

Merchant Monetary System

CS-262 Design Document



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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 employee and clients.

The company has its office, warehouse, and rider. It has a different contract with multiple firms to take the shipment 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 client's needs and instructions generated for their warehouse manager to fulfill their order. The available rider will receive an email about their order. The office will send a confirmation email to their client.

There are a total of four actors in the system and one stakeholder. Their title and role are:

- **CEO:** The owner of the company could manage all the operations.
- **Employee:** They directly report to CEO and help in company operations.
- **Warehouse Manager:** Ready the shipment for the rider and managed other expenses.
- **Rider:** Received the order detail and delivered the product to pre-subscribed routes.

The stakeholder is:

- **Shopkeepers:** The rider will take the order from the shop owner and deliver it. The rider will receive all orders and payments.

All the actors will be able to create their accounts, and the system will give specific security codes to them. It helps to protect the system from security breaches.

There first dedicated dashboard for the owner where they monitor all operations. The operations manage their employees, products, and expenses and send emails. The CEO is the only person in the system with access to all operations. CEOs could analyze company operations, including the performance of their workers. The system will generate the company expenditure report.

The second dashboard is for the office employees directly contacting the CEO. They have access to manage emails, clients' orders, vendors' orders, and company expenses. The company's expenses are the CEO, rider, and warehouse salaries. The payment of the vendor and clients. An employee will enter all the shipments that the company receives their record. They add the product name, SKU number, weight, volume, cost price, manufacturer, and many more to identify confirmed products.

The third dashboard is for the warehouse manager, who receives feasibility reports of office employees and readies 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 who takes orders from the warehouse and delivery them to the company client. The system will provide the routes for 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 order, like assessing and descending. Search for a specific product from a wide range of available products. The system will deploy different sharp algorithms to access the desired date quickly. Able to place the order and view the detail of the order as well. The order is placed according to the stakeholder shopkeeper's needs.

The system will provide the report to the CEO according to the performance of their worker, expenditure, and profit. 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 clients.

The internal communication 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.

The flow of new users will be like this. A potential user provides the required detail for account creation, and an employee or CEO selects their role in the company. A unique username is allowed to login into the system. Account successfully creation the, they create the security code to use the system according to their role.

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 are able to manage employee, 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 ready the shipment for rider.
5. Rider delivered the shipment to their shopkeeper.
6. Rider are able to selected the shortest route to reach the destination.
7. One user is able to notify other user through email.
8. Rider are able to view products and place order.
9. Dedicated security password for each user.
10. Company expenditure report will be generated.

Chapter 3

Technology Stack

The project is completed under following stack

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

Chapter 4

Project Actors

The actors are:

- **CEO:** The owner of company could manage all the operations.
- **Employee:** They directly reported to CEO and help in company operations.
- **Warehouse Manager:** Ready the shipment for rider and manage other expenses.
- **Rider:** Received the detail of order and delivered the product to prescribed routes.

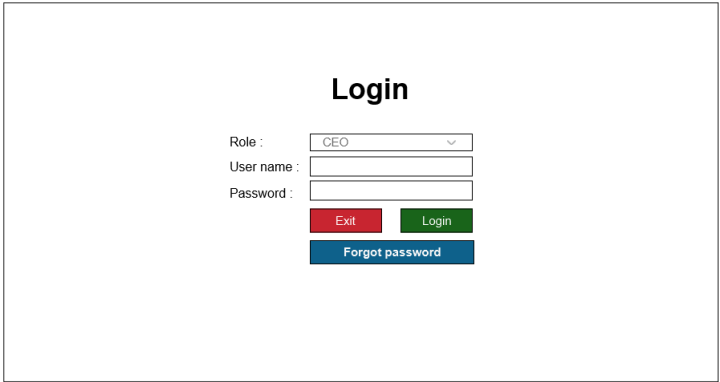
The stakeholder is:

- **Shopkeepers:** Are able to outlook products, place order and check detail.

Chapter 5

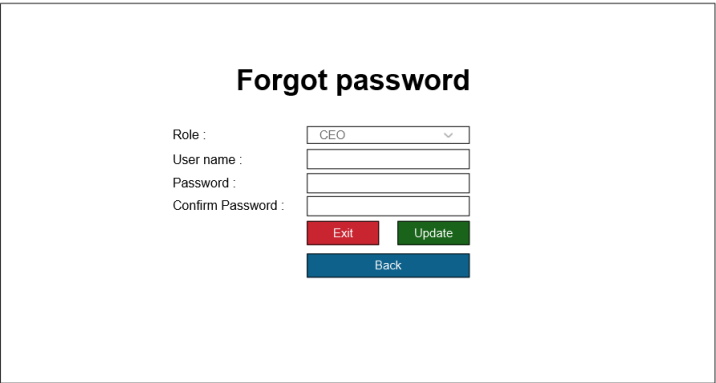
Use Cases

5.1 Use Case 1(Log In)

Use Case ID	U01
Name	Login Screen
Actor	CEO, Employee, Rider, Warehouse Manager
Description	Respected user will login to this system by providing valid role, username and password. After clicking on Login Button, System will check for its validity if this user is already exist on database. After successful validation, respected panel will show them.
UI Interface in JUSTINMIND	
Pre-Condition	Respective User Will initiate this system.

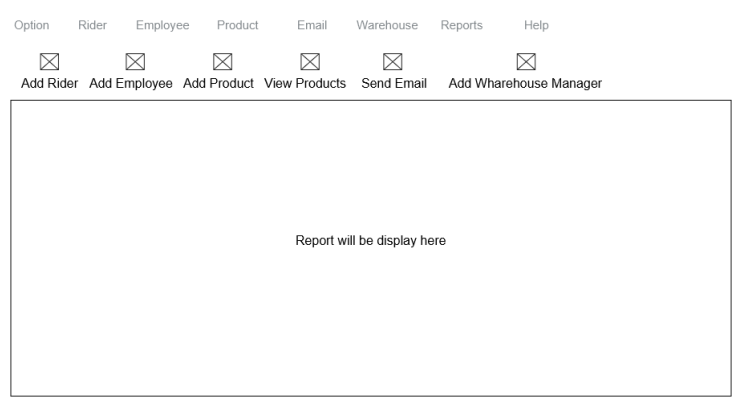
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. By Default Login Screen will appear first 2. Select Your Role from combo box then. 3. Provide your username you chose while signing up. 4. Then enter password for your account 5. Then Click on Login Button <p>Alternate Flow:</p> <ul style="list-style-type: none"> • If forgot password button is clicked <ol style="list-style-type: none"> 1. Interface I02 will get open • If user provides invalid username and password <ol style="list-style-type: none"> 1. Message box with a message of invalid input will be displayed 2. System remains on the same page • If user provides unregistered information <ol style="list-style-type: none"> 1. Message Box with a message of “User Not Found” will get displayed • If user don’t provide all required information <ol style="list-style-type: none"> 1. Alert Message will be displayed. • If Exit Button is Clicked
Post-Condition	Password will successfully changed

5.2 Use Case 2(Forgot Password)

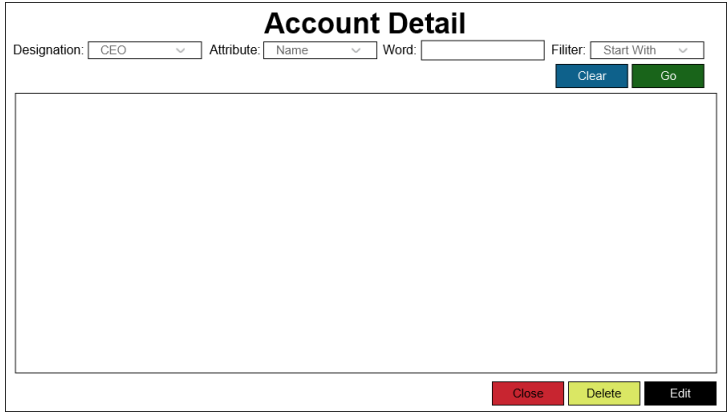
Use Case ID	U02
Name	Forgot Password
Actor	CEO, Employee, Rider, Warehouse Manager
Description	Already registered user can change his/her password. Provide Role, username and your new password. Also confirm your password then after completion your password will be changed.
UI Interface in JUSTINMIND	
Pre-Condition	User Must be registered in the system.

Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Click on Forgot password Button on Log In Screen. i.e., U02 2. Select Your Role from combo box then. 3. Provide your username you chose while signing up. 4. Then enter password for your account 5. Again type for confirmation 6. Then Click on Update Button <p>Alternate Flow:</p> <ul style="list-style-type: none"> • If user provides his previous password <ol style="list-style-type: none"> 1. He/she will get an error message 2. System return to same page • If user don't provide all required information <ol style="list-style-type: none"> 1. Alert Message will be displayed. 2. System remain to same page • If password is not of length equal to or greater than 8 <ol style="list-style-type: none"> 1. Password will not be changed • If password text and confirm password text not matched <ol style="list-style-type: none"> 1. Again error message will be displayed
Post-Condition	Password will successfully changed

5.3 Use Case 3(CEO Dashboard)

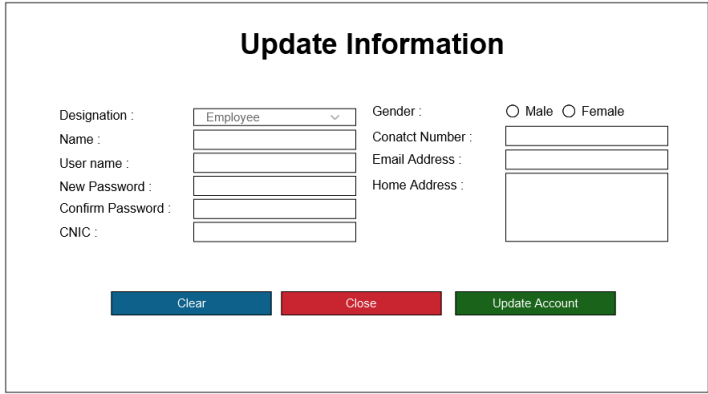
Use Case ID	U03
Name	CEO Dashboard
Actor	CEO
Description	After Successful Logging in to this system by CEO, CEO dashboard will be shown. CEO is the main handler of our system. This interface provides CEO to perform multiple CRUD operations. He has all the authority to add, search, update and delete any information related to all actors and other entities. He is able to view and generate reports. He can send emails as well.
UI Interface in JUSTINMIND	
Pre-Condition	CEO must have an account and logged in to this system
Flow	Main Scenario: After Successful logging by a role of CEO, CEO Dashboard will appear He can now has all the authorities and can do multiple operations

5.4 Use Case 4(Account Details)

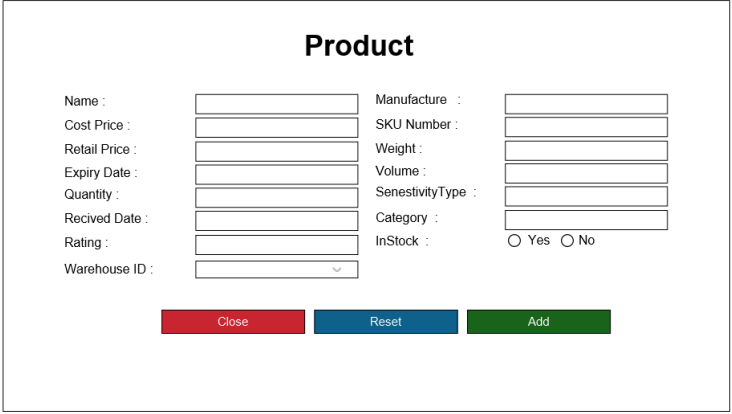
Use Case ID	U04
Name	Accounts Detail
Actor	CEO, Employee
Description	Respective Actors can view all the details of each user who have registered themselves on this system. They can filter out users with certain designation, certain attribute and can apply multiple filters to search out specific users. This provides ability to edit and delete (only CEO) selected users.
UI Interface in JUSTINMIND	
Pre-Condition	Select Account Details from Option Menu Strip on Top Left All users detail will automatically be displayed

Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Select Your desired Row for required operations 2. Click Delete Button at the bottom of the screen if you want to delete selected row respectively. 3. Clicking Edit Button will open a new interface I05 with selected row data. <p>Alternate Flow:</p> <ul style="list-style-type: none"> • If text filters are selected and word text area is empty <ol style="list-style-type: none"> 1. An Alert message of Empty input is entered • If delete button is pressed without selecting any row data <ol style="list-style-type: none"> 1. Exception will be handled and an exception error will be displayed to the user 2. User will remain on the same page • If Close Button is Clicked <ol style="list-style-type: none"> 1. CEO or Employee Dashboard will again open
Post-Condition	Data from selected row will be deleted or updated


5.5 Use Case 5(Update Account)

Use Case ID	U05
Name	Accounts Detail
Actor	CEO, Employee
Description	Respective Actors can view all the details of each user who have registered themselves on this system in Account Details Screen. You can edit your desired row data by providing modified information related to that user.
UI Interface in JUSTINMIND	
Pre-Condition	Desired Row Must be selected Click Edit Button
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Designation is already selected and non-editable 2. Already Available Data will be shown in their respective areas 3. Modify data entity of your choice 4. Click Update Account Button <p>Alternate Flow:</p> <ul style="list-style-type: none"> • If user don't provide all required information <ol style="list-style-type: none"> 1. Alert Message will be displayed. 2. System remain to same page • If password is not of length equal to or greater than 8 <ol style="list-style-type: none"> 1. Password will not be changed • If password¹⁴ text and confirm password text not matched <ol style="list-style-type: none"> 1. Again error message will be displayed
Post-Condition	Selected Data will get modified

5.6 Use Case 6(Add Products)

Use Case ID	U06
Name	Add Products
Actor	CEO, Employee
Description	These two concerned actors will add products in for their warehouses. They have to provide all details of the bought products and all the products will get entered in the system records.
UI Interface in JUSTINMIND	
Pre-Condition	Click on Add product Button on CEO or Employee Dashboard
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Add Product Form will be displayed 2. It will ask the users for all details of products 3. Click on Add Button to add product details <p>Alternate Flow:</p> <ul style="list-style-type: none"> • If Reset is Clicked <ol style="list-style-type: none"> 1. All text and input areas will get clear 2. Control will remain on the same page • If Close is Clicked <ol style="list-style-type: none"> 1. Form will be closed 2. CEO and Employee Dashboard will again get displayed • If not necessary conditions are provided <ol style="list-style-type: none"> 1. Error Message will be displayed with a message
Post-Condition	Product will be added to system and will be sent to the selected Warehouse

5.7 Use Case 7(Products Details)

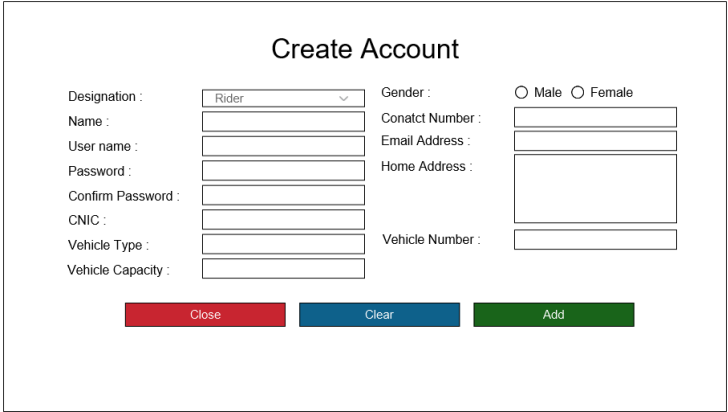
Use Case ID	U07
Name	Products Details
Actor	CEO, Employee
Description	This form allows the respective users to view products and perform certain operations on data. Certain operations include search with filters and edit and delete options (only for CEO) as well.
UI Interface in JUSTINMIND	
Pre-Condition	Click on Option on Top Left Corner Select products details

Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. On Clicking product details, product forms will be displayed 2. Select Row from the data and click delete to delete and edit to edit selected item <p>Alternate Flow:</p> <ul style="list-style-type: none"> • If text filters are selected and word text area is empty <ol style="list-style-type: none"> 1. An Alert message of Empty input is entered • If delete button is pressed without selecting any row data <ol style="list-style-type: none"> 1. Exception will be handled and an exception error will be displayed to the user 2. User will remain on the same page • If Close Button is Clicked <ol style="list-style-type: none"> 1. CEO or Employee Dashboard will again open • If Clear Button is Clicked <ol style="list-style-type: none"> 1. All filters will get cleared
Post-Condition	Selected Row Data will get updated or deleted

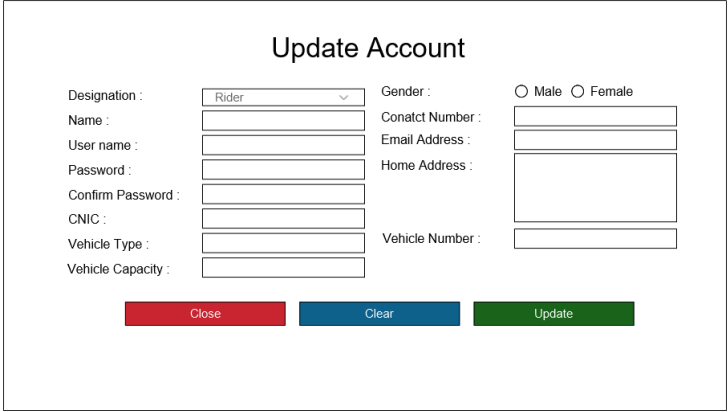
5.8 Use Case 8(Update Products)

Use Case ID	U08
Name	Update Products
Actor	CEO, Employee
Description	This form allows the respective users to edit products. Select the product from the data. Click Update in the I09. This form will get open. All previous product details will also be there in its respective fields. Modify Details according to your need.
UI Interface in JUSTINMIND	
Pre-Condition	Click on Update Button in U09
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Clicking on Update Button will open this screen 2. Modify Details and Fill all areas 3. Click Update Button <p>Alternate Flow:</p> <ul style="list-style-type: none"> • If user don't provide all required information <ol style="list-style-type: none"> 1. Alert Message will be displayed. 2. System remain to same page • Clicking Reset <ol style="list-style-type: none"> 1. Clear the fields • Clicking Close Button <ol style="list-style-type: none"> 1. Close the Form 2. Return to Products Details UI
Post-Condition	Selected Data (Product) will get modified

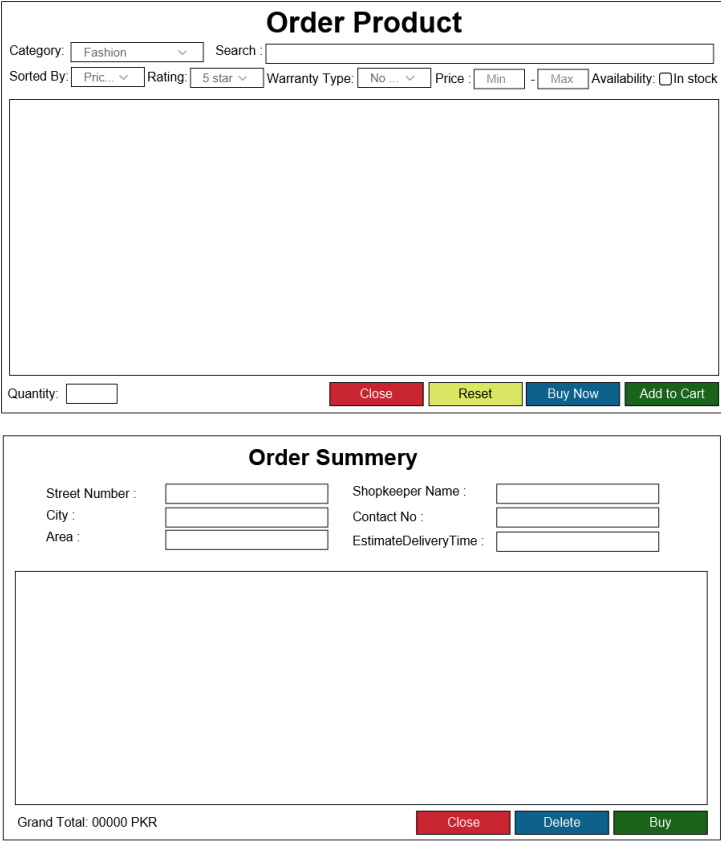
5.9 Use Case 9(Add Rider)

Use Case ID	U09
Name	Add Rider
Actor	CEO, Employee
Description	Irrespective of self-signup by rider himself, CEO and Employee can add rider details into their system. They have to provide his personal information and the information related to his vehicle. Rider himself will tell his details to Employee or his details will be provided to the CEO.
UI Interface in JUSTINMIND	
Pre-Condition	Click on Add Rider from CEO or Employee Dashboard
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Designation will be selected automatically 2. Provide All Necessary personal information 3. Also Add Information Related to vehicle 4. Click on Add Button
Post-Condition	Rider Information will be Added to your system

5.10 Use Case 10(Update Rider)

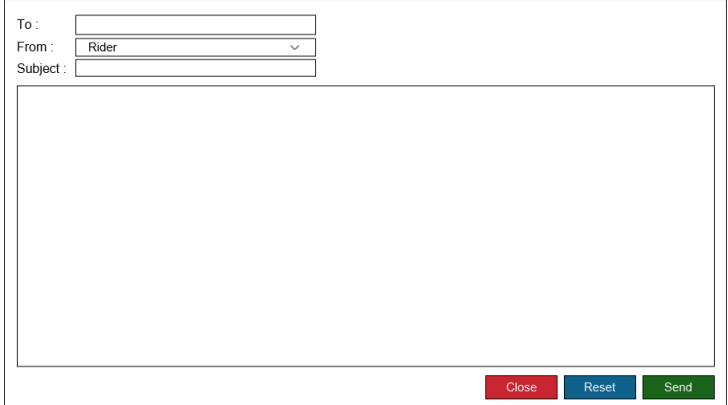
Use Case ID	U10
Name	Update Rider
Actor	CEO, Employee, Rider
Description	Selecting Riders Details and then Clicking Update button after selecting row, will allow you to modify selected Riders Details. Change your required fields and Save the information
UI Interface in JUSTINMIND	
Pre-Condition	Click on Update in Rider Details after selecting rider
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Designation will be selected automatically 2. Provide All Necessary personal information 3. Also Add Information Related to vehicle 4. Click on Add Button <p>Alternate Flow:</p> <ul style="list-style-type: none"> • Clicking Close Button <ol style="list-style-type: none"> 1. Return to Riders Details
Post-Condition	Rider Information will be modified and will get save to your system

5.11 Use Case 11(Order Product)

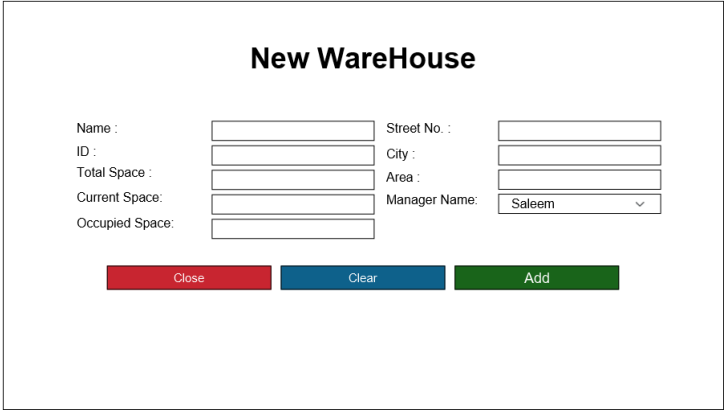
Use Case ID	U11
Name	Order Product
Actor	Rider
Description	Rider will approach the shopkeepers, take orders from them, recommend them some products and handed over the order to Employee in the company. Shopkeeper can be shown the summary of products he asked to buy
UI Interface in JUSTINMIND	 <p>The image displays two mockups of the 'Order Product' use case interface. The top mockup, titled 'Order Product', features a search bar, a category dropdown (set to 'Fashion'), a search input field, and filters for 'Sorted By' (Price), 'Rating' (5 star), 'Warranty Type' (No ...), 'Price' (Min to Max), and 'Availability' (In stock checkbox). Below these is a large empty box for product listings. At the bottom, there is a 'Quantity' input field and four buttons: 'Close' (red), 'Reset' (yellow), 'Buy Now' (blue), and 'Add to Cart' (green). The bottom mockup, titled 'Order Summary', contains form fields for 'Street Number', 'City', 'Area', 'Shopkeeper Name', 'Contact No', and 'EstimateDeliveryTime'. It also has a large empty box for order details. At the bottom, it shows 'Grand Total: 00000 PKR' and three buttons: 'Close' (red), 'Delete' (blue), and 'Buy' (green).</p>
Pre-Condition	Click on Order Product in the Rider Dashboard

Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. At first all available products will be shown in the grid list 2. Rider will ask shopkeeper for the order 3. Rider will add the products by searching them and providing quantity 4. Select the product and click Add to Cart 5. After adding all the required products to cart, click Buy Now. 6. Order Summary Screen will open 7. Provide Necessary Details and Click Buy <p>Alternate Flow:</p> <ul style="list-style-type: none"> • Clicking Close Button <ol style="list-style-type: none"> 1. Return to Riders Dashboard • Clicking the Reset will reset the Cart
Post-Condition	Employee will get notified and order will be added to the system

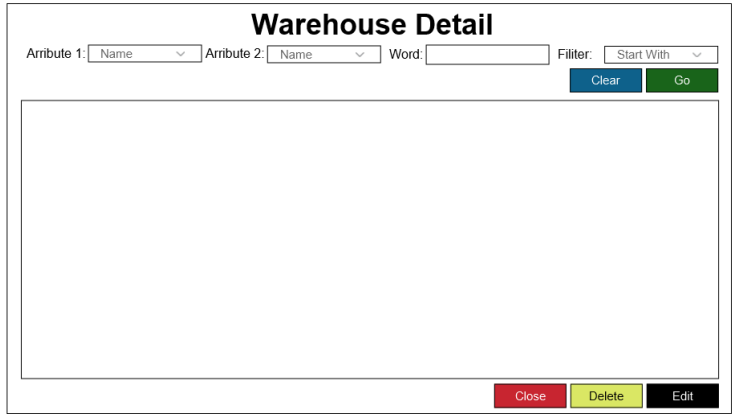
5.12 Use Case 12(Send Email)

Use Case ID	U12
Name	Send Email
Actor	Rider, CEO, Warehouse Manager, Employee
Description	To communicate with each other and notify about each activity, each user can contact with one another through email.
UI Interface in JUSTINMIND	
Pre-Condition	You must be a user of this system before
Flow	<p>Main Scenario:</p> <ol style="list-style-type: none"> 1. Click on Send Email from your dashboard 2. Type To 3. Type From 4. Subject 5. Email Body 6. Click Send <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 Reset will reset the Email
Post-Condition	Email will be send to the person specified in To Section

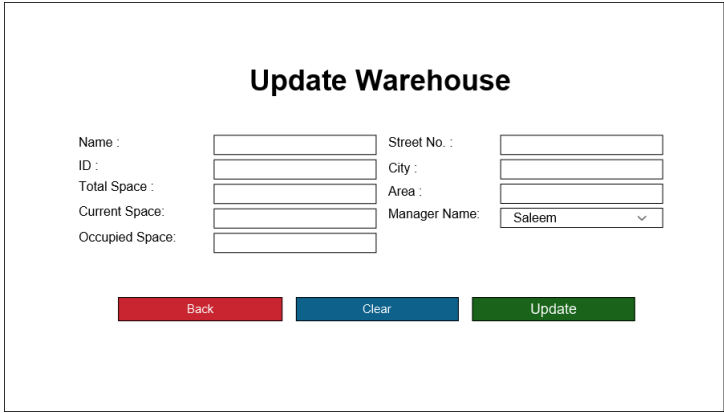
5.13 Use Case 13(New Warehouse)

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

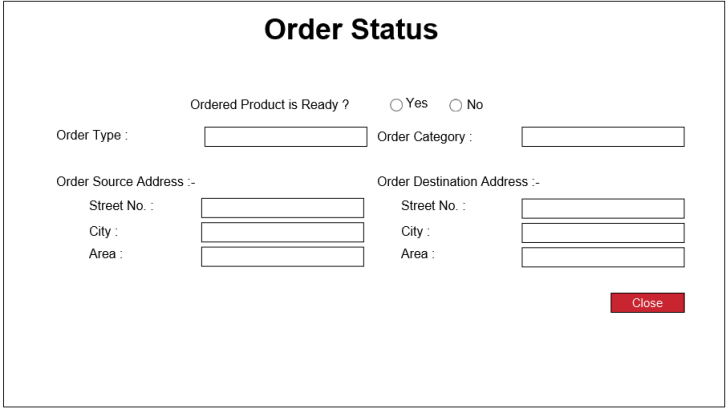
5.14 Use Case 14(View/Delete Warehouse)

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

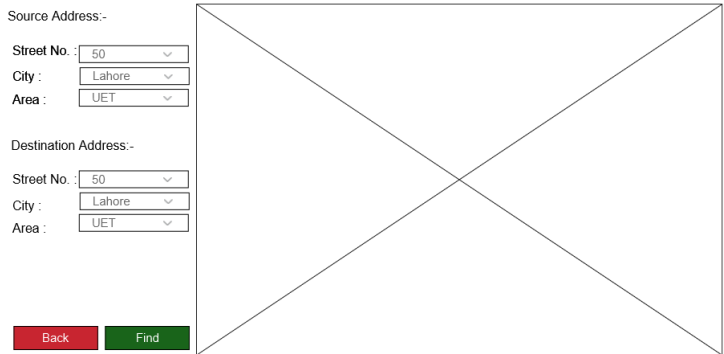
5.15 Use Case 15(Edit Warehouse)

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

5.16 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

5.17 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