



COMP 433 FINAL PROJECT REPORT

Department of Computer Science

Professor: Dr. Adel Taweel

Group: G3

Students: Nada Qaraeen 1140036

Jumana Sa'd 1140991

Sondos Sarraj 1140275

Duja Dabdoub 114008

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CHAPTER 1

Project planning and management

1.1 Group name

We are group G3.

1.2 Name and role of each member

1. Nada Qaraeen: Group Manager.
2. Jumana Sa'd: Secretary.
3. Sondos Sarraj: Technical Architect.
4. Duja Dabdoub: Programmer.

1.3 Project management strategy

Most of the team's meetings were conducted online via Facebook Messenger. However, every two weeks, the team met on Wednesday afternoons or on Tuesday following the lecture. The decision to meet twice a week was due to conflicting schedules and was taken to ensure the participation of every team member. When it came to decision making, a team member or two would propose an idea or solution and the team would vote on whether or not to adopt this decision.

The software process model adapted to complete this project was the agile development model.

1.4 Project manager's report

The team members did most of the work together. The task would be discussed among ourselves, the feedback from all team members would be assembled into a final draft/solution agreed upon by all of us and the documentation/digitalization of the solution would be assigned to one of the team's members. During later phases, our approach to dividing the tasks was

more individual-based; each member would be assigned a certain task to work on. Nevertheless, we still discussed the tasks together beforehand so as to have a preconceived idea about how to accomplish the task.

I would say we did a relatively great job with the project. It was a bit difficult at first since we were still trying to understand the whole concept and we still had to work out some communication issues. But over the course of the semester our understanding of the project became clearer and the communication between our team members vastly improved. In addition, feedback from the team members, customers, and lecturer were all taken into consideration and we always strove to improve on our work as much as possible.

Number	Nada Qaraeen (Group manager)	Sondos Sarraj (Technical Architect)	Jumana Sa'd (Secretary)	Duja Dabdoub (Programmer)
1	Requirement Analysis	Requirement Analysis	Requirement Analysis	Requirement Analysis
2	USER and SYSTEM requirements.	USER and SYSTEM requirements.	USER and SYSTEM requirements.	USER and SYSTEM requirements.
3	Detailed use case for rating a pizza	Detailed use case for ordering a pizza	Detailed use case for paying for the order by credit card	Detailed use case for editing an order
4	Sequence diagram for the above detailed use case	Sequence diagram for the above detailed use case	Sequence diagram for the above detailed use case	Sequence diagram for the above detailed use case
5	State diagram	Object diagram	Putting together the slides for the PowerPoint presentations	Initial use case diagram draft
6	Contribution to component diagram	Contribution to component diagram	Contribution to component diagram	Deployment Diagram
7	Overall use case diagram	Scenario Ordering pizza	Overall architecture	Classes Analysis
8	System design goals		Overall Activity diagram	Scenario for ordering with (un)available ingredients
9	Actors Analysis		Complete Cost and Effort Estimation.	
10	Scenario for GPS tracking delivery		Scenario for logging in	

Table 1: Work of each member

1.5 Project members' report

1. Sondos:

I think that most of the work was very collective and cooperative between the group members. We most the time divided the works between us but at the end we reviewed it together .We often tried to build the drafts for the diagrams together , later one of us draw the final version .

My tasks:

- Write SCENARIO for my use case which was ordering Pizza.
- Detailed use case for ordering pizza.
- ACTIVITY Diagram for the use case.
- SEQUENCE Diagram for the use case.
- OBJECT Diagram
- Contributed in COMPONENT diagram.
- Contributed in Requirement Analysis.
- Contributed in USER and SYSTEM requirements

2. Jumana:

In my opinion this was a good experience for making such a project in this course, our group did really a good team work with the requirements and diagrams, and we continuously used to be in touch on social media to work on this project, using chat messages and voice notes.

In this project, my tasks were mainly:

- Write SCENARIO for my use case which was ordering Pizza.
- Detailed use case for ordering pizza.
- ACTIVITY Diagram for the use case.
- SEQUENCE Diagram for the use case.

- Make the PowerPoint slides for the two presentations and add some charts that's related to our project.
- Contributed in COMPONENT diagram.
- Contributed in Requirement Analysis.
- Contributed in USER and SYSTEM requirements
- Make the Overall Activity diagram.
- Make the overall Architecture.
- Did the Cost and Effort Estimation.

3. Duja:

Working on the project was cooperative and went smoothly. Everyone did their tasks to the best of their abilities and helped each other when needed.

My tasks:

- Requirement Analysis
- USER and SYSTEM requirements.
- Detailed use case for editing an order
- Sequence diagram for the above detailed use case
- Initial use case diagram draft
- Deployment Diagram
- Classes Analysis
- Scenario for ordering with (un)available ingredients

CHAPTER 2

Requirement elicitation and analysis

2.1 Business description

Pizza shop is an online website, which helps the user to:

1. Order different types of pizza, or customize his own order.
2. Determine when and where the pizza will be delivered.
3. Be provided with many offers from the shop.
4. Pay using credit card or by cash.
5. Rate the Pizza.
6. Contact the shop.

2.2 User Requirements

1. The ordered pizza(s) shall be delivered to customer in minimum time during working hours.
2. Customers shall be able to create an account and log in to order a pizza online.
3. The website shall display a menu of ready pizzas for the customer to choose from.
4. An option to customize the pizza order shall be provided.
5. The customer shall be able to choose either a soft or a fresh drink with each order.
6. Using the GPS, the system shall be able to locate the customer and pass this information to the deliveryman.
7. The system shall inform the customer of the preparation and delivery times as well as the cost.
8. The system shall provide the customer with the option to pay either by visa card or by cash upon delivery.
9. The customer shall be able to rate each ordered pizza as well as the service.

10. The system should store all past orders to be available for viewing to the customer.
11. The manager shall be able to view all past orders.
12. The website shall have a 'Contact us' zone with information regarding the email, phone no. social media...etc.

2.3 System Requirements

- 1A. The order service shall be available to the customer from 10AM to 12AM (working hours).
- 2A. In order to create an account, the user should fill a form specifying his/her name, address, credit card information, phone number and email.
- 2B. The user shall then proceed to fill in the username and password information
- 2C. A confirmation email shall be sent to the customer to verify the account
- 2D. The order option shall not be available to non-registered users; they can only browse the menu.
- 2E. The user's personal and payment information shall be secure; to be only available to the management system.
- 3A. The website shall display a menu of ready pizzas.
- 3B. Each item shall specify the pizza's name, toppings, price and average preparation time.
- 3C. Next to each item –if the customer is registered and logged in- an order button shall be placed.
- 4A. At the bottom of the ready menu page, a 'Custom pizza' button shall be placed.
- 4B. A drag and drop list of toppings shall be displayed in the page
- 4C. The customer selects a topping by clicking on it and dragging it to the pizza model.
- 4D. With each appended item, the cost shall be updated

4E. Once ready, the customer clicks the submit button and the system provides the preparation and delivery time information and if the customer is content with them he/she proceeds to click the order button.

5A. For the ready menu, when the user clicks the order button next to the item, the page directed to displays a menu of soft and fresh drinks for the customer to choose from.

5B. When the user selects a drink the price is updated.

5C. For the custom order, the drinks menu shall be displayed under the toppings section and the price shall be updated upon selection as with the ready order.

6A. After the customer finalizes the order's details, the system shall display a map and a flag should specify the customer's location as determined by the GPS system.

6B. If the address is correct, the customer clicks the confirm button and the address is passed along with the order to the delivery man.

8A. When ordering the customer shall be able to choose from two payment options: payment by credit card, or payment by cash.

8B. If the credit card option is selected, the customer's payment information in his/her account shall be displayed for confirmation.

8C. In case of an error in the credit card system or in the event of the card's having expired a notification shall be displayed on the page in a bold red text.

8D. In case of a problem occurring as specified in 9C or the customer's not wishing to pay by credit card a 'Pay by cash' option shall be available.

8E. If the latter option is selected, a bill shall be printed to be signed by the customer after payment upon delivery.

9A. When the customer is logged in, he/she shall have the option to rate each pizza item in the ready menu if that item is listed among the customer's past orders. Otherwise, the rate button next to the item should be disabled.

9B. The rating page shall display a list of the criteria upon which the rating shall be based. With a five-star rating system next to each criterion

9C. The criteria shall include:

10A. The customer's account page shall include a link to a page displaying the customer's past orders.

10B Each item in this page shall provide information on the item's name, order's date, payment information and how much time did it take to both prepare and deliver the order.

11A The manager shall be able to search for a specific order(s) by item name, order date, customer's name or address.

11B The system shall display the list of matching orders with the same information as specified in 11B.

12A. The footer section of each page shall display contact information: Phone number, email as well as links to the social media account pages of the restaurant.

2.4 Scenarios

Scenario 1: (By Sondos)

- Normal

The customer wants to order piazza from the website which he has created an account on it. He starts searching for his favorite pizza from the read menu, if he doesn't like any, he can create one from another menu, then choose a drink and finally pay.

- Alternative:

Customer doesn't have visa or credit card;
He can pay when delivered.

- Error

The system maybe under maintenance, so the customer should order using phone, and the order will be written on a paper. After finishing maintenance the information will be saved in the system.

- Other activity

The written order maybe lost by mistake so this will cause some errors in the orders. System state on completion: customer logged in, choose and order his own pizza, can rate the system and activate the track system then pay. And the order delivered on time.

Scenario 2: (By Nada)

- Normal:

A customer accesses the website, logs into his account and then orders the Veggie pizza available in the menu, and pays by credit card. The system automatically locates the customer, does the traffic and distance calculations and estimates a combined preparation and delivery time of forty minutes. The pizza is ready, passed to the deliveryman and delivered on time.

- Alternative:

An error occurs in the GPS tracking system in which it automatic location does not work. The customer manually specifies his location on the online map, the information is transmitted to the deliveryman, the necessary calculations are made, and the order is safely delivered.

- Error:

The system's GPS tracking system has completely crashed and the customer's location cannot be provided either automatically or manually. The customer phones the shop to give his address which is passed on to the deliveryman.

Scenario 3 (By Jumana)

- Normal

A customer create an account on the website, this is the first time he registers. He enters his username, creates a unique password, and confirms it correctly so he now has an account.

- Alternative

A year pass since the customer have created his free account so he had to pay an amount of money so he could still use the website services.

- Error

The customer enter an invalid username, (username start with numbers for example or an exist username).

- Error

The customer enter unmatched password, or invalid password when registration the account (less than 7 characters for example).

- Error

System crash and refuse to add the account to the database.

Scenario 4: (By Duja)

- Normal

Customer orders a custom pizza and chooses the different ingredients. All ingredients are available and the chef makes the pizza easily and the pizza is delivered on time.

- Alternative

Shop has run out of some ingredients. The inventory manager restocks and the chef proceeds to make the ordered pizza. The customer is alerted to the possible delay.

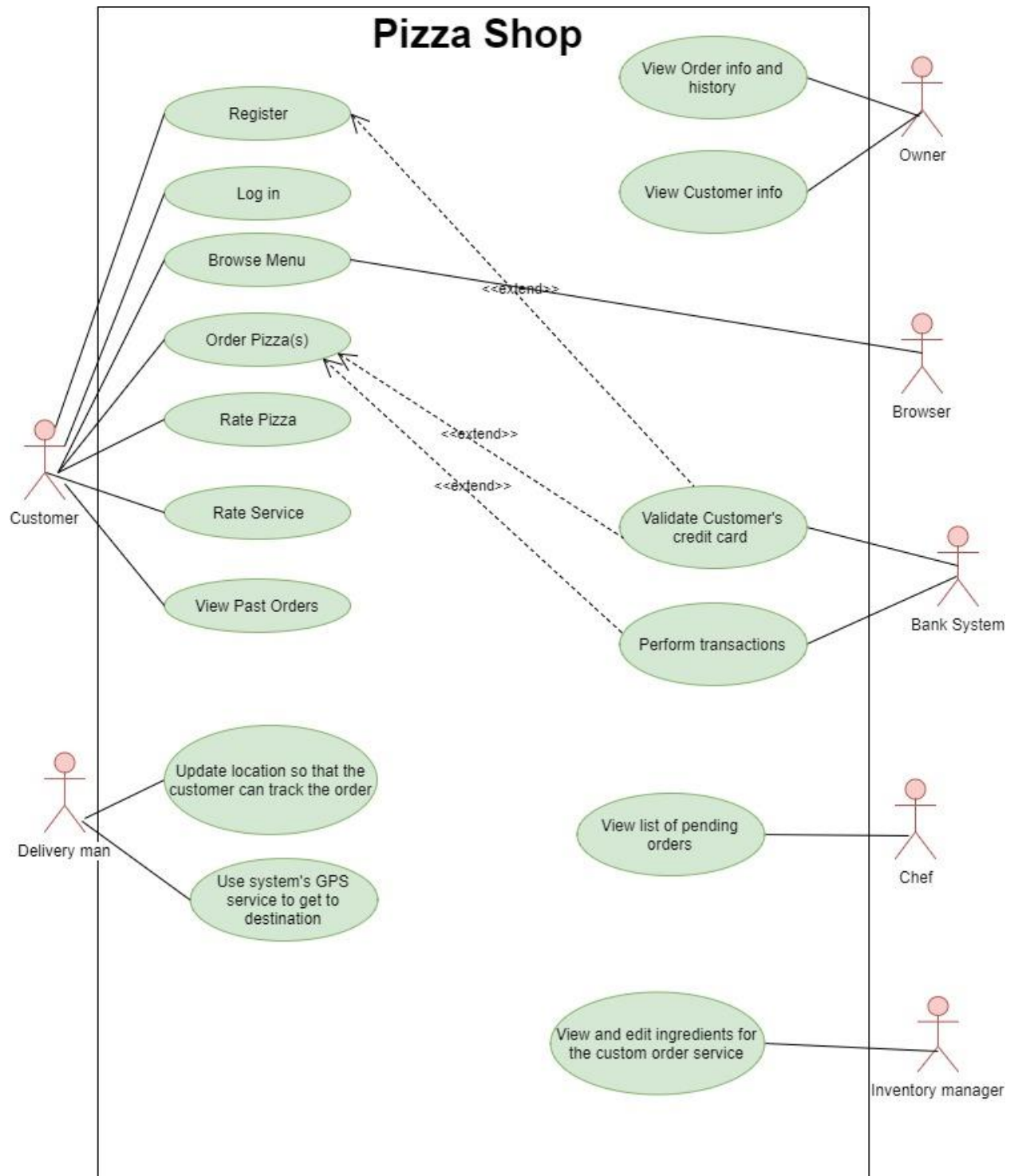
- Error

Some of the ordered ingredients are not possible to restock within a reasonable time. The customer is asked to change their order and the ingredients are deactivated from the selection menu.

2.5 Actors' analysis and description

- Customer: This actor represents someone who registers on the system and can order pizza.
- Delivery man: This actor represents someone who delivers order to customer and changes the status of order after delivering it.
- Chef: this actor represents someone who provides and produces the pizza orders.
- Site Manager: A person who is responsible about the site and the orders through the site.
- Inventory Manager: This actor is a person who is manage the resources in the shop.

2.6 Overall use-case diagram



2.7 Detailed use cases

Order a Pizza (By Sondos)

Actor	Customer , chef
Description	The Customer may order a pizza from the ready menu if the type he likes exist, or can create his own pizza from the another menu . Then , it will be delivered in a specific time.
Pre-Condition	The customer may log in the website and order through it.
Flow of events	<ol style="list-style-type: none">1. Open the site.2. Enter contact information (address, ...)3. Order4. pay
Data	Name, address, email, phone number, visa card.
Trigger	The customer click the create account or log in button.
Post-conditions	The system must have the customer information and add it to the data base to allow logging in every time.
Comments	No comments.

Pay for order by credit card (By Jumana)

Actor	Customer
Description	The customer will pay amount of money after request the order by entering his bank account number, the shop will withdraw the money from.
Pre-Condition	<ol style="list-style-type: none">1. The customer registered to the system.2. The customer filled order form and send it.
Flow of events	<ol style="list-style-type: none">1. Customer logs in2. Customer visit the order page.3. Customer choose the order.4. Customer entered his contact information.5. Customer chooses the payment method with the credit card.6. Customer enters account number to withdraw required amount of money.
Data	Customer bank account number or visa card number or debit card number.
Trigger	Customer press pays the required amount button.

Post-conditions	The system will withdraw the amount of money from customer account to the pizza shop account after the order being packaged, then order becomes paid.
Comments	No comments.

Rate Pizza (By Nada)

Actor	Customer
Description	Rate ordered pizza with regards to the following properties: Crust, Sauce, Toppings, Cheese, Price, and delivery service.
Pre-Condition	<ol style="list-style-type: none"> 1. Customer is registered and logged in on the system 2. The rated pizza is listed among the customer's previous orders
Flow of events	<ol style="list-style-type: none"> 1. Customer logs in 2. Customer visits his/her 'Past orders' page 3. Customer chooses the pizza to be rated 4. Customer gives a 1-5 star rating for each of the properties listed above in the description 5. Customer clicks the submit button located at the bottom of the page
Data	The 1-5 star rating given to each of the six listed properties
Trigger	Customer presses the rate button located next to the pizza item.
Post-conditions	The pizza's rating information and average rating is upgraded in the database.
Comments	No comments.

Edit an order (By Duja)

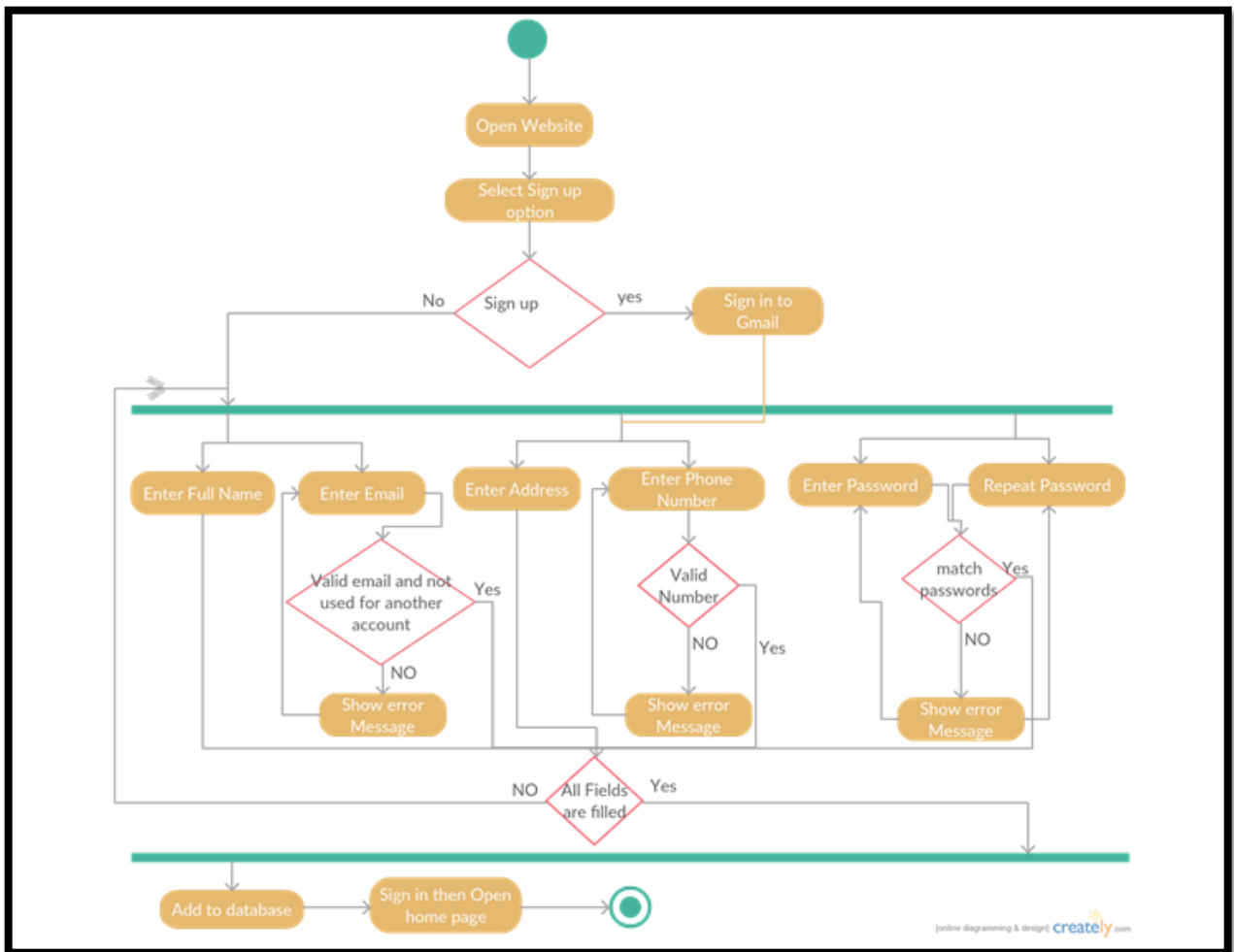
Actor	Customer
Description	The customer creates an order and then sends it to the shop, after a while he changes his mind and wants to modify the order.
Pre-Condition	<ol style="list-style-type: none"> 1. Registered to the system. 2. Filled order form. 3. The pizza is not yet in the making.
Flow of events	<ol style="list-style-type: none"> 1. Deduct the info to be modified. 2. Modify the form 3. Resend it.
Data	No data needed.
Trigger	Customer press edit button.
Post-conditions	The system adds the order to the list of orders.
Comments	No comments.

2.8 Activity Diagrams

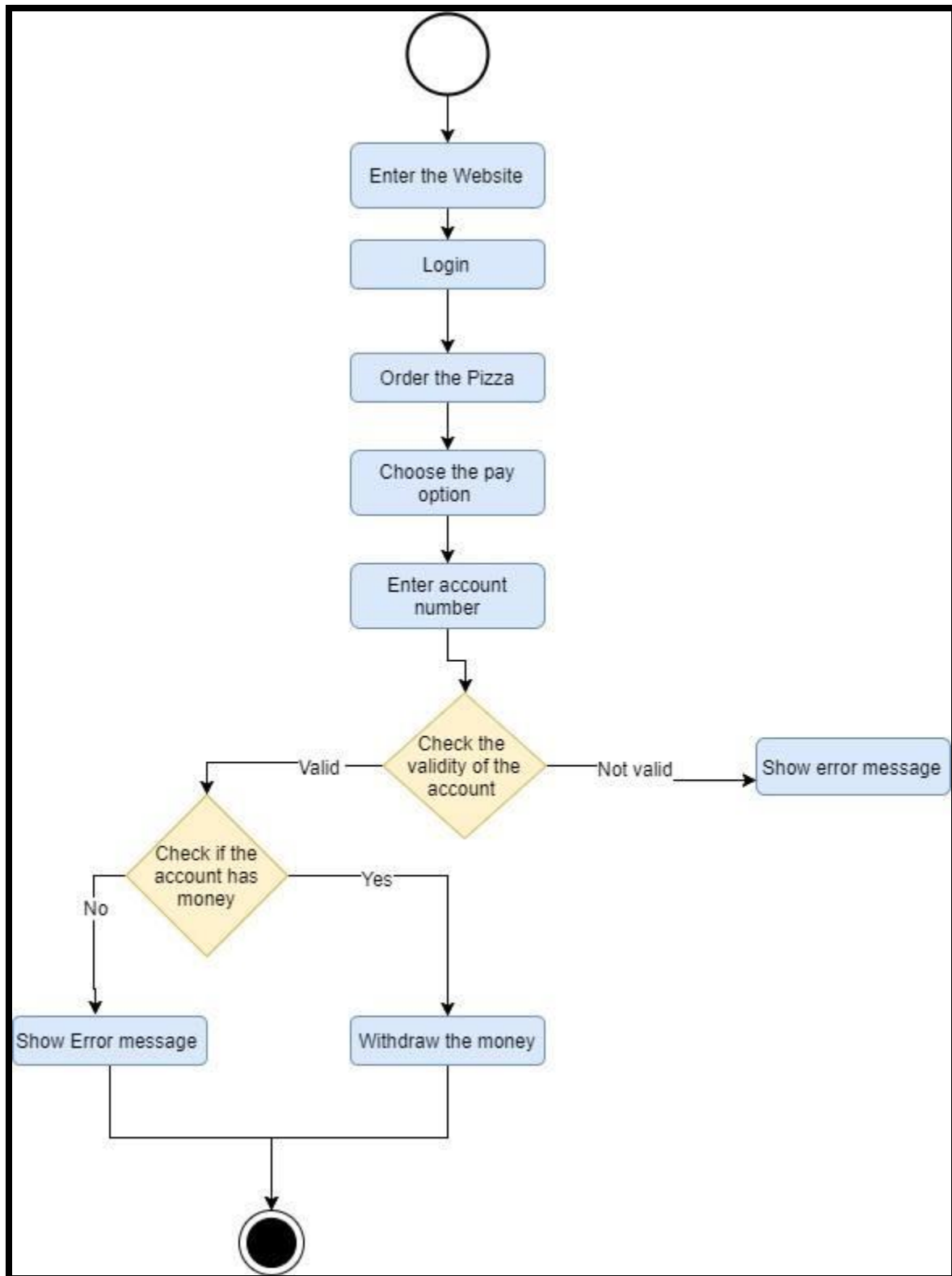
Overall Activity Diagram (By Jumana)



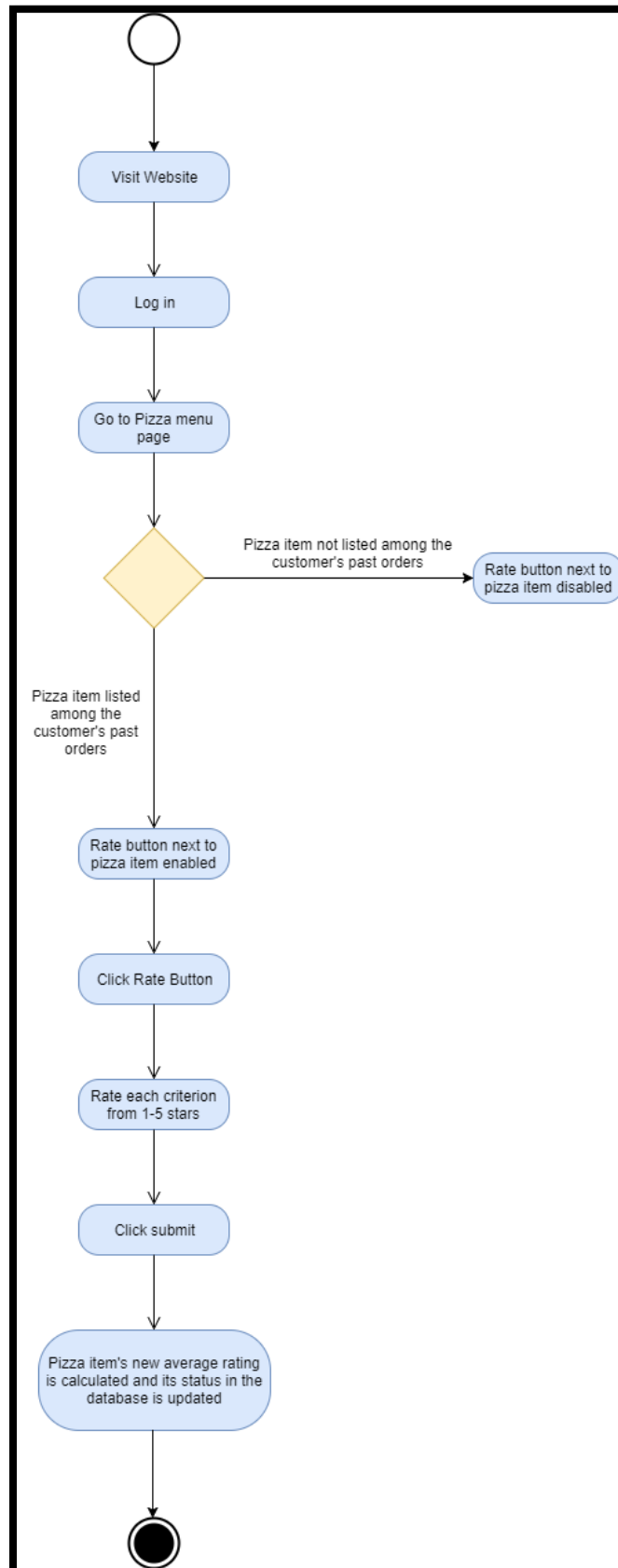
Order a Pizza (By Sondos)



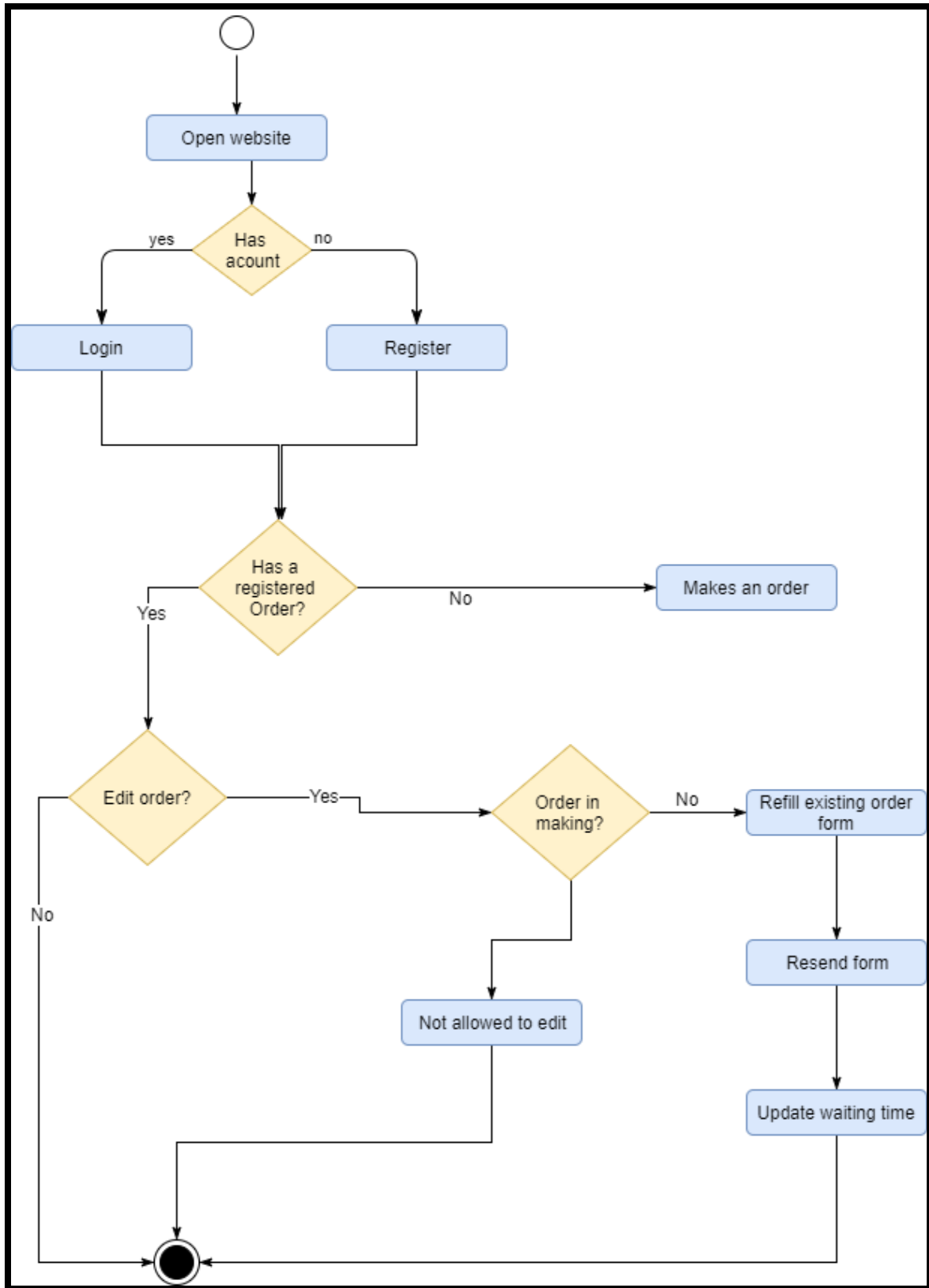
Pay for order by credit card (By Jumana)



Rate Pizza (By Nada)



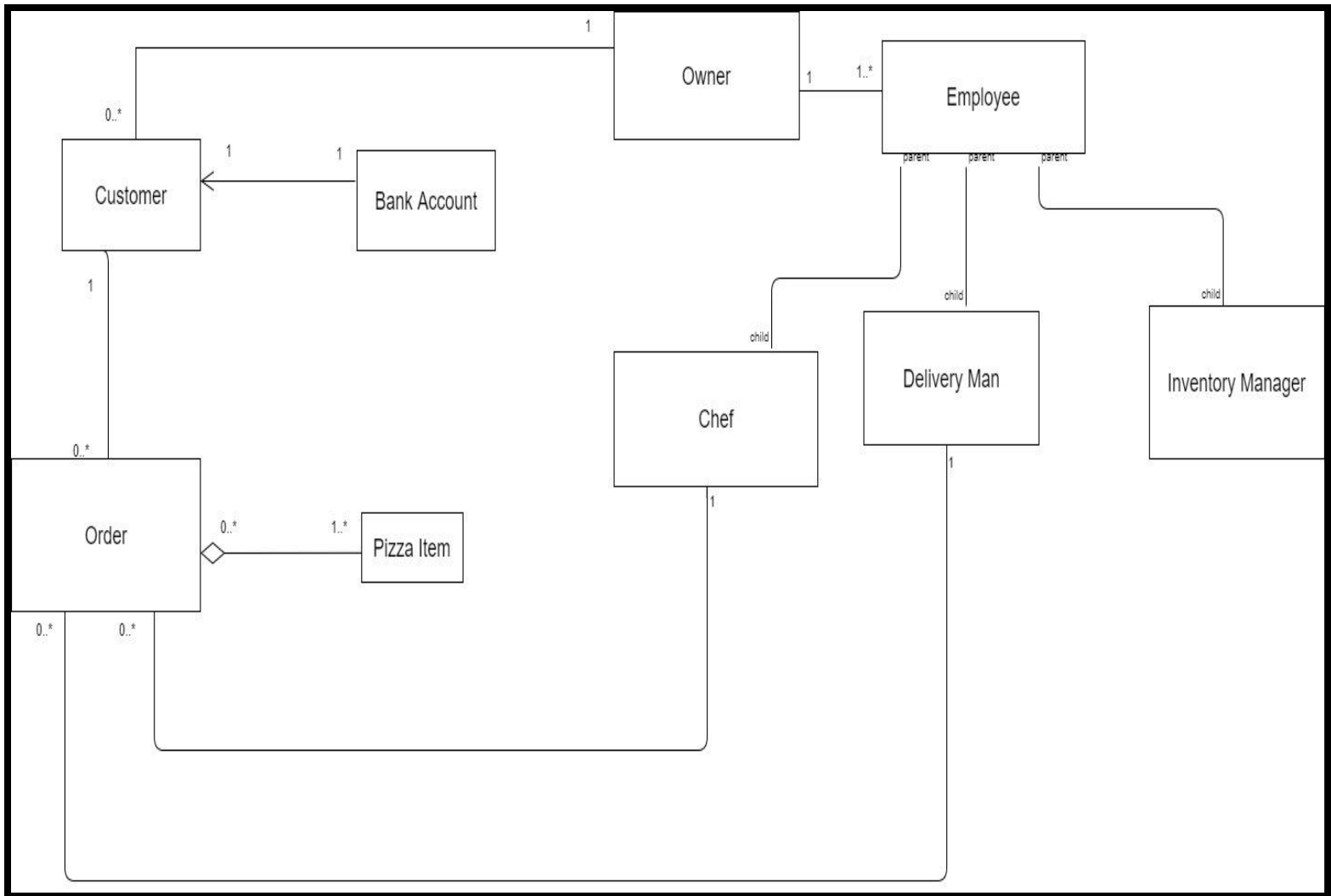
Edit Order (By Duja)



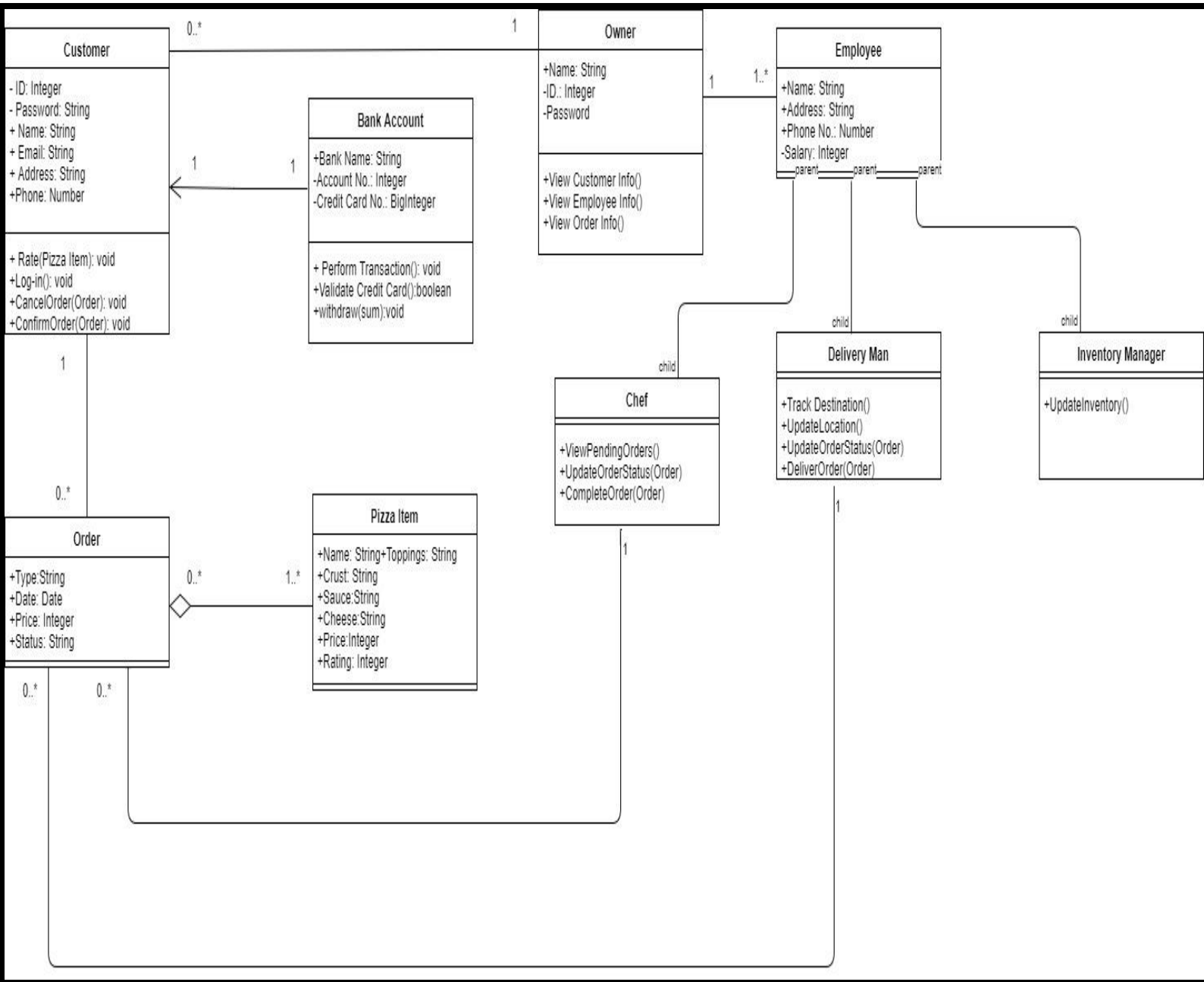
CHAPTER 3

System modeling and analysis

3.1 Analysis Class model



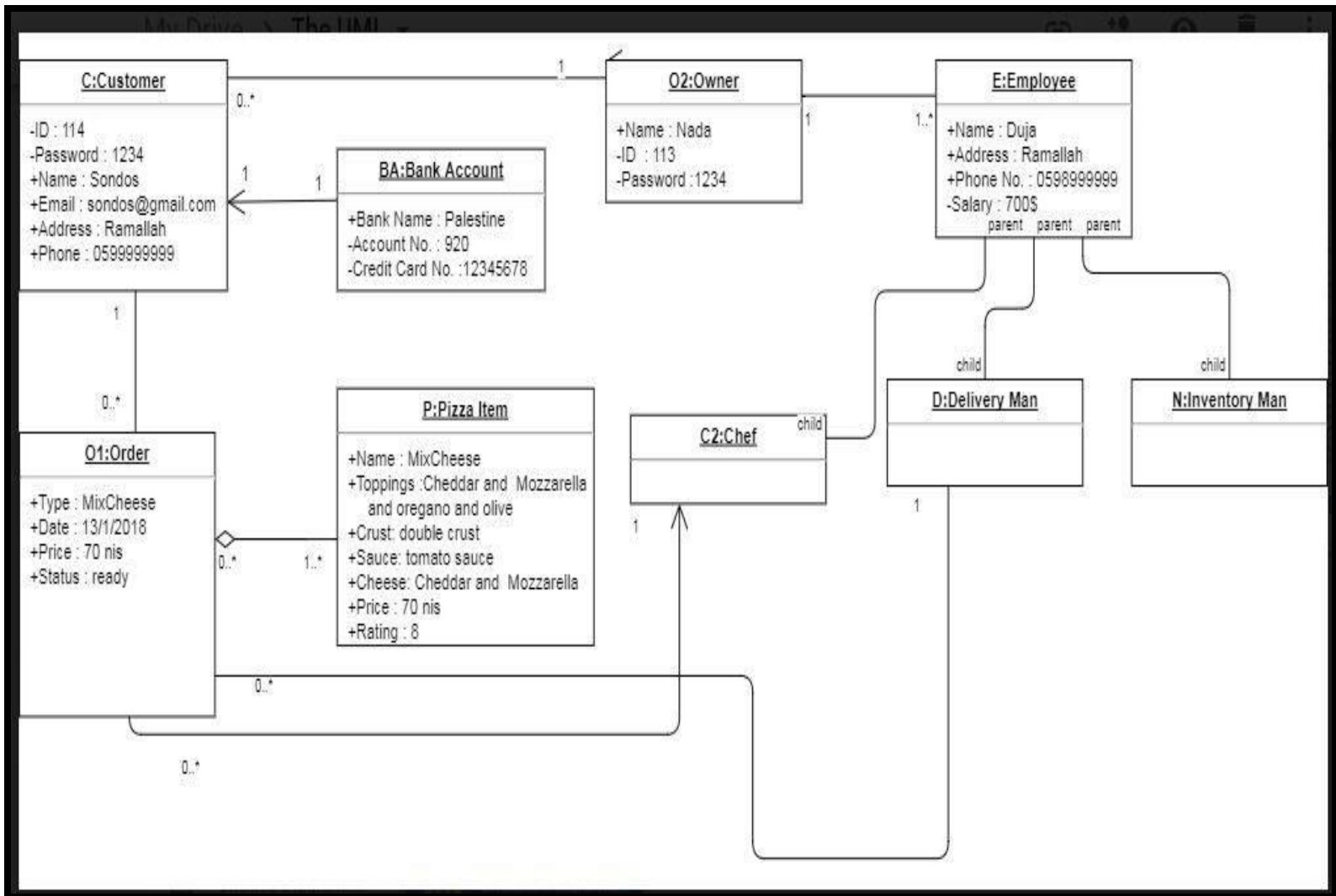
3.2 Detailed Class model



3.3 Description of classes

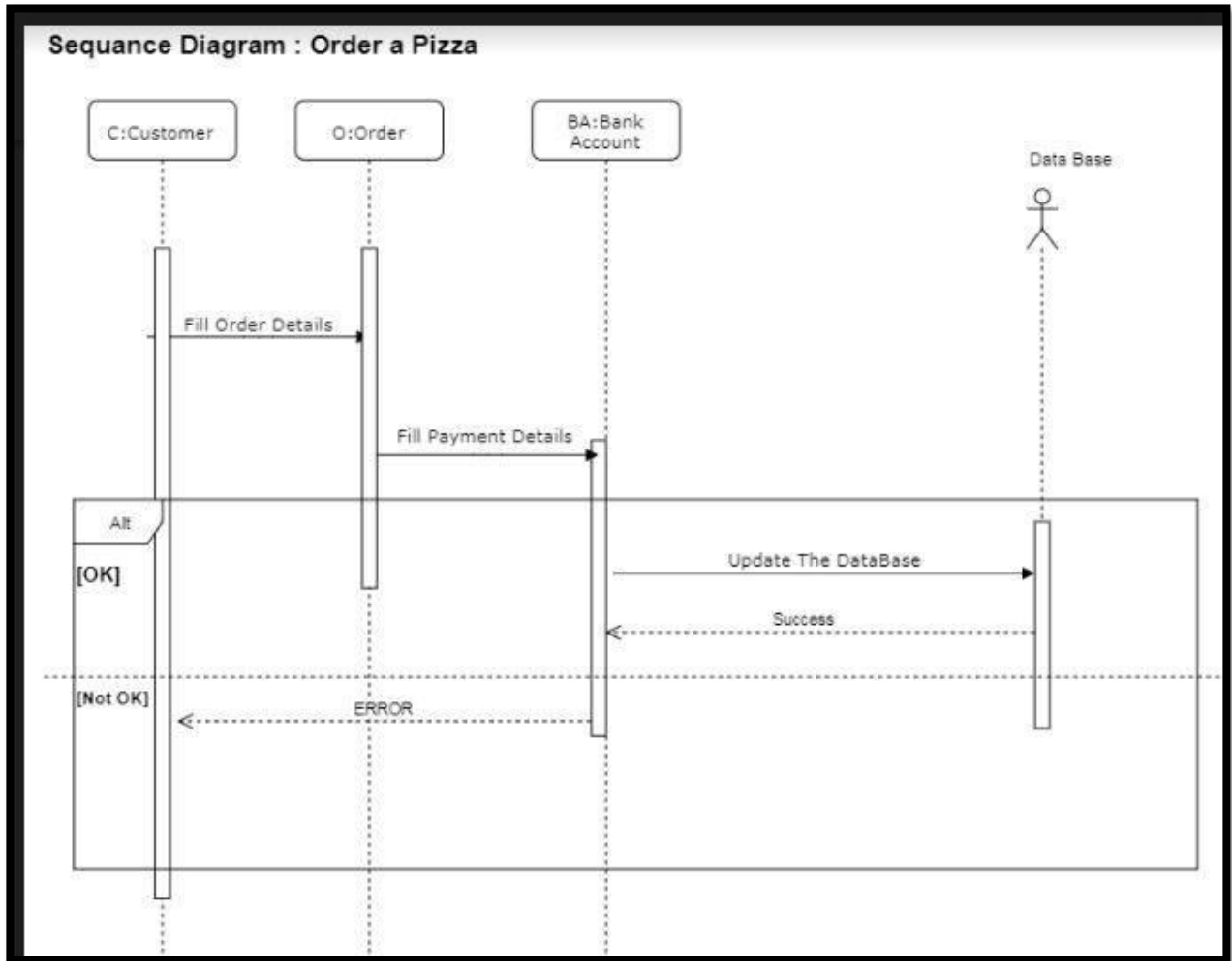
- A. Order: This class has the information about the order customers make, Type of it, its cost and its status. Customer can delete or modify any order.
- B. Customer: This class represents the customers in the system, it has all their information, and they are allowed to edit their profile.
- C. Bank Account: A Bank Account is needed for each Customer in order to pay for their orders online.
- D. Employee: This Class represents all types of employee in the shop, and contains all their information (Abstract Class).
- E. Owner: Views and manages the data of employees, customers and orders.
- F. Inventory Man: The class which represents the employee who oversees, refills and manages the restaurant inventory.
- G. Delivery Man: This class represents the employee who drives the order to customer; this employee can also view some information about customers.
- H. Chef: This class represents the employee who makes and readies the order. This employee views all customer's orders.
- I. Pizza Item: represents the type of made orders, its toppings and details. It also receives the rating from the customer.

3.4 Object Diagram (By Sondos)

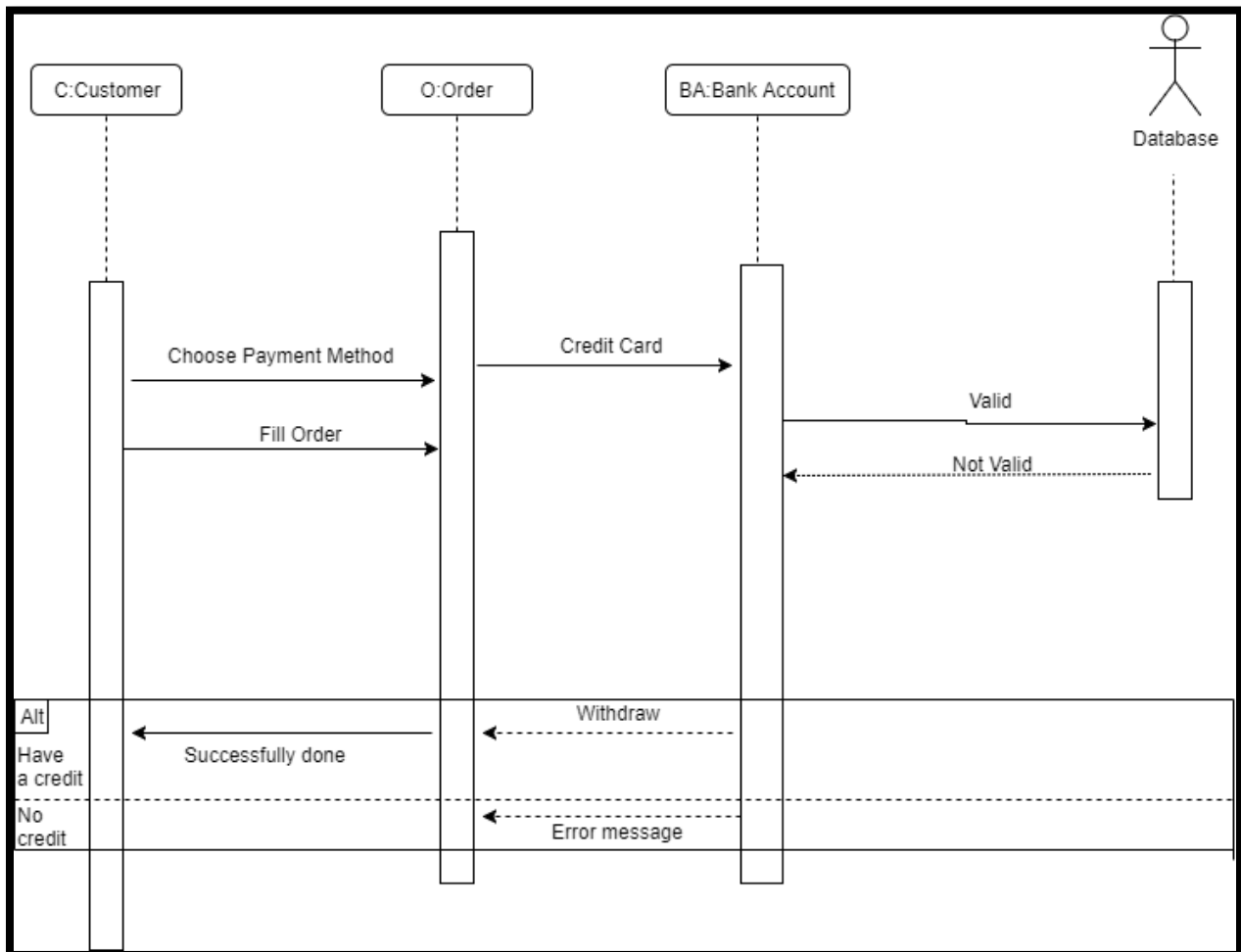


3.5 Sequence diagrams

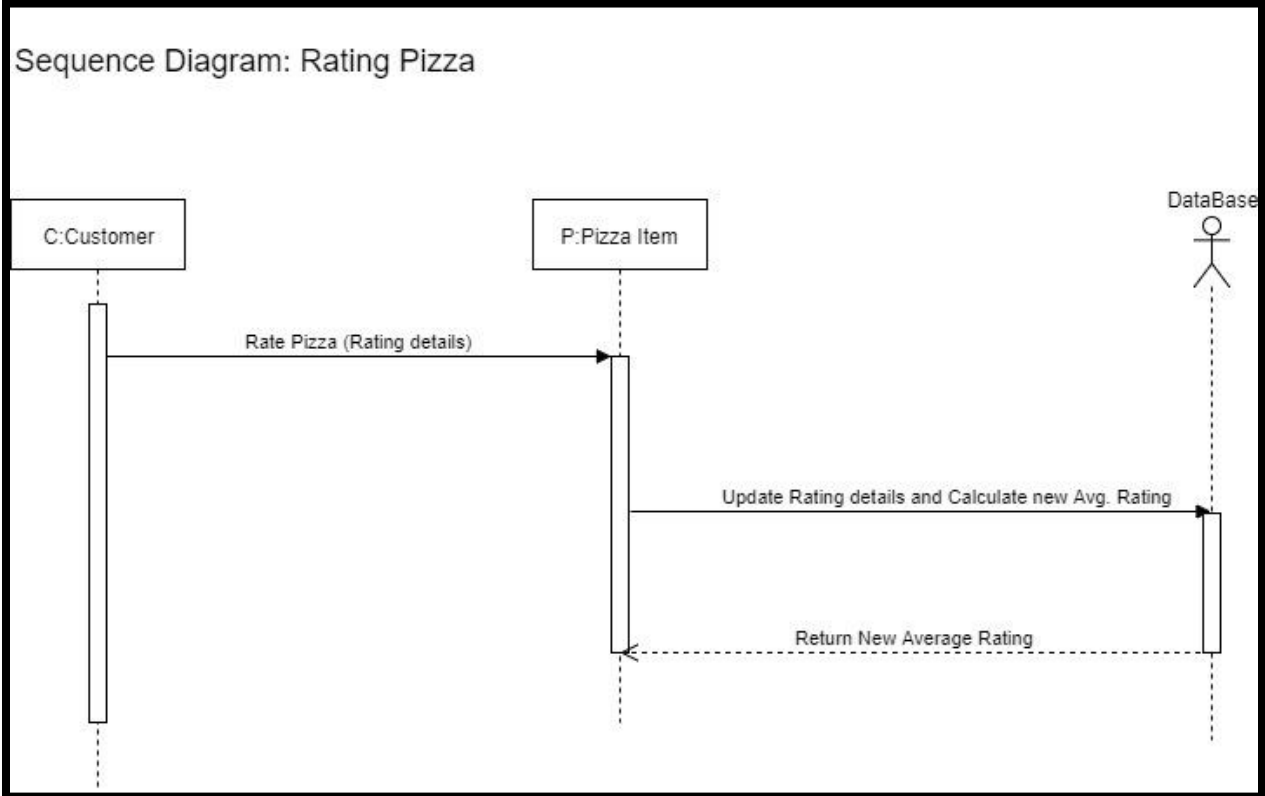
Order a Pizza (By Sondos)



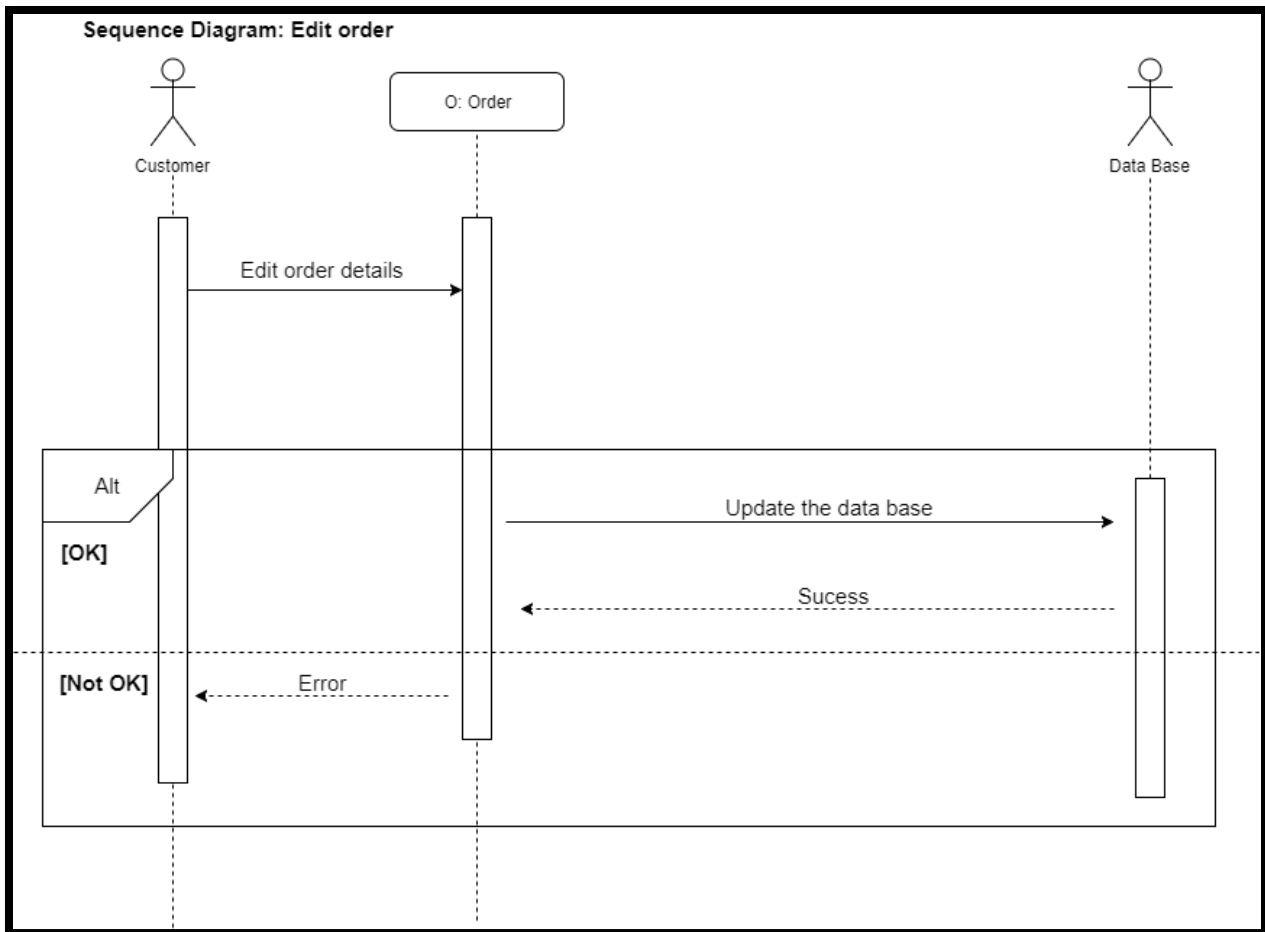
Pay by credit card (By Jumana)



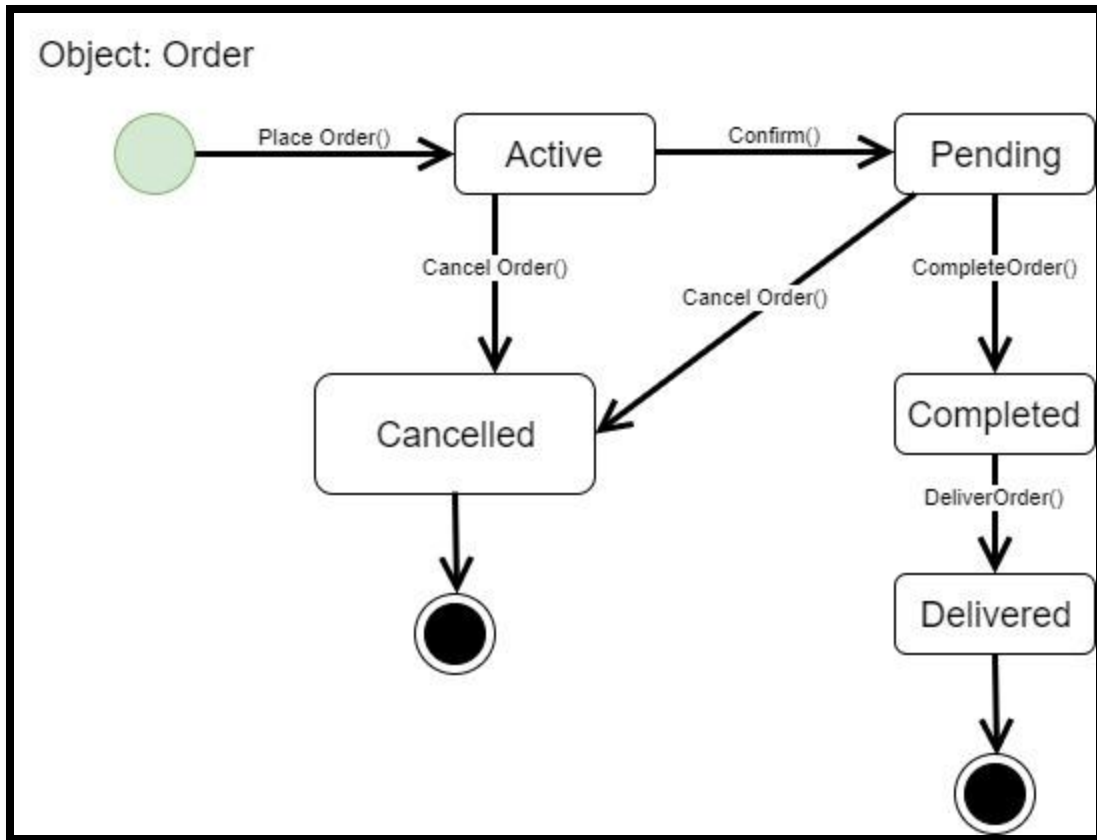
Rate Pizza (By Nada)



Edit an order (By Duja)



3.6 State diagram (By Nada)



CHAPTER 4

System design

4.1 Description of design goals

General Goals:

1. High cohesion: Classes that interact to perform a certain function are placed together in one component that provides the service of said function.
2. Low coupling: If a class has interactions that relate to different components, copies of that class are made and distributed among the components so as to lower the rate of interaction between them

Specific Goals:

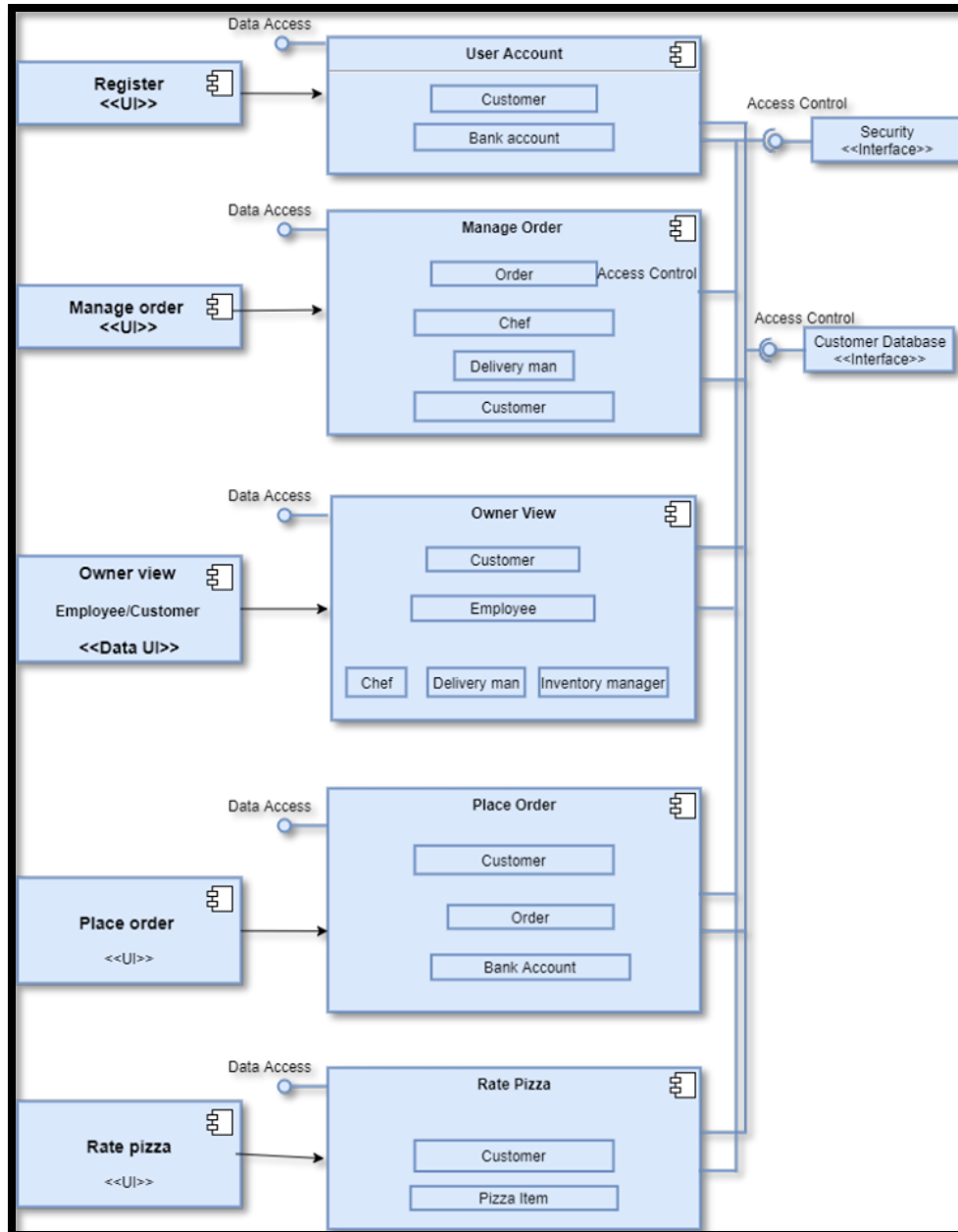
1. User friendliness: Achieved by providing the customer with several user interfaces.

4.2 Component diagram

We tried to achieve high cohesion by having related classes, which interact a lot to perform a certain task, together in the same component. For example, for the “Manage Order” function the Order, Customer, Chef, and deliveryman classes are placed in the same component because they frequently interact with each other to perform that function.

To achieve low coupling, we distributed copies of classes that are needed for more than one service -most notably the Customer class- among different components so as to lower the rate of interaction between these components as much as possible

We designed five GUIs to achieve to “User-Friendliness” goal.

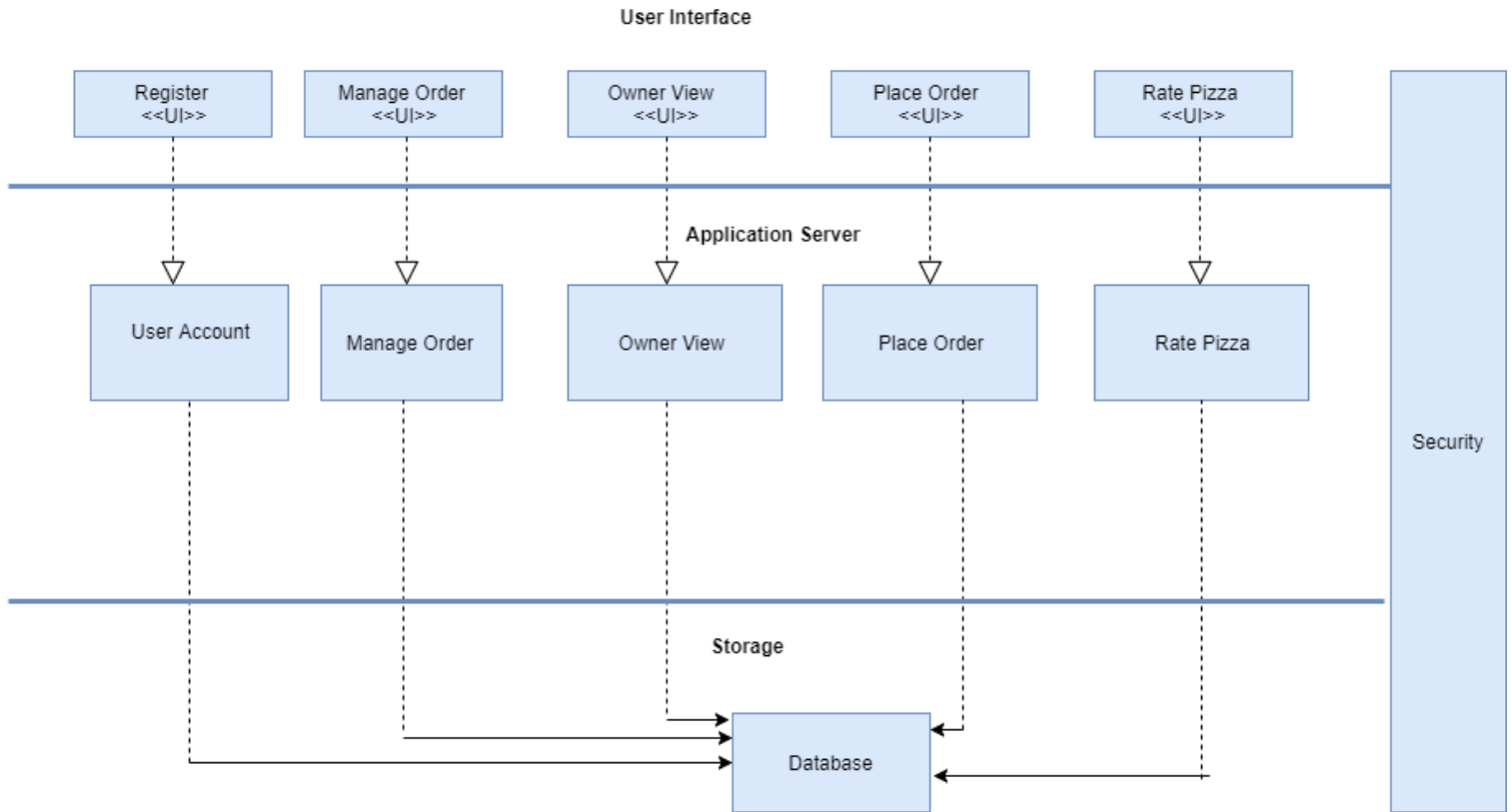


4.3 Overall architecture diagram

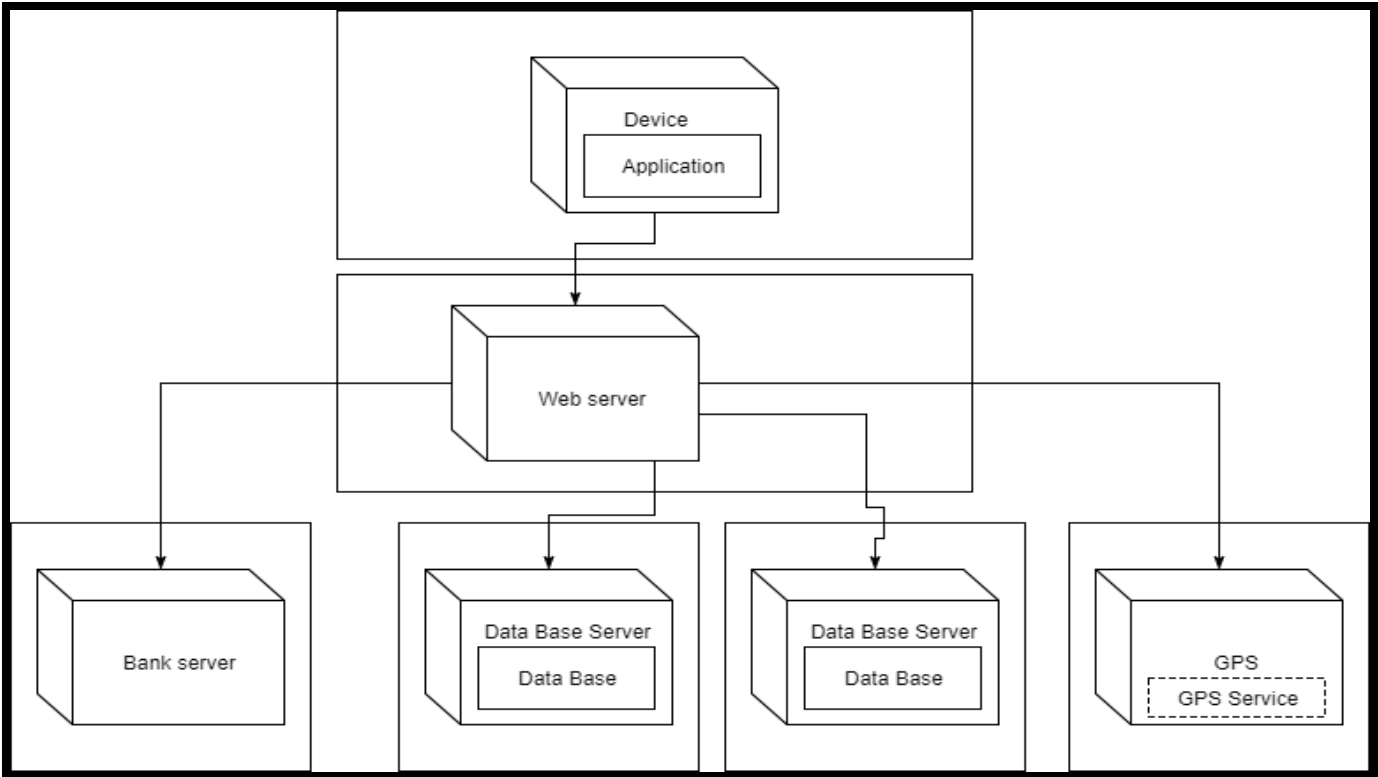
We chose to adapt the client-server architecture with three separate layers. The customer's device (computer, mobile phone, tablet...etc.) houses the user interface layer, consisting of the five GUIs. A server computer houses the

Application server layer which provides all the processing services. It is better to separate the interface layer from the application server layer to achieve user-friendliness.

The bottom layer consists of the database, which stores the shops logs and data.



4.4 Deployment diagram



CHAPTER 5

Assessment and effort estimation

Your Customer Group
No.
3

Your Developer Group
No.
3

5.1 Assessment

5.1.1 User requirement approval phase

1-Are these items included or submitted to in the approval report? -delete YES or No as appropriate.	
✓	The requirement statement/Business description – which you supplied to them.
✓	USER Requirements.
✓	SYSTEM Requirements
✓	The negotiated COST of project completion.
✓	The negotiated TIMESCALE (delivery time) of project completion.
2- Do you Approve the USER and SYSTEM requirements? -delete YES or No as appropriate.	
✓	Yes, USER requirements are complete and meet my business needs.
✓	Yes, SYSTEM requirements are complete and meet my business needs.
✓	No, requirements are not complete- some requirements are missing and are listed below in 3.1.
✓	No, requirements are not complete- some requirements are not correctly identified and are listed below in 3.2.
3- Assessment of the cooperation with your developer group	
3.1- Have your respective developer group written the USER and SYSTEM requirement with valid characteristics? If No, list the numbers of requirements that you think are not VALID.	
All requirements had valid characteristics	
3.2- Have your developer group put enough effort to understand your business and identify both USER and SYSTEM requirements correctly? If yes, write how well you think they understood your business. If no, write what they failed at to understand your business.	
Yes, they understood our business fairly well.	
3.3- Have your developer group been collaborative enough in responding to your discussion? Write a statement on their collaboration, on: how helpful in listening to your suggestions, contacting you to discuss, meeting you to discuss and suggesting ways to improve the efficiency of your business.	
Yes, they were very collaborative; whenever we presented them with a new requirement for the system they immediately took it into consideration and never dismissed it.	
4- Assessment of your COST and delivery TIME negotiation with your developer group	

4.1- Have the negotiation with your developer group been easy to reach an agreement on a suitable cost and time? If no, write what were the difficulties. If yes, write what particularly was easy to reach an agreement.	
At first, there was a disagreement due to an error which led to a wrong estimation of the cost. However, after fixing the error, negotiations went much smoother, for it was agreed that the newly estimated cost and effort were quite reasonable.	
4.2- What were the negotiated COST and EFFORT/TIME relative to your expected ones?	
AGREED COST: 5000\$	AGREED TIME: 40 days AGREED Delivery date: Late January 2018

1- Assessment of Requirement discovery techniques and ability
1.1- Have your customer group provided you with CLEAR answers to your queries about their business needs in terms of USER Requirements? If yes, how clear were their answers to help you identify USER & SYSTEM requirements. If no, write what issues where not clear (or ambiguous).
Yes, they provided us with very clear answers to our queries. The business is fairly simple with few complexities which resulted in little ambiguity in our negotiations.
1.2- Have you found any particular aspect difficult to analyse or understand out of your customer's business USER & SYSTEM Requirements needs? If yes, describe what aspects. If no, write what aspects were hardest to understand.
As stated above, the business is fairly simple with few complexities, so no aspect was hard to understand. The hardest aspect to comprehend I would say was the delivery GPS tracking system.
2- Assessment of the cooperation with your customer group
2.1- Have your customer group provided you with clear answers and enough details to help you create requirements with valid characteristics? If yes, write how clear were their responses. If no, write examples of some issues they were not clear at.
Our customer group gave clear enough answers and enough details to help us create the requirements.
2.2- How prompt (or fast) was your customer group in responding to your queries? If slow, write how long they took to respond. If fast, write how effective they were in responses
Our customer group immediately responded to all our queries.
2.3- Have your respective customer group been collaborative enough in discussion? Write a statement on their collaboration, in terms of, for example, being difficult, helpful, non-responsive, not interested.

Our customer group were collaborative and very helpful in negotiations. Moreover they were almost always available to answer whatever questions we presented them regarding the details of the business.

3- Assessment of your COST and delivery TIME negotiation with your customer group

3.1- Have the negotiation with your customer group been easy to reach an agreement on a suitable cost and time? If no, write what were the difficulties. If yes, write how easy was to reach an agreement.

There was a disagreement on the price as they thought it a bit too high, but after some negotiation and compromises on both sides an agreement was reached.

3.2- What were the negotiated COST and EFFORT/TIME relative to your estimated ones?- Write these down as noted below (Please keep your detailed calculation, you will be asked to submit them later, part of your next project report)

Minimum effort:	Maximum effort:	Minimum Cost: 7293\$
Minimum scheduled time:	Maximum scheduled time:	Maximum Cost: 8619\$
AGREED COST: 7700\$		AGREED TIME: 20 days
		AGREED delivery date: Late December 2017

5.1.2 Requirement analysis phase

1-Are the following items included in the report?-delete YES or No as appropriate

✓	ACTORS analysis and their description.
✓	USE-CASE diagram(s). [One overall system use case - and up to 3 multi-level use case diagrams, if needed].
✓	USE-CASES and their detailed description [up to 4 use cases, one each]
✓	ACTIVITY diagram (s): <u>One</u> main activity diagram to show a business process, and up to <u>four</u> instance activity diagrams of key use-cases, one each, preferably of the scenarios in detailed before, showing its normal, alternative and error flows.

2- Do you Approve the requirement Analysis report? - -delete YES or No as appropriate

✓	Yes, ACTORS and their description are complete, meaningful and meet my business needs.
✓	Yes, USE CASES are complete- meaningful and meet my business (USER) requirement.
✗	Yes, ACTIVITIES are complete- meaningful and represent my business processes.
✗	No, ACTORS and their description are not complete- some are not correctly analysed and are listed below in 3.1
✓	No, USE CASES are not complete- some are not correctly analysed and are listed below in 3.1
✓	No, ACTIVITIES are not complete- some are not correctly analysed and are listed below in 3.2

3- Assessment of the cooperation with your developer group

3.1- Have your respective developer group analysed the requirements to fit your business needs? If yes, list what key requirements have correctly been analysed. If not, write what requirements have NOT correctly been analysed.

3.2- Have your respective developer group analysed the requirements correctly in terms of your business understanding and have they used the correct UML notation for you to understand? If yes, write how well you think they understood your business and UML notations. If not, write where they have not analysed your business correctly or not conformed to UML.
Suitable UML notation was not used
3.3- Have your respective developer group been collaborative enough in responding to your discussion? Write a statement on their collaboration, on: helpful in listening to your suggestions, contacting you to discuss, meeting you to discuss and suggesting ways to improve the efficiency of your business.
Yes, they were collaborative enough when listening to our suggestions. However, the project delivery was delayed.

1- Assessment of your Requirement Analysis techniques and ability
1.1- Have your customer group provided you with CLEAR answers to your queries about their business requirements in terms of functional needs of the system? If yes, how clear were their answers to help you analyse their requirements and business processes into USE CASES and ACTIVITIES. If no, write what issues where not clear (or ambiguous).
Yes they were clear enough when providing answers to our queries about their business requirements , thus helping us analyze the requirements and business process and making the process of creating use case- and activity- diagrams easier.
1.2- Have you found any particular aspect difficult to analyse or understand out of your customer’s business processes and Requirements? If yes, describe what aspects. If no, write what aspects were hardest to understand.
No aspect was hard to understand. The hardest aspect to comprehend I would say was the delivery GPS tracking system.
2- Assessment of your cooperation and collaboration abilities with your customer group

2.1- Have your customer group been responsive to your queries related to what they want to get done on their business understanding details? If yes, write how clear were their responses. If no, write examples of some issues they were not clear at.

Our customer group gave clear enough answers and enough details to help us create the requirements.

2.2- How prompt (or fast) was your customer group in responding to your queries? If slow, write how long they took to respond. If fast, write how effective they were in responses

Our customer group immediately responded to all our queries

2.3- Have your respective customer group been collaborative enough in discussion? Write a statement on their collaboration, in terms of, for example, being difficult, helpful, non-responsive, not interested. If they were difficult what technique did you use to overcome their difficulty

Our customer group were collaborative and very helpful in negotiations. Moreover they were almost always available to answer whatever questions we presented them regarding the details of the business.

5.1.3 System modeling and design phase

1-Are these item included in the report, check the boxes below if YES.	
System Modelling	
✓	System CLASS Diagram, and brief description of classes
✗	OBJECT Diagram
✗	SEQUENCE Diagram; two sequence diagrams for two different use cases
✓	STATE diagram: one state diagram, of an object that has a state. If none exists, describe why.
System Design	
✗	An architectural design– component diagram
✓	Description of chosen Design Goals, and describe how they will be addressed, justification for choosing architecture style.
✓	COMPONENT Diagram; Describe how and where in the component Chosen Design goals have been addressed.
✓	DEPLOYMENT Diagram: mapping Software components on hardware nodes.
2- Do you Approve the System (Analysis) Model report?	
✗	Yes, the presented system model/Design is complete and meets my business needs.
✓	No, the presented system model/Design is not complete- some issues are not addressed and are listed below in 3.1
✓	No, the presented system model/Design is not complete - some issues are not correctly modelled and listed below in 3.2
3- Assessment of the cooperation with your developer group	
3.1- Have your respective developer group presented System model/Design that answers your business needs and rules? If yes, list what <u>key</u> issues have been addressed. If not, write what issues have NOT been addressed.	
No overall architecture or object diagrams were presented.	
3.2- Have your respective developer group presented a system model/Design CORRECTLY in terms of your business rules and have they used the correct UML notation for you to understand? If yes, write how you think they met your business needs in their solution. If not, write what issues they have not analysed CORRECTLY or UML notation errors.	
Correct UML notations were not used	
3.3- Have your respective developer group modified your System Analysis/Model/Design according to your feedback on the Requirement analysis/ document. If yes, write which changes you asked them to modify. If not, write which changes they did not attempt.	
The UML notation issue has been addressed by us in a previous phase, but no modifications were made.	
3.3- Have your respective developer group been collaborative enough in responding your discussion? Write a statement on their collaboration.	
Our developer group seemed collaborative enough during our meetings. However, as stated above, not all our suggestions were applied in later versions of their work	

1- Assessment of your analysis techniques and ability

1.1- Have your respective customer provided you with CLEAR answers to your queries about their business? If yes, how clear were the answers to help you conduct the system analysis? If no, write what issues were not clear or ambiguous.

Yes, they provided us with very clear answers to our queries.

1.2- Have you found any particular aspect difficult to analyse or understand out of your customer's business? If yes, describe some of these issues. If no, write what issues were hardest to understand.

The component and deployment diagrams were somewhat difficult to design

2- Assessment of the cooperation with your developer group

2.1- Have your customer group been responsive to your queries related to FUNCTIONAL and NON-FUNCTIONAL needs? If yes, write how clear were these responses? If no, write example of some issues they were not clear at.

Our customer group gave clear enough answers and enough details to help us create the requirements.

2.2- How prompt was your respective customer group in responding to your queries? If slow, write how long they took to respond. If fast, write how effective they were in responses

Our customer group immediately responded to all our queries.

2.3- Have your respective developer group been collaborative enough in discussion? Write a statement on their collaboration, in terms of, for example, being difficult, helpful, non-responsive, not interested.

Our customer group were collaborative and very helpful in negotiations. Moreover they were almost always available to answer whatever questions we presented them regarding the details of the business.

5.2 Effort/Time estimation and calculation

UR	Estimated Effort	Estimated No of Developers	Total Effort
UR(1)	1pw	2	2pw
UR(2)	3pw	2	6pw
UR(3)	3pw	3	9pw
UR(4)	2pw	2	4pw
UR(5)	1pw	2	2pw
UR(6)	2pw	1	2pw
UR(7)	2pw	2	4pw
UR(8)	1pw	1	1pw
Total Effort	15pw	1.9	30pw

Schedule Time:

- Min: $15 * 1.3 = 19.5$
- Max: $30 * 1.3 = 39$

Cost:

- Average salary = 170\$ => $39 * 170 = 6630$ \$

Profit margin

- Min = 10% => Minimum Cost = $6630 * 1.10 = 7293$ \$
- Max = 30% => Maximum Cost = $6630 * 1.30 = 8619$ \$

Appendix

A1. Meetings of our group

Date and location	Attendance	Purpose	Results/Decisions taken
October 10th,2017 (Online)	All attended	Complete task 1.3	Business description draft
October 23rd,2017 (Online)	All attended	Complete task 2.1.1	User requirement draft
October 25th,2017 (University Campus at 13:00)	Jumana absent due to conflicting schedules	Complete task 2.1.2	System requirements discussed, initial decisions made
October 25th,2017 (Online)	All attended	Complete task 2.1.2	System requirements draft
October 30th,2017 (Online)	All attended	Complete task 2.2	Final User and System requirements
October 31st,2017 (Online)	All attended	Complete task 2.4	Effort and time estimation
November 7th,2017 (University Campus at 11:00)	Sondos absent due to conflicting schedules	Complete task 2.5	Assessment forms partly filled
November 7th,2017 (Online)	All attended	Complete task 2.5	Assessment forms completed
November 11th,2017 (University Campus at 13:00)	Jumana absent due to conflicting schedules	Discuss task 3.1	Scenarios discussed among group members to help each create her own
November 13th,2017 (Online)	All attended	Complete task 3.2.1	Actors analyzed + Overall use case diagram draft
November 20th,2017 (Online)	All attended	Discuss tasks 3.2.2 + 3.3	Individual use cases by each member presented to group and discussed + Activity diagram drafts
December 8th,2017 (Online)	All attended	Assessment of phase 3	Assessment forms completed
December 9th,2017 (University Campus at 11:00)	All attended	Requirements presentation preparation	PowerPoint for presentation finalized
December 16th,2017 (Online)	All attended	Discuss Phase 4 tasks	Class analysis
December 26th,2017 (Online)	All attended	Discuss Phase 4 tasks	Class, Object and sequence diagrams discussed and drafted
January 4th,2018 (University Campus at 11:00)	All attended	Finalize phase 4 tasks and prepare for final presentation	Last diagrams finalized

January 10th,2018 (Online)	All attended	Finish PowerPoint for final presentation	PowerPoint for final presentation completed
January 11th,2018 (University Campus at 11:00)	All attended	Work on final report	Progress made on final report
January 13th,2018 (University Campus between 13:00-16:30)	All attended	Work on final report	Majority of final report completed
January 14th,2018 (Online)	All attended	Finish final report	Final report completed

A2. Meetings with customer group

Date	Purpose
October 17th ,2017	Discuss business description
October 24th ,2017	Discuss user requirements draft
October 26th ,2017	Discuss system requirements draft
November 2nd ,2017	Discuss time and effort estimations
November 4th ,2017	Approve requirements
November 9th ,2017	Approve time + cost
November 14th ,2017	Discuss scenario analysis drafts
November 16th ,2017	Discuss actors and use case diagram drafts
November 21st ,2017	Approve final scenarios + use case diagrams and discuss detailed use cases + activity diagram drafts
November 23rd ,2017	Approve final detailed use cases + activity diagrams and discuss individual activity diagram drafts
November 28th ,2017	Approve final individual activity diagrams
December 12th ,2017	Discuss Class diagram drafts
December 14th ,2017	Approve class diagram and discuss object diagram drafts
December 19th ,2017	Approve object diagram and discuss sequence + state diagrams drafts
December 21st ,2017	Approve sequence + state diagrams
January 2nd ,2018	Discuss component and deployment diagrams
January 9th ,2018	Approve final diagrams

**Note: During some meetings, some members of the group were absent. Unfortunately we are unable to remember who were absent with precise detail