Department OF Computer Science

Software Engineering

-COMP430-

Final Project Report

Online Bakery Shop

Prepared By:
"**AnGrY NerDs**"   -   Group #5

- Manager: Waseem Sayara   "1182733"
- Secretary: Mohammed Ghannam   "1180981"
- Technical Architect: Anas Barakat "1180180"
- Programmer: Yazid Muaket   "1181710"

Instructor: Dr. Adel Taweel.

Section: 1.

Submission Date: 12/June/2021.

1. Chapter 1: Project Planning and Management.

1.1.   Group Name:

"**AnGrY NerDs**" is chosen to be the name of our group.

1.2.   Group Members:

1. Waseem Sayara (1182733).
2. Anas Nimer (1180180).
3. Yazid Muaket (1181710).
4. Mohammad Ghannam (1180981).

1.3.   Members Roles:

- **Project Manager:** Waseem Sayara.
- **Secretary:** Mohammad Ghannam.
- **Technical Architect:** Anas Nimer.
- **Programmer:** Yazid Muaket.

1.4.   Management Strategy:

- **Meetings:** we are planning to meet at least once a week, mostly the meeting will be on Saturdays using Zoom Meetings due to corona virus, but still we will try to meet on the real world once a month.

- **Decisions:** we are planning to take everyone's opinion and argue in every one of them, then vote for the idea that we think will be the best for the project and in case of tie occurred, the manager will take the final decision.

- **Process models:** we will use both the waterfall and the agile in our project to make sure everything is running perfectly.

1.5.   Project Manager Report:

At first we divided all the work on the group equally and in a fair way. Every member of the group did his own individual tasks and the whole group worked together to do the group tasks. And that's what each member worked on:

- Waseem Sayara: Since I'm the manger is was responsible of arranging the works and Combing the tasks together. I led the work in making the Business Description, on Effort and Time Estimation Diagram and the Deployment Diagram, also I reviewed the work on all group tasks. And I was responsible in designing the Component and architecture diagrams. Also I contributed with two User Requirements (UR9 & UR10) and their System Requirements, and finally I made a scenario of manager adding a new product to the Website with its Use-Case Specification, activity and sequence diagrams.

- Mohammed Ghannam: Since he is the secretary he was responsible of organizing the group's meetings. He led the work on both Use-Case and Activity Diagrams, he also reviewed the work in all group tasks. He also contributed with two User Requirements (UR9 & UR10) and their System Requirements, also designed the deployment diagram, and made the Scenario of customer signing up to the website and made the Use-Case Specification, activity and sequence diagrams for his Scenario.

- Anas Barakat: Since he is the technical architect, he led the work on The Design Goals and wrote them, Component Diagram and Architecture Diagrams and wrote the justification why we used the layered architecture. And He was responsible of the design in Time Estimation Table, Use-Case and Activity Diagram, and reviewing the rest Tasks. He also contributed with three User Requirements (UR4, UR5 & UR6) and their System Requirements, and made the Scenario of customer giving his feedback made the Use-Case Specification, Activity and Sequence diagrams for his Scenario.

- Yazid Muaket: Since he is the Programmer, he led the work on The Actor Analysis and both Analysis and Detailed Class Models and he co-led the work on the business description. And He was responsible of the design in the two Class Models, and reviewing the remaining Tasks. He also contributed with three User Requirements (UR1, UR2 & UR3) and their System Requirements, and made the Scenario of customer making an order and made the Use-Case Specification, Activity and Sequence diagrams for his Scenario.

We had no big challenges while working in the project, but the only problem was the Covid-19 Virus that prevented us from meeting in person and working together, so we used Zoom Meetings to solve this problem.

At last I'd like to say that I'm very proud of the work we have done in the project and the final outcome of it, and it was nice to work with this group members and the work environment was nice and full of positives energy.

1.6.   Group Members Report:

Mohammad Ghannam:

Working on this project was very interesting, our group members were collaborative we divided the tasks between us and this facilitates the work completion. We all worked on all parts and shared our ideas First, I worked with all the partners in doing the use case analysis and description where we discussed what use cases we want to assign for each actor and how they are related. Then I drew the activity diagram for make a reservation use case, Second, in phase three we first met to discuss all of the diagrams and after agreeing on it, I draw the use case diagram for modify meal information use case. In general, each step in the project was finished using all partners efforts and shared ideas, so the main advantage that I benefited from it is learning how to work with team.

Anas Nimer:

The project is fully built efficiently, a good work strategy has been developed and the team stuck to it. Very good communication among team members was present especially in our circumstances of emergency state due to covid-19 situation Sufficient meetings via zoom were accomplished, it was a great experience. The project was done in phases, every phase we met, discussed and divided the work into tasks, we always took feedback from each other just to make sure that the project was going on the right direction. I have Contributed in writing three user requirements (UR 4, UR 5, UR 6) and their system requirements, my scenario analysis. Also, we contributed with all group in reviewed the effort and time estimation, Actor Analysis, user case specification. Also, I wrote my use case specification and drew my use case activity modelling diagram. The use-case modelling diagram is designed by me. In addition to, i contributed with all group in reviewed the Analysis class model and detailed class model. The sequence diagram was drawn by me. The description of design goals was written by me and reviewed by all members. The component and architecture diagrams were drawn and written by me. Last but not least, personally I believe we came out with a successful project and were truly able to experience the essence of software engineering.

Yazid Muaket:

In my opinion the project is well structured, and you can see the effort that the group members put on, in each phase the tasks were divided equally and all members contribute in such a way to finish the task as fast and efficient as possible, my contribution in this project was essential. Considering the group tasks, firstly I led the following tasks: Business Description, Actor Analysis, Analysis Class Model, Detailed Class Model, secondly I participated in writing the following tasks: Business Description, Actor Analysis and three User Requirements (UR1 , UR2, UR3) with their System Requirements, thirdly I reviewed each of these tasks: Time Estimation and Effort, Use Case Diagram, Activity Diagram, Design Goals, Component Diagram, Architect Diagram, Deployment Diagram, and finally I designed the following tasks: Class Diagram Model, Detailed Diagram. Now moving to individual tasks, I wrote a complete Scenario about Making an Order. And then wrote a Use Case Specification about (Add Product to Shopping Cart), and designed an Activity Diagram & Sequence Diagram about the same use case.

2. Chapter 2: Requirement Elicitation, Analysis and Modelling.

2.1. Business (requirement statement or) description outline. (Led by Waseem & Yazid, Wrote by Yazid, Reviewed by Anas & Mohammad).

Our Business is an Online Bakery Shop, our main purpose is to serve our customers online by building a software which can be used in either in an online website or a mobile app.

The application offers a menu of our baked products with attached photo of the product with common price that all people expect (1$ to 50$), Most of our visitors are expected to be public (normal) people, restaurants, mini/super markets and wedding halls.

Our Shop is located in clean area in middle of Jerusalem city, the Bakery name is "Angry Nerds" which contain a head bakery who has the full control on our bakery employees about their work and what they bake etc., moving into the website, it provides a shopping cart system which enables the customer to add/remove products that he wishes to, or edit quantity desired to be bought per product selected, and the price for each item and the balance for the whole cart, once the customer is satisfied with his order, he can purchase it by filling a checkout page, then the website prompt the customer to choose from different payment methods that the website offers, then delivery system steps in by asking the user to enter the time & location required and in order to deliver different types of bakeries & products for our online customers, after a specific order has been made, the website provides a feedback system that enables the customer to give his opinion about the whole service.

The business is structured as a sole proprietorship, operating under the manager Waseem A. Sayara, Secretary Mohammad A. Ghannam, Designer Anas S. Barakat and Programmer Yazid A. Muaket.

2.2. User and System Requirements (Contributors are Written next to each Use Case).

1. The application shall contain a main menu bar to show the products organized by category or price depends on the customer desires, also a page to show the products on sales at the time. **(Yazid Muaket)**

   And its System Requirements are: -
   1.1- The application shall have a products menu, which will contain the main four categories (Breads, Cakes, Cookies and Deserts).
   1.2- The application should provide a page to show all the products that are on Sales and with Special offers.
   1.3- The menu shall contain Profile section to show the customer his information and his orders history and favourites products.
   1.4- The menu should have A Contact Us Section that contains many ways of contacting with the bakery.
   1.5- The application should About Us page to give the customers more information about the bakery like how it started and its location.

2. The application shall provide a shopping cart system which gives a record of all the products selected by the customer to be purchased, the number of units or quantity desired to be bought per product selected, and the price for each item. **(Yazid Muaket)**

   And its System Requirements are: -
   2.1- The user shall be able to Add Products to his shopping cart.
   2.2- The user shall be able to Remove Products from his shopping cart.
   2.3- The user shall be able to Change Quantity of Product in his shopping cart.

2.4- The application should be have a Coupon Entry Field for the customers to enter the code of their coupons to get a discount on the order.

2.5- The application should provide Multiple Currencies to let the customer choose the one he wants.

3. The application shall provide a Product Information page for the customer to give him more detailed information about the selected product. **(Yazid Muaket)**

    And its System Requirements are: -

    3.1- In the Product information page, the application shall show a unique ID number of the product (the user is able to search by it / the manager controls the products by its ID)

    3.2- In the Product information page, the application shall show the Name of the product.

    3.3- In the Product information page, the application shall provide a clear Picture of the product describing the basic structure/shape of the product in the Product information page.

    3.4- In the Product information page, the application shall show the Price of the product.

    3.5- In the Product information page, the application should offer different sizes of the product that the user offers/make.

    3.6- In the Product information page, the application shall show the Ingredients used in the products.

    3.7- In the Product information page, the application should tell the Nutritional Value of the product furthermore the number of Calories, sugar, etc. in that product.

4. The application shall provide a delivery system to organize and deliver the orders for the customers at a suitable time and correct location. **(Anas Nimer)**

And its System Requirements are: -

  4.1- The user should enter the Location that he wants to deliver the order to.

  4.2- The user shall get a Free Delivery for cart's price more than 100$.

  4.3- The user should be able to track the product he bought by looking the exact location of the delivery man & an estimated time to deliver.

  4.4- The application shall provide a proper Checkout Page.

  4.5- The user shall be able to choose his preferred Paying Method (Cash Paying or Online Paying "using credit card").

  4.6- The application should send a receipt to the customer containing information about the delivered order.

5. The application should contain a search field to let the customers search for their wanted products using its information. **(Anas Nimer)**

And its System Requirements are: -

  5.1- The user should be able to search in the search bar by type/category of the product.

  5.2- The user should be able to search in the search bar by name of the product.

  5.3- The user should be able to search in the search bar by price of the product.

5.4- The user should be able to search in the search bar by Product ID of the product.

6. The user should be able to give his Feedback and get support from the system using comments or stars. **(Anas Nimer)**

And its System Requirements are: -
6.1- The user shall be able to evaluate the product using Star evaluation.

6.2- The application shall have a Comment Section to let the user give his opinion about the service/order by writing it.

6.3- The application should have a Complaining Section to submit his complains about the service/order or anything he like to complain.

7. The application shall have a registration system to let the customers enter their profile and view their information and previous orders. **(Mohammad Ghannam)**

And its System Requirements are: -
7.1- The user shall enter his Email Address.

7.2- The user shall enter a Username.

7.3- The user shall create a Strong Password that should contains a Capital alphabet/s and Number/s.

7.4- The user shall enter his valid Phone Number.

7.5- The user shall enter his County and City.

7.6- The user shall enter a valid Zip Code.

7.7- The user shall enter his Credit Card information.

8. The application should contain a section for special ordered items such as Wedding Cakes, Customized Cake, Special Cake for parties. (**Mohammad Ghannam**)

And its System Requirements are: -

8.1. The application should provide some Ready Templates.

8.2. The user shall be able to add some Add-Ons.

8.3. The user shall be able to choose the Cake Flavours that the user can choose for his special ordered item.

8.4. The user should be able to choose the Cake Colour.

8.5. The user should be able to choose the Cake Shape.

8.6. The user shall be able to choose the Number of Levels that the user can choose for his special ordered item.

8.7. The user shall be able to Insert Customer's Photos on the Cake.

8.8. The Chef shall be able to Approve/Decline the order if the special ordered item is impossible to make or lake of resources.

9. The application should provide an admin page to give the manager a full access of the website & to control the products and items. (**Waseem Sayara**)

And its System Requirements are: -

9.1. The manager shall be able to Add product from the website.

9.2. The manager shall be able to Remove product from the website.

9.3. The manager shall be able to Edit product's price, name, ingredients, calories.

9.4. The manager shall be able to Move a specific product to the sale page & modify its price.

9.5. The manager shall be able to check the feedbacks, comments and complaining which are coming from customers.

10. The application shall provide a paying system that allows the customers to pay for their orders using many methods either online or by cash. **(Waseem Sayara)**

And its System Requirements are: -

10.1. The user shall be able to pay by Visa.

10.2. The user shall be able to pay by PayPal.

10.3. The user shall be able to pay by Cash after delivering the product.

10.4. The application should Accept Cancelation of an order within 5 minutes only.

10.5. The application shall not accept any returned product after delivering it to the customer since the period of order cancelation is over.

2.3. Scenario Analysis.

2.3.1. Scenario 1: Manager add products (Waseem Sayara).

Normal:

The bakery manager opened the bakery's website and clicked on the "sign in" button then entered his username and password and signed in successfully, then wanted to add a new product to list of the bakery products, so he clicked on "add new product" button and entered the information of the product (name, price, image, category, available sizes, etc.), then he clicked on "confirm" button, then the bakery system connects with the database system and saves the new product, then the website returned a confirmation message that the process ended successfully, then he notified the head baker to start making the new product.

Alternative:

The manager opened the database workshop and then he logged into his profile and chose the bakery's database then he wrote a query to add a new product to the table of the products then he executed the query and the new product was added successfully.

Error:

The bakery manager opened the bakery's website and clicked on the "sign in" button then entered his username and password and signed in successfully, then wanted to add a new product to list of the bakery products, so he clicked on "add new product" button and entered the information of the product (name, price, image, category, available sizes, etc.), then he clicked on "confirm" button, but the product was not added to the list of the product due to failure when connecting with database.

Normal:

Someone accesses the business website, he chooses the (sign up) button and fill all registration requirements (full name, phone number, email, address, the credit card, etc.) then the system checks the entered data and sends the credit card data to the bank to verify it, the bank checks the data and send the response to the system, then he will enter to his account and show things belong to Mohammad (main products in the website).

Alternative:

Mohammad entered a not valid credit card, the system will send a validation code to the customer email to verify his identity, then the system check if the customer filled the code correctly or not, if yes, he can enter the system, if not the system shows an error message.

Alternative:

Mohammad enters a random username, this username is used by another customer, then the system will show him a massage that this username is used "please change it", and if it successes then the system will show him that your username is successes.

Alternative:

"Mohammad" enters all his information excepts the credit card because he wants to pay in cash, the system sends a code to his phone number to make sure that the user is not a robot, the system will check if the code entered correctly or not then activates the users account and allows him to login.

Error:

User 'Mohammad' enter more than 32-digit username and password while he trying to sign up. (The system holds until 32).

2.3.3. Scenario 3: customer gives his Feedbacks after receiving the order (Anas Barakat).

Normal:

Muhammed wanted to buy a product from the bakery for his wedding, so he visited the website of the store choose the products he wanted, after the order process was completed and his order was communicated in the exact time, he opened his profile on website to give his feedback for the service, he wrote his feedback in the feedback section after that he received a notification that the website asked to published his feedback in the public comments section, If you give positive feedback this you get some points, and when you collect a certain number of points determined by the manager, you will get a discount on the value of your next order.

Alternative:

When Muhammed opened application and ordering products, delivery completed and opened his profile to give feedback, he doesn't want to publish his feedback but he took points and discount for next order.

Error:

When Muhammed wrote his feedback, he doesn't want to publish his feedback. Therefore, this feedback was recorded and saved in the system without publishing it to the public. But the system behaved wrongly and published his feedback.

Error:

When Muhammed wrote his feedback and published it aiming to get points. But an error occurred and the system did not add this points to his account.

2.3.4. Scenario 4: Making an Order (Yazid Muaket).

Normal:

When a customer logged in properly with valid credit card and sufficient balance to make an order, he started shopping by searching for a specific product or checking the menu and several categories (sales, special orders, favorites, history, etc.), the customer browse several products, once he has found a product, he read the details of the product he wants to obtain more information such as (Ingredients, addons, etc.), then he added the item to the cart, once the customer is satisfied with his order and his cart is ready, he decided to buy it, then he filled the Checkout page with proper information about the payment and delivery info (Time and Location), at last the system will move the purchased cart to the order's history sections.

Alternative:

Sofian logged in and started shopping with a visa card that has 47.5$, after the he added items to the shopping cart, the cart ended with an overall value of 50$ which exceeds the amount of money in his visa card only less than 10%, in this case he can decide to complete the order by paying the rest in cash.

Error:

If Salma logged in the website with an expired visa card and started shopping by adding items in the cart, and then in the process of Checkout, the system will warn Dina visa card was invalid or expired then her order will be drafted or canceled.

Error:

Salma logged in and started shopping with a visa card that has 30$, after the she added items to the shopping cart, the cart ended with an overall value of 50$ which exceeds the amount of money in his visa card over than 10%, so the order will be drafted and canceled.

2.4. Effort + Time Estimation (Led and Written by Waseem, Reviewed by Mohammad, Anas and Yazid).

UR	Estimated Effort	Estimated No of Developers	Total Effort
UR1.	1 PW	2 DEV.	2 PW
UR2.	2 PW	2 DEV.	4 PW
UR3.	1 PW	1 DEV.	1 PW
UR4.	3 PW	4 DEV.	12 PW
UR5.	1 PW	1 DEV.	1 PW
UR6.	1 PW	3 DEV.	3 PW
UR7.	2 PW	4 DEV.	8 PW
UR8.	3 PW	2 DEV.	6 PW
UR9.	2 PW	2 DEV.	4 PW
UR10.	2 PW	3 DEV.	6 PW
Total Effort/Avg.	18 PW	2.4 DEV. on AVG	47 PW (AT MOST)
Schedule Time 30%.	18*1.3=24(**MIN** time to complete).		47*1.3=62w (**MAX** time to complete).
Cost.		AVG SALARY= **180$**	180 * 62 = **11160$**
Profit Margin (Min=10%; Max=30%).		**Min Cost** => **Max Cost** =>	11160* 1.1=**12276 $** 11160 *1.3=**14508 $**

2.5. Actors Analysis (Led and Written by Yazid, Reviewed by Waseem, Mohammad And Anas).

Actor	Description
Bakery Manager	This person is the head manager of the bakery, he has full control over the website and can modify product's properties.
Customer	This actor represents someone who is registered on the system who can browse the website, order a product and can give his feedback.
Bank System (Credit Card Company)	This System checks the validity of a credit card, offers a different paying method and deals with online payment transactions.
Head Baker	This actor is the head master of the bakery oven and the kitchen's organisation and dealing with the workers.
Delivery Man	This actor is responsible on delivering the product on the requested time to a specific location.
Bakery Employees	This actor is responsible of baking and organisation the products.

2.6. Use–Case Modelling Diagram (Led by Mohammed, Reviewed by Waseem and Yazid, Designed by Anas).

Note UML Authoring Tool Used: Microsoft Office Visio.
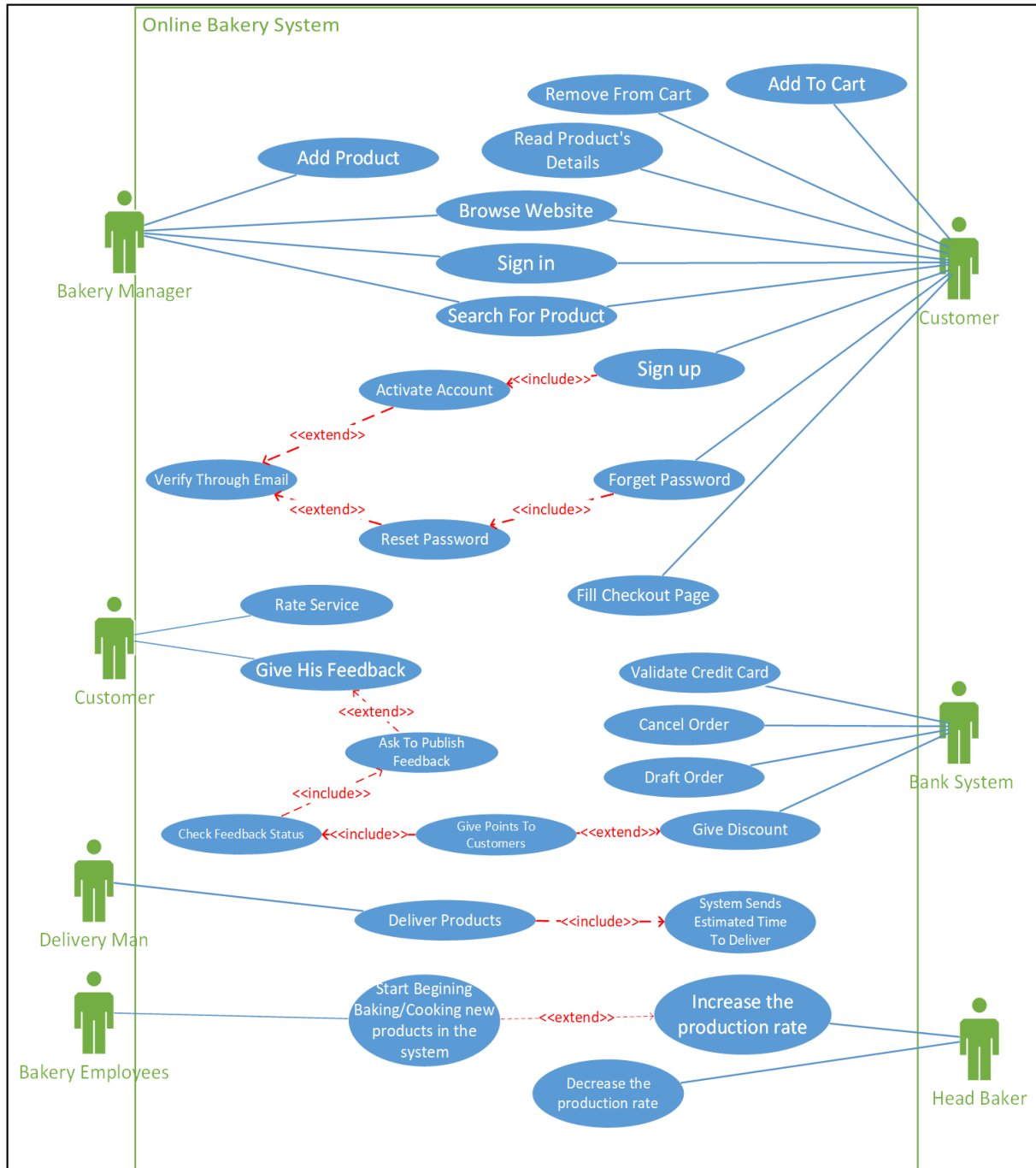
2.7.   Use–Case Specification.

2.7.1. Use Case 1 Specification: Add Product to Website.
(Waseem Sayara).

Actor	Bakery Manager
Description	The bakery manager may add a new product to the list of the products in the bakery's website, the new product must be ready for selling and can be ordered by the customers, the manager must fill all the product's information correctly (name, price, etc.), then he must confirm the operation and tell the head baker about the new product.
Pre-Conditions	➢ The manager logs into his account correctly. ➢ The product does not exist in the database.
Sequence/Flow of Events	1. The manager clicks on the "Add new Product" button. 2. The system returns a page for adding a product. 3. The manager fills all the information of the new product and submit them. 4. The system checks the information. 5. The manager confirms the operation. 6. The new product will be added in the Website. 7. The new product will show in the bakery's website 8. The manager tells the head baker about the new product.
Data	Product name, Product Price, Product ingredients, Product image, Product size, Product's Nutritional Value, Product category.
Stimulus/Trigger	➢ Manager wanting to add new product and click on "Add new Product"
Post-Conditions/Response	➢ The product is shown the new product in the website. ➢ The new product can be ordered.
Comments	The new product should be a type of baking (breads, cakes, cookies, etc.), and it should be tasty and good looking to attract the customers.

2.7.2. Use Case 2 Specification: Sign up. (Mohammed Ghannam).

Actors	Customer, Bank.
Description	Customer shall sign up and fill all information including the credit card to get access to all the website functionalities, then the Bank system will make full verifications on it, and send a response for such process, and if the customer doesn't want to pay using credit card, the system will send a code to his email or phone number to verify the customer identity.
Pre-condition	➢ The customer is not registered before. ➢ The customer visited our website but he hasn't the permission to buy anything. ➢ The customer wants to buy such products without making an effort, just using our website.
Sequence/flow of event	1. The customer opens the website. 2. The customer sign up and fill all his information. 3. The system checks if the filled information was valid or not. 4. The system sends the credit card to bank to check the validity of it. 5. If valid, the customer Register to the system. If no, check validation code of mobile phone. 6. If valid then the customer Register to the system. If not the system shows an error.
Data	Customer's information, valid credit card, mobile number and code validation.
Stimulus/Trigger	➢ Customer Wants To make Account to get access of the website.
Post condition/response	➢ Account is successfully created. ➢ The customer can enter our website as a user any time. ➢ The customer has all user properties the system offers.
Comments	The user has the option to activate his account by using phone number or using the credit card

| Actor	Customer.
Description	After the customer opens the website and registered successfully, make an order, after the order process was completed and his order was communicated in the exact time, the system allows customer to give his feedback, the customer able to write good or bad feedback about products quality and arrives order time, and the customer is free to publish the feedback or not.
Pre-conditions	➢ The customer must have an account in the application.
Sequence/flow of events	1. The customer browse for a type of products and confirm the order. 2. The system determines the time and the location of the delivery. 3. After the customer Receive the order. 4. The customer opens his profile. 5. Go to feedback section. 6. Write his feedback about products quality and arrives order time. 7. website asked customer to published his feedback in the public comments section. 8. The customer Choose if he/she needs publish his feedback or not. 9. The customer takes point if his feedback is positive. 10. The customer give discount for next order if has enough number of points.
Data	Order information, delivery information and feedback information.
Stimulus/Trigger	➢ Customer Giving His Feedback.
Post-conditions/ Response	➢ Transfer points to discounts.
Comments	The system must be accurate in many cases, including (adding points to the customer's account when he publishing positive feedback, without making mistakes, adding the discount to the customer's order when he collect many of points, resulting of obtaining the points from the publishing positive feedback without a defect).

2.7.4. Use Case 4 Specification: Add Product to Shopping Cart. (Yazid Muaket).

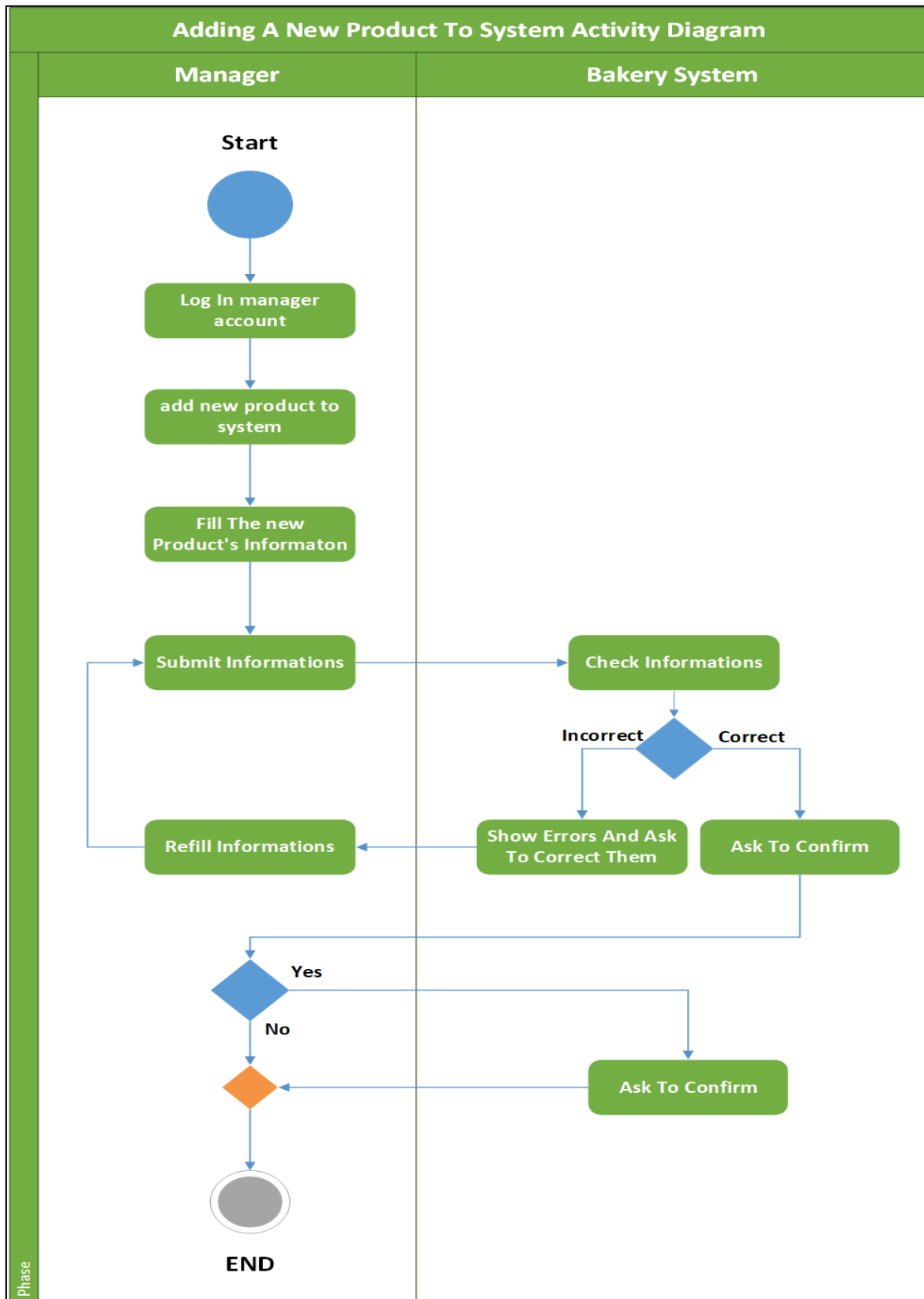| Actor	Customer.
Description	It's a process occurs when the customer has an intuition to buy a product, it is basically moving the wanted product to a section called Shopping Cart, after that he has two options: either he continues to browsing and shopping or he can fill the checkout in order to purchase the product(s) in the Shopping Cart.
Pre-Conditions	➢ The Customer has logged in successfully to the website.
Sequence/flow of events	1. View the home page. 2. Browse different categories. 3. Select a category. 4. Browse through the products. 5. Customer selects a product which he wishes to buy in the entered category. 6. Customer add the product to the shopping cart.
Data	Product's ID, Product's Name, Product's Image, Product's Price.
Stimulus/Triggers	➢ Clicking "Add to Cart" Button.
Post-Conditions/ Response	1. The item(s) have been added to the customer's Shopping Cart. 2. The Shopping Cart Balance is updated.
Comments	Adding products to the shopping cart is very useful when considering buying many products in same order, the cart system keeps track of your added products.

2.8. Activity Modelling diagram (Led by Mohammad, Reviewed by Waseem and Yazid and Designed by Anas).
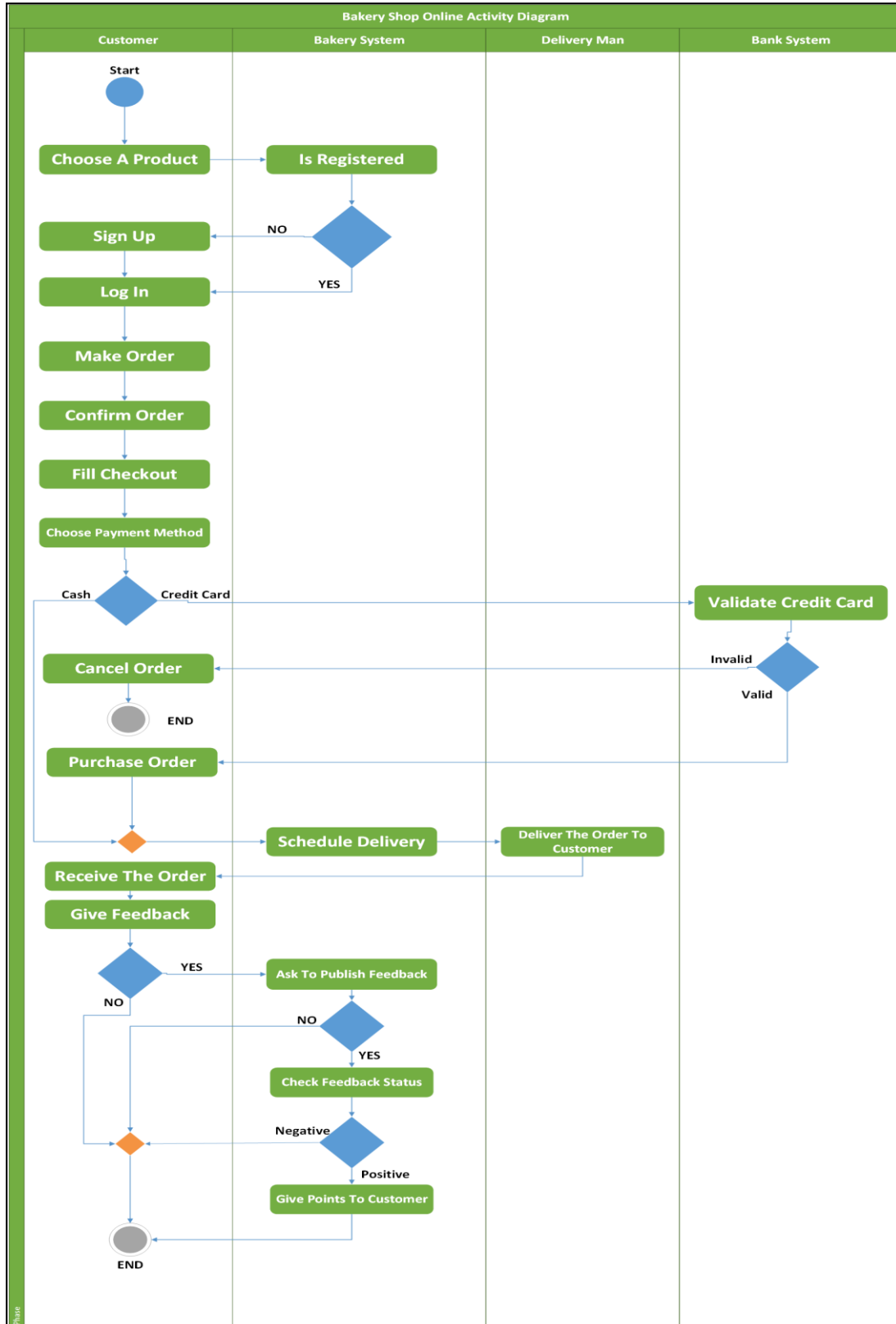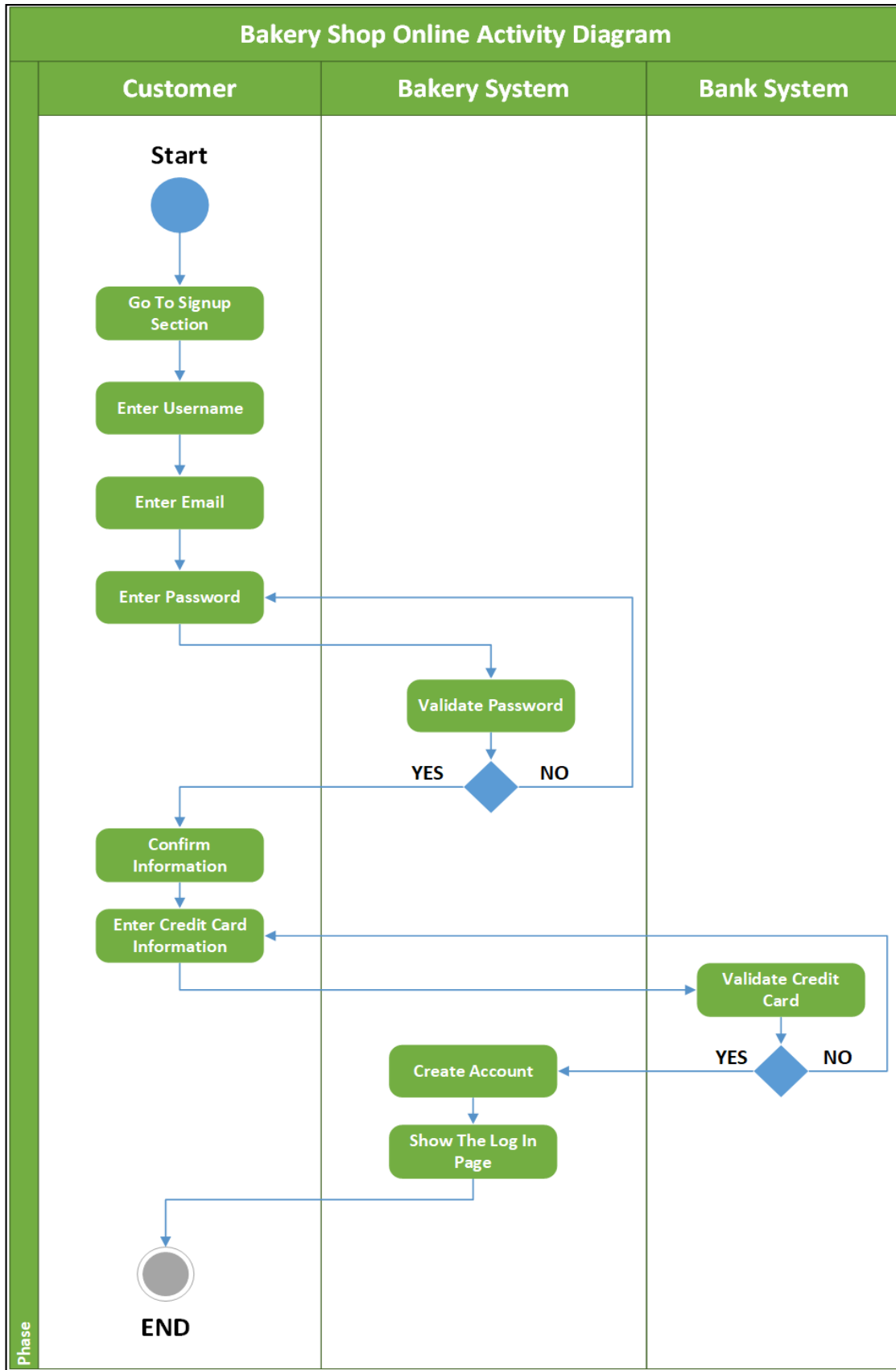
2.9. Use–Case Activity Modelling.

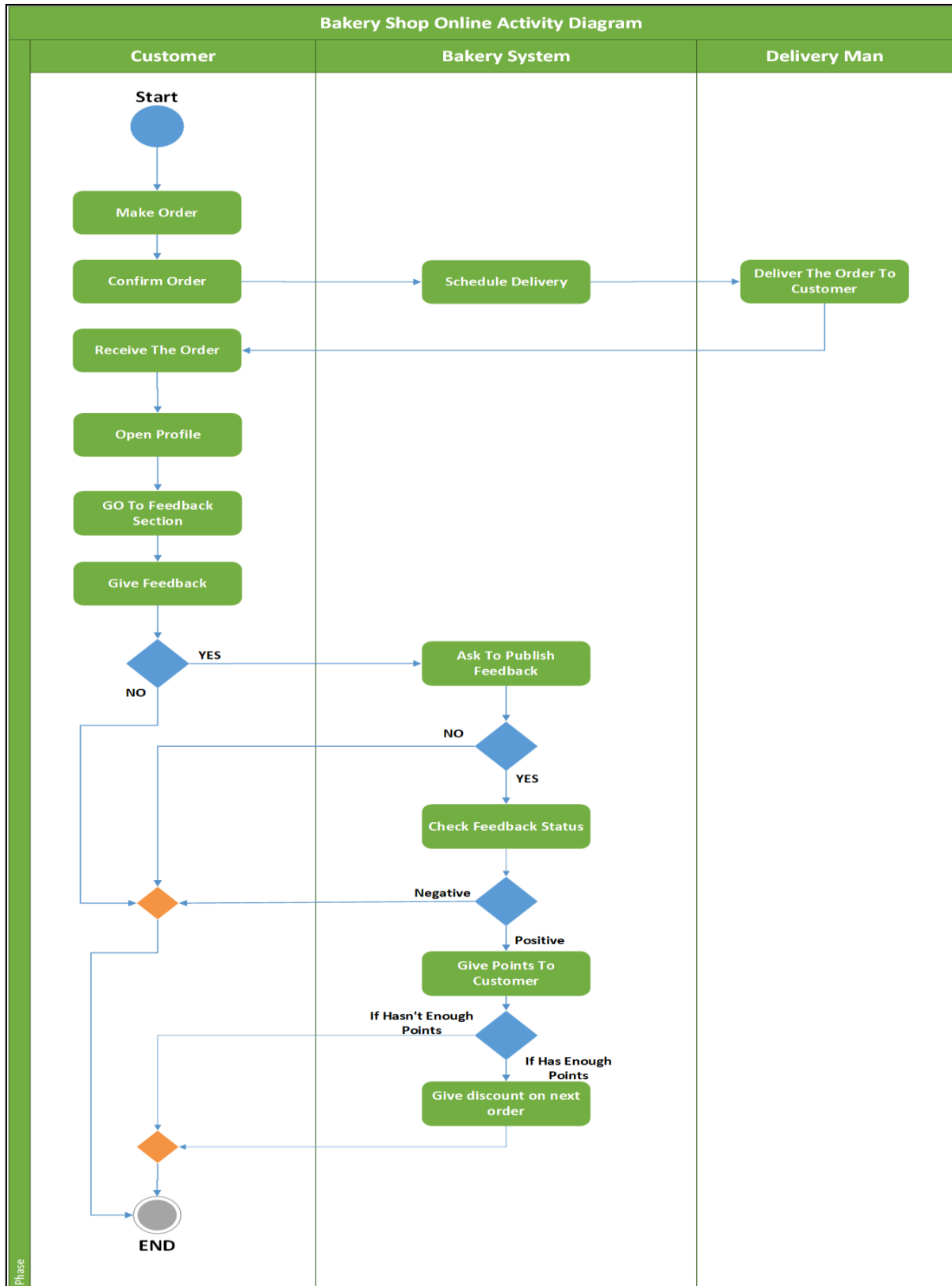### 2.9.1. Use Case 1 Activity Modelling: Add Product to Website. (Waseem Sayara).

Adding A New Product To System Activity Diagram

Manager	Bakery System

Start

Log In manager account

add new product to system

Fill The new Product's Informaton

Submit Informations → Check Informations

Incorrect / Correct

Show Errors And Ask To Correct Them

Ask To Confirm

Refill Informations

Yes / No

Ask To Confirm

END

2.9.2. Use Case 2 Activity Modelling: Sign up. (Mohammed Ghannam).

Bakery Shop Online Activity Diagram

Customer	Bakery System	Bank System

Start

Go To Signup Section

Enter Username

Enter Email

Enter Password

Validate Password

YES   NO

Confirm Information

Enter Credit Card Information

Validate Credit Card

YES   NO

Create Account

Show The Log In Page

END

Phase

2.9.3. Use Case 3 Activity Modelling: Give His Feedback. (Anas Barakat).

Bakery Shop Online Activity Diagram

Customer	Bakery System	Delivery Man

Start

Make Order

Confirm Order — Schedule Delivery — Deliver The Order To Customer

Receive The Order

Open Profile

GO To Feedback Section

Give Feedback

YES / NO

Ask To Publish Feedback

NO / YES

Check Feedback Status

Negative / Positive

Give Points To Customer

If Hasn't Enough Points / If Has Enough Points

Give discount on next order

END

2.9.4. Use Case 4 Activity Modelling: Add Product to Shopping Cart. (Yazid Muaket).

Add Product to Shopping Cart

Customer	Bakery System

START

Is Registered

NO   YES

Sign up   Log in

Choose Desired Product

Add the Desired Product to the Shopping Cart → Move Product to the Shopping Cart Section.

Update Shopping Cart Balance

Continue Shopping

YES   NO

Purchase Order

END

Phase
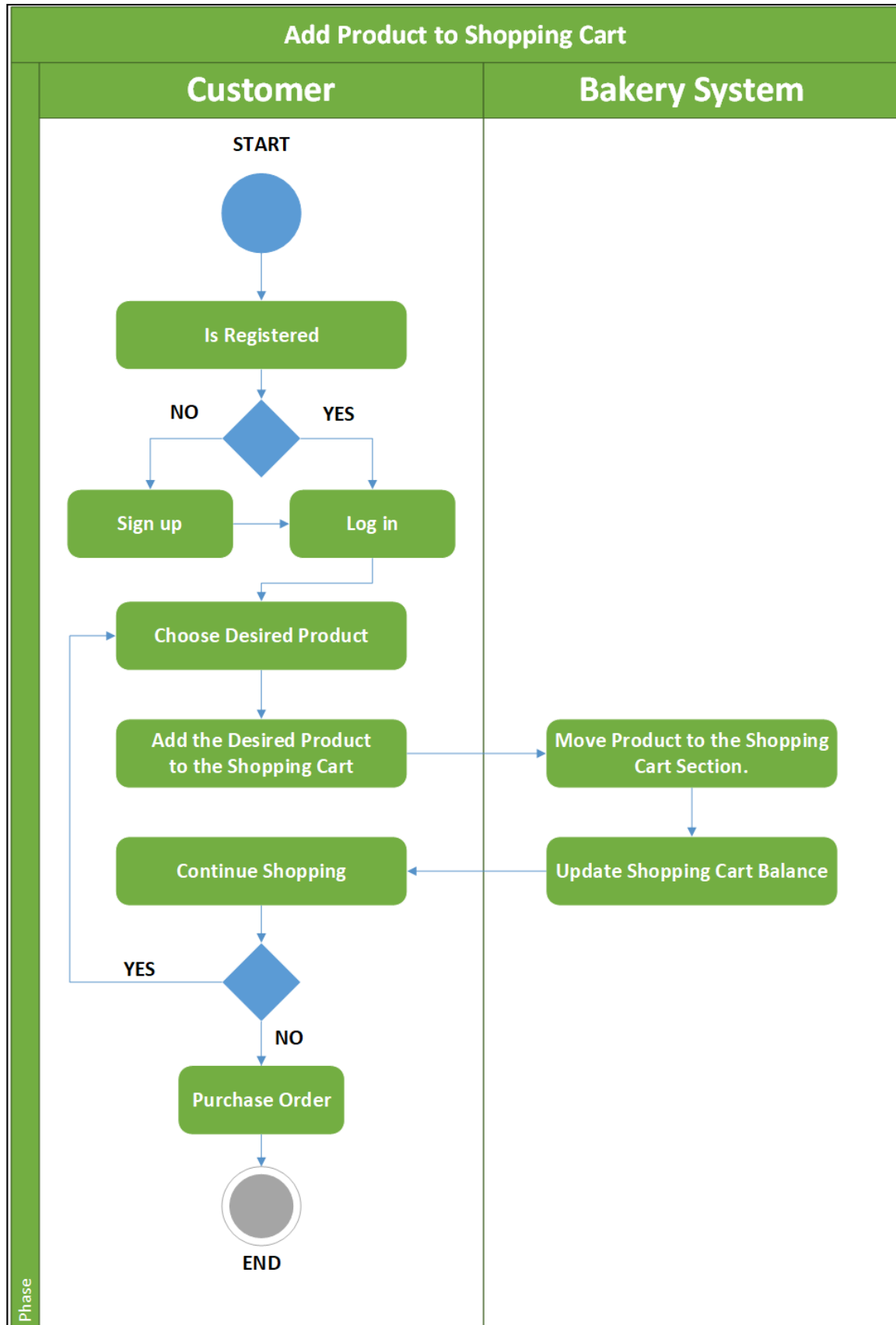
3. Chapter 3: System Analysis and Modelling.

3.1. System Class Diagram.

3.1.1. Analysis Class Model. (Led and Designed by Yazid, Reviewed by Waseem, Mohammad And Anas).
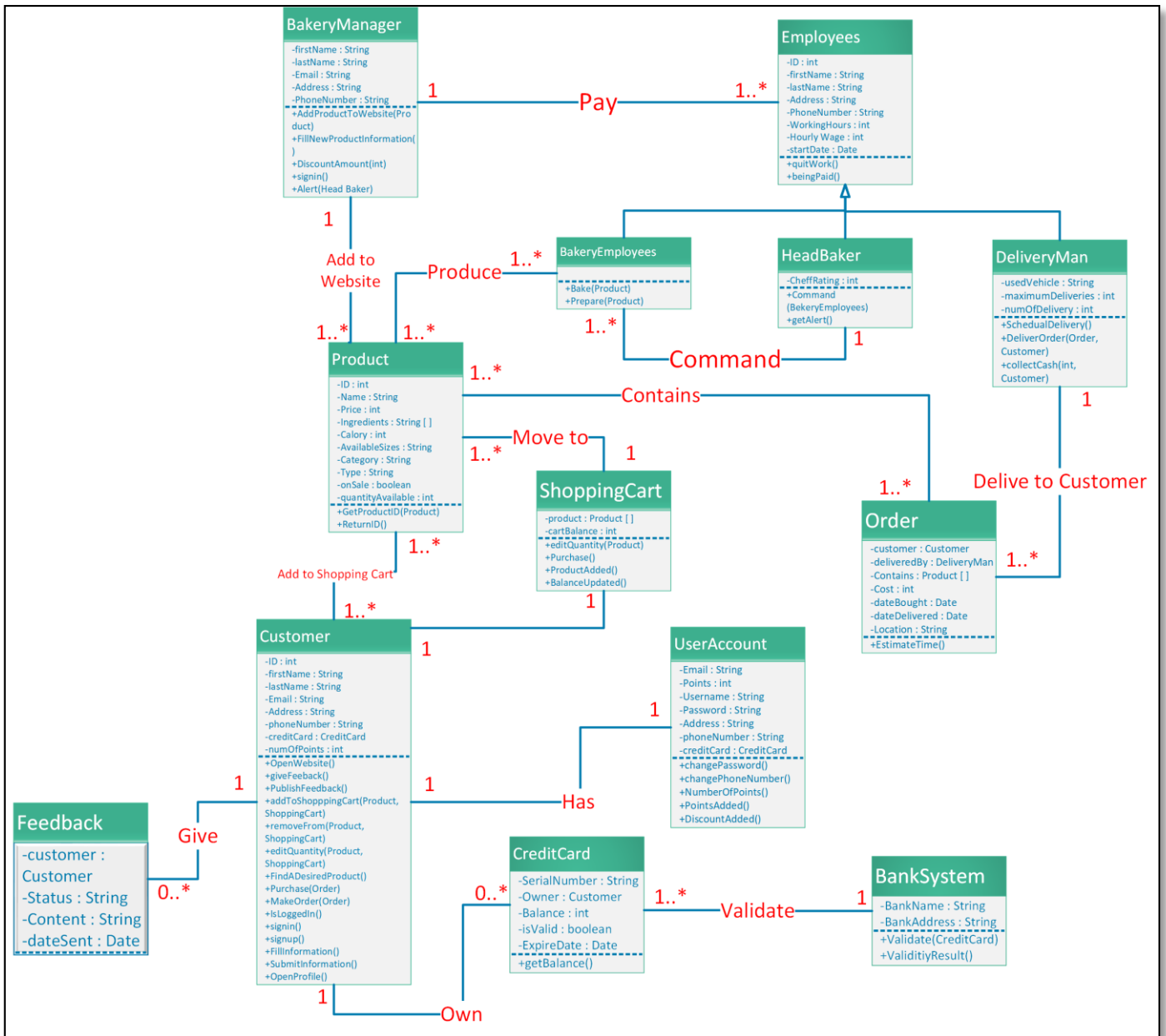
3.2. Sequence Diagram.

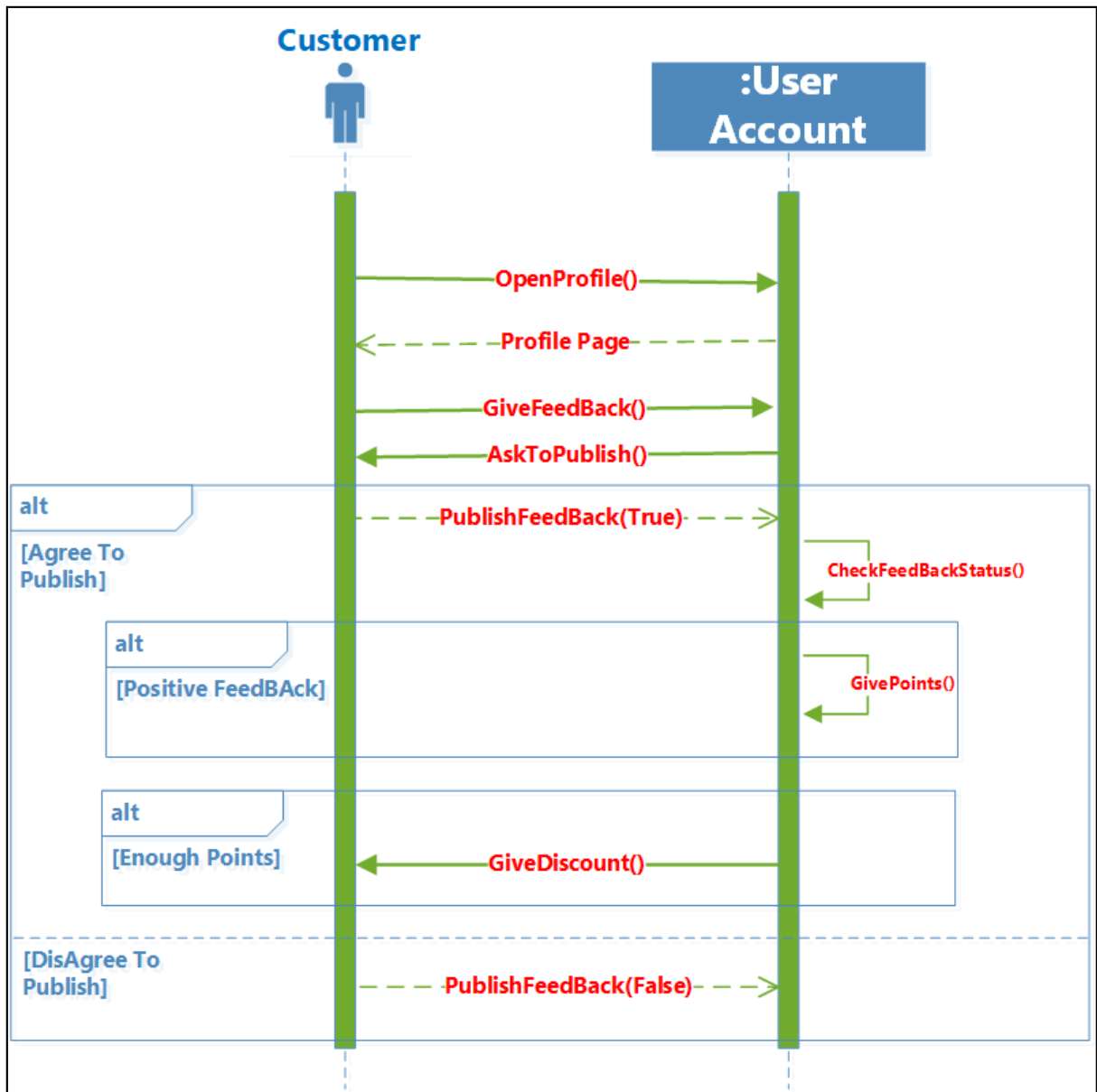### 3.2.1. Sequence Diagram 1: Add Product to Website. (Waseem Sayara).
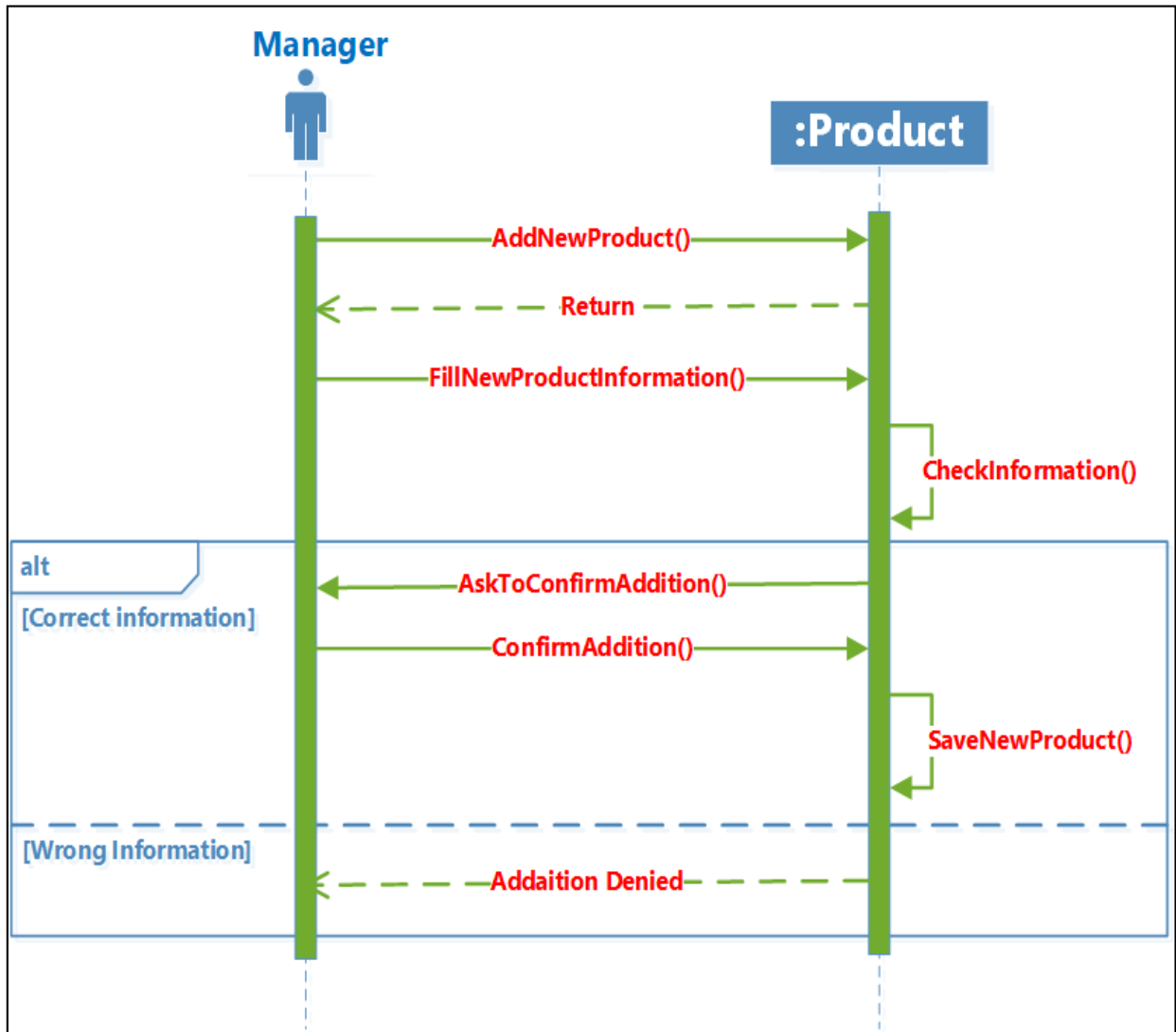
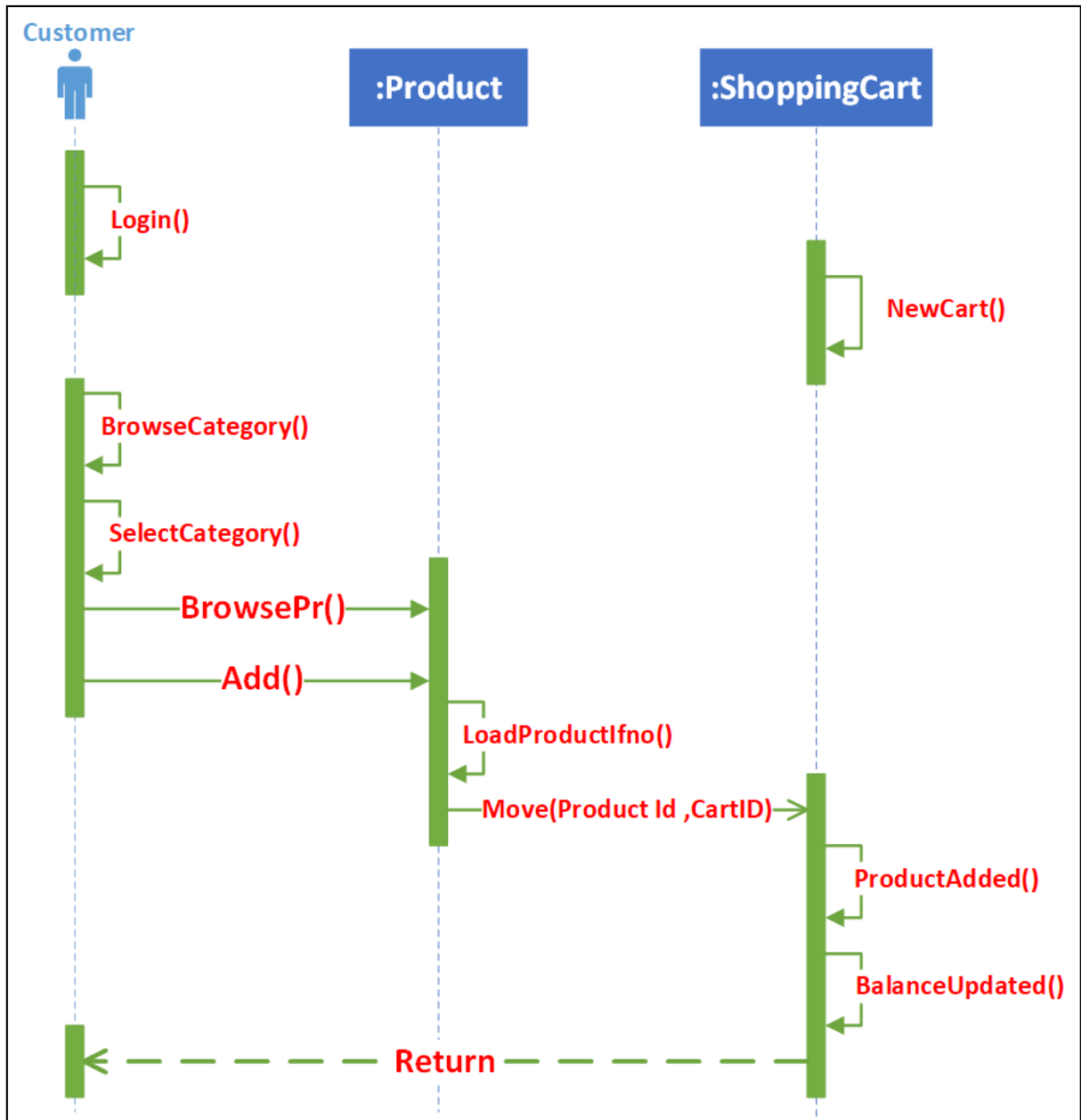### 3.2.2.   Sequence Diagram 2: Sign up. (Mohammed Ghannam).
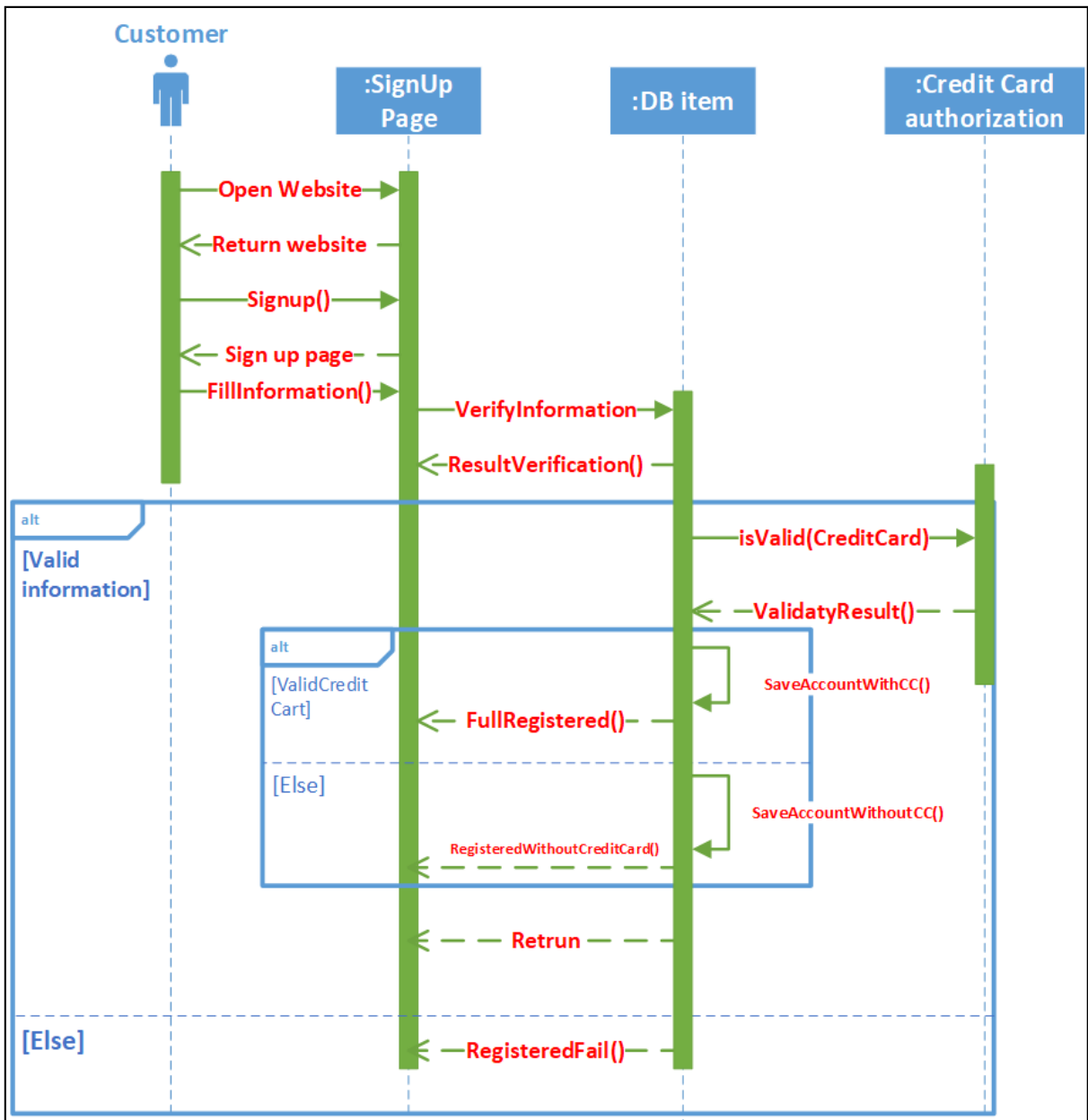
3.2.3. Sequence Diagram 3: Give His Feedback. (Anas Barakat).

3.2.4. Sequence Diagram 4: Add Product to Shopping Cart. (Yazid Muaket).

4. Chapter 4: System Design and Modelling.

4.1. Design Goals (Led and Written by Anas, Reviewed by Waseem, Mohammad and Yazid).

❖ **General Goals:**

- **High cohesion:** our system will put related classes and methods together.

- **Low coupling:** our system will use models that are independent of each other, in which any change in one component will almost has no effect on the other components.

❖ **Specific Goals:**

- **Reliability:** our system will always have a backup in case of any system failures and will be up and running within a few minutes in case of any failure.

- **User-friendly:** our system will be easy to use by all types of customers on the first try.

- **Security**: our system deals with money and sensitive data are used, like credit cards data and other, so high level of security is needed to keep all data safe.
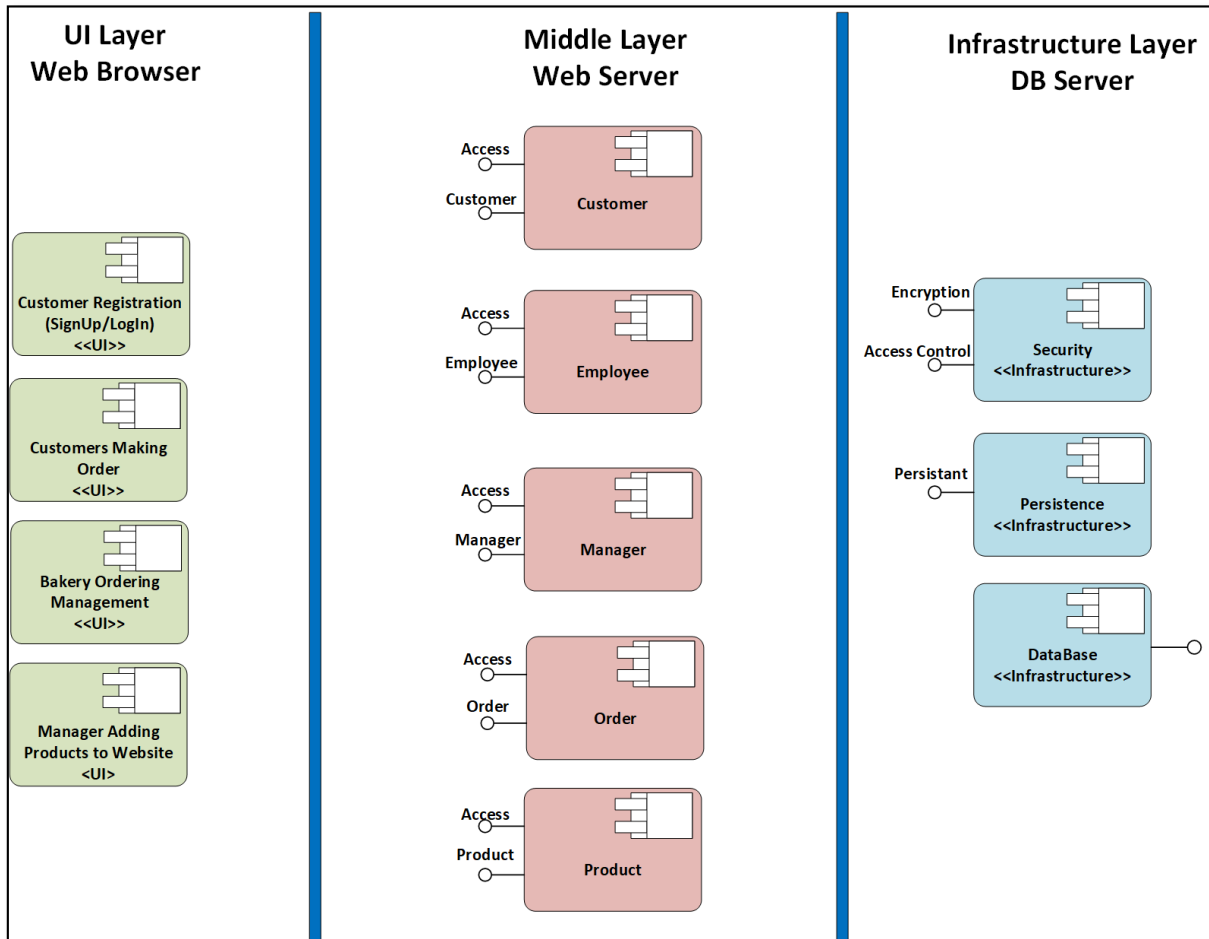
4.2. Component Diagram (Led by Anas, reviewed by Waseem, Mohammad And Yazid, Designed by Waseem).
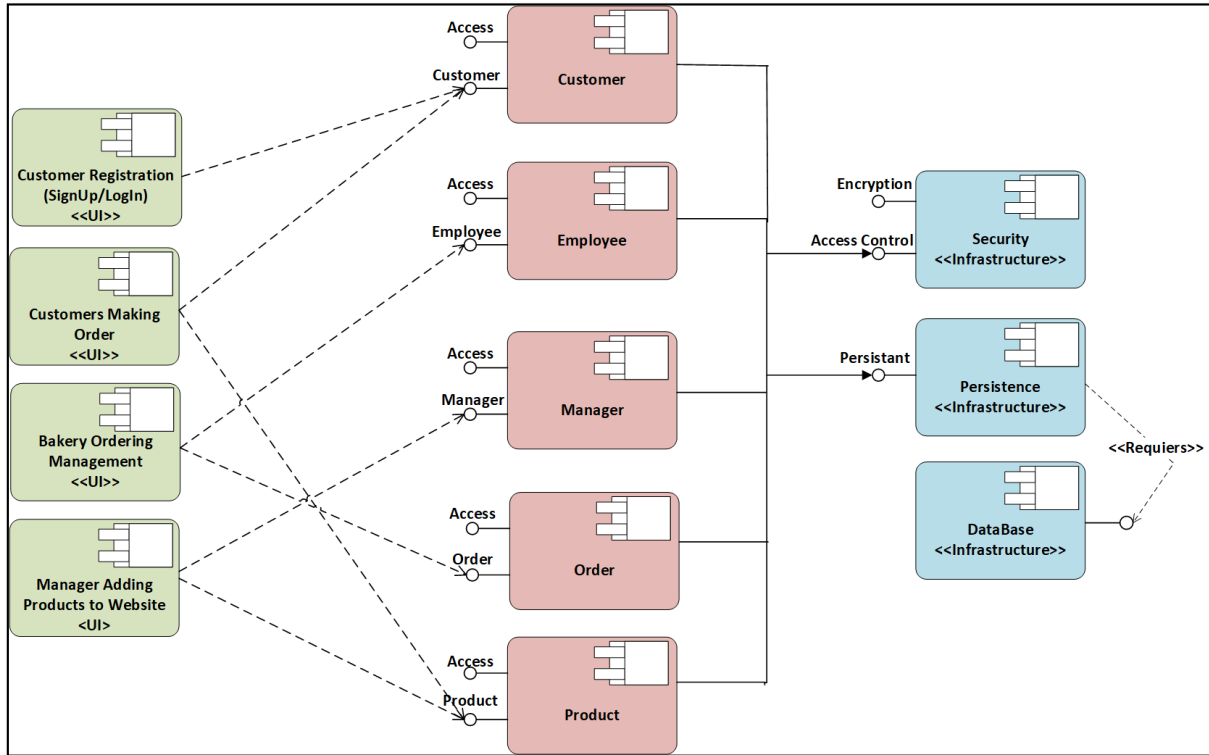
4.3. Architecture Diagram (Led and Written by Anas, reviewed by Waseem, Mohammad And Yazid, Designed by Waseem).

> The **Architecture** is a process of defining a collection of hardware and software components and their interfaces to establish the framework for the development of a computer system. So, we decided to use the layered Architecture because it divides the small pieces to provide a full service to run the application and achieves high cohesion and low coupling.

4.4. Deployment Diagram (Led by Waseem, reviewed by Mohammad, Anas And Yazid, Designed by Mohammad).