جامعة السلطان قابوس
Sultan Qaboos University

College of Science
Department of Computer Science
COMP3401 Introduction to software engineering

Project Part2:

Delivery Express Application

Team members:

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Section: 10

Contents:

Introduction:

Nowadays, the world is facing a rapid population growth and because of that, the demand of human needs and wants increases and it becomes extremely desirable which leads to some difficulties in satisfying the human demand level. For example, lack of jobs and daily needs that are necessary.

Furthermore, with the innovation of technology, it is now being used to solve almost every problem that exists because of the population growth.
Therefore, this application was created for the purpose of solving the main issue that this world is suffering from, which is fulfilling human needs. In addition, this application does not only deliver your packages but, it also provides part time or even full-time jobs for the unemployed. This app is characterized by simplicity and it provides quick delivering strategies.

Q1] Elicitation:

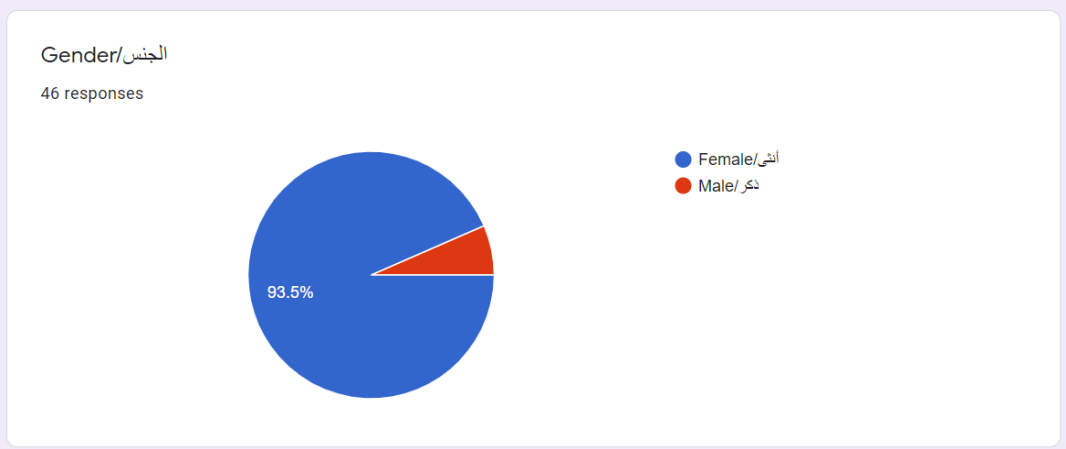
In requirements elicitation we must collect the requirements of our application and the needs of the users from the end-users, customers, and the stakeholders, in this system we are using different ways to gather these requirements. For example, the brainstorming, interviewing, observing the similar applications, survey, and by writing the scenario.

Brainstorming: Each member of the team brainstormed some ideas, and then we discussed them and come up with relevant and main project requirements.

Observing Similar applications: We observed different applications that provide different services and delivers it to anywhere such as food delivery apps and fashion related apps. We checked their functionalities and the non-functionalities very clearly so we can understand what our app can require for making it more efficient and practical.

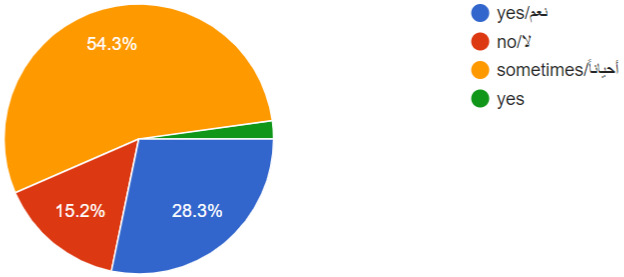
Survey: We constructed a questioner using google form to know people's needs these days in delivery services. It helped us to specify the functional requirements. Moreover, we got additional ideas to enhance the requirements of our application.

Results of the survey:



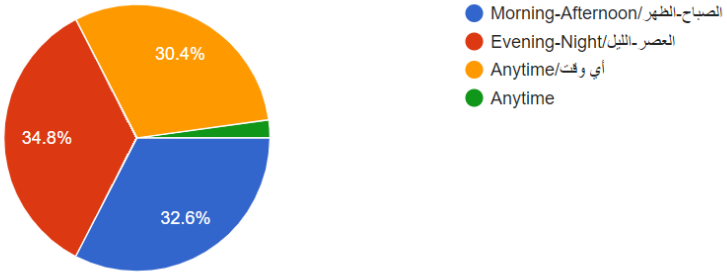
Do you prefer delivery workers to deliver your packages?/هل تفضل المندوبين لتسليم الطرد الخاص بك؟

46 responses



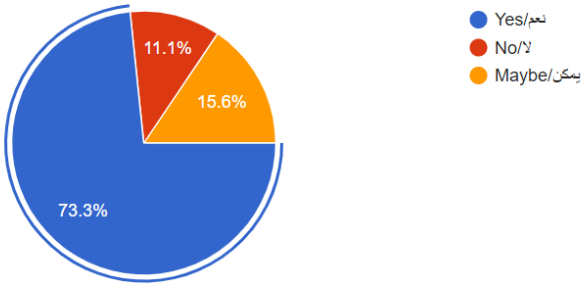
what time do you prefer your packages to be delivered?/متى تفضل استلام الطرود الخاصة بك؟

46 responses



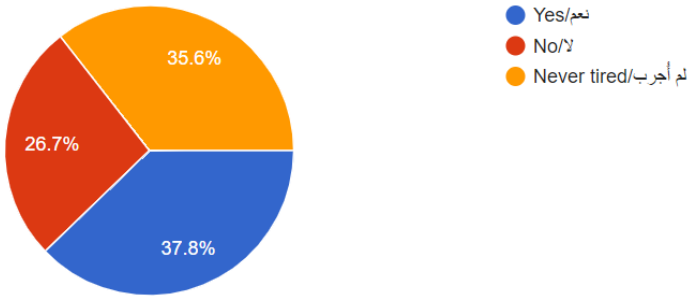
Have you ever been worried about your packages to be damaged?/هل شعرت يومًا بالقلق من أن يتلف الطرد الخاص بك؟

45 responses



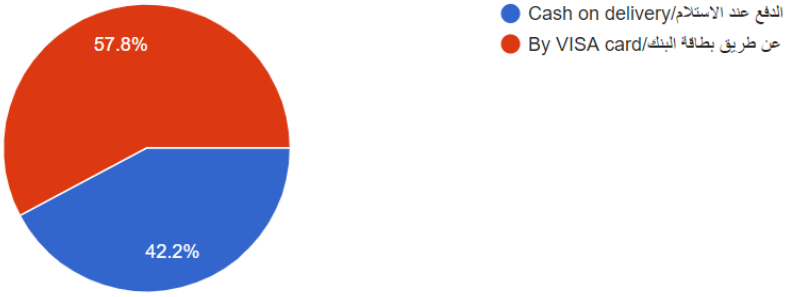
Have you ever faced any difficulties in delivering your packages?/هل واجهت صعوبات في توصيل الطرود الخاصة بك إلى منطقة معينة؟

45 responses



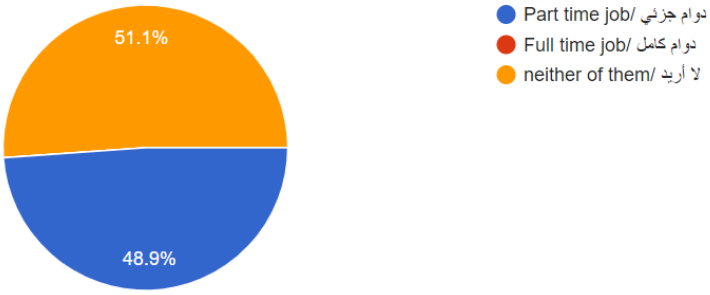
How do you prefer to pay?/كيف تفضل الدفع؟

45 responses



Do you prefer to work as a delivery person as ?/هل تفضل العمل كموظف توصيل بوظيفة ؟

45 responses



Q2] a. Functional requirements:

Use Case	Purpose	input	output	Pre-condition	Post-condition	Side effect	Provided for
Register as customer	Create an account for the customer	- Name - Phone Number - Username - Password	-Account	Phone number must be correct	An Account is created	The application might not identify the phone number	Customer
Register as staff	Create an account for the staff	- Name - Nationality - Spoken languages. - driving license - Phone Number - Id card - Username - Password	-Account	Phone number, ID card and driving license, must Be correct.	An Account is created	The application might not identify the Phone number, ID card and driving license.	Staff
Login	Enter the application.	- Username - Password	Entry approval to application	The account should exist	The applications open	The application doesn't identify the user	Customer Staff
request delivery	The customer requests a delivery for his order	-	message approval from the application	The customer must be registered	The delivery must be saved in the application	The delivery might be rejected by the application	Customer
List order	The customer requests a delivery for more than one order	-	message approval from the application	The customer must be registered	The delivery must be saved in the application	The delivery might be rejected by the application	Customer
take order.	The delivery worker picks an order to deliver	-	message approval from the application	The staff must be registered	The application assigns the order to the worker	The application might not assigns the order to the worker	Staff

take list of orders.	The delivery worker picks more than one order to deliver	-	message approval from the application	The staff must be registered	The application assigns the order to the worker	The application might not assigned the order to the worker	Staff
Select region	Select the region to be delivered to and from by using GPS	- The region to be delivered to - The region to be delivered from	Approval from the application	The region is within the application choices	It should be successfully selected	The application might not identify the region	Customer + Staff
Select time	Select the delivery time	The time	Approval from the application	The delivery person is available at the time the customer defines it	It should be successfully selected	The application might not find any delivery worker at that time	Customer + Staff
Specify the package type	Select the type of package	Package type	Approval from the application	The type within the application choices	It should be successfully selected	The application might not identify the type	Customer + Staff
Cancel the order	When a customer or staff face any problem, they can cancel the order before verifies it.	Message to cancel	Approval from the application that the message has been received	The customer and the staff must be registered, and an order must be exist	The message should be received by the customer and the staff	The cancelation process might fail	Customer + Staff
Trace order (GPS)	Using GPS: The customer can trace his order. The delivery person can measure the delivering time and distance	- location - Address	-Path of the current location to the desired destination - Approximated time for the delivery	- The location of the worker must be defined - The location and the address specified by the customer must be correct	The path and the time should be shown for the customer	The location and the address might not be defined	Customer

Rate service	Customers give feedback on the delivery service provided by a staff, so other people can know about this staff's work.	Pick how many stars out of 5 to rate the service	Number of stars	The customer must be registered	The application should receive the rate	The rate might not be receiver by the application	Customer
Show notification	It shows a notification for customer when delivery delay and offers also it is shows for staff when customers need to Confirmation for the order	-	message	The account should exist, and it should contain the phone number	The message should appear to the user	The phone number might be incorrect	Customer + Staff
Report	It is used by the customer and the worker to complain for any inconvenient service provided by the system	Complaint Letter	A message to show that the received the complaint	A delivery service must be done	The application must respond to the complaint	The application might not receive the complaint	Customer + Staff
Set income	Staff will define his income for each delivery	The amount	-	The staff must be registered	The income should be saved in the application	The application might not save the defined income	Staff

payment	Customers will have a choice of selecting the payment method, it could be Cash on delivery or via A visa card.	- Type (cash, credit) -Total cost	Message that the order is successfully paid	The customer must pay	The message must appear to the customer	The customer pays the wrong amount	Customer

Q2] b. Non-functional requirements:

Product requirement:

1. Security: It will be encrypted so no one can heck the personal data of the staffs and of the customers.
2. Safety: Each staff member's identity will be verified by the owner of this app.
3. Performance: fast and easy to use, it has very simple and basic registration process for the customers so anyone one can use it easily.
4. Availability: this service will be provided for 24/7.

Organizational Requirement:

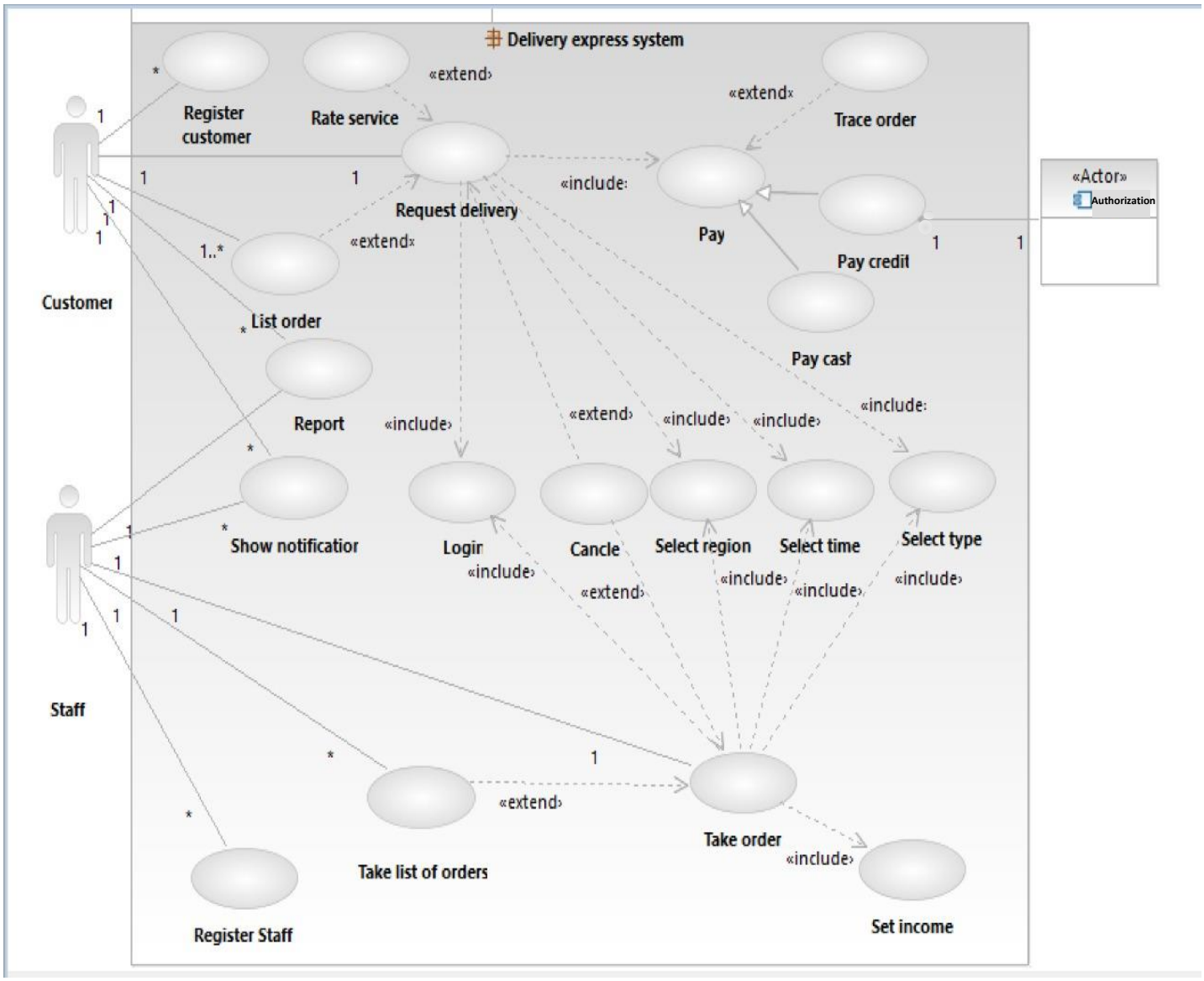
- Anyone wants to register in the application (delivery express) first should give the application the correct data, for example (Number phone, the current place, type of package....) to determine the actual needs of users. Then, collect all requirements to share with the users for approval and this easy-to-understand form users.

External Requirement:

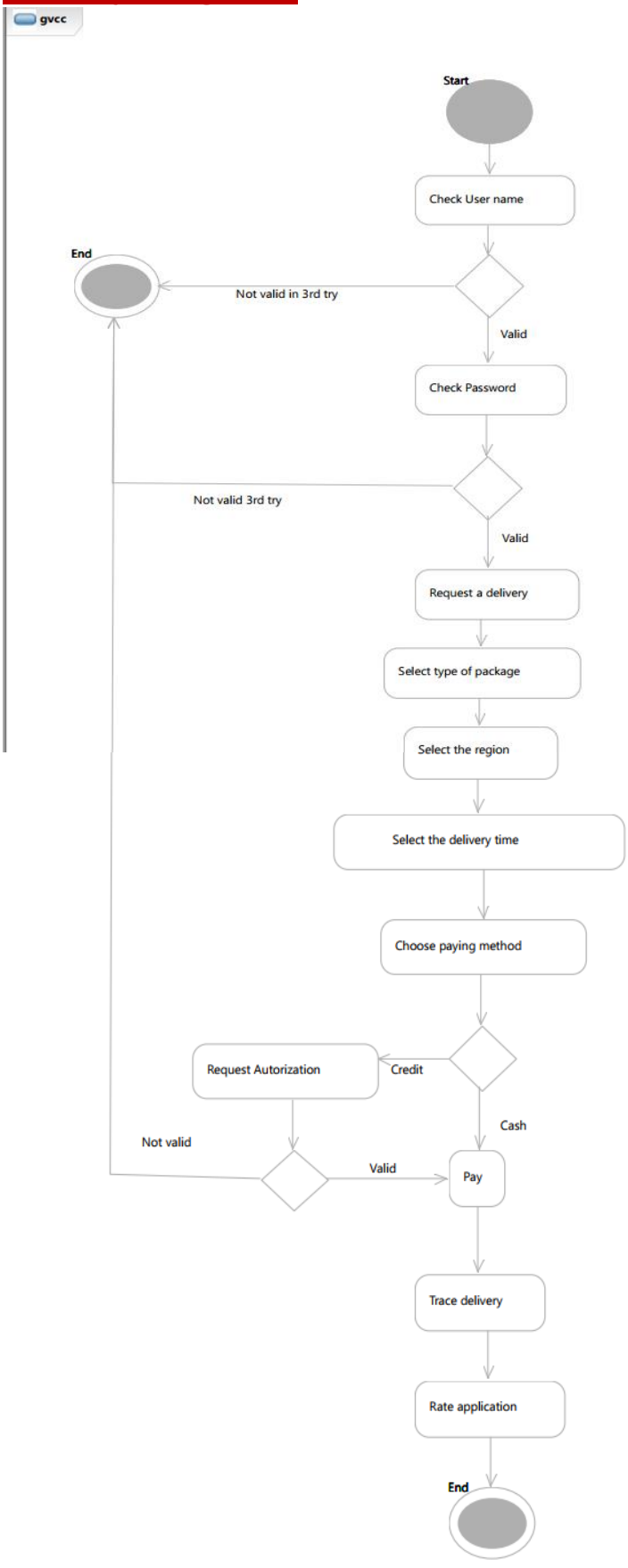
Ethical

The application characterizes by privacy, where the personal information for both sides the customer and the staff are unaccusable and not adjustable by anyone besides them.

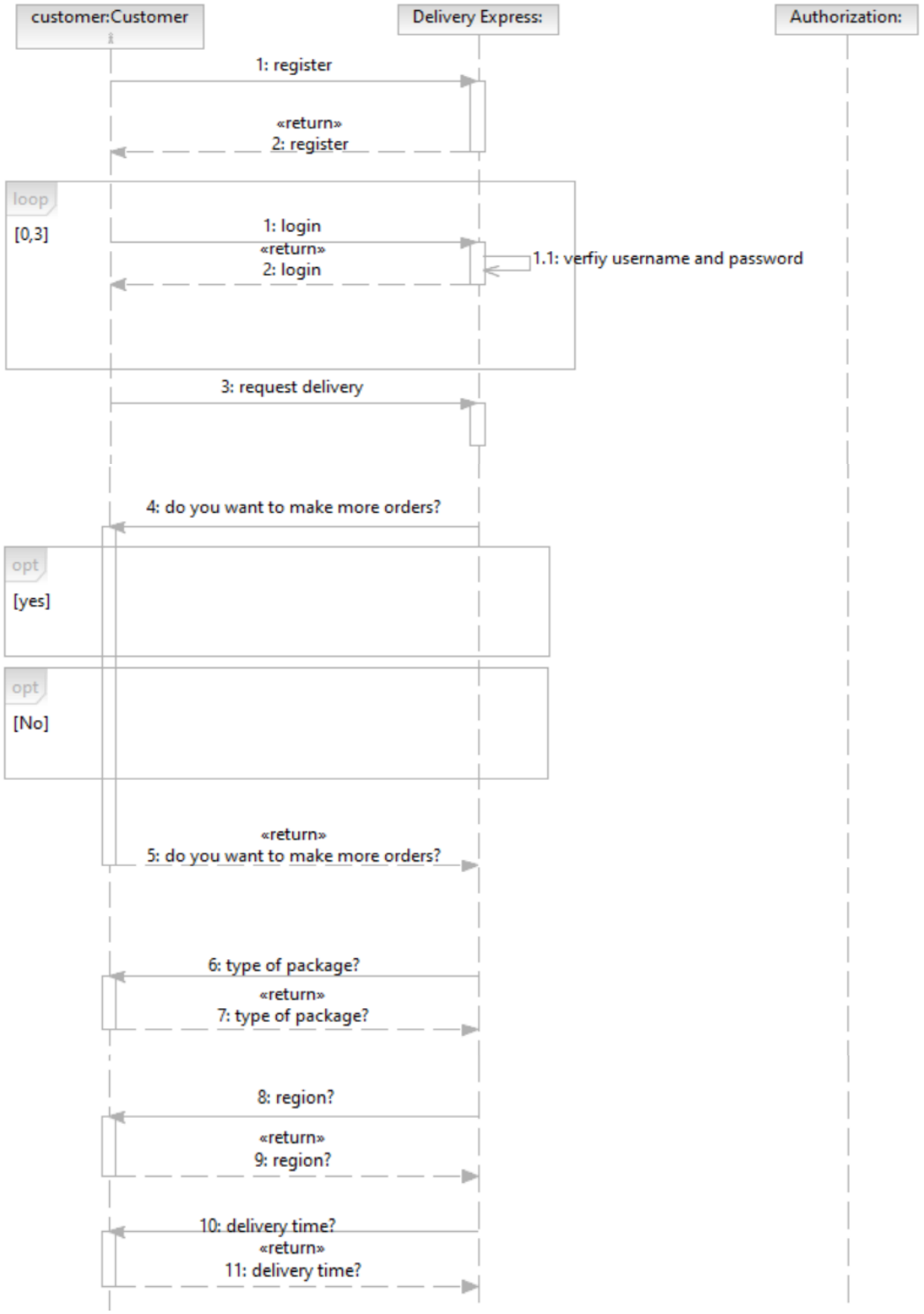
Q3]
Use Case:

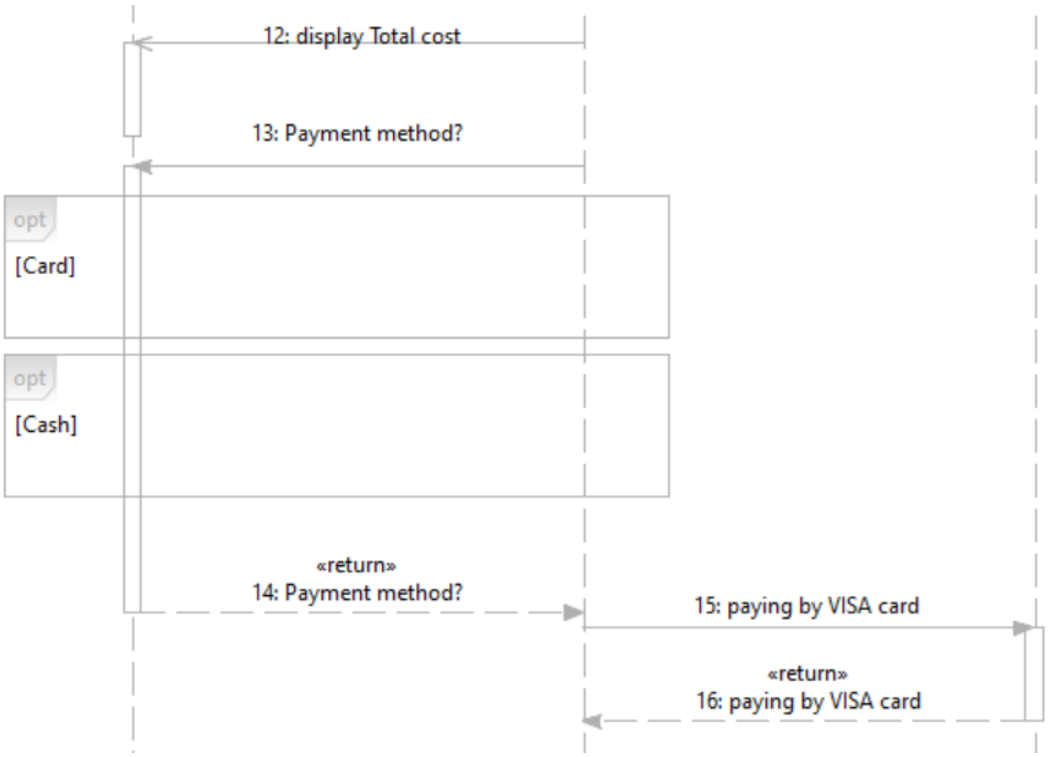

Delivery express system
Register customer
Rate service
«extend»
Trace order
«extend»
Request delivery
«include»
Pay
Pay credit
«Actor»
Authorization
Customer
List order
«extend»
Pay cash
Report
«include»
«extend»
«include»
«include»
«include»
Show notificatior
Logir
Cancle
Select region
Select time
Select type
«include»
«extend»
«include»
«include»
Staff
Take list of orders
«extend»
Take order
«include»
Register Staff
Set income

Activity Diagram:



Sequence Diagram:




12: display Total cost
13: Payment method?
opt
[Card]
opt
[Cash]
«return»
14: Payment method?
15: paying by VISA card
«return»
16: paying by VISA card

Q4] Validation:

Validation is the process of checking if the software satisfies the user needs. We do that so we can detect the errors and clear all the misunderstanding before designing and implementing the software. We used several ways to validate the requirements:

1. Check is the software meets stakeholder's requirement specification.
2. Check if the requirement is testable?
3. Asking the stakeholder and all the end users if the software meets their needs.
4. Making sure that the stakeholders accept the software and express that it satisfies their needs.

Q5]

Functional requirements:

Use case (UC) **request delivery** for the customers.

Title: request delivery.

Summary: This use case allows the customer to request a delivery for his orders.

Actors:

- Main: Customer.
- Secondary (Authorization System: AS)

Scenario Description:

Pre-conditions:

- The customer must be registered.

Normal Scenario (main flow):

1. Customer registers in the application as a customer
2. Customer enters username and password.
3. The application will verify the password entered by the customer.
4. Customer requests delivery
5. Application offers the option for the customer to request if he/she wants more than one delivery.
6. Customer selects the type of the packages he/she want to order.
7. Customer selects the region where the package will be delivered from and to
8. Customer select delivering time.
9. Application assigns the available workers for the customer's order.
10. Application calculates total amount to be paid.
11. Application asks the customer to pay either by cash or by card.
12. Customer choose paying method.
13. Customer traces the order.
14. Application shows notification that his/her order have been successfully arrived.
15. Customer rate the application

Alternative flow:

A1 Incorrect username of password

A1 start in point 3 in the normal (main) flow

3.The application indicates that the username or the password is incorrect

It will go back to point 2

A2 Incorrect card personal information

A2 start if the customer chooses to pay by card at point 12

It will go back to point 1

Error flow:

E1. Error username or password or both

The flow E1 start at point 2 of the main flow (nominal flow)

3. The application does not verify the password and username entered by the customer.

UC end here

E2. Delivery person not available

The flow E2 start at point 9 of the main flow (nominal flow)

10. Application does not calculate total amount to be paid.
11. Application does not ask the customer to pay either by cash or by card.

UC end here

E3. Payment method not except

The flow E3 start at point 12 of the main flow (nominal flow)

Post-conditions:

- The delivery must be saved in the application.

Q6] Milestone:

Tasks	Comments/ Checks
The main idea	We used several ways in order the find the best idea
Collecting requirements	It took two meetings to collect all possible functional and non-functional requirements to improve the application
Diagrams	We distributed the work on diagrams then we met to modify the diagrams
Validation	At this point, we checked on all the requested requirement, if they were successfully done
Stakeholder approvals	The client approved in each decision we made
Meetings	In every meeting there were at least two members of the team
Start and end date	Everything was done approximately on time
Teamwork	Almost everything in this part of the project has been discussed by the team members

Q7] Team Contribution:

Team member	Contribution
Mawada	- Contributed in : • Introduction • specifying the functional requriments • specifying one non functional requriments • Drawing the use cade diagram • Drawing the seqence diagram • Drawing the activity diagram • Alternative flow • Milestone
Manar	- Contributed in : • elecitation • specifying the functional requriments • specifying one non functional requriments • Drawing the use cade diagram • Drawing the seqence diagram • Fuctional requriment for request delivery • Error flow
Kalsoom	- Contributed in : • Elecitation • Creating the google form for the survey • specifying the functional requriments • specifying one non functional requriments • Drawing the use cade diagram • Drawing the seqence diagram • Validation • Main flow • Organized the project file

Q8] Coordination:

Number of meetings	Day /Date	Duration	Host of the meeting	Discussed subjects in the meeting
1	Tuesday / 23-3-2021	1-1.5 Hours	Mawada	• Realizing part 2 of the project • The introduction • Started question 1
2	Thursday/ 25-3-2021	1 Hour	Mawada	• Specified the functional and nonfunctional requirements. • Distributed the work among us
3	Saturday/ 27-3-2021	45 min	Kalsoom	Made a Survey to collect the requirements.
4	Monday/ 29-3-2021	1 Hours	Manar	Discussed the main use cases and the use cases associated with them
5	Thursday/ 8-4-2021	30 min	Mawada	• Continued working in question 2 of part 2 of the project • Activity diagram
6	Thursday/ 8-4-2021	1 Hours	Kalsoom	Did some corrections in the survey
7	Friday/ 9-4-2021	~1 Hour	Manar	Validation and did some modification in the project
8	Sunday/ 11-4-2021	4 Hours	Kalsoom	• Use case diagram • Functional requirement • Sequence diagram
9	Monday/ 12-4-2021	2 Hours	Manar	• Completed the final touches in the project • Filled the contribution table

We used a group chat on WhatsApp for easier and faster communication, after that we started meeting online using google meet. Moreover, we used Gmail in order to share the project's files.