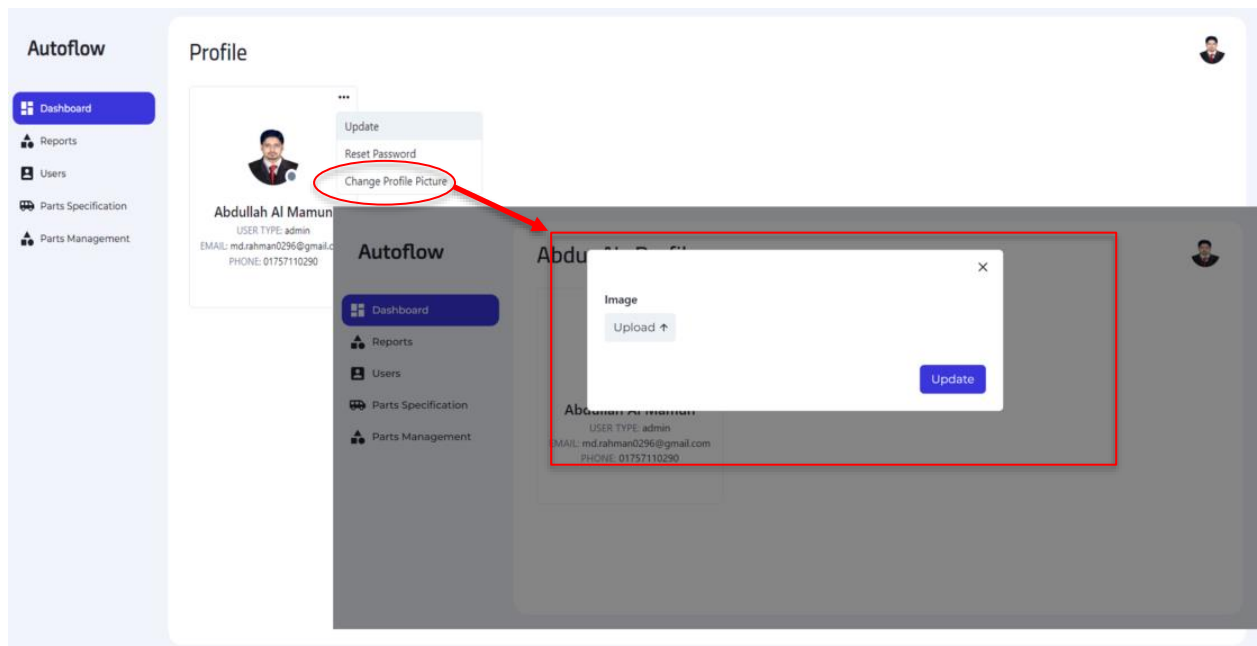


Figure 111: Interface of Salesman's Change Profile Picture

Parts Sells:

Click on sell button than show a sale parts form. Fill up that form and submit.

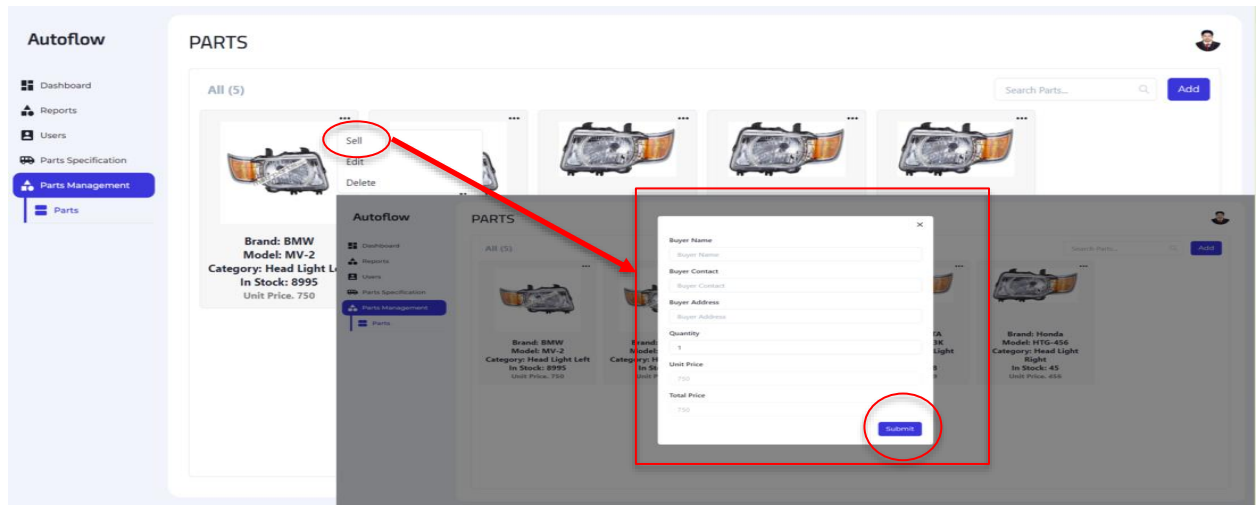


Figure 112: Interface of Salesman's Sell Parts

Sales Report:

Click on sales report button than show sales report. If you want to download this report click on download sales report button.

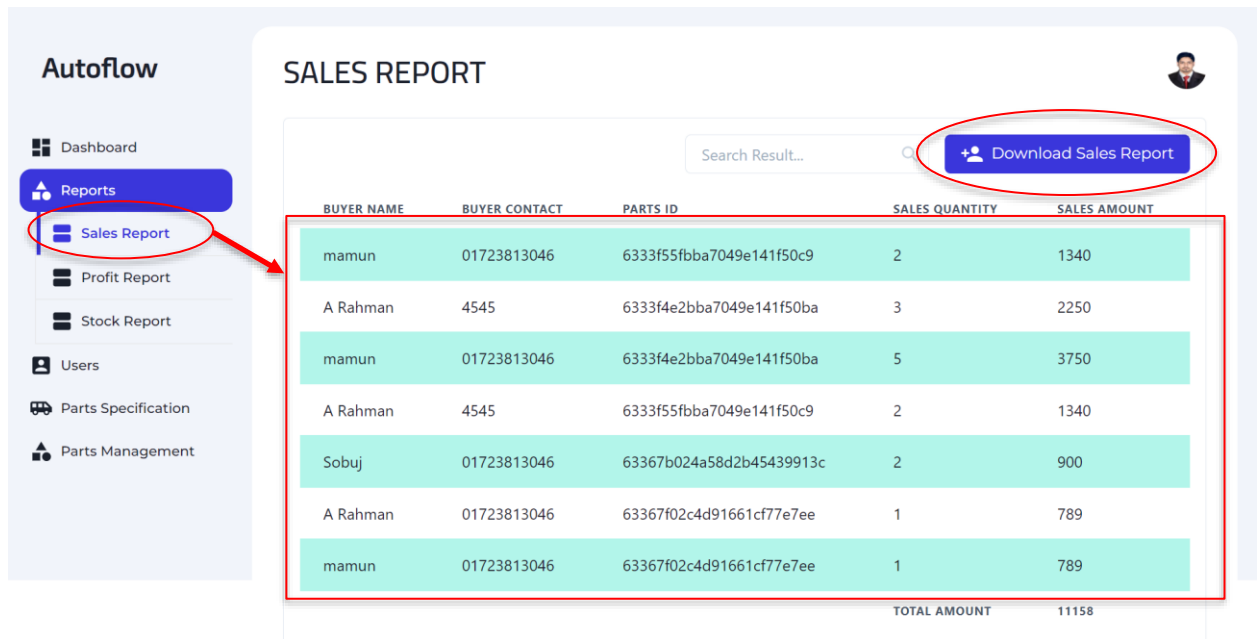


Figure 113: Interface of Salesman's Sales Report

CHAPTER 7

PROJECT SUMMARY

7.1 Limitations

- Only web base application.
- Cannot generate excel report for huge data at a time.
- No option to return defected parts.
- For communicating buyer needs to use other platform.
- Possibility of react performance bottlenecking
- Not maximum performance optimization

7.2 Obstacles & Achievements

Obstacles:

- Learning new technology and new environment is a big issue.
- It's very difficult to complete a work within limited time.
- To collect requirements is a very tough.

Achievement:

- Successfully built a project.
- Learnt a new technology.
- Deploy a project is a new experience.
- Learned the real-life experience by uploading project on the live server.
- Know about document and the development process.

7.3 Future Scope

Though the system was developed as much as needed and its work properly. But I have to add something new features to make the systems fulfilment. The future work will include some major changes, such as-

- Sold parts retuning system for buyer.
- Sold parts voucher generating system.
- Online payment for buyer according to voucher id.
- Buyer online parts order system.
- Scan base selling system.

7.4 Github Link

- Front-end : <https://github.com/aamamun8130/autoflow-front.git>
- Back-end : <https://github.com/aamamun8130/autoflow-backend.git>

REFERENCES

- [1] Proposed System Model: <https://www.lawinsider.com/dictionary/proposed-system>

- [2] Schema Diagram: <https://dzone.com/articles/view-mongodb-collections-as-diagrams-yes-it-is-pos>

- [3] Component Diagram: https://www.researchgate.net/figure/UML-component-diagram-of-React-MDD-interaction-with-external-applications_fig4_220711938

- [4] Gantt Chart: <https://www.projectmanager.com/guides/gantt-chart>

- [5] SRS:
https://www.tutorialspoint.com/software_testing_dictionary/software_requirement_specification.htm

- [6] Use Case Diagram: <https://www.visual-paradigm.com/guide/uml-unified-modeling-language/what-is-use-case-diagram/>

- [7] Activity Diagram: https://www.tutorialspoint.com/uml/uml_activity_diagram.htm

- [8] Sequence Diagram: <https://www.geeksforgeeks.org/unified-modeling-language-uml-sequence-diagrams/>

- [9] Test Case: <http://softwaretestingfundamentals.com/test-case/>

- [10] Traceability Matrix: <https://www.guru99.com/traceability-matrix.html>