

Merchant Monetary System

CS-262 Design Document



Project Supervisor

Mr. Samyan Qayyum Wahla

Group ID (G11)

Project Member

Syed Hashir	2021-CS-1
Kabir Ahmed	2021-CS-4
M. Hamad Hassan	2021-CS-33

Department of Computer Science
University of Engineering and Technology, Lahore
Pakistan

Contents

1	Project Description	1
2	Project Features	4
3	Technology Stack	5
4	Project Actors	6
5	Use Cases	7
5.1	Use Case 1:Log In	7
5.2	Use Case 2:Forgot Password	8
5.3	Use Case 3:Detail of Accounts for CEO	10
5.4	Use Case 4:Detail of Accounts for Employee	13
5.5	Use Case 5:SignUp	15
5.6	Use Case 6: Update Account Information by CEO	18
5.7	Use Case 7: Update Account Information by Employee	20
5.8	Use Case 8:Add Products	23
5.9	Use Case 9:Update Products	24
5.10	Use Case 10:Detail of Products	26
5.11	Use Case 11:Add Category	28
5.12	Use Case 12:Update Category	29
5.13	Use Case 13:Add Vendor	30
5.14	Use Case 14:Update Vendor	31
5.15	Use Case 15:Add Stock	33
5.16	Use Case 16:Add Warehouse	36
5.17	Use Case 17:Update Warehouse	38
5.18	Use Case 18:View Warehouse	40
5.19	Use Case 19:Take Order	41
5.20	Use Case 20:Confirm the Incoming Order	43
5.21	Use Case 21: Add Vehicle	45
5.22	Use Case 22: Update Vehicle Information	46

5.23	Use Case 23: Add Shop and Shopkeeper	48
5.24	Use Case 24: Update Shop and Shopkeeper	50
5.25	Use Case 25: Add Payment	52
5.26	Use Case 26: Edit Payment	53
5.27	Use Case 27:Ready the Incoming Order	55
5.28	Use Case 28:Accomplish the Order	55
5.29	Use Case 29: Plot the Minimum Spanning Tree for Multiple Shops	56
6	Use Interfaces	58
6.1	Intro	58
6.2	Login	59
6.3	Forgot Password	60
6.4	Create Account	61
6.5	Update Information	62
6.6	Account Detail	63
6.7	CEO Dashboard	64
6.8	Add Product	65
6.9	Update Product	66
6.10	Product Detail	67
6.11	Order Product	68
6.12	Order Summary	69
6.13	Send Email	70
6.14	New Warehouse	71
6.15	Update Warehouse	72
6.16	Warehouse Detail	73
6.17	Warehouse Manager Dashboard	74
6.18	Employee Dashboard	74
6.19	Rider Dashboard	75
6.20	Add Rider	76
6.21	Update Rider	77
6.22	Order Status	78
6.23	Order Status	79
6.24	Shopkeeper Record	80
6.25	Add Payment	81
6.26	Withdraw Expenses	82
7	User Interface Details	83
8	Classes	86

9	Object Oriented Features	88
9.1	Composition	88
9.2	Inheritance	88
9.3	Multi-Level Inheritance	89
9.4	Aggregation	89
9.5	Association	89
10	Detailed Object Oriented Design	90
11	Data Structure	92
12	Exceptions	95
13	Data Storage	96
13.1	Mails (CSV)	96
13.2	Products (CSV)	96
13.3	Users (CSV)	97
13.4	Orders (CSV)	97
13.5	Sale Products (CSV)	98
13.6	Category (CSV)	99
13.7	Vendors (CSV)	99
13.8	Vehicles (CSV)	99
13.9	Payment Records (CSV)	99
14	Email Sending	100
15	Project Plan	101
16	Analytical Reports	102

Chapter 1

Project Description

The system is designed for a company that provides logistics (delivery of products to its client), product management (crud operations), and effective communication with their worker, clients, and vendors.

The company has its office, warehouse, and rider. It has a different contract with multiple firms to take the shipment from the vendors and store it in dedicated warehouses. The rider will take orders from the shopkeeper. Their order is received at the office, and the office will create the feasibility report according to their shopkeepers' needs and instructions generated for their warehouse manager to fulfill their order. The area-specific rider will receive an email about their order. The office will send a confirmation email to their shopkeeper.

There are a total of four actors in the system and two stakeholders. Their titles and roles are:

- **CEO:** The company's owner manages all the operations.
- **Employee:** They are assistants to CEO to help in company operations.
- **Warehouse Manager:** Received the instructions from the employee and ready the shipment for the rider, and managed other expenses.
- **Rider:** They take orders from different shopkeepers and deliver the product according to pre-subscribed routes defined by the system.

The stakeholder is:

- **Shopkeepers:** Getting the goods and services from the company.
- **Vendor:** The vendor will provide the products to the company.

This system is designed for one company and one CEO. CEO will be provided with already defined credentials. The CEO is responsible for creating accounts for all others actors. The CEO will provide a credential to the actors, and they will be able to update their credentials.

The first dedicated dashboard for the CEO, where they monitor all operations. The operations manage their workers, products, and expenses and send emails. The CEO is the only person in the system with access to all operations. CEO analyzes company operations, including the performance of their workers and inventory. The system will present the company expenditure report.

The second dashboard is for office employees. They have access to manage emails, shopkeepers' orders, vendors' shipments, and company expenses. The company's expenses are the CEO, rider, and warehouse salaries. The system will present the report of payment to the vendor and shopkeeper. An employee will enter all the shipments that the company receives. They add product identifiers.

The third dashboard is for the warehouse manager, who receives feasibility reports of office employees and prepares the order for the rider. The warehouse manager must record the labor used in preparing the order. It could provide the miscellaneous expenses of the warehouse, like electricity costs, etc. They can view the product and make suitable changes according to the requirements.

The fourth dashboard is for a rider, which is basically the communicator between the company and the shopkeeper. The rider is responsible for taking orders from the shopkeeper. Enter order details into the system. The riders will check the current orders assigned to them by the company. They will pick up the shipment from the warehouse and delivery them to the shopkeeper. The system will present the routes to the destination with the order detail. The rider received a specific amount of fuel to perform the operations. The prescribed fuel is calculated according to the formula. They can see all the products. The product will be sorted in any order. Search for a specific product from a wide range of available products. The system will deploy different sharp algorithms to access the desired date orders quickly. Able to place the order and view the detail of the order as well.

The system will present the report to the CEO according to the performance of their workers, expenditures, sales and profit, salaries, inventory report, riders' performance, shopkeeper and vendor payment, workers' report, individual warehouse report, and miscellaneous expenses. Like how many products are received in the warehouse, how many products are left, how many products are delivered to company clients, how many riders have done shipments, which rider performs most shipments, and which rider needs

to perform better. It also includes how many orders a shopkeeper placed and whether the company received the payment.

The email notification mechanism is embedded in the system, which helps the company communicate within and outside with other vendors and shopkeepers. After the rider has confirmed the order, the system will send an email to the company. The company will send the order details to the warehouse manager to prepare the shipment for the rider. The rider also received the email for the delivery of the order. The employee emails the CEO for any need of assistance with an issue. The warehouse manager and rider also mail to the company office for any assistance. In external communication, the client will receive a confirmation email from the system about their order. They also take assistance from the company with any issue.

All the data is stored in an effective data structure to extract the data according to the need of the system actor and stakeholder.

Chapter 2

Project Features

1. CEO is able to manage employees, warehouse manager, rider, and shopkeeper.
2. CEO and Employee manage product-related operations.
3. CEO will be able to analyze company operations.
4. Warehouse manager readies the shipment for the rider.
5. Rider delivered the shipment to their shopkeeper.
6. Riders are able to select the shortest route to reach the destination.
7. One user is able to notify other users through email.
8. Riders are able to view products and place an order.
9. System presents different reports that will be generated.

Chapter 3

Technology Stack

The requirement is to design, develop and test the system in a desktop application. The essential system tracks the following language and an Integrated development environment.

Language	C # (.net framework 4.8)
IDEs	Microsoft Visual Studio 2022

Chapter 4

Project Actors

There are a total of four actors in the system and two stakeholders. Their titles and roles are:

- **CEO:** The company's owner manages all the operations.
- **Employee:** They are assistants to CEO to help in company operations.
- **Warehouse Manager:** Received the instructions from the employee and ready the shipment for the rider, and managed other expenses.
- **Rider:** They take orders from different shopkeepers and deliver the product according to pre-subscribed routes defined by the system.

The stakeholder is:

- **Shopkeepers:** Getting the goods and services from the company.
- **Vendor:** The vendor will provide the products to the company.

Chapter 5

Use Cases

5.1 Use Case 1:Log In

Use Case ID	U01
Name	Login
Actor	CEO, Employee, Rider, Warehouse Manager
Description	The login screen will be presented. The actor will select their role and enter their username and password. And click on the login button. The system will check for its validity. The system will present the respective dashboard.
Pre-Condition	The respective actor will initiate the system, and the login in form is presented.
Flow	<p>Main Success Scenario (or Basic Flow):</p> <ol style="list-style-type: none">1. Actor is ready to take identifiers.2. Actor selects his/her role from the given list.3. Actor enters his/her username.4. Actor enters his/her password.5. Actor clicks on the login button. <p>Extensions (or Alternative Flows):</p> <p>*a. If forgot password button is clicked</p> <ol style="list-style-type: none">1. U02 will initiate

Flow	<p>*b. If the exit button is clicked</p> <ol style="list-style-type: none"> 1. System will close <p>2a. If the actor doesn't select his/her role.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>3a. If the actor doesn't enter his/her username.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>4a. If the actor doesn't enter his/her password.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5a. if the selected role doesn't exist with existing data</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5b. if the entered username doesn't exist with existing data</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5c. if the entered password doesn't exist with existing data</p> <ol style="list-style-type: none"> 1. Error Signal will be present.
Post-Condition	Respective Dashboard will be presented

5.2 Use Case 2:Forgot Password

Use Case ID	U02
Name	Forgot Password
Actor	CEO, Employee, Rider, Warehouse Manager
Description	Already registered users can change their password. The actor selects their role and enters his username and password. Then the actor confirms their password and clicks on Update Button; their password will be changed.
Pre-Condition	User must be registered in the system. Forgot Password screen is presented.

Flow	<p>Main Success Scenario (or Basic Flow):</p> <ol style="list-style-type: none"> 1. Actor is ready to enter the identifiers. 2. Actor selects his/her role from the given list. 3. Actor enters his/her username. 4. Actor enters his/her password. 5. Actor confirms his/her password. 6. Actor clicks on the Update button. <p>Extensions (or Alternative Flows):</p> <p>*a. If forgot password button is clicked</p> <ol style="list-style-type: none"> 1. U02 will initiate <p>*b. If the reset button is clicked</p> <ol style="list-style-type: none"> 1. All fields will get cleared. <p>2a. If the actor doesn't select his/her role.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>3a. If the actor doesn't enter his/her username.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>4a. If the actor doesn't enter his/her password.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5a. if the selected role doesn't exist with in existing data</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5b. if the entered username doesn't exist with in existing data</p> <ol style="list-style-type: none"> 1. Error Signal will be present.
------	---

Flow	<p>5c. if the entered password doesn't exist with in existing data</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5d. if the password doesn't match the password that the user confirmed</p> <ol style="list-style-type: none"> 1. Error Signal will be present.
Post-Condition	Actor's Password Updated

5.3 Use Case 3:Detail of Accounts for CEO

Use Case ID	U03
Name	Detail of Account for CEO
Actor	CEO
Description	CEO can view the details of each user who have registered themselves on this system. CEO can filter out users with certain designations and certain attributes and can apply multiple filters to search out specific users and their data. CEO can delete as well as edit users.
Pre-Condition	Detail of Accounts Screen is presented.
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. CEO selects the designation from the given list. 2. CEO selects the attribute from the given list. 3. CEO could search the data from the identifier. 4. CEO selects the filters from the given list. 5. CEO clicks on the Go button. 6. CEO selects the data(any row shown in the grid)from the grid. 7. CEO clicks on the Edit button, and a new Edit user screen opens. 8. CEO clicks on the Delete button. 9. CEO clicks on the Close button.

	<p>Extensions (or Alternative Flows):</p> <ol style="list-style-type: none"> 1. If CEO did not select any designation from the drop-down. <ol style="list-style-type: none"> 1. Error Signal will be present. 2. If CEO did not select any attribute from the drop-down. <ol style="list-style-type: none"> 1. Error Signal will be present. 3a. If CEO did not select any designation and entered the data in the identifier to search. <ol style="list-style-type: none"> 1. The searched data will show from the first attribute. 3b. If CEO did not select any Attribute and entered the data in the identifier to search. <ol style="list-style-type: none"> 1. The searched data will show from the first attribute. 3c. If CEO did not select any designation and Attribute and entered the data in the identifier to search. <ol style="list-style-type: none"> 1. The searched data will show from the first attribute. 4a. If CEO did not select any Filter from the given list <ol style="list-style-type: none"> 1. No operation of the filter is applied to the data. 4b. If CEO did not select any Attribute from the given list and select any filter <ol style="list-style-type: none"> 1. No operation of the filter is applied to the data. 5a. If CEO did not select any Attribute, Designation, or filter from the given list and not enter the data to be searched in identifier <ol style="list-style-type: none"> 1. Error Message box will be shown. 6. If CEO did not select any data from the grid list. <ol style="list-style-type: none"> 1. No operation is performed.
--	--

Flow	<p>7. If CEO did not select any data from the grid list and clicked the edit button.</p> <ol style="list-style-type: none"> 1. No operation I performed on any data list in the grid. 2. Message Box will be shown. <p>8. If CEO did not select any data from the grid list and clicked the delete button.</p> <ol style="list-style-type: none"> 1. No operation I performed on any data list in the grid. 2. Message Box will be shown.
Post-Condition	Data from selected row will be deleted or updated

5.4 Use Case 4:Detail of Accounts for Employee

Use Case ID	U04
Name	Detail of Account for Employee
Actor	Employee
Description	Employee can view the details of each user who have registered themselves on this system. Employee can filter out users with certain designations and certain attributes and can apply multiple filters to search out specific users and their data. Employee can delete as well as edit users.
Pre-Condition	Detail of Accounts Screen is presented.
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none">1. Employee selects the designation from the given list.2. Employee selects the attribute from the given list.3. Employee could search the data from the identifier.4. Employee selects the filters from the given list.5. Employee clicks on the Go button.6. Employee selects the data(any row shown in the grid)from the grid.7. Employee clicks on the Edit button, and a new Edit user screen opens.8. Employee clicks on the Delete button.9. Employee clicks on the Close button.

	<p>Extensions (or Alternative Flows):</p> <ol style="list-style-type: none"> 1. If Employee did not select any designation from the drop-down. <ol style="list-style-type: none"> 1. Error Signal will be present. 2. If Employee did not select any attribute from the drop-down. <ol style="list-style-type: none"> 1. Error Signal will be present. 3a. If Employee did not select any designation and entered the data in the identifier to search. <ol style="list-style-type: none"> 1. The searched data will show from the first attribute. 3b. If Employee did not select any Attribute and entered the data in the identifier to search. <ol style="list-style-type: none"> 1. The searched data will show from the first attribute. 3c. If Employee did not select any designation and Attribute and entered the data in the identifier to search. <ol style="list-style-type: none"> 1. The searched data will show from the first attribute. 4a. If Employee did not select any Filter from the given list <ol style="list-style-type: none"> 1. No operation of the filter is applied to the data. 4b. If Employee did not select any Attribute from the given list and select any filter <ol style="list-style-type: none"> 1. No operation of the filter is applied to the data. 5a. If Employee did not select any Attribute, Designation, or filter from the given list and not enter the data to be searched in identifier <ol style="list-style-type: none"> 1. Error Message box will be shown. 6. If Employee did not select any data from the grid list. <ol style="list-style-type: none"> 1. No operation is performed.
--	---

Flow	<p>7. If Employee did not select any data from the grid list and clicked the edit button.</p> <ol style="list-style-type: none"> 1. No operation I performed on any data list in the grid. 2. Message Box will be shown. <p>8. If Employee did not select any data from the grid list and clicked the delete button.</p> <ol style="list-style-type: none"> 1. No operation I performed on any data list in the grid. 2. Message Box will be shown.
Post-Condition	Data from selected row will be deleted and a dashboard will be presented

5.5 Use Case 5:SignUp

Use Case ID	U05
Name	SignUp
Actor	CEO, Employee
Description	Actor select the designation of the worker from the given list, name, username, password, CNIC number, gender, contact number, email address, and home address.
Pre-Condition	The system presents the SignUp screen
Flow	<p>Main Success Scenario (or Basic Flow):</p> <ol style="list-style-type: none"> 1. Actor is ready to create the identifiers. 2. Actor selects the designation of the worker from the given list. 3. Actor enters worker name. 4. Actor enters worker's password. 5. Actor confirms the entered password. 6. Actor enters worker's CNIC number.

Flow	<ol style="list-style-type: none"> 1. Actor enters worker gender. 2. Actor enters worker contact number. 3. Actor enters worker's email address. 4. Actor enters worker's home address. 5. If the designation is rider, then select the vehicle from the list. 6. Actor clicks on the create account button, and the system sends an email. <p>Extensions (or Alternative Flows):</p> <p>*a. If the clear button is clicked</p> <ol style="list-style-type: none"> 1. All the identifiers data remove from the screen. <p>*b. If the close button is clicked</p> <ol style="list-style-type: none"> 1. The presented screen will be closed <p>3a. If the actor doesn't enter the worker's name</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>3b. If the actor enters an invalid worker's name</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>4a. If the actor doesn't enter the worker's username</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5a. If the actor doesn't enter the worker's password</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5b. If the actor enters an invalid worker's password</p> <ol style="list-style-type: none"> 1. Error Signal will be present.
------	---

Flow	<p>6a. If the actor enters the worker's password does not match the previously entered password</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>7a. If the actor doesn't enter the worker's CNIC number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>7b. If the actor enters invalid the worker's CNIC number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>9a. If the actor doesn't enter the worker's contact number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>9b. If the actor enters invalid the worker's contact number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>10a. If the actor doesn't enter the worker's email address</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>10b. If the actor enters invalid the worker's email address</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>11a. If the actor doesn't enter the worker's home address</p> <ol style="list-style-type: none"> 1. Error Signal will be present.
Post-Condition	The account information is stored in the database, and the screen will be closed.

5.6 Use Case 6: Update Account Information by CEO

Use Case ID	U06
Name	Update Account Information by CEO
Actor	CEO
Description	CEO could change the designation of their worker from the given list of designation, name, username, password, CNIC number, gender, contact number, email address, and home address.
Pre-Condition	The Updated Account Information screen is presented. The registered account information of the actors in the system will be presented in the identifiers.
Flow	<p>Main Success Scenario (or Basic Flow):</p> <ol style="list-style-type: none"> 1. CEO is ready to update the identifiers. 2. CEO selects the designation of the worker from the given list to change their role. 3. CEO changes their or worker's name. 4. CEO changes their or worker's username. 5. CEO changes their or worker's password. 6. CEO confirms the entered password. 7. CEO changes their or worker's CNIC number. 8. CEO changes their or worker's gender. 9. CEO changes their or worker's contact number. 10. CEO changes their or worker's email address. 11. CEO changes their or worker's home address. 12. CEO changes the vehicle from the given list. 13. CEO clicked on the update account button and the system sends an email. <p>Extensions (or Alternative Flows):</p> <p>*a. If the clear button is clicked</p> <ol style="list-style-type: none"> 1. All the identifiers data remove from the screen. <p style="text-align: center;">18</p> <p>*b. If the close button is clicked</p> <ol style="list-style-type: none"> 1. The presented screen will be closed

Flow	<p>3a. If the CEO doesn't enter their or the worker's name</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>3b. If the CEO enters invalid their or the worker's name</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>4a. If the CEO doesn't enter their or the worker's username</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5a. If the CEO doesn't enter their or the worker's password</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5b. If the CEO enters invalid their or the worker's password</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>6a. If the CEO enter their or the worker's password does not match the previously entered password</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>7a. If the CEO doesn't enter their or the worker's CNIC number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>7b. If the CEO enters invalid their or the worker's CNIC number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>9a. If the CEO doesn't enter their or the worker's contact number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>9b. If the CEO enters invalid their or the worker's contact number</p> <ol style="list-style-type: none"> 1. Error Signal will be present.
------	--

Flow	<p>10a. If the CEO doesn't enter their or the worker's email address</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>10b. If the CEO enters invalid their or the worker's email address</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>11a. If the CEO doesn't enter their or the worker's home address</p> <ol style="list-style-type: none"> 1. Error Signal will be present.
Post-Condition	The account information is updated in the database, and the screen will be closed.

5.7 Use Case 7: Update Account Information by Employee

Use Case ID	U07
Name	Update Account Information by Employee
Actor	Employee
Description	employee could change the designation of the company workers (except there and the CEO) from the given list of designation, name, username, password, CNIC number, gender, contact number, email address, and home address.
Pre-Condition	The Updated Account Information screen is presented. The registered account information of the actors in the system will be presented in the identifiers.
Flow	<p>Main Success Scenario (or Basic Flow):</p> <ol style="list-style-type: none"> 1. Employee is ready to update the identifiers. 2. Employee selects the designation of the worker from the given list to change their role.

Flow	<ol style="list-style-type: none"> 1. Employee changes worker name. 2. Employee changes worker's password. 3. Employee confirms the entered password. 4. Employee changes worker's CNIC number. 5. Employee changes worker gender. 6. Employee changes worker contact number. 7. Employee changes worker's email address. 8. Employee changes worker's home address. 9. Employee changes the vehicle from the given list. 10. Employee clicked on the update account button and the system sends an email. <p>Extensions (or Alternative Flows):</p> <p>*a. If the clear button is clicked</p> <ol style="list-style-type: none"> 1. All the identifiers data remove from the screen. <p>*b. If the close button is clicked</p> <ol style="list-style-type: none"> 1. The presented screen will be closed <p>3a. If the employee doesn't enter the worker's name</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>3b. If the employee enters an invalid worker's name</p> <ol style="list-style-type: none"> 1. Error Signal will be present.
------	---

Flow	<p>5a. If the employee doesn't enter the worker's password</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5b. If the employee enters an invalid worker's password</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>6a. If the employee enters the worker's password does not match the previously entered password</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>7a. If the employee doesn't enter the worker's CNIC number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>7b. If the employee enters invalid the worker's CNIC number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>9a. If the employee doesn't enter the worker's contact number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>9b. If the employee enters invalid the worker's contact number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>10a. If the employee doesn't enter the worker's email address</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>10b. If the employee enters invalid the worker's email address</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>11a. If the employee doesn't enter the worker's home address</p> <ol style="list-style-type: none"> 1. Error Signal will be present.
Post-Condition	The account information is updated in the database, and the screen will be closed.

5.8 Use Case 8: Add Products

Use Case ID	U08
Name	Add Products
Actor	CEO, Employee
Description	Vendor arrives at the company with a new product. The respective actor adds the product name, weight, and volume and selects a category, vendor, and sensitivity type from the list. Then the actor clicks on Add button.
Pre-Condition	New Product arrives, and the CEO or Employee wants to add them into the system. The Add Product Form will be presented.
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none">1. Actor is ready to add product.2. Product ID will automatically be generated.3. Actor enters Product Name.4. Actor selects a category from the given list.5. Actor selects the vendor of the product from the given list.6. Actor enters the weight of each product.7. Actor enters the volume of each product.8. Actor selects product's sensitivity type.9. Actor clicks on Add Button. <p>Extensions (or Alternative Flows):</p> <p>*a. If the Back button is clicked</p> <ol style="list-style-type: none">1. Actor's respective dashboard will be presented. <p>*b. If the reset button is clicked</p> <ol style="list-style-type: none">1. All fields will get cleared. <p>3a. If the actor doesn't enter the product name.</p> <ol style="list-style-type: none">1. Error Signal will be presented.

Flow	<p>4a. If the actor doesn't select a category.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5a. If the actor doesn't select a vendor.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>6a. If the actor doesn't enter the weight of the product.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>6b. If the actor enters the invalid weight of the product, i.e., type string while entering weight.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>7a. If the actor doesn't enter the volume of the product.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>7b. If the actor enters the invalid volume of the product, i.e., type string while entering volume.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented.
Post-Condition	A new product info will be added to system

5.9 Use Case 9:Update Products

Use Case ID	U09
Name	Update Products
Actor	CEO, Employee
Description	Updation Required for product details. The actor updates the identifiers where required and clicks on the Update Button. Details of the product will be updated in the system.
Pre-Condition	Updation Required for Product Details. An update product screen will be presented. All fields are filled according to the existing details.

Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Actor is ready to update product identifiers. 2. Product ID is automatically disabled and non-editable. 3. Actor updates Product Name. 4. Actor updates a category. 5. Actor updates the vendor of the product. 6. Actor updates the weight of each product. 7. Actor updates the volume of each product. 8. Actor updates product's sensitivity type. 9. Actor clicks on the Update Button. <p>Extensions (or Alternative Flows):</p> <p>*a. If the Back button is clicked</p> <ol style="list-style-type: none"> 1. Actor's respective dashboard will be presented. <p>*b. If the reset button is clicked</p> <ol style="list-style-type: none"> 1. All fields will get cleared. <p>3a. If the actor doesn't enter the product name.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>6a. If the actor doesn't enter the weight of the product.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>6b. If the actor enters the invalid weight of the product, i.e., type string while entering weight.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>7a. If the actor doesn't enter the volume of the product.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented.
------	--

Flow	<p>7b. If the actor enters the invalid volume of the product, i.e., type string while entering volume.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented.
Post-Condition	The product with updated details will be added to the system.

5.10 Use Case 10:Detail of Products

Use Case ID	U10
Name	Detail of Products
Actor	CEO,Employee
Description	Actor can view the details of each product that registered on this system. Actor can filter out products with certain attributes and can apply multiple filters to search out specific users and their data. Actor can delete as well as edit products.
Pre-Condition	Detail of Products Screen will be presented.
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Actor selects the attribute from the given list. 2. Actor could search the data from the identifier. 3. Actor selects the filters from the given list. 4. Actor clicks on the Go button. 5. Actor selects the data(any row shown in the grid)from the grid. 6. Actor clicks on the Edit button, and a new Edit user screen opens. 7. Actor clicks on the Delete button. 8. Actor clicks on the Close button.

	<p>Extensions (or Alternative Flows):</p> <ol style="list-style-type: none"> 1. If Actor did not select any attribute from the drop-down. <ol style="list-style-type: none"> 1. Error Signal will be present. 2a. If Actor did not select any Attribute and entered the data in the identifier to search. <ol style="list-style-type: none"> 1. The searched data will show from the first attribute. 2b. If Actor did not select any designation and Attribute and entered the data in the identifier to search. <ol style="list-style-type: none"> 1. The searched data will show from the first attribute. 3a. If Actor did not select any Filter from the given list <ol style="list-style-type: none"> 1. No operation of the filter is applied to the data. 3b. If Actor did not select any Attribute from the given list and select any filter <ol style="list-style-type: none"> 1. No operation of the filter is applied to the data. 4a. If Actor did not select any Attribute, Designation, or filter from the given list and not enter the data to be searched in identifier <ol style="list-style-type: none"> 1. Error Message box will be shown. 5. If Actor did not select any data from the grid list. <ol style="list-style-type: none"> 1. No operation is performed.
--	---

Flow	<p>6. If Actor did not select any data from the grid list and clicked the edit button.</p> <ol style="list-style-type: none"> 1. No operation I performed on any data list in the grid. 2. Message Box will be shown. <p>7. If Actor did not select any data from the grid list and clicked the delete button.</p> <ol style="list-style-type: none"> 1. No operation I performed on any data list in the grid. 2. Message Box will be shown.
Post-Condition	Data from selected row will be deleted and a dashboard will be presented

5.11 Use Case 11: Add Category

Use Case ID	U11
Name	Add Category
Actor	CEO, Employee
Description	Adding a category for a product will initiate with Add Category screen. The respective actor adds a category name and clicks on Add Button. The category is added to the system.
Pre-Condition	Add Category screen will be presented.
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Actor is ready to enter identifier. 2. Actor enters the category name 3. Actor clicks on the Add Button. <p>Extensions (or Alternative Flows):</p> <p>*a. If the Close button is clicked</p> <ol style="list-style-type: none"> 1. Actor's respective dashboard will be presented. <p>*b. If the reset button is clicked</p> <ol style="list-style-type: none"> 1. Category identifier will get cleared.

Flow	<p>2a. Actor doesn't enter the category name.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>2b. Actor enters the invalid category, i.e., integer instead of string</p> <ol style="list-style-type: none"> 1. Error Signal will be presented.
Post-Condition	The Category will be added to the system.

5.12 Use Case 12:Update Category

Use Case ID	U12
Name	Update Category
Actor	CEO, Employee
Description	Updating a category will initiate with the Update Category screen. The respective Actor updates the category name and clicks on the Update Button. The category is updated.
Pre-Condition	Update Category screen will be presented and the identifier is already filled with previously entered category
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Actor is ready to update identifier. 2. Actor updates the category name 3. Actor clicks on the Update Button. <p>Extensions (or Alternative Flows):</p> <p>*a. If the Close button is clicked</p> <ol style="list-style-type: none"> 1. Actor's respective dashboard will be presented. <p>*b. If the reset button is clicked</p> <ol style="list-style-type: none"> 1. Category identifier will get cleared. <p>2a. Actor doesn't enter the category name.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented.

Flow	2b. Actor enters the invalid category, i.e., integer instead of string 1. Error Signal will be presented.
Post-Condition	The Category will be updated and added to the system.

5.13 Use Case 13: Add Vendor

Use Case ID	U13
Name	Add Vendor
Actor	CEO, Employee
Description	The respective actors will add the manufacturer or vendor details by entering the details, e.g., its name, address, landline number, concerned person, and contact. Then click on Add Button. Now you have a new vendor for your company
Pre-Condition	Add Vendor screen will be presented to the respective actors.
Flow	Main Scenario: <ol style="list-style-type: none"> 1. Actor is ready to enter the identifiers. 2. Actor enters vendor name. 3. Actor enters vendor's landline number. 4. Actor enters vendor's address. 5. Actor enters the concerned person's name. 6. Actor enters the concerned person's contact number. 7. Actor clicks on Add button. Extensions (or Alternative Flows): <p>*a. If the Close button is clicked</p> <ol style="list-style-type: none"> 1. Actor's respective dashboard will be presented. <p>*b. If the reset button is clicked</p> <ol style="list-style-type: none"> 1. All identifiers will get cleared.

	<p>2a. Actor doesn't enter the vendor's name.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>3a. Actor doesn't enter the vendor's landline number.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>4a. Actor doesn't enter the vendor's address.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>5a. Actor doesn't enter the concerned person's name.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>6a. Actor doesn't enter the concerned person's contact number.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>7a. Actor enters the invalid landline number, i.e., string instead of numbers</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>7b. Actor enters the invalid concerned person's number, i.e., string instead of numbers</p> <ol style="list-style-type: none"> 1. Error Signal will be presented.
Post-Condition	Vendor details will be added to the system.

5.14 Use Case 14:Update Vendor

Use Case ID	U14
Name	Update Vendor
Actor	CEO, Employee
Description	The respective actors will update the manufacturer or vendor details by initiating the Update vendor screen. Update the details of your own choice and then click on Update Button. Vendor details have been updated.
Pre-Condition	Update Vendor screen will be presented to the respective actors, and existing details are already filled in the identifiers fields.

Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Actor is ready to update the identifiers. 2. Actor updates vendor name. 3. Actor updates vendor's landline number. 4. Actor updates the vendor's address. 5. Actor updates the concerned person's name. 6. Actor updates the concerned person's contact number. 7. Actor clicks on Add button. <p>Extensions (or Alternative Flows):</p> <p>*a. If the Close button is clicked</p> <ol style="list-style-type: none"> 1. Actor's respective dashboard will be presented. <p>*b. If the reset button is clicked</p> <ol style="list-style-type: none"> 1. All identifiers will get cleared. <p>2a. Actor doesn't enter the vendor's name.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>3a. Actor doesn't enter the vendor's landline number.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>4a. Actor doesn't enter the vendor's address.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>5a. Actor doesn't enter the concerned person's name.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>6a. Actor doesn't enter the concerned person's contact number.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented.
------	--

	<p>7a. Actor enters the invalid landline number, i.e., string instead of numbers</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>7b. Actor enters the invalid concerned person's number, i.e., string instead of numbers</p> <ol style="list-style-type: none"> 1. Error Signal will be presented.
Post-Condition	Vendor details will be updated and added to the system.

5.15 Use Case 15:Add Stock

Use Case ID	U15
Name	Add Stock
Actor	CEO, Employee
Description	Stock of added products will now add. Initiate Add Stock screen and add identifiers. Select product; enters quantity retail price and cost price, and select expiry manufacturing and date of stock add. then click on Add button. Stock will be added.
Pre-Condition	Add Stock screen will be presented to the respective actor.
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Actor is ready to enter the stock. 2. Actor selects the product from the given list. 3. Actor enters the product quantity. 4. Actor enters the Retail Price. 5. Actor enters the Cost Price.

Flow	<ol style="list-style-type: none"> 1. Actor selects the date of the stock added. 2. Actor selects the manufacturing date of the stock. 3. Actor selects the expiry date of the stock. 4. Actor clicks on Add button. <p>Extensions (or Alternative Flows):</p> <p>*a. If the Close button is clicked</p> <ol style="list-style-type: none"> 1. Actor's respective dashboard will be presented. <p>*b. If the reset button is clicked</p> <ol style="list-style-type: none"> 1. All identifiers will get cleared. <p>2a. actor doesn't enter the vendor's name.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>3a. if the actor enters string instead of integers.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>3b. if the actor enters a negative quantity.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>4a. if the actor enters a string instead of a number.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>4b. if the actor enters a negative number.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>5a. if the actor enters a string instead of a number.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>5b. if the actor enters a negative number.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented.
------	--

	<p>9a. If the manufacturing date is greater than the expiry date</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>9b. If the manufacturing date is greater than the current date</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>9c. If the expiry date is less than the current date</p> <ol style="list-style-type: none"> 1. Error Signal will be presented.
Post-Condition	Stock of the product will be added.

5.16 Use Case 16:Add WareHouse

Use Case ID	U16
Name	Add WareHouse
Actor	CEO,Employee
Description	. The respective actor adds the warehouse name, area, city, state, and capacity volume. Then the actor clicks on Next button.
Pre-Condition	Add WareHouse Screen will be presented.
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none">1. Actor is ready to add wareHouse.2. Actor enters WareHouse Name.3. Actor selects the area of wareHouse.4. Actor selects the city of wareHouse.5. Actor selects the state of wareHouse.6. Actor enters the capacity volume of wareHouse.7. Actor clicks on Next Button. <p>Extensions (or Alternative Flows):</p> <p>2a. If Actor did not enter the wareHouse name.</p> <ol style="list-style-type: none">1. Error Signal will be present. <p>2b. If Actor enter invalid characters in the wareHouse name.</p> <ol style="list-style-type: none">1. Error Signal will be present.

	<p>2c. If Actor enter improper data(single alphabet etc) in the wareHouse name.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>2d. If Actor enter digits in the wareHouse name.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>3. If Actor did not select any area from the drop-down.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>4. If Actor did not select any city from the drop-down.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5. If Actor did not select any state from the drop-down.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>6a. If Actor did not enter capacity volume from the drop-down.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>6b. If Actor enter invalid characters in the wareHouse capacity.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>6c. If Actor enter improper data(alphabets, negative values etc) in the wareHouse capacity.</p> <ol style="list-style-type: none"> 1. Error Signal will be present.
Post-Condition	after clicked next button new form of Add WareHouse Manager will be presented.

5.17 Use Case 17:Update WareHouse

Use Case ID	U17
Name	Add WareHouse
Actor	CEO,Employee
Description	. The respective actor can edit the warehouse name, area, city, state, and capacity volume.
Pre-Condition	Edit WareHouse Screen will be presented.
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none">1. Actor is ready to edit wareHouse.2. Actor edits WareHouse Name.3. Actor edits the area of wareHouse.4. Actor edits the city of wareHouse.5. Actor edits the state of wareHouse.6. Actor updates the capacity volume of wareHouse.7. Actor clicks on Next Button. <p>Extensions (or Alternative Flows):</p> <p>2a. If Actor did not enter the wareHouse name.</p> <ol style="list-style-type: none">1. Error Signal will be present.

	<p>2b. If Actor enter invalid characters in the wareHouse name.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>2c. If Actor enter improper data(single alphabet etc) in the wareHouse name.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>2d. If Actor enter digits in the wareHouse name.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>3. If Actor did not select any area from the drop-down.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>4. If Actor did not select any city from the drop-down.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5. If Actor did not select any state from the drop-down.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>6a. If Actor did not enter capacity volume from the drop-down.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>6b. If Actor enter invalid characters in the wareHouse capacity.</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>6c. If Actor enter improper data(alphabets, negative values etc) in the wareHouse capacity.</p> <ol style="list-style-type: none"> 1. Error Signal will be present.
Post-Condition	Dashboard will be presented.

5.18 Use Case 18:View WareHouse

Use Case ID	U18
Name	Detail of WareHouses
Actor	CEO,Employee
Description	Actor can view the details of each WareHouse that registered on this system. Actor can filter out WareHouses with certain attributes and can apply multiple filters to search out specific wareHouse and their data. Actor can delete as well as edit wareHouses.
Pre-Condition	Detail of Accounts Screen is presented.
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Actor selects the attribute from the given list. 2. Actor could search the data from the identifier. 3. Actor selects the filters from the given list. 4. Actor clicks on the Go button. 5. Actor selects the data(any row shown in the grid)from the grid. 6. Actor clicks on the Edit button, and a new Edit user screen opens. 7. Actor clicks on the Delete button. 8. Actor clicks on the Close button. <p>Extensions (or Alternative Flows):</p> <ol style="list-style-type: none"> 1. If Actor did not select any attribute from the drop-down. <ol style="list-style-type: none"> 1. Error Signal will be present. 2a. If Actor did not select any Attribute and entered the data in the identifier to search. <ol style="list-style-type: none"> 1. The searched data will show from the first attribute. 2b. If Actor did not select any designation and Attribute and entered the data in the identifier to search. <ol style="list-style-type: none"> 1. The searched data will show from the first attribute.

Flow	<p>3a. If Actor did not select any Filter from the given list</p> <ol style="list-style-type: none"> 1. No operation of the filter is applied to the data. <p>3b. If Actor did not select any Attribute from the given list and select any filter</p> <ol style="list-style-type: none"> 1. No operation of the filter is applied to the data. <p>4a. If Actor did not select any Attribute, Designation, or filter from the given list and not enter the data to be searched in identifier</p> <ol style="list-style-type: none"> 1. Error Message box will be shown. <p>5. If Actor did not select any data from the grid list.</p> <ol style="list-style-type: none"> 1. No operation is performed. <p>6. If Actor did not select any data from the grid list and clicked the edit button.</p> <ol style="list-style-type: none"> 1. No operation I performed on any data list in the grid. 2. Message Box will be shown. <p>7. If Actor did not select any data from the grid list and clicked the delete button.</p> <ol style="list-style-type: none"> 1. No operation I performed on any data list in the grid. 2. Message Box will be shown.
Post-Condition	Data from selected row will be deleted and a dashboard will be presented

5.19 Use Case 19:Take Order

Use Case ID	U19
Name	Take Order
Actor	Rider

Description	Rider is now at the shop. The shopkeeper tells the rider about the products which he wants to order. The rider adds the product from the list with the specified quantity to the cart. The process continues until the shopkeeper orders all required products. Then the rider moves toward the Order Summary screen. Selects the shopkeeper from the list. The rider can change the order details. And in the end, click on the Buy button to place the order.
Pre-Condition	Rider has arrived at the shop, and the shopkeeper is giving him the order. Take Order screen is presented.
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Actor is ready to take the order. 2. Actor recommends different products to the shopkeeper. 3. Actor adds the product to the cart by clicking on Add to Cart button with the shopkeeper's consent and requirement, i.e., the quantity of the shopkeeper's need. 4. The process continues until the shopkeeper orders all required products. 5. Actor clicks on View Cart. 6. Order Summary screen will be presented. 7. Grand Total Amount is shown at the bottom left of the screen. 8. Actor selects the shopkeeper's name from the given list. 9. Actor can update and remove the product from the ordered items list of the shopkeeper. 10. Click on the Buy button at the end of the screen to confirm the order. <p>Extensions (or Alternative Flows):</p> <p>*a. If the Close button is clicked</p> <ol style="list-style-type: none"> 1. Actor's respective dashboard will be presented. <p>*b. If the reset button is clicked in the Order Summary screen</p> <ol style="list-style-type: none"> 1. Ordered items list will get cleared.

	<p>*c. If the back button is clicked in the Order Summary screen</p> <ol style="list-style-type: none"> 1. Take Order screen will be presented. <p>3a. if the specified quantity is greater than the available quantity</p> <ol style="list-style-type: none"> 1. Product will not add 2. Error Signal will be presented. <p>3b. if the actor enters a negative quantity.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>9a. If the Buy button is clicked with zero items ordered.</p> <ol style="list-style-type: none"> 1. Error Signal will be presented.
Post-Condition	Order has been placed and is waiting for employee approval. Order status has been set as "Not Confirmed"

5.20 Use Case 20: Confirm the Incoming Order

Use Case ID	U20
Name	Confirm the Incoming Order
Actor	Employee
Description	Order has now been placed by the rider and delivered to the employee for confirmation. Actor clicks on Confirm Button. The confirmation includes two things. Again it will check the product's availability in the warehouse and the rider's vehicle capacity. After successful validation, the order status will be changed from "Not Confirmed" to "Confirmed" in the View Order Details screen. The employee will email the warehouse manager and the assigned rider.
Pre-Condition	Order has been received by the employee.

Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. View Orders Details screen will be presented. 2. Actor will click on the Confirm button against the first order. 3. The system will check the product's availability in the warehouse. 4. After Successful availability, a small screen for assigning a rider is presented 5. Select the rider from the list. 6. Check rider's vehicle's capacity and assign. 7. Click on Assign Button, and the control will again shift back to the View Order Details screen. 8. system automatically sends emails to the assigned rider and the warehouse manager. <p>Extensions (or Alternative Flows):</p> <p>*a. If the Close button is clicked</p> <ol style="list-style-type: none"> 1. Actor's respective dashboard will be presented. <p>*b. If the remove button is clicked against any item</p> <ol style="list-style-type: none"> 1. Corresponding order will get removed. <p>*c. If the back button is clicked</p> <ol style="list-style-type: none"> 1. Actor's respective dashboard will be presented. <p>4a. if the products ordered are not available in the warehouse</p> <ol style="list-style-type: none"> 1. Error Signal will be presented. <p>8a. If the rider's vehicle's capacity is insufficient to carry the order.</p> <ol style="list-style-type: none"> 1. Assign button is disabled.
Post-Condition	Order is confirmed now and the warehouse manager is notified about the order.

5.21 Use Case 21: Add Vehicle

Use Case ID	U21
Name	Add Vehicle
Actor	CEO, Employee
Description	Actor select the type of vehicle from the given list, enter the capacity in volume, capacity in weight, and registration number, and click on add button to save data in the database .
Pre-Condition	Add vehicle screen is presented.
Flow	<p>Main Success Scenario (or Basic Flow):</p> <ol style="list-style-type: none">1. Actor is ready to enter the identifiers ,2. Actor, select the vehicle type from the given list.3. Actor enters the capacity of the vehicle in volume.4. Actor enters the capacity of the vehicle in weight.5. Actor enters the registration number.6. Actor clicks on the add button. <p>Extensions (or Alternative Flows):</p> <p>*a. If the clear button is clicked</p> <ol style="list-style-type: none">1. All the identifiers data remove from the screen. <p>*b. If the close button is clicked</p> <ol style="list-style-type: none">1. The presented screen will be closed <p>3a. If the actor doesn't enter the capacity in capacity in volume</p> <ol style="list-style-type: none">1. Error Signal will be present. <p>3b. If the actor enters an invalid capacity in volume</p> <ol style="list-style-type: none">1. Error Signal will be present. <p>4a. If the actor doesn't enter the capacity in capacity in weight</p> <ol style="list-style-type: none">1. Error Signal will be present.

Flow	<p>4b. If the actor enters an invalid capacity in wight</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5a. If the actor doesn't enter the capacity in registration number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5b. If the actor enters an invalid capacity in registration number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>6a.If the entered data is not stored in the database</p> <ol style="list-style-type: none"> 1. Error Signal will be present.
Post-Condition	Data stored in the database and screen closed.

5.22 Use Case 22: Update Vehicle Information

Use Case ID	U22
Name	Update Vehicle Information
Actor	CEO, Employee
Description	Actor select the type of vehicle from the given list, enter the capacity in volume, capacity in weight, and registration number, and click on add button to save data in the database .
Pre-Condition	Update Vehicle Information is presented, and registered information is displayed in the identifiers
Flow	<p>Main Success Scenario (or Basic Flow):</p> <ol style="list-style-type: none"> 1. Actor is ready to update the identifiers. 2. Actor changes the vehicle type from the given list. 3. Actor updates the capacity of the vehicle in volume. 4. Actor updates the capacity of the vehicle in weight. 5. Actor updates the registration number. 6. Actor clicks on the update button.

Flow	<p>Extensions (or Alternative Flows):</p> <p>*a. If the clear button is clicked</p> <ol style="list-style-type: none"> 1. All the identifiers data remove from the screen. <p>*b. If the close button is clicked</p> <ol style="list-style-type: none"> 1. The presented screen will be closed <p>3a. If the actor doesn't enter the capacity in capacity in volume</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>3b. If the actor enters an invalid capacity in volume</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>4a. If the actor doesn't enter the capacity in capacity in weight</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>4b. If the actor enters an invalid capacity in wight</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5a. If the actor doesn't enter the capacity in registration number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5b. If the actor enters an invalid capacity in registration number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>6a.If the entered data is not stored in the database</p> <ol style="list-style-type: none"> 1. Error Signal will be present.
Post-Condition	Data is updated in the database, and the screen is closed.

5.23 Use Case 23: Add Shop and Shopkeeper

Use Case ID	U23
Name	Add Shop and Shopkeeper
Actor	Rider,Employee,CEO
Description	. The actor enters the shop name, phone number, and shop number, select the area from the given list, selects the city from the given list, selects the state from the given list, and the country is only Pakistan.
Pre-Condition	Shopkeeper screen is presented.
Flow	<p>Main Success Scenario (or Basic Flow):</p> <ol style="list-style-type: none">1. Actor is ready to enter the identifiers.2. Actor enters shopkeeper name.3. Actor enters shop name.4. Actor enters landline number.5. Actor enters an email address.6. Actor selects the area from the given list.7. Actor selects the city from the given list.8. Actor select state from the given list.9. Actor click on the next button <p>Extensions (or Alternative Flows):</p> <p>*a. If the clear button is clicked</p> <ol style="list-style-type: none">1. All the identifiers data remove from the screen. <p>*b. If the close button is clicked</p> <ol style="list-style-type: none">1. The presented screen will be closed

Flow	<p>2a. If the actor doesn't enter the shopkeeper name</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>2b. If the actor enters an invalid shopkeeper name</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>3a. If the actor doesn't enter the shop name</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>3b. If the actor enters an invalid shop name</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>4a. If the actor doesn't enter the landline number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>4b. If the actor enters an invalid landline number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5a. If the actor doesn't enter the email address</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5b. If the actor enters an invalid email address</p> <ol style="list-style-type: none"> 1. Error Signal will be present.
Post-Condition	Actor click on the next button to add warehouse manager.

5.24 Use Case 24: Update Shop and Shopkeeper

Use Case ID	U23
Name	Add Shop and Shopkeeper
Actor	Rider,Employee,CEO
Description	. The actor updates the shop name, phone number, and shop number, email address, selects the area from the given list, selects the city from the given list, selects the state from the given list, and the country is only Pakistan.
The pre-Condition	Shopkeeper Update screen is presented, and the registered information of the shopkeeper in the system will be presented in the identifiers.
Flow	<p>Main Success Scenario (or Basic Flow):</p> <ol style="list-style-type: none"> 1. Actor is ready to enter the identifiers. 2. Actor update shopkeeper name. 3. Actor update shop name. 4. Actor update landline number. 5. Actor updates an email address. 6. Actor selects the area from the given list. 7. Actor selects the city from the given list. 8. Actor select state from the given list. 9. Actor click on the next button <p>Extensions (or Alternative Flows):</p> <p>*a. If the clear button is clicked</p> <ol style="list-style-type: none"> 1. All the identifiers data remove from the screen. <p>*b. If the close button is clicked</p> <ol style="list-style-type: none"> 1. The presented screen will be closed

Flow	<p>2a. If the actor doesn't enter the shopkeeper name</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>2b. If the actor enters an invalid shopkeeper name</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>3a. If the actor doesn't enter the shop name</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>3b. If the actor enters an invalid shop name</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>4a. If the actor doesn't enter the landline number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>4b. If the actor enters an invalid landline number</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5a. If the actor doesn't enter the email address</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>5b. If the actor enters an invalid email address</p> <ol style="list-style-type: none"> 1. Error Signal will be present.
Post-Condition	The warehouse information is updated in the system, and the screen is closed.

5.25 Use Case 25: Add Payment

Use Case ID	U25
Name	Add Payment
Actor	CEO, Employee, Warehouse Manager, Rider
Description	Actor select the payment type from the list, select the payment mode from the options, enter the descriptions, select the date, update the amount, and select the sender designation, name and reiver designation name, and receiver.
The pre-Condition	Add payment screen is presented.
Flow	<p>Main Success Scenario (or Basic Flow):</p> <ol style="list-style-type: none"> 1. Actor is ready to enter the identifiers. 2. Actor selects the payment type from the given list. 3. Actor selects the payment mode from the given options. 4. Actor enters the description. 5. Actor selects the date. 6. Actor enters the amount. 7. Actor confirms the amount. 8. Actor selects their role from the given list. 9. Actor selects their name from the given list. 10. Actor selects the sender role from the given list. 11. Actor selects the sender name from the given list. 12. Actor clicks on the add button. <p>Extensions (or Alternative Flows):</p> <p>*a. If the clear button is clicked</p> <ol style="list-style-type: none"> 1. All the identifiers data remove from the screen. <p>*b. If the close button is clicked</p> <ol style="list-style-type: none"> 1. The presented screen will be closed

Flow	<p>4a. If the actor doesn't enter description</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>6a. If the actor doesn't enter the amount</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>7b. If the actor enters an invalid amount</p> <ol style="list-style-type: none"> 1. Error Signal will be present.
Post-Condition	Data are stored in the database, and the screen is closed.

5.26 Use Case 26: Edit Payment

Use Case ID	U26
Name	Edit Payment
Actor	CEO, Employee, Warehouse Manager, Rider
Description	Actor select the payment type from the list, select the payment mode from the options, update the descriptions, select the date, update the amount, and select the sender designation, name and reiver designation name, and receiver.
The pre-Condition	Add payment screen is presented, and stored information is displayed in the attributes.
Flow	<p>Main Success Scenario (or Basic Flow):</p> <ol style="list-style-type: none"> 1. Actor is ready to enter the identifiers. 2. Actor selects the payment type from the given list. 3. Actor selects the payment mode from the given options. 4. Actor updates the description.

Flow	<ol style="list-style-type: none"> 1. Actor selects the date. 2. Actor updates the amount. 3. Actor confirms the amount. 4. Actor clicks on the update button. 5. Actor selects their role from the given list. 6. Actor selects their name from the given list. 7. Actor selects the sender role from the given list. 8. Actor selects the sender name from the given list. <p>Extensions (or Alternative Flows):</p> <p>*a. If the clear button is clicked</p> <ol style="list-style-type: none"> 1. All the identifiers data remove from the screen. <p>*b. If the close button is clicked</p> <ol style="list-style-type: none"> 1. The presented screen will be closed <p>4a. If the actor doesn't enter description</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>6a. If the actor doesn't enter the amount</p> <ol style="list-style-type: none"> 1. Error Signal will be present. <p>7b. If the actor enters an invalid amount</p> <ol style="list-style-type: none"> 1. Error Signal will be present.
Post-Condition	Data are updated in the database, and the screen is closed.

5.27 Use Case 27:Ready the Incoming Order

Use Case ID	U27
Name	Ready the Incoming Order
Actor	Warehouse Manager
Description	Order after confirmation from the employee, now move toward the warehouse manager for the ordered items to be ready for delivery. After confirmation by the warehouse manager that order is ready, the rider will be notified. Now the rider can pick it up.
Pre-Condition	Order has been confirmed by the employee. And the warehouse manager gets notified.
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none">1. View Orders Details screen will be presented with the order status of products confirmed.2. Actor clicks on the Ready Button.3. Actor confirms the order status has been set ready.4. Email now will send email to the assigned rider and employee. <p>Extensions (or Alternative Flows):</p> <p>*a. If the Close button is clicked</p> <ol style="list-style-type: none">1. Actor's respective dashboard will be presented.
Post-Condition	Order is ready now, and the rider can pick it up.

5.28 Use Case 28:Accomplish the Order

Use Case ID	U28
Name	Accomplish the Order
Actor	Rider
Description	Rider has reached the respective shop and delivered the order. Now he will set the order status completed. Click on the View Orders button, and a View Order Details screen will be presented. Click on the complete order button. The corresponding order will be set as completed.
Pre-Condition	Rider has delivered the order successfully. The rider clicks on the view order option.

Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. View Order Details screen will be presented. 2. Actor will set the order status as "Completed." 3. Actor confirms the order status has been set to complete. 4. Email now will send email to the assigned employee and CEO. <p>Extensions (or Alternative Flows):</p> <p>*a. If the Close button is clicked</p> <ol style="list-style-type: none"> 1. Actor's respective dashboard will be presented.
Post-Condition	Order is deleivered sucessfully.

5.29 Use Case 29: Plot the Minimum Spanning Tree for Multiple Shops


Use Case ID	U29
Name	Plot the Minimum Spanning Tree for Multiple Shops
Actor	Rider

Description	<p>Whenever rider status changes(to "On the way"), a spanning tree will be generated between warehouse and shopkeeper's Locations. Rider can view the route between two locations by clicking on the new route button. Data structures used in it are:</p> <ol style="list-style-type: none"> 1. Graph 2. BST <p>Algorithms used for making Minimum spanning tree is:</p> <ol style="list-style-type: none"> 1. Greedy Algorithms <p>Rider can view the shortest route of his destination one by one. As one order is accomplished the rider's location will be updated. Now he can view the shortest path towards his second destination.</p>
Pre-Condition	Rider is ready to deliver the order.
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. View Route Screen is presented. 2. Now he can view the shortest path towards his destination.
Post-Condition	Rider reached his destination.

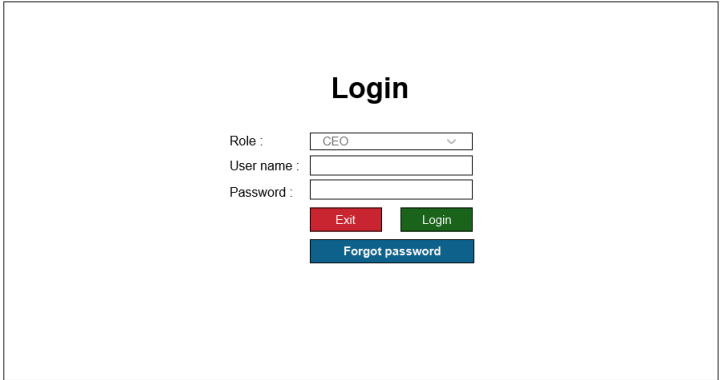
Chapter 6

Use Interfaces

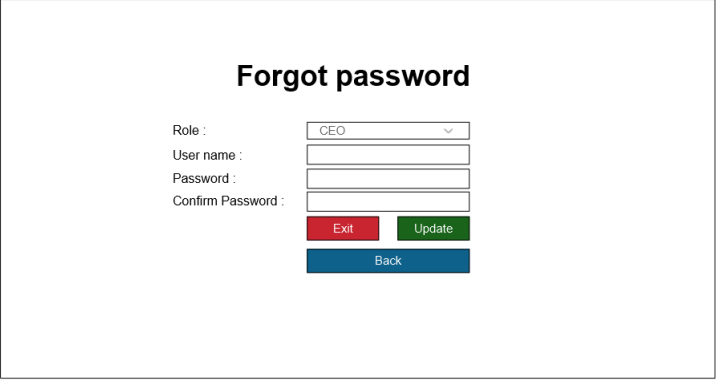
6.1 Intro

Interface ID	I01
Name	Intro
Linked Use Case	NULL
UI Interface in JUSTINMIND	 <p>Merchant Monetary System</p> <p>Believe, Manage, Serve</p>

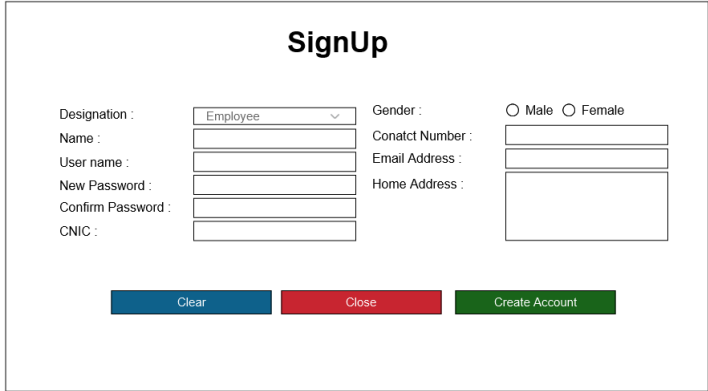
6.2 Login

Interface ID	I02
Name	Login
Linked Use Case	U01
UI Interface in JUSTINMIND	 <p>The mockup shows a login form titled "Login". It includes a "Role" dropdown menu with "CEO" selected, a "User name" text input field, and a "Password" text input field. Below the inputs are three buttons: a red "Exit" button, a green "Login" button, and a blue "Forgot password" button.</p>
Validators	<ul style="list-style-type: none">• Password Validations (Must be of 8 characters)• User Validation(Check if user exist or not)

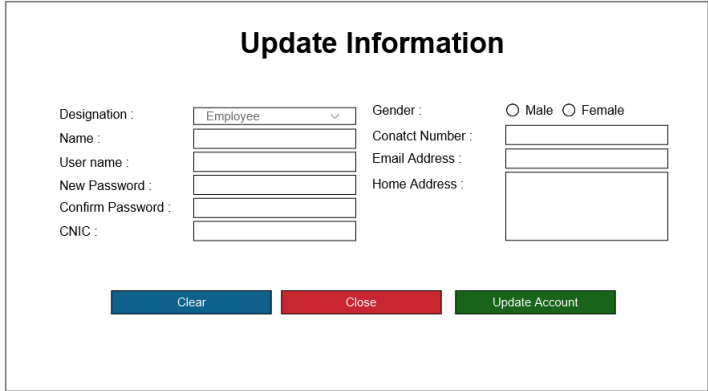
6.3 Forgot Password

Interface ID	103
Name	Forgot Password
Linked Use Case	
UI Interface in JUSTINMIND	
Validators	<ul style="list-style-type: none"> • New Password must be different from previous password • Username Validation • Password and Confirm Password Textbox are Same or not

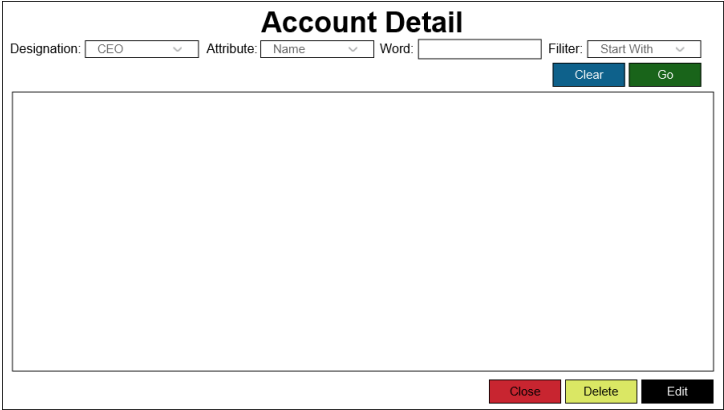
6.4 Create Account

Interface ID	104
Name	Create Account
Linked Use Case	U21
UI Interface in JUSTINMIND	
Validators	<ul style="list-style-type: none"> • New Password and Confirmation password must be the same • CNIC must be of 13 digits • Contact Number must be of 11 digits • All Information must be provided before account creation • Email Validations

6.5 Update Information

Interface ID	I05
Name	Update Information
Linked Use Case	
UI Interface in JUSTINMIND	
Validators	<ul style="list-style-type: none"> • New Password and Confirmation password must be the same • CNIC must be of 13 digits • Contact Number must be of 11 digits • All Information must be provided before account creation • Email Validations

6.6 Account Detail

Interface ID	I06
Name	Account Detail
Linked Use Case	U04
UI Interface in JUSTINMIND	
Validators	<ul style="list-style-type: none"> • On clicked delete and edit button there is must to select any column first from grid list. • Filters must be applied before clicking Go

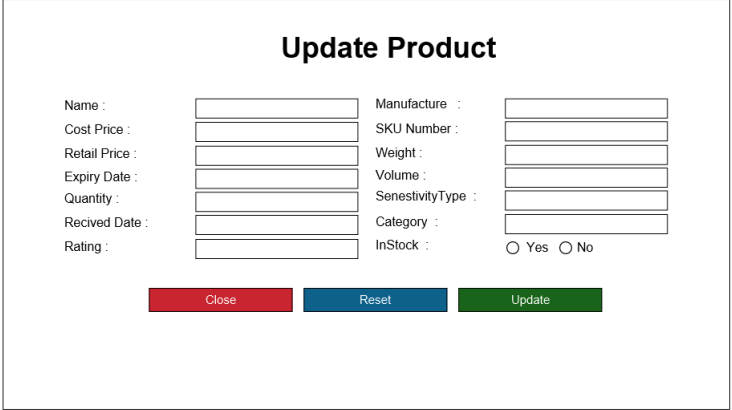
6.7 CEO Dashboard

Interface ID	I07
Name	CEO Dashboard
Linked Use Case	U03
UI Interface in JUSTINMIND	

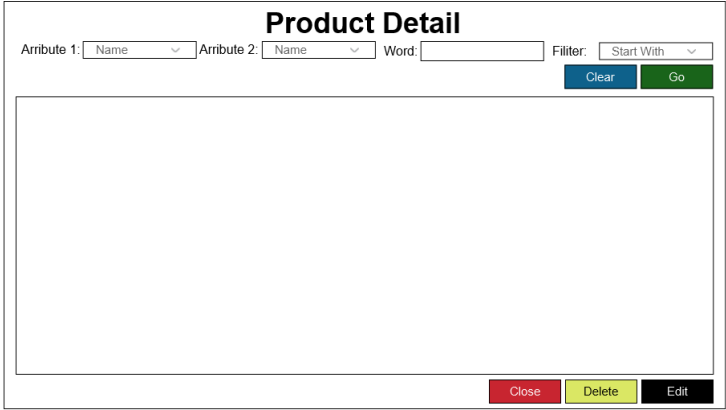
6.8 Add Product

Interface ID	I08
Name	Add Product
Linked Use Case	U06
UI Interface in JUSTINMIND	<div><p>Product</p><div><div><div>Name :</div><div>Cost Price :</div><div>Retail Price :</div><div>Expiry Date :</div><div>Quantity :</div><div>Recived Date :</div><div>Rating :</div><div>Warehouse ID :</div></div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div><div><div>Manufacture :</div><div>SKU Number :</div><div>Weight :</div><div>Volume :</div><div>SenestivityType :</div><div>Category :</div><div>InStock :</div></div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div><div><div></div><div>Yes</div></div><div><div></div><div>No</div></div></div></div></div><div><div>Close</div><div>Reset</div><div>Add</div></div></div></div>
Validators	<ul style="list-style-type: none">• Product Name must contain only Digits and alphabets.• Cost Price must not be negative.• The date must be positive. And not previous than current.• Quantity must be positive. And not in decimals.• Rating must be positive and integer.• SKU-ID must be positive.• Weight and Volume must be in integers and decimals and positive.• IN Stock check box must be filled.

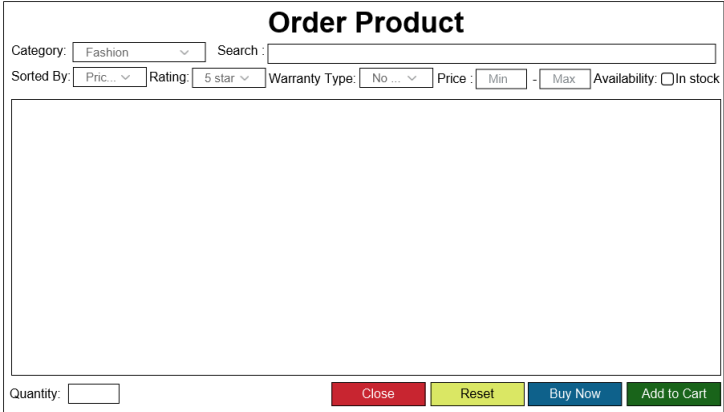
6.9 Update Product

Interface ID	I09
Name	Update Product
Linked Use Case	U08
UI Interface in JUSTINMIND	
Validators	<ul style="list-style-type: none"> • Product Name must contain only Digits and alphabets. • Cost Price must not be negative. • The date must be positive. And not previous than current. • Quantity must be positive. And not in decimals. • Rating must be positive and integer. • SKU-ID must be positive. • Weight and Volume must be in integers and decimals and positive. • IN Stock check box must be filled.

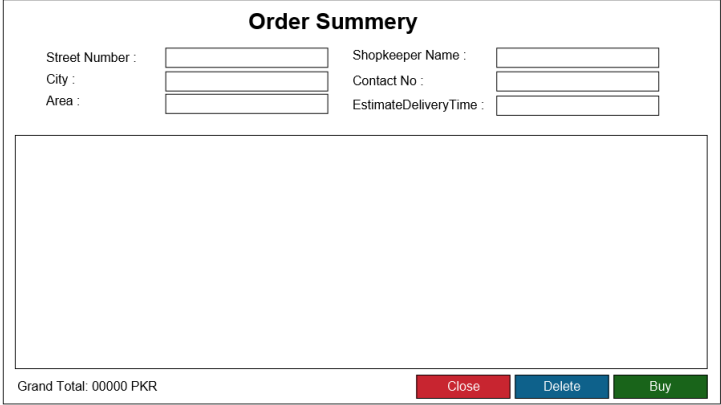
6.10 Product Detail

Interface ID	I10
Name	Product Detail
Linked Use Case	U07
UI Interface in JUSTINMIND	 <p>The mockup shows a 'Product Detail' window. At the top, there are two dropdown menus labeled 'Attribute 1' and 'Attribute 2', both with 'Name' selected. Next to them is a text input field labeled 'Word' and a dropdown menu labeled 'Filter' with 'Start With' selected. Below these are two buttons: 'Clear' (blue) and 'Go' (green). The main area of the window is a large empty rectangle. At the bottom right, there are three buttons: 'Close' (red), 'Delete' (yellow), and 'Edit' (black).</p>
Validators	<ul style="list-style-type: none"> • On clicked delete and edit button there is must to select any column first from grid list. • Filters must be applied before clicking Go.

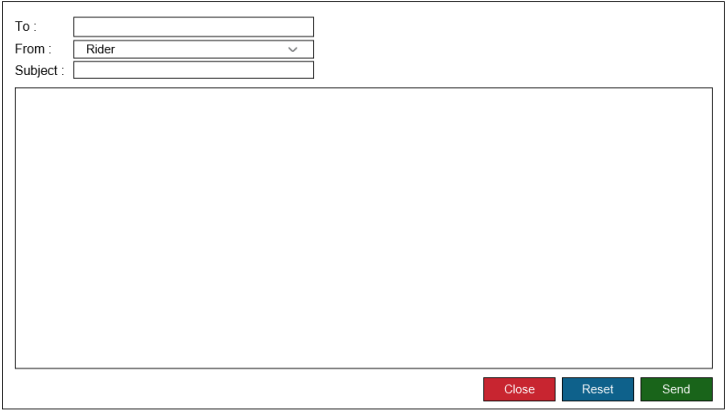
6.11 Order Product

Interface ID	I11
Name	Order Product
Linked Use Case	U11
UI Interface in JUSTINMIND	
Validators	<ul style="list-style-type: none"> • Price must be positive. • Search text only contains alphabets and integers only.

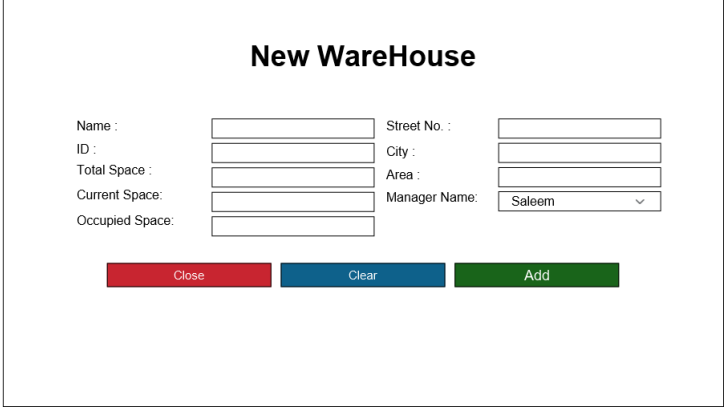
6.12 Order Summary

Interface ID	I12
Name	Order Summary
Linked Use Case	U11
UI Interface in JUSTINMIND	
Validators	<ul style="list-style-type: none"> • Street No. must be integer • Contact No. must be of 11 digits • Delivery time must be a number may be float or integer • All fields must be typed before buying products

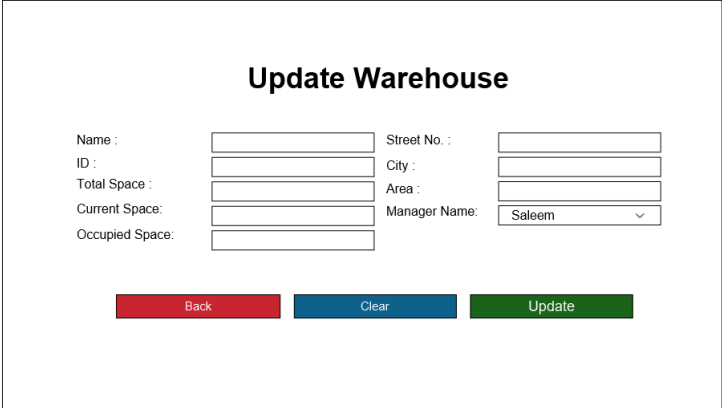
6.13 Send Email

Interface ID	I13
Name	Send Email
Linked Use Case	U12
UI Interface in JUSTINMIND	
Validators	<ul style="list-style-type: none">• To section must be filled to send the mail.

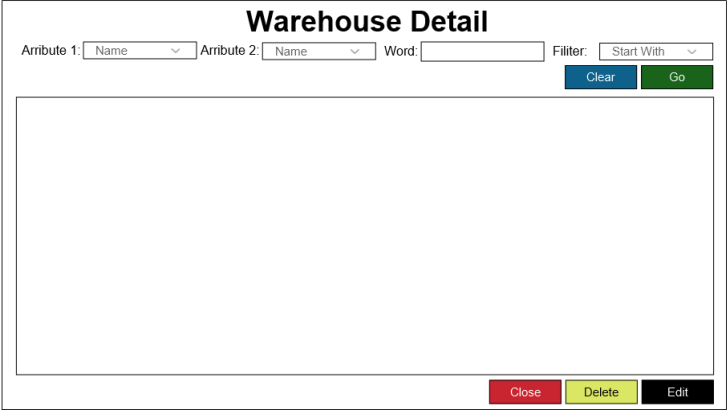
6.14 New Warehouse

Interface ID	I14
Name	New Warehouse
Linked Use Case	U13
UI Interface in JUSTINMIND	
Validators	<ul style="list-style-type: none"> • Space fields and Street No. input must be a number • Necessary fields must be filled before updating

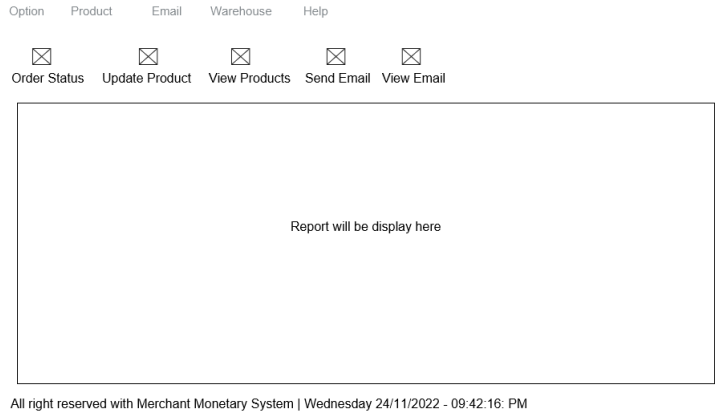
6.15 Update Warehouse

Interface ID	I15
Name	Update Warehouse
Linked Use Case	U15
UI Interface in JUSTINMIND	
Validators	<ul style="list-style-type: none"> • Space fields and Street No. input must be a number • Necessary fields must be filled before updating

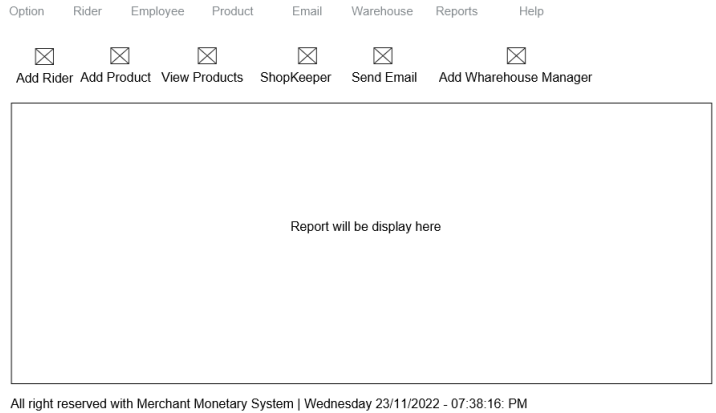
6.16 Warehouse Detail

Interface ID	I16
Name	Warehouse Detail
Linked Use Case	U14
UI Interface in JUSTINMIND	
Validators	<ul style="list-style-type: none">• On clicked delete and edit button there is must to select any row first from grid list.• Filters must be applied before clicking Go

6.17 Warehouse Manager Dashboard

Interface ID	I17
Name	Warehouse Manager Dashboard
Linked Use Case	NILL
UI Interface in JUSTINMIND	 <p>The UI interface for the Warehouse Manager Dashboard (I17) features a navigation bar with links: Option, Product, Email, Warehouse, and Help. Below the navigation bar are five icons, each with a label: Order Status, Update Product, View Products, Send Email, and View Email. A large rectangular area in the center is designated for a report, with the text 'Report will be display here'. At the bottom, a footer states 'All right reserved with Merchant Monetary System Wednesday 24/11/2022 - 09:42:16: PM'.</p>

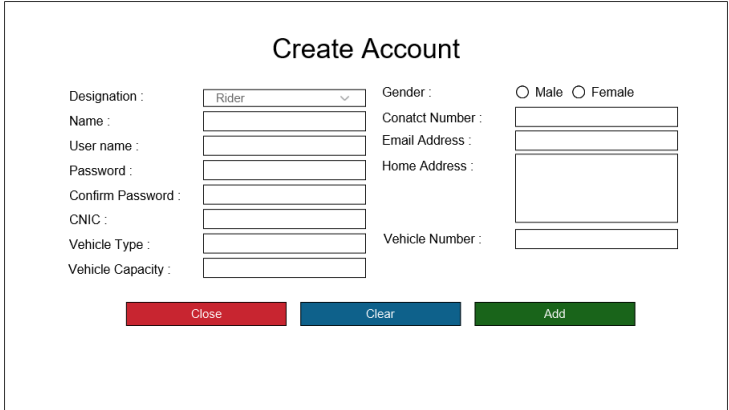
6.18 Employee Dashboard

Interface ID	I18
Name	Employee Dashboard
Linked Use Case	NILL
UI Interface in JUSTINMIND	 <p>The UI interface for the Employee Dashboard (I18) features a navigation bar with links: Option, Rider, Employee, Product, Email, Warehouse, Reports, and Help. Below the navigation bar are seven icons, each with a label: Add Rider, Add Product, View Products, ShopKeeper, Send Email, and Add Wharehouse Manager. A large rectangular area in the center is designated for a report, with the text 'Report will be display here'. At the bottom, a footer states 'All right reserved with Merchant Monetary System Wednesday 23/11/2022 - 07:38:16: PM'.</p>

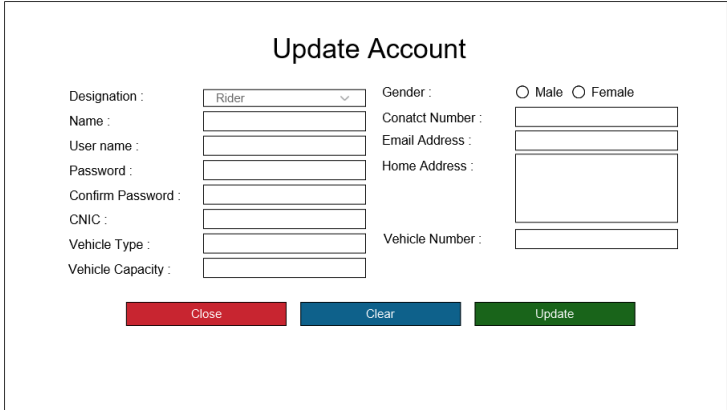
6.19 Rider Dashboard

Interface ID	I19								
Name	Rider Dashboard								
Linked Use Case	NILL								
UI Interface in JUSTINMIND	<div><div><div>Option</div><div>Product</div><div>Email</div><div>Warehouse</div><div>Help</div></div><div><div><div><div></div></div>Show Products</div><div><div><div></div></div>Add Shopkeeper</div><div><div><div></div></div>Order Detail</div><div><div><div></div></div>Send Email</div><div><div><div></div></div>Find Route</div><div><div><div></div></div>Add Payment</div></div><table><tr><th>Vehicle Number</th><th>Vehicle Model</th><th>Current Fuel</th><th>Vehicle ID</th></tr><tr><td></td><td></td><td></td><td></td></tr></table><div></div><div>All right reserved with Merchant Monetary System Wednesday 23/11/2022 - 07:38:16: PM</div></div>	Vehicle Number	Vehicle Model	Current Fuel	Vehicle ID				
Vehicle Number	Vehicle Model	Current Fuel	Vehicle ID						

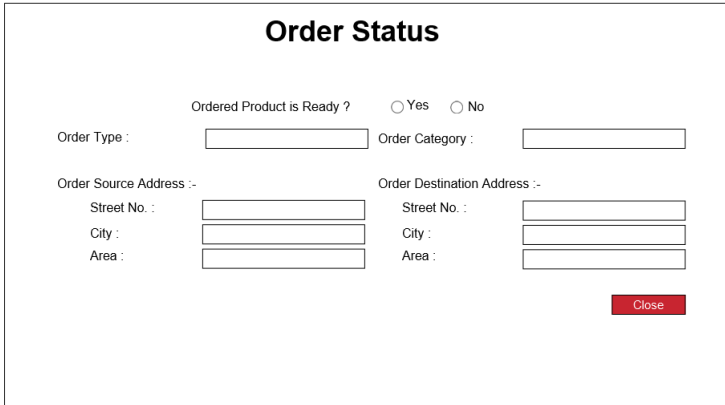
6.20 Add Rider

Interface ID	I20
Name	
Linked Use Case	U09
UI Interface in JUSTINMIND	
Validators	<ul style="list-style-type: none"> • Name Text Box must contain only alphabets. • The new Password and confirmation password • CNIC number must be of 13 digits. • Contact number must be of 11 digits. • Any text box value will not be added as negative. • All fields must be filled • Email validation

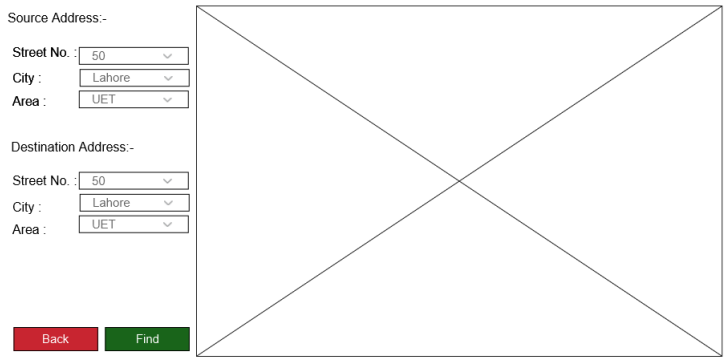
6.21 Update Rider

Interface ID	I21
Name	Update Rider
Linked Use Case	U10
UI Interface in JUSTINMIND	
Validators	<ul style="list-style-type: none"> • Name Text Box must contain only alphabets. • New Password must be different from last password • The new Password and confirmation password • CNIC number must be of 13 digits. • Contact number must be of 11 digits. • Any text box value will not be added as negative. • All fields must be filled • Email validation

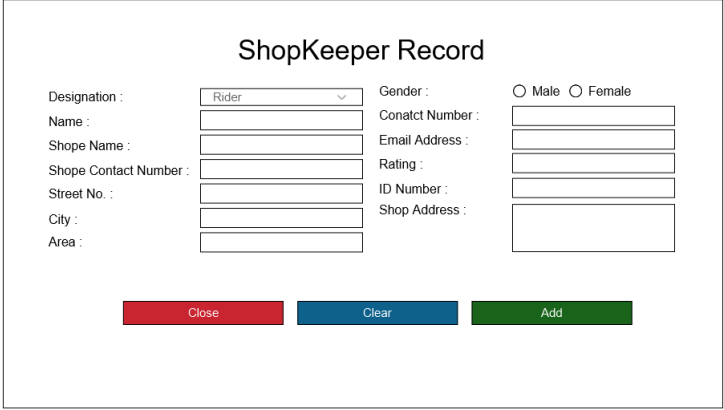
6.22 Order Status

Interface ID	I22
Name	Order Status
Linked Use Case	U16
UI Interface in JUSTINMIND	

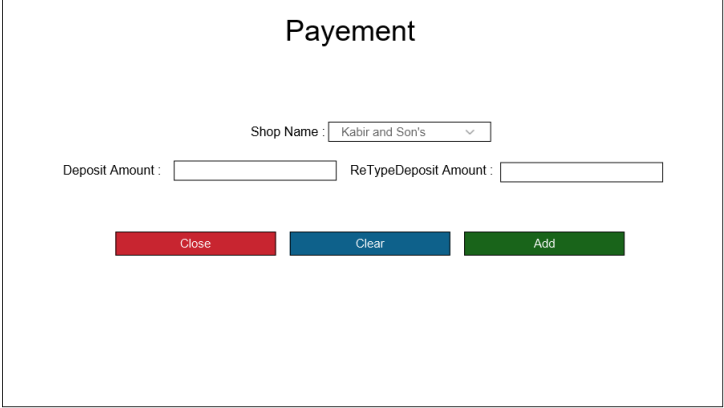
6.23 Order Status

Interface ID	I23
Name	Order Status
Linked Use Case	U17
UI Interface in JUSTINMIND	<p style="text-align: center;">Route Find</p> 
Validators	<ul style="list-style-type: none"> • Street No. Must not be negative • All fields must be appropriately filled to find the routes

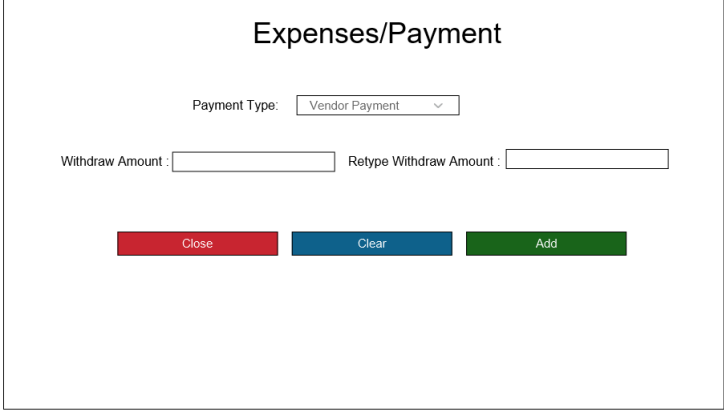
6.24 Shopkeeper Record

Interface ID	I24
Name	Shopkeeper Record
Linked Use Case	U18
UI Interface in JUSTINMIND	
Validators	<ul style="list-style-type: none"> • Email Validation • Contact Number Validation • Street No. must be a non-negative number • All necessary fields must be filled before clicking Add

6.25 Add Payment

Interface ID	I25
Name	Add Payment
Linked Use Case	U19
UI Interface in JUSTINMIND	
Validators	<ul style="list-style-type: none"> • Deposit and Retype Deposit Amount must be a number not string • Before Clicking Add, Both fields must be filled • Both fields must be same

6.26 Withdraw Expenses

Interface ID	I26
Name	Withdraw Expenses
Linked Use Case	
UI Interface in JUSTINMIND	
Validators	<ul style="list-style-type: none">• Withdraw and Retype Withdraw Amount must be a number not string• Before Clicking Add, Both fields must be filled• Both fields must be same

Chapter 7

User Interface Details

Inter- face Id	Text Box	Drop Down	Password Box	Table	Date Field	Buttons
101	0	0	0	0	0	0
102	1	1	1	0	0	3
103	1	1	2	0	0	3
104	5	1	2	0	0	3
105	5	1	2	0	0	3
106	1	3	0	1	0	5
107	0	0	0	1	0	0
108	13	1	0	0	0	3
109	13	0	0	0	0	3
110	1	3	0	1	0	5
111	4	4	0	1	0	4
112	6	0	0	1	0	3
113	2	1	0	0	0	3
114	8	1	0	0	0	3
115	8	1	0	0	0	3
116	1	3	0	1	0	5
117	0	0	0	1	0	0
118	0	0	0	1	0	0
119	0	0	1	0	0	0
120	8	1	2	0	0	3
121	8	1	2	0	0	3
122	8	0	0	0	0	1
123	0	6	0	0	0	2
124	10	1	0	0	0	3
125	2	1	0	0	0	3
126	2	1	0	0	0	3

Inter- face Id	Auto- Com- plete	Radio Button	Check Box	Menu	Text Area	Progress Bar
101	0	0	0	0	0	1
102	0	0	0	0	0	0
103	0	0	0	0	0	0
104	0	2	0	0	1	0
105	1	2	0	0	1	0
106	0	0	0	0	0	0
107	0	0	0	14	0	0
108	0	2	0	0	0	0
109	0	2	0	0	0	0
110	0	0	0	0	0	0
111	0	0	1	0	0	0
112	0	0	0	0	0	0
113	0	0	0	0	1	0
114	1	0	0	0	0	0
115	1	0	0	0	0	0
116	0	0	0	0	0	0
117	0	0	0	10	0	0
118	0	0	0	14	0	0
119	0	0	0	11	0	0
120	0	2	0	0	0	0
121	1	2	0	0	0	0
122	0	2	0	0	0	0
123	0	0	0	0	0	0
124	0	2	0	0	1	0
125	0	0	0	0	0	0
126	0	0	0	0	0	0

Chapter 8

Classes

The classes which are used in the project are as under with there specific properties.

Class Name	Software/ Domain	Is Abstract (Yes/No)
CEO	Domain	No
Company	Domain	No
Office	Domain	No
WareHouse	Domain	No
User	Domain	No
Rider	Domain	No
Employee	Domain	No
WareHouseManager	Domain	No
ShopOwner	Domain	No
Shop	Domain	No
Ledger	Domain	No
Order	Domain	No
Product	Domain	No
Vehicle	Domain	No
Stack	Software	No
Queue	Software	No
Linked List	Software	No
Binary Search Tree	Software	No
Spanning Tree	Software	No

Class Name	Is Singleton (Yes/No)	Is the class will has parametrized constructor(Yes/No)
CEO	Yes	Yes
Company	Yes	Yes
Office	Yes	Yes
WareHouse	Yes	Yes
User	No	Yes
Rider	No	Yes
Employee	No	Yes
WareHouse Manger	Yes	Yes
ShopOwner	No	Yes
Shop	No	Yes
Ledger	Yes	Yes
Order	No	Yes
Product	No	Yes
Vehicle	No	Yes
Stack	No	Yes
Queue	No	Yes
Linked List	No	Yes
Binary Search Tree	No	Yes
Spanning Tree	No	Yes

Chapter 9

Object Oriented Features

9.1 Composition

In our Project there are 8 places where we use Composition

- Company Class has composition of Ledger Class
- Company Class has composition of Office Class
- Company Class has composition of Warehouse Class
- Company Class has composition of CEO Class
- Warehouse Class has composition of Warehouse Manager Class
- Rider Class has composition of Vehicle Class
- Office Class has composition of User Class (Employee, Rider)
- Shop Owner Class has composition of Shop Class

9.2 Inheritance

In our project inheritance is used in following places

- User inherits the class of CEO
- User inherits the class of Rider
- User inherits the class of Shopkeeper
- User inherits the class of Warehouse Manager

9.3 Multi-Level Inheritance

In our project Multilevel inheritance is used as

- User class inherits the CEO class and CEO class inherits the Employee Class

9.4 Aggregation

In our project Multilevel inheritance is used as

- Rider Aggregate the Rating Class in our project

9.5 Association

In our project Multilevel inheritance is used as

- Warehouse Manager manages the order.
- CEO manages the products
- Rider take the order
- Rider adds the order
- Employee adds the products
- Employee manages the order

Chapter 10

Detailed Object Oriented Design

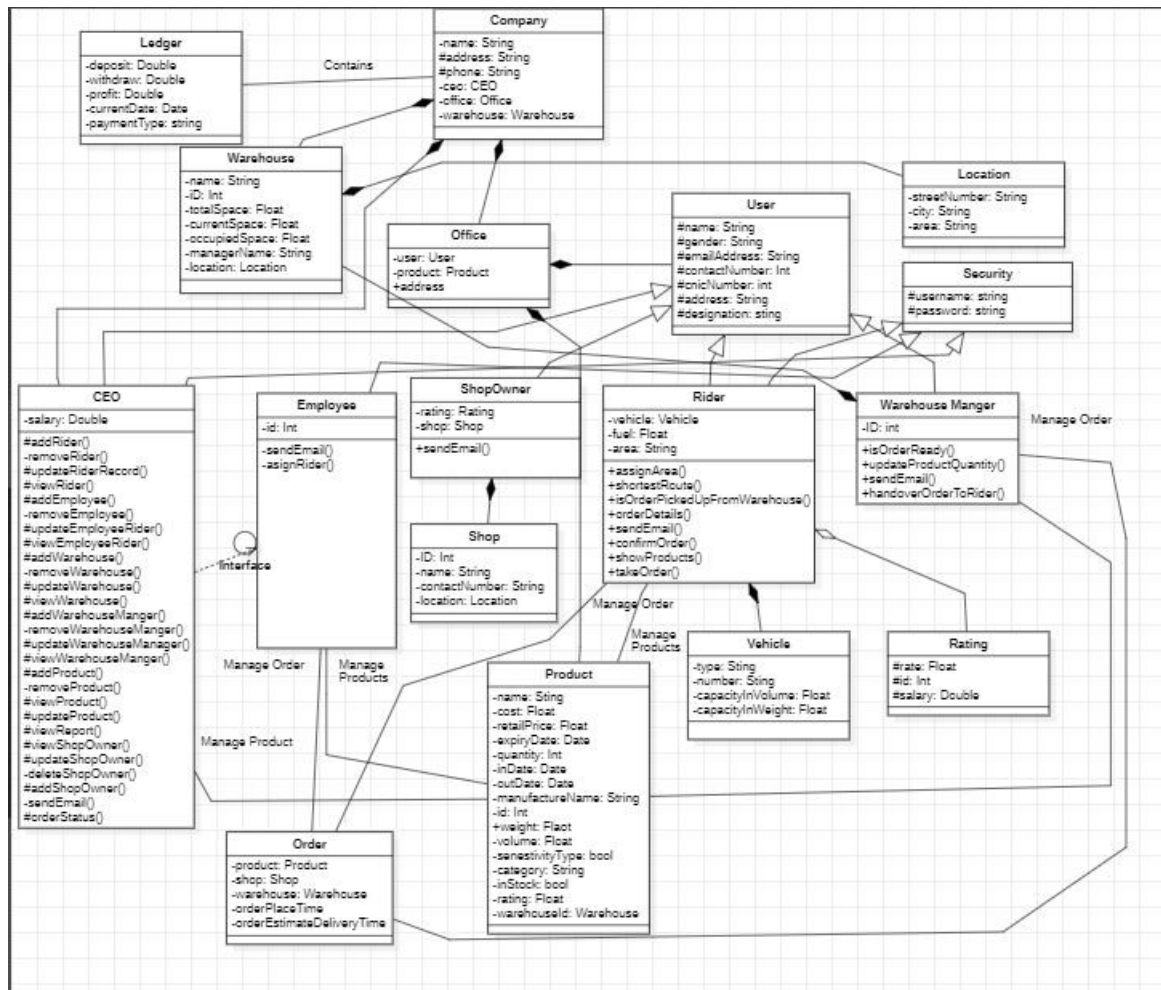


Figure 10.1: The detailed Object Oriented Design of the project that will be implemented according to mentioned logic

Chapter 11

Data Structure

Use Case ID	Data Structure Used	Justification for the use of data structure
U01	Linked List	In the U01 (LOGIN), search and compare the user from the list so when the user data is found it returns the action.
U04	Linked List	In the U04 (Account Details), Grid of the added users shown lists where all the users are stored(added)
U05	Linked List	In the U05 (Update Account), Update data of the user present in the Linked List
U06	Linked List	In the U06 (Add Product), Add the product data in the List.
U07	Linked List	In the U07 (View Product), View the product data in the Grid that are stored in the list at the back-end.
U08	Linked List	In the U08 (Update Product), Update the product data in the list where the data of the products are added.
U09	Linked List	In the U09 (Add Rider), Add the Rider data in the List. Selection of the list is because there is the ease in the deletion and search in the data of list
U10	Linked List	In the U10 (Update Rider), update the rider data. Selection of the list is to search is to ease.
U11	Queue	In the U11(Order Product), To place the order we use the mechanism of First in and First Out (first order item will be placed first)
U12	Stack	In the U12 (Email), To send the mail and view the mail (first send mail is shown in the last and the most recent one in the first)
U13	Linked List	In the U13 (Add Warehouse), Add the detail data of the warehouse in the list.

U14	Linked List	In the U14 (Detail Warehouse), Select the desired warehouse and delete the data of the warehouse and also delete the data from the list and selection of list is that to delete the warehouse other indexes of list easily manage.
U15	Linked List	In the U15 (Edit Warehouse), Select the data from the list and Edit the detail data of the warehouse in the list.
U16	Linked List	In the U16 (Order Status), Data is selected and data of the desired Order is updated in the list.
U17	BST	In the U17 (Route Finder), Routes are found according to the points (nodes) so selection of BST is due to the ease of the data finding.
U18	Linked List	In the U18 (Add Shopkeeper), Add the shopkeeper data in the list because there is an ease for the deletion and searching.
U19	Linked List	In the U19 (Add Payment), payment of the specific shopkeeper is added on the list to search and edit the details in the list.
U20	Linked List	In the U20 (Add Expenses Amount), Add the Expenses data in the List. Because there is an ease to update the specific data in the list and search or delete it in list.
U21	Linked List	In the U21 (Create Account), Linked list is used to add user.

Chapter 12

Exceptions

Type of Exception	Why this exception will occur	Use Case Id in which exception could be occurred	How you will handle the exception
Incorrect Format	By default system, take all input in string and the deploy system need to convert into desire format. If the input data is not converted into other datatype like int and float the future task not performed e.g. string 2 and int 2 behave different in CPU.	U06,U19,U09	Restrict the user to enter the required data in correct format.
File not Exit	The required file not in the correct path and CPU not recognize it.	U14,U07,U04	Restrict the user first select the file then perform future action
Incorrect URL	The wrong URL of the website broken the link with the DNS and required data not fetch from server.	U17	Apply stick constrain to avoid it.

Chapter 13

Data Storage

13.1 Mails (CSV)

Columns data names are

1. Columns data names are
2. Employee and Rider
3. Rider and Shopkeeper
4. Warehouse Manager and Employee
5. CEO and Employee

13.2 Products (CSV)

Columns data names are

1. Name
2. Cost
3. Retail price
4. Expiry Date
5. Quantity
6. In date
7. Out date

8. Manufacturer
9. ID
10. Weight
11. Volume
12. Category
13. Sensitivity
14. In stock
15. Rating
16. Warehouse Hold ID

13.3 Users (CSV)

Columns data names are

1. Name
2. Gender
3. Email address
4. Contact Number
5. CNIC number
6. Address
7. Designation

13.4 Orders (CSV)

Columns data names are

1. Product Title
2. Quantity
3. Shopkeeper Name

4. Shopkeeper Contact
5. Rider Name
6. Location
7. Order Status
8. Order

13.5 Sale Products (CSV)

Columns data names are

1. Sale-Date
2. Name
3. Cost
4. Retail price
5. Expiry Date
6. Quantity
7. In date
8. Out date
9. Manufacturer
10. ID
11. Weight
12. Volume
13. Category
14. Sensitivity
15. In stock
16. Rating
17. Warehouse Hold ID

13.6 Category (CSV)

Columns data names are

1. Name

13.7 Vendors (CSV)

Columns data names are

1. Name
2. LandLine
3. Concered Person
4. Contact Number

13.8 Vehicles (CSV)

Columns data names are

1. Type
2. Volume Capcity
3. Weight Capcity
4. Registration Number

13.9 Payment Records (CSV)

Columns data names are

1. Type
2. Date
3. Amount
4. Reciever
5. Payment By
6. Mode
7. Description

Chapter 14

Email Sending

1. When Rider registers the Shopkeeper.
 - (a) An Email is send to the Employee.
 - (b) An Email is send to the Shopkeeper.
2. When Rider takes and add the order from the Shopkeeper.
 - (a) An Email is send to the Employee.
 - (b) An Email is send to the Shopkeeper.
3. When Employee assigns order to the Rider.
 - (a) An Email is send to the Rider
 - (b) An Email is send to the WareHouse Manager.
4. When Rider adds payment from the Shopkeeper.
 - (a) An Email is send to the Employee.
 - (b) An Email is send to the Rider.
5. When Stock from the Vendor added.
 - (a) An Email is send to the Vendor
 - (b) An Email is send to the Employee.
6. When WareHouseManager ready the order.
 - (a) An Email is send to the Rider
 - (b) An Email is send to the Employee.

Chapter 15

Project Plan

Use Case Id	Member Name	Estimated Completion Date
001-008	Syed Hashir	09/12/2022
009-018	Kabir Ahmed	10/12/2022
019-026	M. Hamad Hassan	11/12/2022

Chapter 16

Analytical Reports

In our project, we will use these analytical reports:

1. Salary Report
2. Rider Capture Order Report
3. Profit Report
4. Sold Products Report
5. Daily Stock Report
6. Expenditure Report