

Merchant Monetary System

CS-262 Design Document



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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 5:SignUp | 15 |
| 5.7 | Use Case 6: Update Account Information by CEO | 18 |
| 5.8 | Use Case 7: Update Account Information by Employee | 20 |
| 5.9 | Use Case 8:Add Products | 23 |
| 5.10 | Use Case 9:Update Products | 24 |
| 5.11 | Use Case 10:Detail of Products | 26 |
| 5.12 | Use Case 11:Add Category | 28 |
| 5.13 | Use Case 12:Update Category | 29 |
| 5.14 | Use Case 13:Add Vendor | 30 |
| 5.15 | Use Case 14:Update Vendor | 31 |
| 5.16 | Use Case 13(New Warehouse) | 34 |
| 5.17 | Use Case 14(View/Delete Warehouse) | 35 |
| 5.18 | Use Case 15(Edit Warehouse) | 36 |
| 5.19 | Use Case 16(Order Status) | 37 |
| 5.20 | Use Case 17(Route Finder) | 38 |
| 5.21 | Use Case 18(Add Shopkeeper) | 39 |
| 5.22 | Use Case 19(Add Payment) | 40 |

| | | |
|----------|---------------------------------|-----------|
| 5.23 | Use Case 20(Withdraw Expenses) | 42 |
| 5.24 | Use Case 21(Create Account) | 44 |
| 6 | Use Interfaces | 45 |
| 6.1 | Intro | 45 |
| 6.2 | Login | 46 |
| 6.3 | Forgot Password | 47 |
| 6.4 | Create Account | 48 |
| 6.5 | Update Information | 49 |
| 6.6 | Account Detail | 50 |
| 6.7 | CEO Dashboard | 51 |
| 6.8 | Add Product | 52 |
| 6.9 | Update Product | 53 |
| 6.10 | Product Detail | 54 |
| 6.11 | Order Product | 55 |
| 6.12 | Order Summary | 56 |
| 6.13 | Send Email | 57 |
| 6.14 | New Warehouse | 58 |
| 6.15 | Update Warehouse | 59 |
| 6.16 | Warehouse Detail | 60 |
| 6.17 | Warehouse Manager Dashboard | 61 |
| 6.18 | Employee Dashboard | 61 |
| 6.19 | Rider Dashboard | 62 |
| 6.20 | Add Rider | 63 |
| 6.21 | Update Rider | 64 |
| 6.22 | Order Status | 65 |
| 6.23 | Order Status | 66 |
| 6.24 | Shopkeeper Record | 67 |
| 6.25 | Add Payment | 68 |
| 6.26 | Withdraw Expenses | 69 |
| 7 | User Interface Details | 70 |
| 8 | Classes | 73 |
| 9 | Object Oriented Features | 75 |
| 9.1 | Composition | 75 |
| 9.2 | Inheritance | 75 |
| 9.3 | Multi-Level Inheritance | 76 |
| 9.4 | Aggregation | 76 |
| 9.5 | Association | 76 |

| | |
|---|-----------|
| 10 Detailed Object Oriented Design | 77 |
| 11 Data Structure | 79 |
| 12 Exceptions | 82 |
| 13 Data Storage | 83 |
| 13.1 Mails (CSV) | 83 |
| 13.2 Products (CSV) | 83 |
| 13.3 Users (CSV) | 84 |
| 14 Email Sending | 85 |
| 15 Project Plan | 86 |
| 16 Analytical Reports | 87 |

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.

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| 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 |

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| 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

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|---------------|--|
| 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. |

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| 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. |
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| 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

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| Use Case ID | U04 |
| 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. |

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| | <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. |
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| 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

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| 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. |

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| | <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. |
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| 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

5.6 Use Case 5:SignUp

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|---------------|---|
| 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. |

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| 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. |
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| 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. |

5.7 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 |

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| 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. |
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| 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. |

5.8 Use Case 7: Update Account Information by Employee

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|---------------|--|
| 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. |
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| 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. |

5.9 Use Case 8: Add Products

| | |
|---------------|--|
| Use Case ID | U06 |
| 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. |

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| 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 |

5.10 Use Case 9:Update Products

| | |
|---------------|--|
| Use Case ID | U08 |
| 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. |

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| 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. |
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| 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. |

5.11 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. |

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| | <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. |
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| 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 |

5.12 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. |

| | |
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| 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. |

5.13 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. |

| | |
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| 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. |

5.14 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. |

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| | <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. |

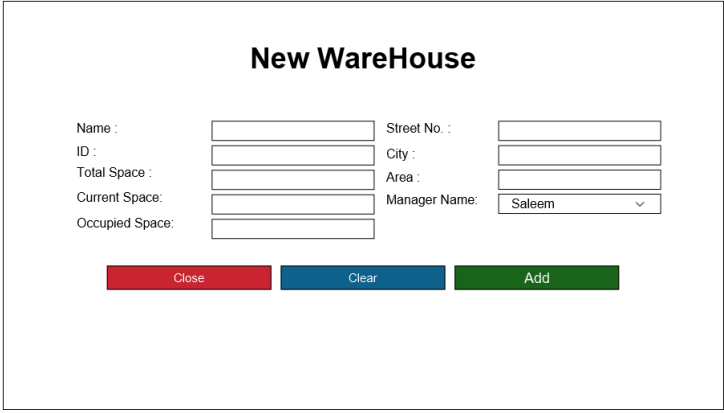
5.15 Use Case 14:Update Vendor

| | |
|---------------|---|
| 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. |

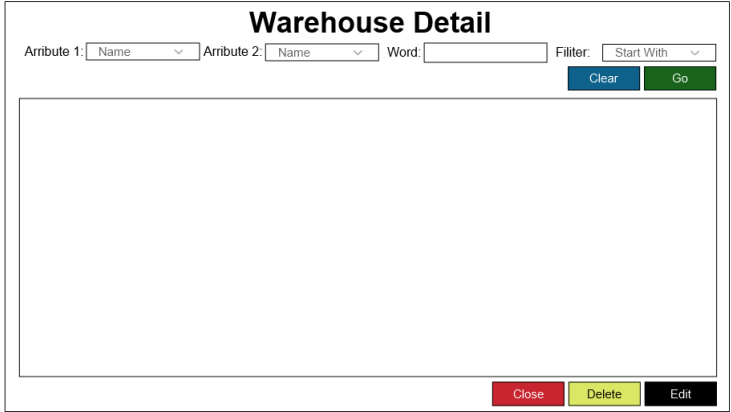
| | |
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| Flow | <p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Actor is ready to update the identifiers. 2. Actor updates vendor name. 3. Actor updates vendor's landline number. 4. Actor updates the vendor's address. 5. Actor updates the 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. |
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|----------------|---|
| | <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. |

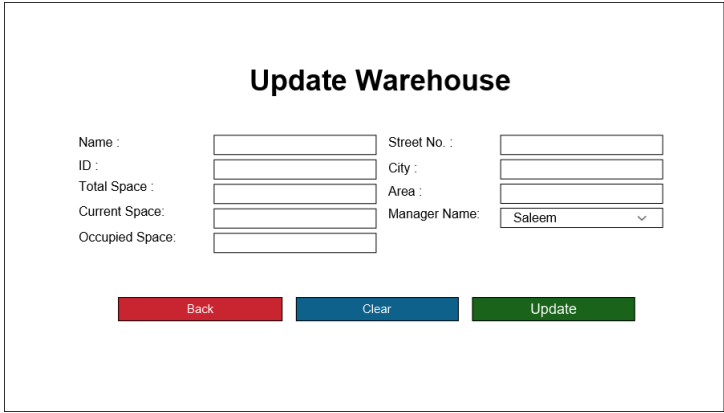
5.16 Use Case 13(New Warehouse)

| | |
|----------------------------|---|
| Use Case ID | U13 |
| Name | New Warehouse |
| Actor | CEO, Employee |
| Description | CEO and Employee Dashboard have an option to add a new warehouse for a company. Provide Necessary details like warehouse volume, capacity, etc and manager name as well. |
| UI Interface in JUSTINMIND |  |
| Pre-Condition | Click on Add Warehouse in Employee and CEO Dashboard |
| Flow | <p>Main Scenario:</p> <ol style="list-style-type: none"> 1. New Warehouse UI screen will be displayed 2. Provide details of a new warehouse 3. Assign a New manager 4. Click on Add <p>Alternate Flow:</p> <ul style="list-style-type: none"> • Clicking Close Button <ol style="list-style-type: none"> 1. Return to Respective Dashboard • Clicking the Clear will reset the fields |
| Post-Condition | A new Warehouse will be added to the office |

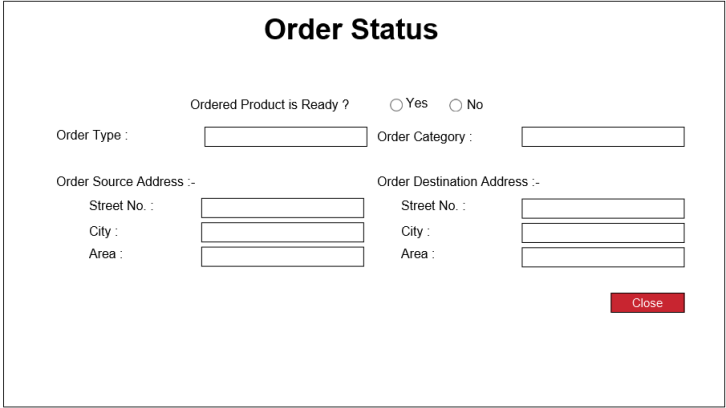
5.17 Use Case 14(View/Delete Warehouse)

| | |
|----------------------------|---|
| Use Case ID | U14 |
| Name | View/Delete Warehouse |
| Actor | CEO, Employee |
| Description | This form allows you to view all the warehouse with their details. Only CEO has the authority to delete warehouses. The concerned user can also filter out the warehouse details. |
| UI Interface in JUSTINMIND |  |
| Pre-Condition | Click on Option in CEO or Employee Dashboard Click Warehouse details |
| Flow | <p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Warehouse Details UI will appear 2. View Details 3. For deletion, select data row and click delete from below. <p>Alternate Flow:</p> <ul style="list-style-type: none"> • Clicking Edit Button <ol style="list-style-type: none"> 1. Will open a Edit Warehouse Form • Clicking Clear Button <ol style="list-style-type: none"> 1. Will reset the filters |
| Post-Condition | Detailed Warehouse data will be displayed or deletion occurs if any |

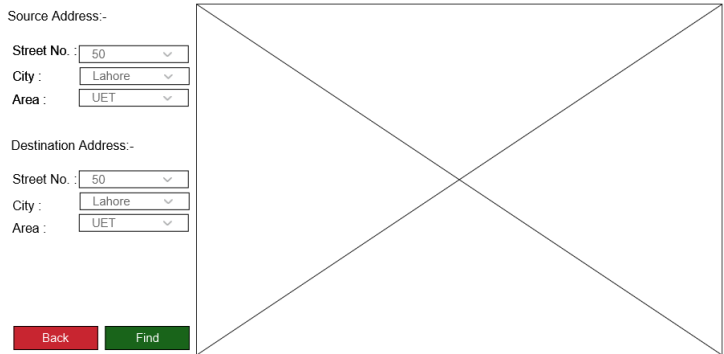
5.18 Use Case 15(Edit Warehouse)

| | |
|----------------------------|--|
| Use Case ID | U15 |
| Name | Edit Warehouse |
| Actor | CEO, Employee |
| Description | Selecting Warehouse Details and then Clicking Update button after selecting row, will allow you to modify selected Warehouse Details. Change your required fields and Save the information |
| UI Interface in JUSTINMIND |  |
| Pre-Condition | Click on Update in Warehouse details after selecting data |
| Flow | <p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Update Warehouse UI will show 2. Modify already filled fields with your requirements 3. Click Update <p>Alternate Flow:</p> <ul style="list-style-type: none"> • Clicking Clear Button <ol style="list-style-type: none"> 1. Clear All fields • Clicking Back Button <ol style="list-style-type: none"> 1. Back to Previous Warehouse Details |
| Post-Condition | Selected Warehouse details will be modified |

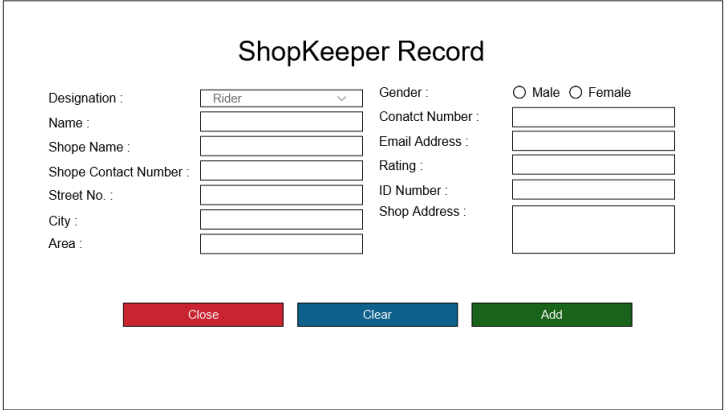
5.19 Use Case 16(Order Status)

| | |
|----------------------------|--|
| Use Case ID | U16 |
| Name | Order Status |
| Actor | CEO, Employee, Shopkeeper, Warehouse Manager |
| Description | From the Order Details, you are able to view the status of the order whether it is pending, in progress or completed/delivered. This will allow the concerned user to track progress details about specific order. |
| UI Interface in JUSTINMIND |  |
| Pre-Condition | Order Details Form should open |
| Flow | <p>Main Scenario:</p> <ol style="list-style-type: none"> 1. From Orders List Click on Check Status. 2. A new Form Order Status will open |
| Post-Condition | You can now track the progress of your order |

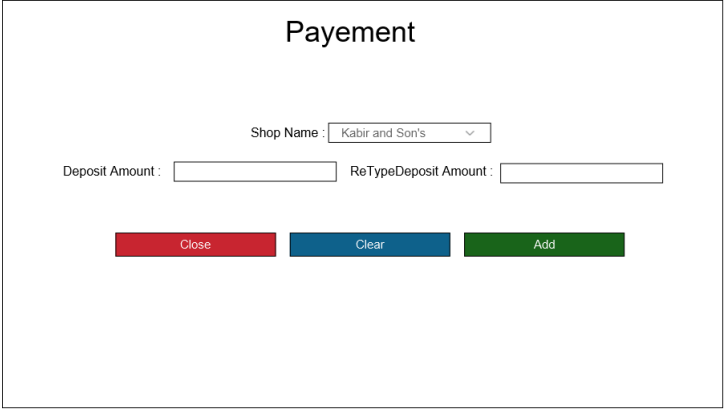
5.20 Use Case 17(Route Finder)

| | |
|----------------------------|---|
| Use Case ID | U17 |
| Name | Route Finder |
| Actor | Rider |
| Description | After the successful acceptance of certain order from warehouse, now rider has to select the best and the shortest path or route to the destination so his miscellaneous expenses (e.g., fuel) should be less. This allows him to select the shortest route. But he has been shown all possible routes. |
| UI Interface in JUSTINMIND | <p style="text-align: center;">Route Find</p>  |
| Pre-Condition | Select Find Route from Rider's Dashboard |
| Flow | <p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Route Find Form will open 2. Fill Source Address 3. Fill Destination Address 4. Select Find |
| Post-Condition | You will be shown all the possible routes from source to destination |

5.21 Use Case 18(Add Shopkeeper)

| | |
|----------------------------|--|
| Use Case ID | U18 |
| Name | Add Shopkeeper |
| Actor | Rider, CEO, Employee |
| Description | Rider will approach the shopkeeper. If shopkeeper is not registered with the system before, the rider will register him first if the shopkeeper orders something. Second scenario may be the CEO and Employee both have the authority to add shopkeeper details what the rider would give them |
| UI Interface in JUSTINMIND |  |
| Pre-Condition | Select Add Shopkeeper from CEO's, Rider's, or Employee's Dashboard |
| Flow | <p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Select Appropriate Designation 2. Fill all necessary details with the shop details as well 3. Click Add button <p>Alternate Flow:</p> <ul style="list-style-type: none"> • Clicking Clear Button <ol style="list-style-type: none"> 1. Will clear all the fields you have filled • Clicking Close Button <ol style="list-style-type: none"> 1. Will happen to return to the respective/corresponding dashboard • If all necessary field are not filled <ol style="list-style-type: none"> 1. Alert Message will occur 2. Control will remain on the same page |
| Post-Condition | Shopkeeper Information will be added to your system |

5.22 Use Case 19(Add Payment)

| | |
|----------------------------|--|
| Use Case ID | U19 |
| Name | Add Payment |
| Actor | Rider, Employee, CEO |
| Description | Rider will approach the shopkeeper. Took Payment from the shopkeeper and add it into the system. |
| UI Interface in JUSTINMIND |  |
| Pre-Condition | Select Add Payment from Rider's Dashboard(Shopkeeper Must be registered first) |

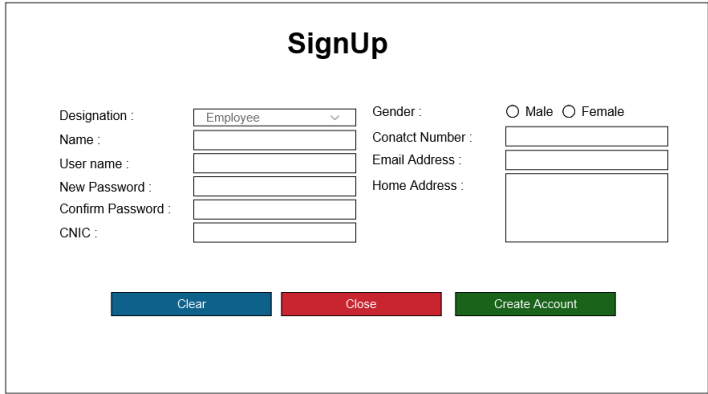
| | |
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| Flow | <p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Payment Form will open 2. Select Shop Name (it should be registered first) 3. Add Deposit Amount and Confirm 4. Click Add <p>Alternate Flow:</p> <ul style="list-style-type: none"> • Clicking Clear Button <ol style="list-style-type: none"> 1. Will clear all the fields you have filled • Clicking Close Button <ol style="list-style-type: none"> 1. Will happen to return to the respective/corresponding dashboard • If deposit amount and Retype Deposit Amount are not same <ol style="list-style-type: none"> 1. Error Message will occur 2. System will return to the same page after clicking on OK button |
| Post-Condition | Payment will be accepted for the selected shopkeeper |

5.23 Use Case 20(Withdraw Expenses)

| | |
|----------------------------|--|
| Use Case ID | U20 |
| Name | Withdraw Expenses |
| Actor | CEO |
| Description | — |
| UI Interface in JUSTINMIND | <div><div>Expenses/Payment</div><div>Payment Type: <div>Vendor Payment</div></div><div>Withdraw Amount : <div></div> Retype Withdraw Amount : <div></div></div><div><div>Close</div><div>Clear</div><div>Add</div></div></div> |
| Pre-Condition | |

| | |
|----------------|---|
| Flow | <p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Payment Form will open 2. Select Payment Type 3. Type Withdraw Amount and Retype it in the next box 4. Click Add <p>Alternate Flow:</p> <ul style="list-style-type: none"> • Clicking Clear Button <ol style="list-style-type: none"> 1. Will clear all the fields you have filled • Clicking Close Button <ol style="list-style-type: none"> 1. Will happen to return to the respective/corresponding dashboard • If Withdraw amount and Retype Withdraw Amount are not same <ol style="list-style-type: none"> 1. Error Message will occur 2. System will return to the same page after clicking on OK button |
| Post-Condition | |


5.24 Use Case 21(Create Account)

| | |
|----------------------------|---|
| Use Case ID | U21 |
| Name | Create Account |
| Actor | All |
| Description | All actors can link with the system by creating account and register themselves for this system. Provide Necessary Information and you can dive into the system by logging into the system. |
| UI Interface in JUSTINMIND |  |
| Pre-Condition | System Will Initiate with this page |
| Flow | <p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Select Your Designation 2. Provide All Necessary Details 3. Click on Create Account |
| Post-Condition | You are now the user of this system |

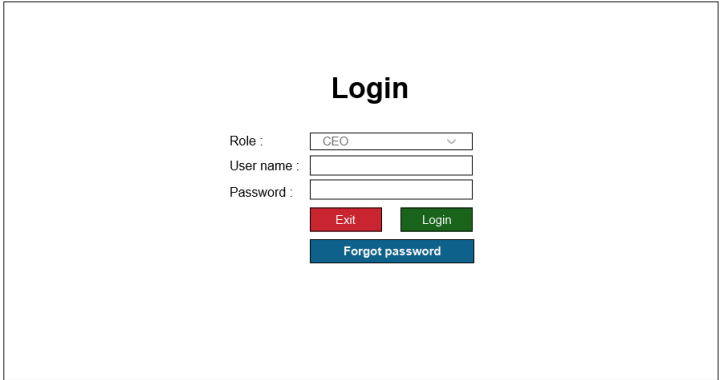
Chapter 6

Use Interfaces

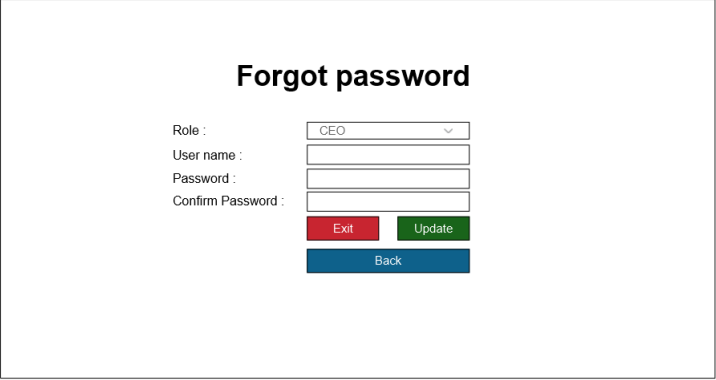
6.1 Intro

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

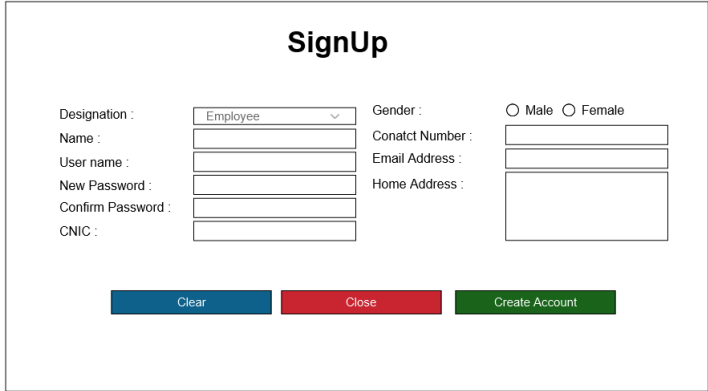
6.2 Login

| | |
|----------------------------|---|
| Interface ID | I02 |
| Name | Login |
| Linked Use Case | U01 |
| UI Interface in JUSTINMIND |  |
| Validators | <ul style="list-style-type: none"> • Password Validations (Must be of 8 characters) • User Validation(Check if user exist or not) |

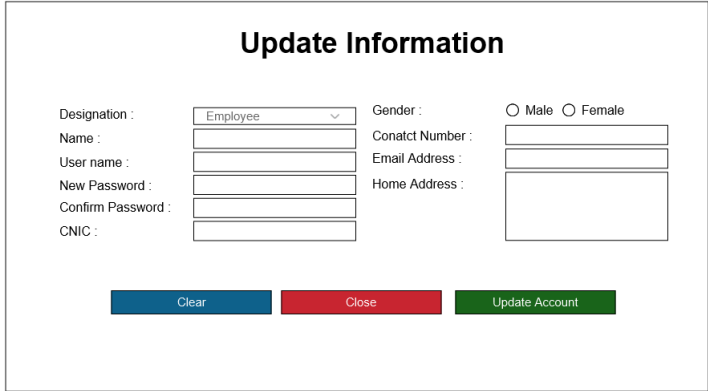
6.3 Forgot Password

| | |
|----------------------------|---|
| 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 |

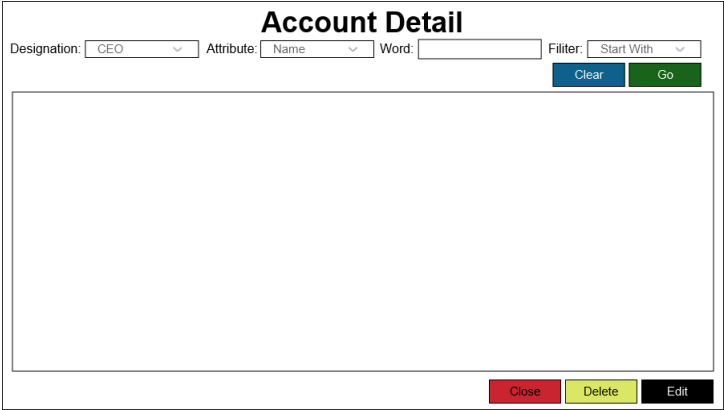
6.4 Create Account

| | |
|----------------------------|--|
| 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 |

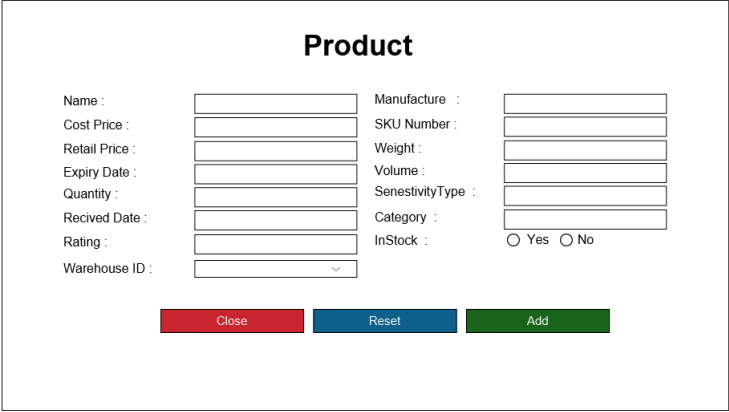
6.6 Account Detail

| | |
|----------------------------|---|
| 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 |

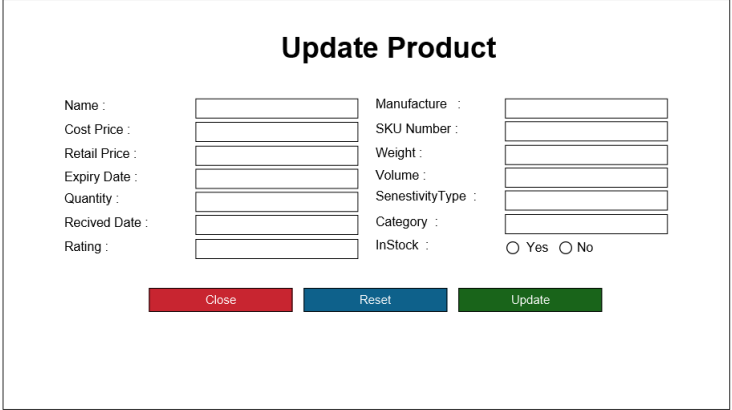
6.7 CEO Dashboard

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

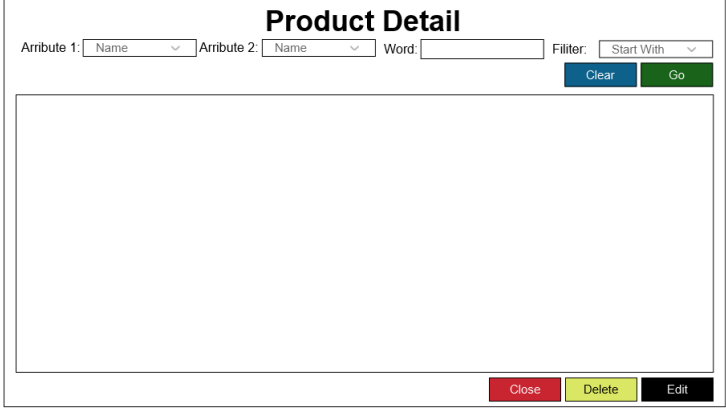
6.8 Add Product

| | |
|----------------------------|--|
| Interface ID | I08 |
| Name | Add Product |
| Linked Use Case | U06 |
| UI Interface in JUSTINMIND |  |
| 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. |

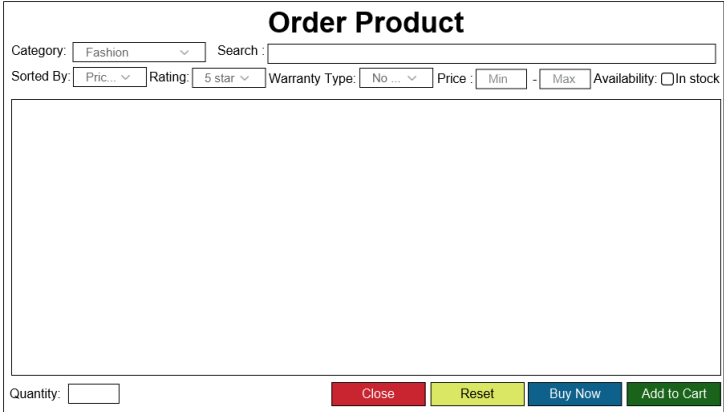
6.9 Update Product

| | |
|----------------------------|--|
| 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. |

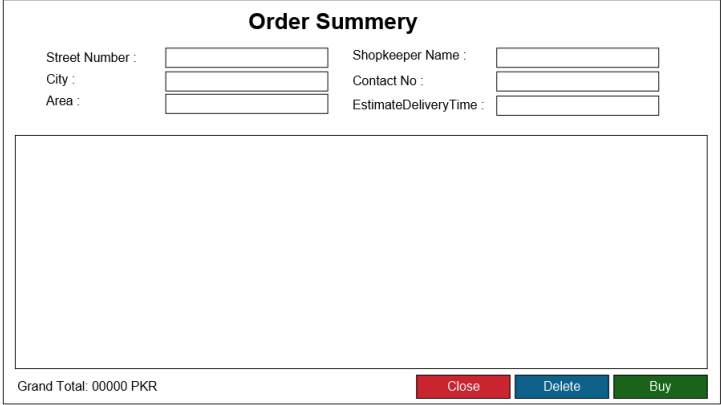
6.10 Product Detail

| | |
|----------------------------|---|
| Interface ID | I10 |
| Name | Product Detail |
| Linked Use Case | U07 |
| UI Interface in JUSTINMIND |  |
| 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. |

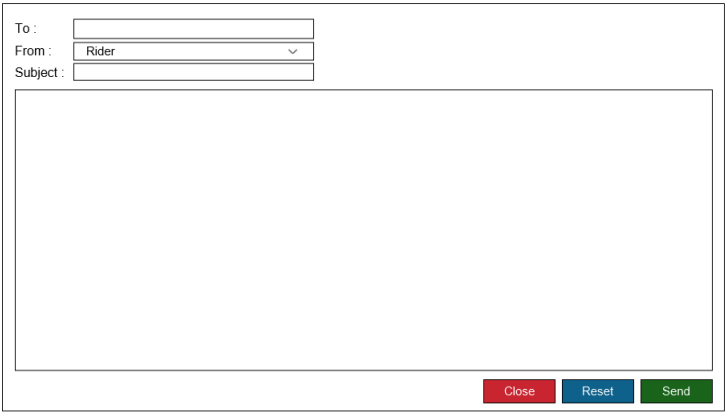
6.11 Order Product

| | |
|----------------------------|---|
| 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. |

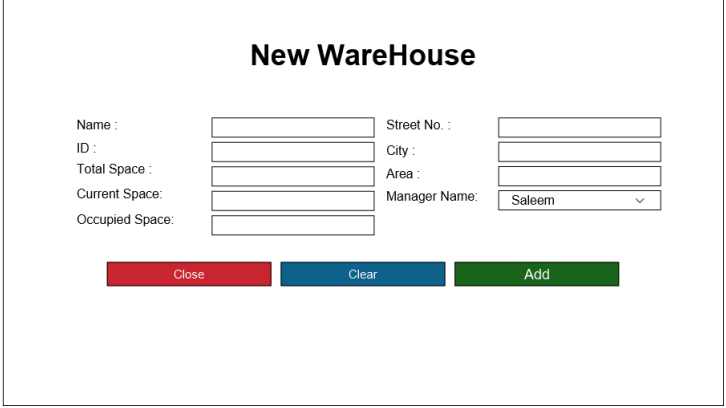
6.12 Order Summary

| | |
|----------------------------|---|
| 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 |

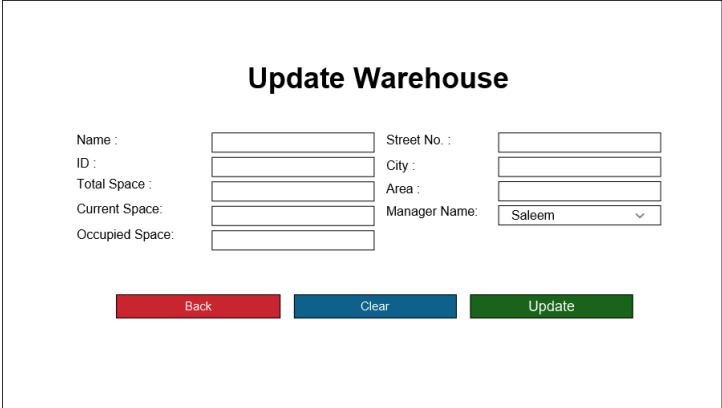
6.13 Send Email

| | |
|----------------------------|---|
| 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. |

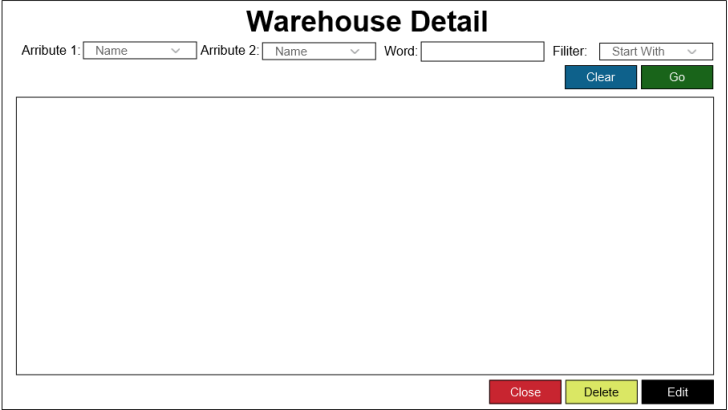
6.14 New Warehouse

| | |
|----------------------------|---|
| 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 |

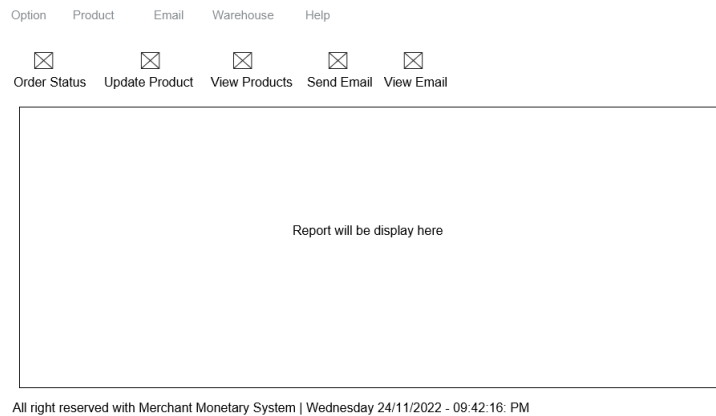
6.15 Update Warehouse

| | |
|----------------------------|---|
| 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 |

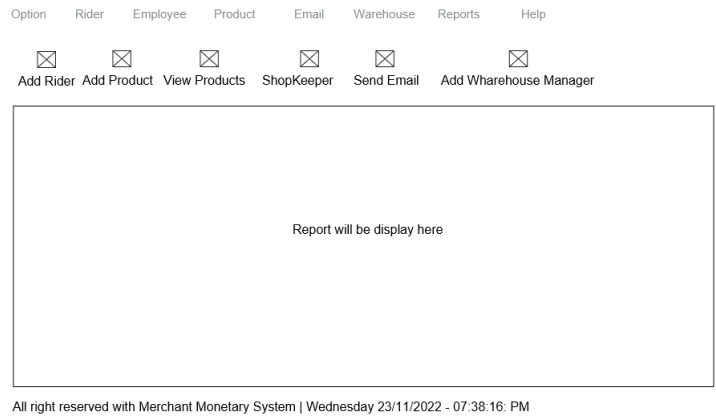
6.16 Warehouse Detail

| | |
|----------------------------|---|
| 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 screenshot shows a dashboard layout. At the top, there is a navigation bar with links: Option, Product, Email, Warehouse, and Help. Below this is a row of five icons, each with a label: Order Status, Update Product, View Products, Send Email, and View Email. The main content area is a large rectangle with the text 'Report will be display here' centered inside. At the bottom, there is a footer that reads 'All right reserved with Merchant Monetary System Wednesday 24/11/2022 - 09:42:16: PM'.</p> |

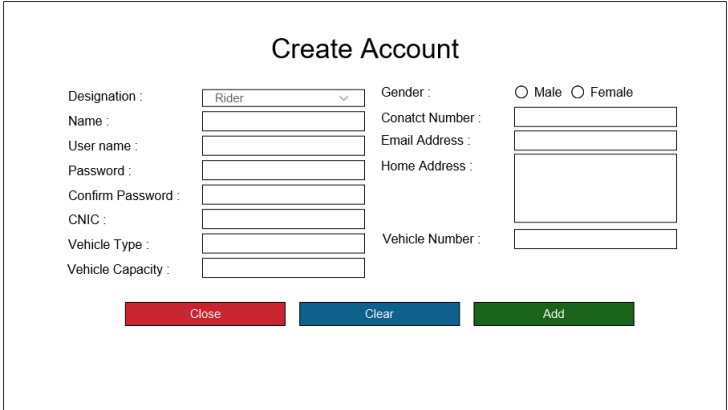
6.18 Employee Dashboard

| | |
|----------------------------|---|
| Interface ID | I18 |
| Name | Employee Dashboard |
| Linked Use Case | NILL |
| UI Interface in JUSTINMIND |  <p>The screenshot shows a dashboard layout. At the top, there is a navigation bar with links: Option, Rider, Employee, Product, Email, Warehouse, Reports, and Help. Below this is a row of seven icons, each with a label: Add Rider, Add Product, View Products, ShopKeeper, Send Email, and Add Wharehouse Manager. The main content area is a large rectangle with the text 'Report will be display here' centered inside. At the bottom, there is a footer that reads 'All right reserved with Merchant Monetary System Wednesday 23/11/2022 - 07:38:16: PM'.</p> |

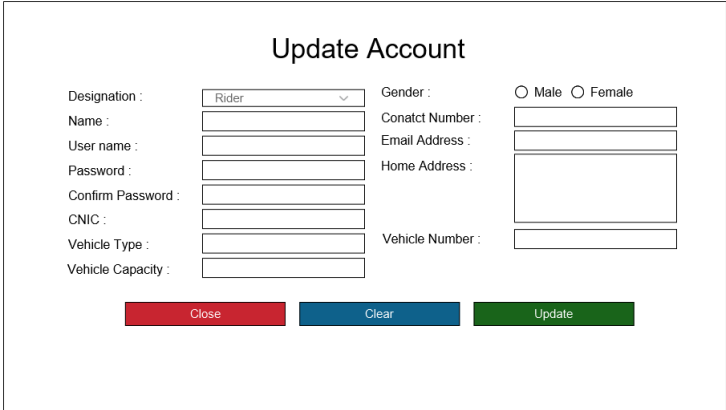
6.19 Rider Dashboard

| 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></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>All right reserved with Merchant Monetary System Wednesday 23/11/2022 - 07:38:16: PM</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 |

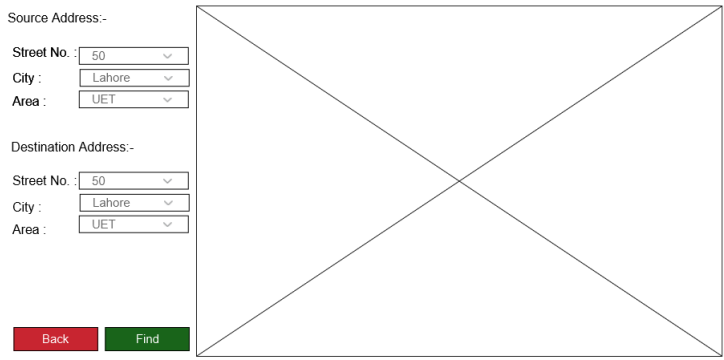
6.21 Update Rider

| | |
|----------------------------|--|
| 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 |

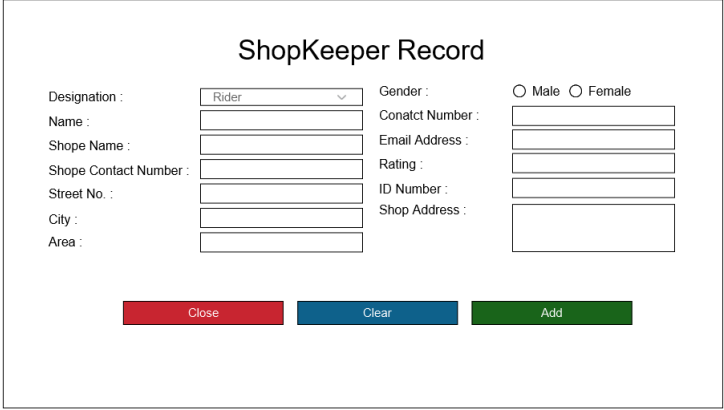
6.22 Order Status

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

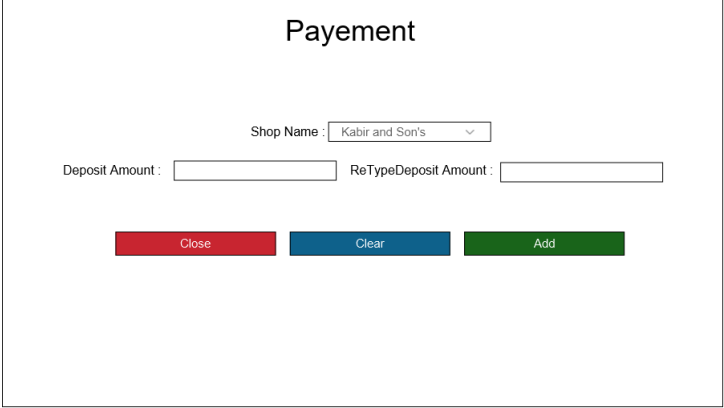
6.23 Order Status

| | |
|----------------------------|---|
| Interface ID | I23 |
| Name | Order Status |
| Linked Use Case | U17 |
| UI Interface in JUSTINMIND | <div style="text-align: center;"> <h3>Route Find</h3> </div>  |
| Validators | <ul style="list-style-type: none"> • Street No. Must not be negative • All fields must be appropriately filled to find the routes |

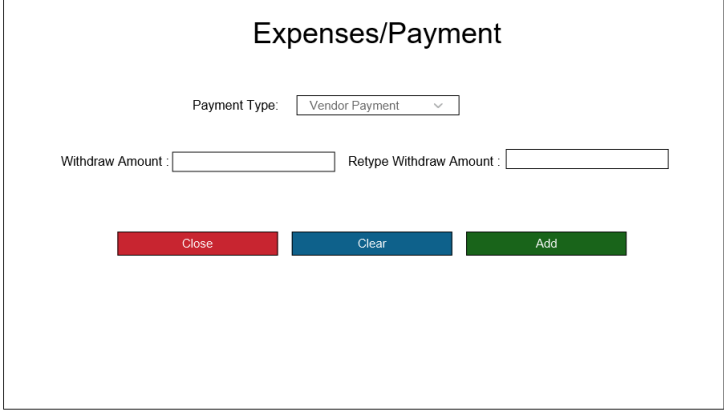
6.24 Shopkeeper Record

| | |
|----------------------------|--|
| 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 |

| 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 | No | Yes |
| User | No | Yes |
| Rider | No | Yes |
| Employee | No | Yes |
| WareHouse Manger | No | 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 |

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

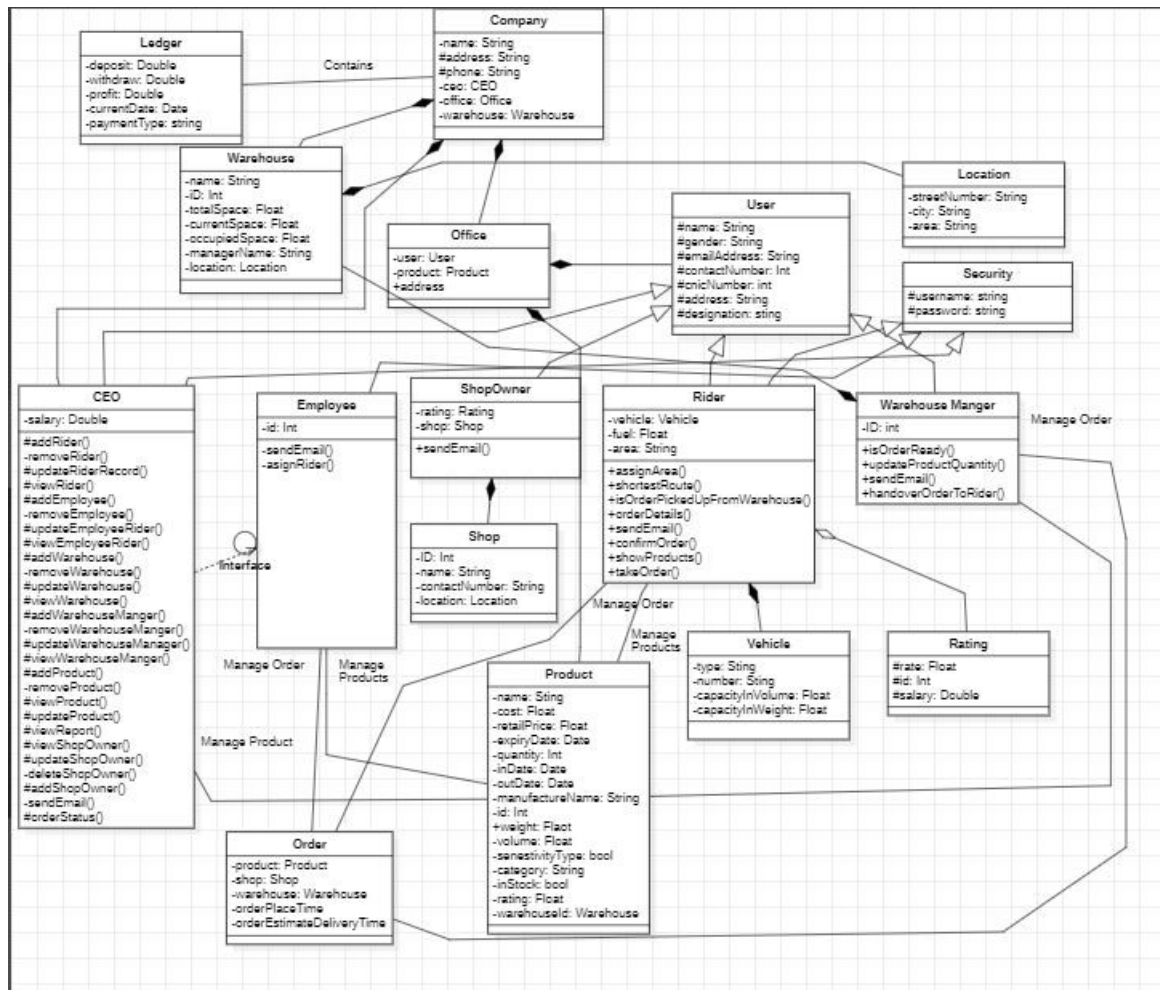
9.5 Association

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



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

Chapter 14

Email Sending

At first

1. Rider will email the employee about the order of shopkeeper
2. Employee email warehouse manager to ready the shipment for rider
3. Rider will email the Employee and Shopkeeper that he has picked the order and cc to CEO.

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 can use the analytical reports

1. Salary Report
2. Rider Capture Order Report
3. Profit Report
4. Sold Products