Mobile Supplier Management System

CS261-Design Document



Project Supervisor

Mr. Samyan Qayyum Wahla

Project Members (CS261F22FinalPID08)

Saad Munir 2021-CS-19

Hammad Younas 2021-CS-20

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

Contents

Project Description	4
Project Features	5
Technology Stack	5
Project Actors	5
Use Cases 5.1 Use Case 1(Add Employee) 5.2 Use Case 2(View Employee) 5.3 Use Case 3(Confirm Rider) 5.4 Use Case 4(View Riders) 5.5 Use Case 5(Add Products) 5.6 Use Case 6(View All Products) 5.7 Use Case 7(Send Email) 5.8 Use Case 8(View Monthly Report) 5.9 Use Case 9(Add Rider) 5.10 Use Case 10(View Rider) 5.11 Use Case 11(View Orders) 5.12 Use Case 12(Manage Order) 5.13 Use Case 13(View All Products) 5.14 Use Case 14(Track Order) 5.15 Use Case 15(Give Bonus) 5.16 Use Case 16(Fuel Management) 5.17 Use Case 18(View Assigned Order) 5.18 Use Case 18(View Route) 5.20 Use Case 20(Delivered Orders) 5.21 Use Case 21(View Bonus)	66 66 67 77 78 88 88 99 100 101 111 111 112 122
User Interfaces 6.1 Use Interfaces 01 6.2 Use Interfaces 02 6.3 Use Interfaces 03 6.4 Use Interfaces 04 6.5 Use Interfaces 05 6.6 Use Interfaces 06 6.7 Use Interfaces 07 6.8 Use Interfaces 08 6.9 Use Interfaces 09 6.10 Use Interfaces 10 6.11 Use Interfaces 11 6.12 Use Interfaces 12 6.13 Use Interfaces 13 6.14 Use Interfaces 14 6.15 Use Interfaces 15 6.16 Use Interfaces 16 6.17 Use Interfaces 16 6.17 Use Interfaces 17 6.18 Use Interfaces 18 6.19 Use Interfaces 19 6.20 Use Interfaces 20 6.21 Use Interfaces 20 6.21 Use Interfaces 20	13 13 13 14 14 14 15 15 16 16 17 17 17 18 18 19 19 20
	Project Actors

	6.22 Use Interfaces 22	20 20
7	User Interface Details	20
8	Classes	22
9	Object Oriented Features 9.1 Composition 9.2 Inheritance 9.3 Multiple Inheritance 9.4 Multi-Level Inheritance 9.5 Polymorphism	22 22 23 23 23 24
10	Detailed Object-Oriented Design	24
11	Data Structure	25
12	Exceptions	26
13	Data Storage	26
14	Email Sending	27
15	Project Plan	28
16	Analytical Reports 16.1 Stock Report	28 28 29 29 29 30 30

1 Project Description

Our Project is Mobile Supplier Management System. The Project is mainly for the distribution of cell phones where the end user is a shopkeeper. It consists of three users Manager, Employees, and Riders. Manager dashboard contains the blocks Add employee, View Employee, Confirm Rider, View Rider, View All Products and View Monthly Report. When Manager adds an employee he/she adds the name, email, address, phone number, CNIC, and add salary of the employee. After that Selection email will send to the employee on his/her email containing the username, Password, and Employee ID i.e. EMPID01. Managers can view the employees and on the profile of each employee, there is an option of deleting or updating the employee. If the manager clicks the update button then we show the same screen where we add the employee. When Employee adds the rider, a request will be sent to the Manager and it depends on whether the manager that he/she will accept or reject the rider. If the manager accepts the rider then a screen of the added rider with fill information is shown to the manager. This is due to the change in the salary plan or any other information which the manager wants to update. Similarly, when the employee wants to delete a rider request was sent to the manager with the reason why the employee wants to delete the rider, if the manager accepts rider was deleted otherwise not. The manager also has access to the riders means the manager can view riders' details and can update and delete riders. If the update will take them to the additional rider. Managers can Add new Products here add means that the manager order these products from the manufacturing company, but we directly add these products to existing products. Managers can view all the products. The Products less than the threshold amount were colored red which gives an alert to the manager that he/she needs to order this product. The manager can send the email at any point. This email sends to the employee and rider's email addresses. The sending manager must enter the rider or employee id and subject and description. Managers can also view the monthly analytical report. In the monthly analytical report, there are five types of reports i.e. Stock Report, Fuel Report, Rider Orders Report, Rider Management Report, and Employees Management Report. In the Stock, the Report manager can see the Stock availability. The fuel report shows the usage and price of petrol. Rider Orders Report shows which rider delivers which order and when. Rider Management Report Shows how many riders add to the system in the corresponding month and how many were deleted. Similarly, for the employee's management Report. Employee's dashboard contains the blocks of Add rider, View Rider, view orders, manage orders, View All Products, Track Rider order status, give bonus, and Fuel Management. The employee gives the information of the rider such that name, email, address, phone number, CNIC, and salary of the rider, after submitting this message goes to the manager point confirm rider there he/she can confirm or delete the rider, after confirmation from the manager email will be sent on the email address of the rider containing the username, password, and ID of the rider i.e. RIDID12. An employee can view the rider's detail. An employee can view the orders taken by the riders that are not delivered and there he/she can search the order that is near to each other. If the order was managed in the manage order option then the order is automatically removed from the view order list. An employee can manage order means that the employee allots order to the riders and also route and make sure that nearly routes order is assigned to only one rider at a time. After adding the information, he can see the order list for some time there in the manage order option. An employee can also view all the products. An employee can track the Rider means the employee check which rider has not delivered the order. If he enters the id of the rider then specific rider order details will be shown in the grid whether the rider delivered the order to the shopkeeper or not. Fuel Management includes how much fuel was used and how much was worth it. If a rider performs well then, the employee can give a bonus as an appreciation to the rider. Rider is the third type of user of the project. The rider dashboard contains the blocks of Take Order, View assigns order, view route, view Delivered order, and view bonus. The rider goes to the shopkeeper and takes an order from the shopkeeper by telling the quantity of required product of the company or model present in the products. The location of the rider is entered as a latitude and longitude. The rider id is automatically assigned in the backend to the order. The rider can view the assigned orders by the employee. In the assigned order there is a button before every assigned order which was pressed when the order is handed out. When Rider clicks the delivered button in the View Assign order email was sent to the shopkeeper that the order has been delivered. The rider can view the route which was assigned by the employee as the shortest path. The rider can view the delivered orders. The rider can view the bonus if the order assigned was delivered on time. The rider makes the maximum orders on time so that he gets

2 Project Features

- 1. Rider can view the route on the map.
- 2. Email was sent automatically to the manager about the product which is less than the threshold quantity 10.
- 3. Manager can send an email to Rider or Employee through the application.
- 4. Employee can give bonus to the riders.
- 5. Employee and Rider ID and Password will be generated automatically.
- 6. Rider delivers all the orders the in his/her circle at once.
- 7. We use the Searching algorithm to search out the nearest orders of each other that will be assigned to one rider.
- 8. Manager can download Monthly Report in CSV or PDF Format.

3 Technology Stack

Language	Python
IDEs	Visual Studio Code

4 Project Actors

There are three types of actor in project

Manager

Manager is the first actor of the project. Manager can add and delete employee and riders. Manager can add products, view products, send email and view monthly report.

Employee

Employee is the second actor of the project. Employee can add rider, view riders, view orders, allot order to the rider, track order, view fuel management details and give bonus to the riders.

• Rider

Rider is the third actor of the Project. Rider can take order, view the assign order, view route, View delievered orders and view bonus.

5 Use Cases

5.1 Use Case 1(Add Employee)

Use Case ID	U01
Name	Add Employee
Actor	Manager
Description	Description In this option manager can add new
	employees into the company so that the company
	will grow and work faster. Manager have to add
	some details of the employee to enter the employee
	into the company such as his name, CNIC,
	address, phone number etc.
Flow	1. Manager add the details of the employee.
	2. System return a conformation notice that the
	employee is added.
	3. If the employee is already present in the system
	then the system returns the employee is already
	present.

5.2 Use Case 2(View Employee)

Use Case ID	U02
Name	View Employee
Actor	Manager
Description	In this option manager can view all the details
	regarding to its employees that are currently
	working in company. And can delete the employee
	as well as can update the details of all the
	employees. This also includes the joining date of
	the employees
Flow	1. Manager sends a request to the system to view
	all the data regarding the employees
	2. System will show all the data of employees

5.3 Use Case 3(Confirm Rider)

Use Case ID	U03
Name	Confirm Rider
Actor	Manager
Description	In this option manager will receive emails from
	the employee regarding to the new riders which
	are joining company. And also, the termination
	request of riders from the employees due to their
	bad performance. It's up to manager what he
	wants to do with these requests.
Flow	1. Manager recives a mail
	2. Manager confirms the rider
	3. The rider details will be added to the system
	4. If Manager rejects the mail
	5. The rider does not added into the system

5.4 Use Case 4(View Riders)

Use Case ID	U04
Name	View Riders
Actor	Manager
Description	In this option manager can view all the details
	regarding to its riders that are currently working
	in company. And can delete the rider as well as
	can update the details of all the riders. This also
	includes the joining date of the riders
Flow	1. Manager sends a request to the system to view
	all the data regarding the riders
	2. System will show all the data of rider

5.5 Use Case 5(Add Products)

Use Case ID	U05
Name	Add Products
Actor	Manager
Description	In this option manager can add new products or
	can update the quantity of the previous products
	as an example if we want to add new model of
	Samsung phone then he can add in this option.
	Whereas if we already have a model of infinix we
	can also only add its quantity to the previous
	stock
Flow	1. Manager add the details of the products
	2. System return a conformation notice that the
	products are added
	3. If the product is already present in the system
	then the system will update the quantoty of that
	product

5.6 Use Case 6(View All Products)

Use Case ID	U06
Name	View All Products
Actor	Manager
Description	In this option manager can view all the products
	that are present in the company at that time. By
	this option he can check that the quantity of
	specific product is less than threshold or not. If
	less then he can add new stock in add product.
	(Threshold will be less than 10)
Flow	1. Manager sends a request to the system to view
	all the products
	2. System will show all products

5.7 Use Case 7(Send Email)

Use Case ID	U07
Name	Send Emails
Actor	Manager
Description	Description In this option, Manager can send
	email to any rider or employee through the
	application.
Flow	1. Manager enter the details and description of
	the email
	2. System will farword the mail to the
	rider/employee
	3. System will return a confirmation message

5.8 Use Case 8(View Monthly Report)

Use Case ID	U08
Name	View Monthly Report
Actor	Manager
Description	In this option manager can view the analytical
	report of stock, fuel, rider order, rider
	management, employee management and salary
	report on the monthly bases to check balance if
	his company is growing by time or not.
Flow	1. Manager sends a request to the system to view
	reports
	2. System will show reports
	3. Manager sends system request to view specific
	report
	4. System will show the manager that specific
	report

5.9 Use Case 9(Add Rider)

Use Case ID	U09
Name	Add Rider
Actor	Employee
Description	In this option employee can add new riders into
	the company so that the company will grow and
	work faster. Employee have to add some details of
	the rider to enter the rider into the company such
	as his name, CNIC, address, phone number etc.
Flow	1. Employee add the details of the rider
	2. System sends a mail to the manager at his/her
	conformation rider dashboard
	3. System return a notice that the mail is
	transferd to the manager

$5.10 \quad \text{Use Case } 10 (\text{View Rider})$

Use Case ID	U10
Name	View Rider
Actor	Employee
Description	In this option employee can view all the details
	regarding to its riders that are currently working
	in company. And can delete the rider as well as
	can update the details of all the riders. But this
	process is done with the permission of manager.
	When employee click the button of delete then an
	Email will be sent to manager so that he can
	delete the rider.
Flow	1. Employee sends a request to the system to view
	all the data regarding the riders
	2. System will show all the data of riders

$5.11 \quad {\rm Use~Case}~11 ({\rm View~Orders})$

Use Case ID	U11
Name	View Orders
Actor	Employee
Description	In this option, Employee can view all the orders
	that was taken by the rider. Employee can view
	RiderID who takes the order, Company
	Name, Model, Qunatity, Amount, Shopkeeper
	number, Shopkeeper email and address(Logitude,
	Latitude).
Flow	1. Employee request system to view all the orders
	uptill now
	2. System will show all the details of the orders

5.12 Use Case 12(Manage Order)

Use Case ID	U12
Name	Manage Orders
Actor	Employee
Description	In this option employee manage orders of riders
	which are given to riders from different
	shopkeepers and then he gave riders the required
	stock according to the requirements of the
	shopkeepers
Flow	1. Employee sends a request to the system to
	assign that order to that rider
	2. System assign that order to that rider (Order
	will be added to the view assigned order of the
	rider)
	3. System will send a mail to that rider
	4. System returns that order have been assigned
	to that rider

5.13 Use Case 13(View All Products)

Use Case ID	U13
Name	View All Products
Actor	Employee
Description	In this option employee can view all the products
	that are present in the company at that time. By
	this option he can check that the quantity of
	specific product is less than threshold or not. If
	less then he can email manager to add stock.
	(Threshold will be less than 10).
Flow	1. Employee sends a request to the system to view
	all the products
	2. System will show all products

5.14 Use Case 14(Track Order)

Use Case ID	U14
Name	Track Order
Actor	Employee
Description	In this option employee can view if the order is
	delivered or not. This can be done by using a
	specific ID of each order. By entering the ID the
	system will tell that the order is delivered or not.
Flow	1. Employee sends an ID of the rider to the
	system
	2. System will show all the orders of that rider
	(Delivered or Pending)

5.15 Use Case 15(Give Bonus)

Use Case ID	U15
Name	Give Bonus
Actor	Employee
Description	In this option, Employee gives the bonus to the
	rider on the basis of the riders order that which
	rider take how many orders and how many orders
	delivered by him/her.
Flow	1. Employee enter the details for bonus
	2. System will send emails to the rider
	3. Sytem will return a confirmation pop up

5.16 Use Case 16(Fuel Management)

Use Case ID	U16
Name	Fuel Management
Actor	Employee
Description	In this option employee can manage that
	according to the distance of the shop how much
	fuel is required for the destination. Because
	company provides the fuel to the riders so check
	and balance in necessary.
Flow	1. Employee send a request to the system for
	details of the fuel
	2. System will show a table regarding all the
	details of the products

5.17 Use Case 17(Take Order)

Use Case ID	U17
Name	Take Order
Actor	Rider
Description	In this option rider can take order from the
	shopkeeper which stock is required by the
	shopkeeper according to his requirements of stock.
Flow	1. Rider add the details of the ordered products
	2. System return a conformation notice that the
	products are added
	3. If the order is already present in the system
	then the system will update the quantoty of that
	product

5.18 Use Case 18(View Assigned Order)

Use Case ID	U18
Name	View Assigned Order
Actor	Rider
Description	In this option rider can view all the orders which
	are allotted to him by the shopkeepers and he can
	also track record of that which order is fulfilled
	and which is not.
Flow	1. Riders request the system to view his/her
	assgined oders
	2. System will show all those orders which are
	assigned to that rider by employee from his/her
	manage orders dashboard

5.19 Use Case 19(View Route)

Use Case ID	U19
Name	View Route
Actor	Rider
Description	Rider can view the route of the assigned order it
	will help rider to deliver order and we try to find
	the shortest path to minimize fuel consumption.
Flow	1. Riders request the system to view route for
	his/her destination
	2. System will return a map from his location to
	his/her destination
	3. System also returns the shortest path from
	his/her location to his destination on the map

5.20 Use Case 20(Delivered Orders)

Use Case ID	U20
Name	Delivered Order
Actor	Rider
Description	Rider can view the Orders that are delievered by
	him/her. It contains the phone number of the
	shopkeeper, delivered date and price.
Flow	1. Riders request the system to view which orders
	are delivered uptill now
	2. System will show all the orders that are
	dilivered uptill now

5.21 Use Case 21(View Bonus)

Use Case ID	U21
Name	View Bonus
Actor	Rider
Description	Rider can view the bonus given to him/her in this
	section.
Flow	1. Rider can view the bonus given to him/her in
	this section.

6 User Interfaces

6.1 Use Interfaces 01

Interface ID	I01
Name	Login Page
Linked Use Case	No Use case
UI Screen (JustInMind)	Login! username password Forget Password? Login Don't have an account? Sign Up Now
Validators	Login Button not work until all the fields are not fill. Password must be of length greater than equal to 5 length. Username cannot contain integers or special characters.

6.2 Use Interfaces 02

Interface ID	I02
Name	Manager Dashboard
Linked Use Case	No Use case
	Manager Window Manager Dashboard Add Employee Add Employee Mine Employees Floder Confirmation Add Product Total Product : 2000 Total Product : 2000 Pecentings : 40% View Monthly Report
UI Screen (JustInMind)	
Validators	No validation

6.3 Use Interfaces 03

Interface ID	103
Name	Add Employee
Linked Use Case	Use Case1 (U01)
UI Screen (JustInMind) Validators	Manager Add Employee Index Confirmation Ind

6.4 Use Interfaces 04

Interface ID	I04
Name	View Employee
Linked Use Case	Use Case2 (U02)
	Manager Window Manager Window
UI Screen (JustInMind)	
Validators	No validation

6.5 Use Interfaces 05

Interface ID	105
Name	Confirm Rider
Linked Use Case	Use Case3 (U03)
UI Screen (JustInMind)	Manager Window Manager Manag
Validators	No validation

6.6 Use Interfaces 06

Interface ID	106
Name	View Riders
Linked Use Case	Use Case4 (U04)
UI Screen (JustInMind)	Manager Manager Manager Manager
Validators	No validation

6.7 Use Interfaces 07

Interface ID	107
Name	Add Product
Linked Use Case	Use Case5 (U05)
UI Screen (JustInMind)	Manager Manager anter the company name anter the company name anter the model anter the quantity anter the quantity anter the quantity anter the total amount paid to supplier anter the total Threshold W View Rater anter the total Threshold View monthly report
Validators	Add button not work until all the fields are not filled. Quantity must be integer not string or float,total amount and threshold quantity.

6.8 Use Interfaces 08

Interface ID	I08	
Name	View All Product	
Linked Use Case	Use Case6 (U06)	
	Manager Window	< ^ >
	Manager Q Search	
	Company Model Price Quantity	
	1 Samsung Galaxy 522 ultra 331999 14	
	2 Samsung Galaxy Z fold 3 314999 20	-
	3 Samsung Galaxy 5.1 Ultra 24.229 16	-
	2AL View Employees	
	Confirm Rider 6 Lenovo Legion Y90 139999 17	
	251 View Riders 7 Lenovo K13 Pro 31999 21	
	8 Lenovo Legion 2Pro 159499 4 2 Add Product 9 Infinix Note 12 vin 64999 24	
	Add Product 9 Infinix Note 12 vip 64999 24 10 Infinix Zero 20 56999 15	-
	View All Product 11 Infinix Zero SG 49999 18	-
	Send email 12 Infinix Zero xpro 48999 19	
	View Monthly Report 13 Google Pixel 7Pro 109900 22	
~ / 1)	14 Google Pixel 7 149999 28	
UI Screen (JustInMind)		345
Validators	Search apply on Company Name.	

6.9 Use Interfaces 09

Interface ID	109
Name	Send Email
Linked Use Case	Use Case7 (U07)
UI Screen (JustInMind)	Manager Manager Date Rider 10 / Employee ID Subject: Subject: Contum Rider Add Product View Riders Add Product View Riders Send email View Monthly Report
Validators	RiderID must be present in the data. Submit button not work until all the fields are not filled.

6.10 Use Interfaces 10

Interface ID	I10
Name	View Monthly Report
Linked Use Case	Use Case8 (U08)
	Manager Window V A × Manager Monthly Report
	Stock Report Stock Report Fuel Report Employee's Report
	Separation Sep
UI Screen (JustInMind)	
Validators	No validation.

6.11 Use Interfaces 11

Interface ID	I11
Name	Add Rider
Linked Use Case	Use Case9 (U09)
UI Screen (JustInMind)	Employee enter the name onter the email and Rider onter the adress view Rider view orders onter the phone number for an inter the phone number for an inter the salary for an inter the salary of an inter the salary
Validators	Add button not works until all fields are not filled. Name cannot contain special letters or integers email contain(@gmail.com), Phone number must of 11 digits, CNIC must be 13 digits. Salary contain integers not float or string.

6.12 Use Interfaces 12

Interface ID	I12					
Name	View Riders					
Linked Use Case	Use Case10 (U010)					
UI Screen (JustInMind)	Employee email@gmail.com Joining Date Shahbaz Rafique Afres Phone Number www.di Product Afres Phone Number Track Order Fuel Management Cive bonus Management Cive bonus					
Validators	No validation					

6.13 Use Interfaces 13

Interface ID	I13								
Name	View orders								
Linked Use Case	Use Case11 (U11)								
						~ ^ × =			
	Employee	Rider ID	Company name	Model	Quantity	Amount	Shop keeper number	Shop	Shop keeper
	🚣 Add rider	1 RidID05	OPPO	RENO 5	20	700,000	03246545674	email Email	adress Lahore,UET
	Jack View Rider	2 RidID02		E4	10	500,000	03246543434		Lahore,UET
	View orders Manage order	3 RidID04		GALAXY A7	5		03234543434	Email	Lahore,UET
	W View All Product	4 RidID01	I PHONE	PRO MAX	12	8,000,000	03453434234	Email	Lahore,UET
	≱6₁ Track Order	5 RidID05	REDMI	NOTE 9	23	1,000,000	03124353454		Lahore,UET
	Fuel Management	6 RidID07	INFINIX	NOTE 12	3	100,000	03424323443		Lahore,UET
UI Screen (JustInMind)	Silve bonus	7 RidID09	VIVO	A5	6	200,000	03213243243	Email	Lahore,UET
Validators	No validation.								

6.14 Use Interfaces 14

Interface ID	I14					
Name	Manage Order					
Linked Use Case	Use Case12 (U12)					
UI Screen (JustInMind)	Employee anter the shop name anter the shop longitude anter the shop latitude anter the					
Validators	Assign order cannot work until all fields are not filled. Shopkeeper cell must be of 11 digits. Email must contain (@gmail.com). Rider ID must be present in stored data. Quantity must be integer.					

6.15 Use Interfaces 15

Interface ID	I15					
Name	View All Products					
Linked Use Case	Use Case13 (U13)					
	(Manager Wi	ndow		v ^ ×
	Employee				Q Search	
			Company	Model	Price	Quantity
		1	Samsung	Galaxy S22 ultra	331999	14
	👃 Add Rider	2 3	Samsung	Galaxy Z fold 3 Galaxy S21 Ultra	314999 242299	20 16
	AS View Rider	4	Samsung	Galaxy 522	332999	12
	/≅ View orders	5	Lenovo	Legion Y70	83999	7
		- 6 - 7	Lenovo	Legion Y90	139999	21
	Manage order	8	Lenovo	K13 Pro	31999 159499	4
	"W View Products	9	Infinix	Note 12 vip	64999	24
	Track Order	10	Infinix	Zero 20	56999	15
	Fuel Management	11	Infinix	Zero 5G Zero xpro	49999 48999	18
		13	Google	Pixel 7Pro	109900	22
	Give bonus	14	Google	Pixel 7	149999	28
UI Screen (JustInMind)						Heavare.
Validators	Search apply on Company Name.					

6.16 Use Interfaces 16

Interface ID	I16					
Name	Track Order					
Linked Use Case	Use Case14 (U14)					
	Employee And Rider And Rider View Rider View orden Manage order W View Products Fider ID Rider ID Delivered point Rider ID Delivered point 1 RIDID04 31 5204° N, 25/07/2022 700,000 Delivered Track Order Products Fider ID Rider ID Rider ID Rider ID Rider ID Rider ID Sign date Price status Delivered 74,3587° E RIDID06 31 5204° N, 26/08/2022 1,000,000 Pending					
UI Screen (JustInMind)						
Validators	Rider ID must be present in the stored data. Track not work until Rider Id is not given.					

6.17 Use Interfaces 17

Interface ID	I17	I17				
Name	Fuel Management	Fuel Management				
Linked Use Case	Use Case15 (U15)	Use Case15 (U15)				
	(III)	Employee Wi	Indow		V ^	
	Employee				=	
		Rider ID	Fuel use(in liter)	Price	Date	
	♣ Add rider 1	RIDID25	10	3000	14/07/2022	
	alls View Rider	RIDID04	2	600	14/09/2022	
	W View orders	RIDID10	5	1500	14/02/2022	
	4	RIDID12	6	1800	14/01/,2022	
	3	RIDID30	4	1200	14/03/2022	
	View All Product					
	atis Track Order					
	Fuel Management					
	Give bonus					
UI Screen (JustInMind)						
Validators	No validation					

6.18 Use Interfaces 18

Interface ID	I18						
Name	Give bonus						
Linked Use Case	Use Case15 (U16)						
	Employee Employee and order Add rider View Rider View All Product Ass Fuel management So Give Bonus						
UI Screen (JustInMind)							
Validators	Add button not work until all field are not filled.						
	Rider ID must be present in the present data.						
	Bonus amount not enter in negative or not more						
	than 10000.						

6.19 Use Interfaces 19

Interface ID	I19
Name	Take Order
Linked Use Case	Use Case17 (U17)
UI Screen (JustInMind)	Rider enter the company name enter the model enter the quantity Take Order View assigned Order View assigned Order Order delievered enter the shop latitude enter the shop keeper number enter the shopkeeper email
Validators	Add More and order button not work until all fields are not filled. Quantity not in float and string. Shopkeeper number must of 11 digits. Total price must be Integer.

6.20 Use Interfaces 20

Interface ID	I20				
Name	View Assigned Order				
Linked Use Case	Use Case18 (U18)				
	Marager Window V A X				
	Rider Company Model Price Quantity Adress ShopKeeper				
	1 Samsung Galaxy 331999 14 Shallmar 03234353354 Cotensued Ura Lahore				
	View assigned Order 2 Samsung Galaxy Z fold 3 314999 20 Shallmar Town Lahore 4.3 View route				
	Order delevered 3 Samsung Galaxy 242299 16 Shallmar 03234353354 See bonus Ultra Order delevered Order Order Order delevered Order Or				
	4 Samsung Galaxy 332999 12 Shallmar UET UET Lahore				
	5 Lenovo Legion 83999 7 Shallmar 03234353354 Orientered Chowk				
UI Screen (JustInMind)					
Validators					
	No validation				

6.21 Use Interfaces 21

Interface ID	I21
Name	View Route
Linked Use Case	Use Case19 (U19)
UI Screen (JustInMind)	Rider Badam Bach Creater Igba Park Wew assigned order View assigned order Sala Lah Badam Bach B
Validators	No validation

6.22 Use Interfaces 22

Interface ID	I22						
Name	Order Delivered						
Linked Use Case	Use Case20 (U20))					
	(e)		Rider Window				∨ ^ × <u> </u>
	Rider		Shopkeeper Number	Price	Adress	Date	
	Take order	1	03245655474	100,000	Lahore	14/07/2022	
	View assigned order	2	03444745432	500,000	Lahore	14/09/2022	
	⊶9 View route		03114567533			14/02/2022	
	● Order Delievered		03455432345			14/01/,2022	
	⇔ See bonus	5	03246532474	150,000	Lahore	14/03/2022	- 1
UI Screen (JustInMind)							W45-945
Validators	No validation						

6.23 Use Interfaces 23

Interface ID	I23
Name	See Bonus
Linked Use Case	Use Case21 (U21)
UI Screen (JustInMind)	Rider Rider Fider Fake order View assigned order View route Congratuation View route View route View bonus View bonus
Validators	No validation

7 User Interface Details

In this section, fill the table for summary that which use case will have the required component. Inside each box, write the counts for each component. If component is not used, write zero.

Inter	Text	Drop	Pass	Table	Date	Butt	Auto	Radio	Chec	Menu	Text	Prog
face	Box	Down	word		Field	ons	Comp	Butt	kbox		Area	ress
Id			Box				lete	on				Bar
I01	2	0	1	0	0	2	0	0	0	0	0	0
I02	0	1	0	0	0	7	0	0	0	0	0	3
I03	6	1	0	0	0	8	1	0	0	0	0	0
I04	0	1	0	0	0	9	0	0	0	0	0	0
I05	0	1	0	0	0	9	0	0	0	0	0	0
I06	0	1	0	0	0	9	0	0	0	0	0	0
I07	3	1	0	0	0	8	0	0	0	0	0	0
I08	1	1	0	1	0	7	1	0	0	0	0	0
I09	0	1	0	0	0	12	5	0	0	0	0	0
I010	6	1	0	0	0	7	1	0	0	0	0	0
I011	0	1	0	0	0	8	0	0	0	0	0	0
I012	4	1	0	0	0	7	1	0	0	0	0	0
I013	1	1	0	1	0	6	0	0	0	0	0	0
I014	1	1	0	1	0	7	0	0	0	0	0	0
I015	0	1	0	1	0	6	0	0	0	0	0	0
I016	6	1	0	0	0	6	1	0	0	0	0	0
I017	0	1	0	1	0	5	0	0	0	0	0	0
I018	0	1	0	0	0	4	1	0	0	0	0	0
I019	0	1	0	1	0	4	0	0	0	0	0	0

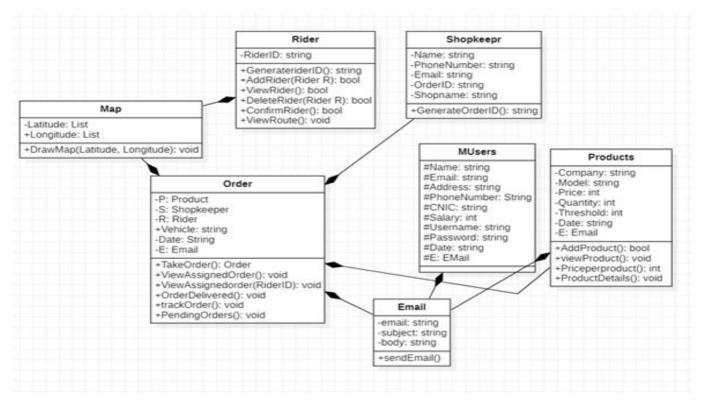
8 Classes

Class name	Software /	Is Abstract	Is Singleton	Is the class will
	Domain	(Yes/No)	(Yes/No)	have parametrized
				constructor
				(Yes/No)
MUser	Domain	No	No	Yes
Rider	Domain	No	No	Yes
Employee	Domain	No	No	Yes
Shopkeeper	Domain	No	No	Yes
Product	Software	No	No	Yes
Order	Software	No	No	Yes
Map	Software	No	No	Yes
Fuel	Software	No	No	No
Email	Software	No	No	Yes
MUserDL	Software	No	No	No
OrdersDL	Software	No	No	No
ProductDL	Software	No	No	No
Report	Software	No	No	No

9 Object Oriented Features

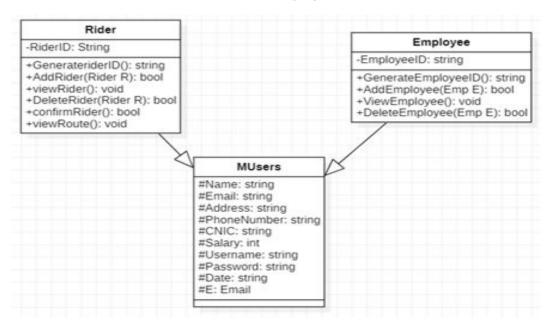
9.1 Composition

In this figure's classes are connected with each other by composition which is shown by Diamond pattern.



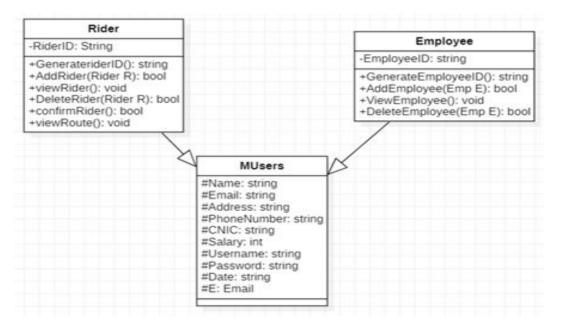
9.2 Inheritance

In this figure the arrows from MUsers to Rider and Employee shows Inheritance.



9.3 Multiple Inheritance

In this figure Rider and Employee inherited the MUsers class so that they can also access the attributes.

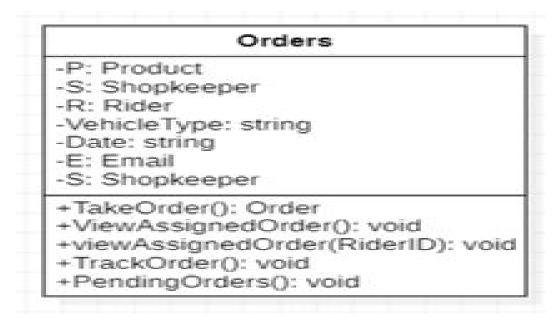


9.4 Multi-Level Inheritance

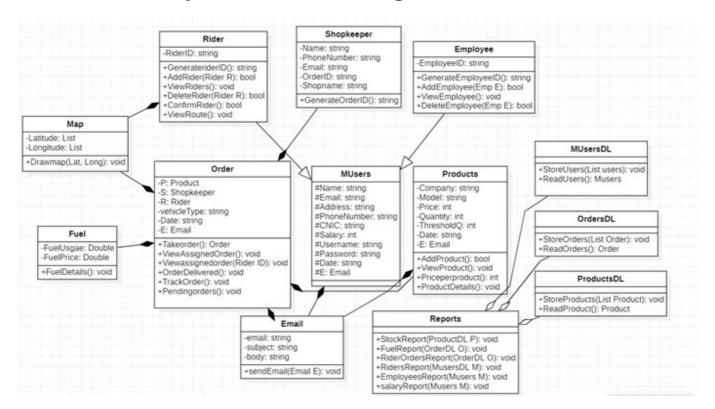
Not implemented

9.5 Polymorphism

In this figure the two functions view assigned order have the same name but with different attributes which shows polymorphism.



10 Detailed Object-Oriented Design



11 Data Structure

Use Case Id	Data Structures Used	Justification for the usage of
		data structure
U01	ArrayList	ArrayList is faster in storing the
		data.
U02	ArrayList	Because Arraylist is used to
	·	store the data.
U03	ArrayList	Because data is already stored in
		ArrayList.
U04	ArrayList	Riders information is stored in
		Arraylist because arraylist is
		efficient in storing data so view
		Riders also use arraylist.
U05	ArrayList	Riders information is stored in
		Arraylist because arraylist is
		efficient in storing data so view
Tion		Riders also use arraylist.
U06	ArrayList	Because Arraylist is used to
TIOF	N. I. d. d.	store the data.
U07	No data structure	Because email sent one by one to
		rider or email and there is no
		need to store the data of the email sent.
U08	No data structure	Because on button click of
008	No data structure	Export CSV and PDF file will
		be download so no data
		structure will be used.
U09	ArrayList	Storing data is faster
0.00	Tillay Bist	inArrayList
U10	ArrayList	Because data is already stored in
	111100 2100	ArrayList
U11	ArrayList	Because data of the orders is
		stored in the arraylist so for
		view order arraylist is used.
U12	Queue	Because we use First in First
		Out principle for the orders that
		the order that comes first should
		be delivered first
U13	ArrayList	Because Arraylist is used to
		store the data of the products.
U14	ArrayList	Orders data is stored in arraylist
U15	ArrayList	Storing data is faster in arraylist.
U16	ArrayList	Data of fuel usage is already
		stored in arraylist so arraylist is
TT177	A T.	used to view details.
U17	ArrayList	Storing data is faster in
IIIO		ArrayList.
U18	Queue	Because Manage Order data is
		already stored in Queue so for
		view Assigned order Queue will be used.
		be used.

Use Case Id	Data Structures Used	Justification for the usage of
		data structure
U19	BFS	Because we have to find the
		shortest distance for the
		detination point so we use
		breadth first search.
U20	Queue	Because ManagerOrder data
		wad already stored in the Queue
		so queue is used to view datat of
		delivered orders.
U21	ArrayList	Because arraylist is already used
		to store the data of the bonus.

12 Exceptions

Type of Exception	Why this exception will	Use Case Id in which	How you will handle
	occur	exception could be	the exception
		occurred	
Run Time(Program	Because of any bug or	BU01,U03,U05,	This problem can be
Cash)	that type of errors that	U08,U10,U12 , U14	solved by using
	can be detected in that		validation
	case when we execute		
	the program		
Type error	This is occurring when	U01,U05,U08	By converting both the
	we want to combine two		variable into same type
	different types of		
	variable like string and		
	float		
Index Error	This can be occur when	U02,U04,U06,	This can be done by
	our index is increasing	U09,U11, U15	staring loop form less
	from the original index		than one index
	of any data structure		
Syntax Error	When our syntax is	Can be in Any Use case	By correcting the
	incorrect		syntax

13 Data Storage

We store and read all data From CSV. We will make 10 CSV files.

• Employees.csv

(Name, email, address, phonenumber, CNIC, salary)

 \bullet Rider.csv

(Name,email,address,phonenumber,CNIC,salary)

• EmployeesReport.csv

(EmployeeID, Date, Status)

• Assigned orders.csv

(RiderID,Product Company,Product Model, Qunatity, Latitude,Logitude,Shopkeeper Email, Shopkeeper Cellphone,vehicle, Order Price)

• RidersReport.csv

(RiderID, Date, Status)

• RiderorderReport.csv

(RiderID, Date, Order Delivered)

• Product.csv

(Company, Model, Qunatity, Total Price, Price Per Product)

• FuelReport.csv

(RiderID, Fuel Consumption, Date, Price)

• StockReport.csv

(Company, Model, Price, Quantity, Date, Type)

• TakeOrder.csv

(Rider ID, Product Company, Product Model, Quantity, Total Price, Latitude, Longitude, Shopkeeper, Phonenu email)

• BonusReport.csv

(RiderID, Bonus, Date, EmployeeID (who give Bonus))

14 Email Sending

When Manager add or delete Employee email was sent to employee, when employee add or delete rider email was sent to manager for confirmation after that if manager accept email was sent to rider. When Order was assigned to rider email will sent to rider. After order delivered email was sent to employee. E.g. At the time, when manager add employee or employee add rider email will be sent as following.

Subject: Account has been Created.

Body: We are excited to tell you that you have been selected in Mobile supplier and management System. Your Username, Password and ID listed below.

Username: Employee Password: EMPID11

ID: a34df1



15 Project Plan

Use Case Id	Use Case Name	Member Name	Estimated Completion
			Date
U01,U02	Add Employee, View	Shahbaz Rafique	4-12-2022
	Employee		
U08,U03	Add Rider, Confirm	Hammad Younas	4-12-2022
	Rider		
U05,U06	Add Products, View All	Saad Munir	4-12-2022
	Product		
U07,U10	View Monthly Report,	Shahbaz Rafique	10-12-2022
	Manage Order		
U09	View Rider	Saad Munir	10-12-2022
U11,U12	View all Product, Track	Hammad Younas	10-12-2022
	Order		
U13,U14	Fuel Management, Take	Saad Munir	17-12-2022
	Order		
U15,U17	View Assigned order,	Hammad Younas	17-12-2022
	Delivered Order		
U16	View Route	Shahbaz Rafique	17-12-2022
U17,U20	send email, send bonus	Hammad Younas	18-12-2022
U18	View bonus	Saad Munir	18-12-2022
U19	view all orders	Shahbaz Rafique	18-12-2022

16 Analytical Reports

We Generate 5 types of the analytical report. Stock report, Fuel Report, Rider Order Report, Employees Report and Riders Report. All the reports are in the form of CSV files. Manager can Download all these CSV files from view Monthly Report Section.

16.1 Stock Report

4	Α	В	С	D	Е	F
1	Company	Model	Price	Quantity	Date	Туре
2	Asus	ROG Phone 6 Pro	Rs:273,299	24	10/11/2022	Added
3	Asus	ROG Phone 5s	Rs:110,000	12	13-11-2022	Delievered
4	Asus	ROG Phone 5s Pro	Rs:169,000	1 5	14-11-2022	Delievered
5	Asus	Zenfone 8	Rs:121,399	21	14-11-2022	Added
6	Asus	Zenfone 8 Flip	Rs:148,999	20	18-11-202	Delievered
7	Asus	ROG Phone 5 Ultimate	Rs:198,000	10	22-11-2022	Delievered
8	Google	Pixel 7	Rs:149,999	11	22-11-2022	Added
9	Google	Pixel 6a	Rs:85,899	5	23-10-2022	Added
10	Google	Pixel 6	Rs:102,999	3	23-10-2022	Delievered
11	Google	Pixel 6 Pro	Rs:155,999	7	24-10-2022	Delievered
12	Google	Pixel 4a 5G	Rs:75,000	8	24-10-2022	Added
13	Google	Pixel 5	Rs:90,000	4	24-10-2022	Added
14						

fig 16.1.1 This picture contain the format of the stock report in which manager can download the report Of Stock that at which date, mobile of which company and model was add or delivered and its quantity.

16.2 Fuel Report

4	Α	В	С	D
1	Rider ID	Fuel Consumption	Date	Price
2	RIDID02	4	1/10/2022	800
3	RIDID05	5	2/10/2022	1000
4	RIDID12	7	2/10/2022	1400
5	RIDID16	8	3/10/2022	1600
6	RIDID21	1	4/10/2022	200
7	RIDID09	2	4/10/2022	400
8	RIDID23	3	5/10/2022	600
9	RIDID32	6	6/10/2022	1800
10	RIDID12	2	8/10/2022	400
11	RIDID21	10	10/10/2022	2000
12	RIDID31	13	11/10/2022	2600
13	RIDID13	1	13/10/2022	200

fig 16.2.1 This Picture contain the detail of the fuel Report. In this report there is a Rider ID column Fuel Consumption in litter, Date and price of the Fuel.

16.3 Rider Order Report

	Α	В	С
1	Rider ID	Date	Order Delieverd
2	RIDID02	1/10/2022	3
3	RIDID05	2/10/2022	4
4	RIDID12	2/10/2022	2
5	RIDID16	3/10/2022	3
6	RIDID21	4/10/2022	5
7	RIDID09	4/10/2022	6
8	RIDID23	5/10/2022	3
9	RIDID32	6/10/2022	2
10	RIDID12	8/10/2022	1
11	RIDID21	10/10/2022	5
12	RIDID31	11/10/2022	3
13	RIDID13	13/10/2022	2

fig 16.3.1 This Picture contain the Riders Order Detail Report. In which There is column of Rider ID,

Date And the number of orders delivered by this rider on that day.

16.4 Employee Report

	Α	В	С
1	Employee ID	Date	Status
2	EMPID21	1/10/2022	Add
3	EMPID10	2/10/2022	Remove
4	EMPID02	4/10/2022	Add
5	EMPID03	5/10/2022	Add
6	EMPID20	7/10/2022	Add
7	EMPID01	9/10/2022	Add
8	EMPID21	10/10/2022	Remove
9	EMPID16	12/10/2022	Add
10	EMPID17	14/10/2022	Add
11	EMPID18	14/10/2022	Remove
12	EMPID19	15/10/2022	Add
13	EMPID22	16/10/2022	Add
14	EMPID29	18/10/2022	Remove
4.5			

fig 16.4.1 This Picture contain the detail of the Employee Details. In which there is a column of Employee ID Date and Status Whether Employee is ass or remove.

16.5 Rider Report

4	Α	В	С
1	Rider ID	Date	Status
2	RIDID21	1/10/2022	Add
3	RIDID10	2/10/2022	Remove
4	RIDID02	4/10/2022	Add
5	RIDID03	5/10/2022	Add
6	RIDID20	7/10/2022	Add
7	RIDID01	9/10/2022	Add
8	RIDID21	10/10/2022	Remove
9	RIDID16	12/10/2022	Add
10	RIDID17	14/10/2022	Add
11	RIDID18	14/10/2022	Remove
12	RIDID19	15/10/2022	Add
13	RIDID22	16/10/2022	Add
14	RIDID29	18/10/2022	Remove

fig 16.5.1 This Picture contain the rider report. In which there is column of the Rider Id, Date And Status Whether Rider is add or remove.

16.6 Bonus Report

Users	Bonus	Date	Employee ID(Who Give)
RIDID01	30000	1/10/2022	EMPID12
RIDID018	30000	2/10/2022	EMPID21
RIDID19	30000	3/10/2022	EMPID11
RIDID81	30000	3/10/2022	EMPID13
RIDID17	35000	3/102022	EMPID22
RIDID14	35000	4/10/2022	EMPID14
RIDID34	35000	5/10/2022	EMPID34
RIDID08	35000	6/10/2022	EMPID23
RIDID01	25000	7/10/2022	EMPID36
RIDID31	25000	8/10/2022	EMPID37
RIDID12	25000	9/10/2022	EMPID38
RIDID11	25000	12/10/2022	EMPID39
RIDID10	25000	14/10/2022	EMPID40
RIDID09	23000	15/10/2022	EMPID41
RIDID03	23000	17/10/2022	EMPID42
RIDID02	23000	18/10/2022	EMPID43
Total Amount	454000		

fig 16.5.1 This Picture contain the bonus report. In which there is column of the Rider Id, Date , bonus and employee id who give this. And Status Whether Rider is add or remove.