



**Computer Science Department**

**Software Engineering**

**Comp 433**

***FINAL PROJECT REPORT***

**G2: Cake Online Shop**

**First Semester 2023/2024**

**Group Name : Money Maker**

**Prepared By:**

<b>Student Name</b>	<b>Student Number</b>	<b>Role of each member</b>
Mohand Idrees	1212236	Programmer
Ahed Ghnimat	1201849	Secretary.
Rayyan Ghnimat	1211073	Tester
Sanaa Obeid	1211079	Manager
Qusai Jaber	1191511	Technical architect

**Instructor's Name: Adel Tawil**

# WELCOME TO OUR FINAL PROJECT REPORT

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## Phase One

# Project planning and management

## Group name:

We are group G2.



## Project Planning and Management:

Certainly, here's a simplified version of your message: "We'll have most of our team meetings online using tools like Facebook Messenger and Zoom, when we need to share documents or screens. However, we'll also meet in person once a week. On Saturdays, we'll gather in places designed for group work, like the university library. We decided to meet once a week to accommodate everyone's schedules. When we need to make decisions, a team member or two will suggest an idea, and the team will vote to decide whether to go with it."



## Role of each Member:

- Project Manager : Sanaa Obeid.
- Secretary : Ahed Ghnimat.
- Technical architect : Qusay Jber.
- Programmer (and/or Tester) : Mohand Idrees.
- QA or software Tester : Rayyan Ghnimat.

### Project manager's report:

Sanaa took on the role of overseeing the group dynamics and task distribution. She served as a supervisor within the group, efficiently allocating tasks among team members. Her leadership ensured a smooth workflow, fostering collaboration and coordination among all members. Sanaa's role as a supervisor was instrumental in maintaining a well-organized and productive working environment throughout the project.

### Team Opinion:

We think that most of the work was very collective and cooperative between the group members. We most of 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 drew the final version

## Project members' report:

**Rayan Ghnimat:** I truly loved being part of this course and working on the project. Our group collaborated seamlessly, sticking to the guidelines and creating detailed diagrams. Staying connected was crucial, and utilizing social media for collaboration worked wonders. The exchange of messages and voice notes made our communication lively and efficient during project work. This dynamic interaction not only built a strong team spirit but also ensured a smooth flow of ideas and contributions, making the entire project experience highly engaging and rewarding. A heartfelt thank you to Dr. Adel Thank you for your kindness, professionalism, and the exceptional care you've provided and for making this course exceptionally enjoyable Despite the harsh conditions!

## My tasks:

- Write SCENARIO for my use case which was rating cake.
- Detailed use case for rating cake.
- ACTIVITY Diagram for the use case.
- Review Business description
- Leader in actor analysis
- Discussion In use case modelling ,component diagram, use case modelling
- Review in activity modelling ,class diagram, deployment
- SEQUENCE Diagram for the use case.
- Leader in the **architectural Design**.
- Design phases.
- Did the power point .

**Ahed Ghnimat:** I will give my opinion on the course first, that it is really useful in several areas for the future, whether for the labor market, for the graduation project, or for several other things. This course taught us how to choose the appropriate official (for example, like Dr. Adel Tawil. We have greatly benefited from you and given us advice and feedback) and also in choosing the appropriate team. In order to benefit more and choose a suitable topic about which we have prior information.

### **My tasks:**

- A scenario Analysis for Cake Shop.
- Actor Analysis Contribute by.
- Review **architectural** design,deploement,class diagram
- Use-Case Modelling Reviewing by my.
- Use-Case Specification (How to access the account? (login)).
- Activity Modelling Contribute by my.
- Use-Case Activity Modelling (How to access the account? (login)).
- System Sequence modelling and Analysis (login).
- Leader in component diagram ,analysis modelling
- System and Component modeling.
- Discuss use case modelling,activity modelling
- Review powerpoint



**Sanaa** : In my opinion, this project was a valuable experience that allowed me to actively participate in collaborative work. Working closely with team members, I had the opportunity to contribute to various aspects of the project. I extend my sincere gratitude to Dr. Adel for making the course enjoyable despite the challenging circumstances. His guidance played a pivotal role in our learning journey, and I am thankful for the support that enhanced our overall experience.

### **My tasks:**

- Write SCENARIO for my use case which was Ordering by Credit Card .
- Detailed Use-Case Specification for ordering by Credit card.
- Activity Modelling for ordering by Credit card .
- SEQUENCE Diagram for ordering by Credit card.
- Contributed in Activity Modelling.
- Leader in System Design Goals.
- Contributed in USER and SYSTEM requirements
- Contributed in Use-Case Modelling
- Discussion in Actor Analysis
- Discussion in Effort Estimation.
- Discussion in Requirement Analysis, deployment ,class diagram ,activity modelling
- Review **architectural** design, component, use case modelling
- Discuss actor analysis
- Communicate with the doctor and upload projects

**Mohand Idrees:** I think this course will be one of the few courses I take that will add something that will stay with me for a long time. I took my first paid project this semester, and for someone who is a beginner, it would be difficult for me. I used many things in this course in talking to my customer, it helped me a lot, especially in specifying the requirements I have used Agile it was very helpful.

### **My tasks:**

- **A scenario Analysis for Cake Shop.**
- **Use-case modeling lead by me ,deployment**
- **Use-Case Specification (How to access the account? (login)).**
- **Activity Modelling Contribute by my.**
- **Use-Case Activity Modelling (Place order).**
- **Deployment modelling.**
- **Discuss architectural design,component,activity modelling**
- **The person who organizes meetings**
- **Review power point**
- **Review Actor analysis ,class diagram**
- **Checks the Spelling mistakes**

**Qusai Jaber:** Reflecting on this course, I've gained essential insights into project management and software development. The emphasis on effective team selection and practical requirements gathering has significantly impacted my ability to navigate real-world projects. Instructors like Dr. Adel Tawil provided valuable guidance, contributing to informed decision-making. This course has not only enhanced my technical skills but also instilled confidence for tackling future challenges in project work.

### **My tasks:**

- A scenario Analysis for Cake Shop.
- Detailed use case for Search.
- Actors and Use case.
- **Discuss architectural** design, actor analysis
- **Review Actor analysis ,deployment ,component**
- Use-Case Specification (how to search).
- Use-Case Activity Modelling for search.
- System Class modelling and Analysis lead by me.
- System Sequence modelling and Analysis: im make for search.
- Leader in the class diagram,activity modelling

## Phase Two

# Requirement Engineering- Elicitation & Discovery

## ***Business Outline for Group 2 (online cakeshop)***

The online cake shop boasts a user-friendly website designed to provide an immersive experience for customers exploring a diverse catalog of delectable cakes. The ordering process involves customers selecting and customizing their desired cakes, adding them to a virtual cart, and seamlessly providing delivery details during checkout. While creating an account is optional, it proves beneficial for customers in terms of saving their information for future orders.

Upon completing a secure payment, customers promptly receive an email confirmation, assuring them of a successful transaction. Behind the scenes, the shop diligently processes orders, establishing collaborations with local bakeries to ensure the production of high-quality, artisanal cakes. The delivery aspect is carefully orchestrated, with completed cakes reaching customers at specified dates and times, contributing to a reliable and punctual service.

Encouraging customer engagement, the business actively seeks feedback to enhance its offerings and address any concerns. A robust customer support system is in place, accessible through email or phone, ensuring that any inquiries or issues are promptly attended to.

The success of the online cake shop is intricately tied to the quality of its products, the efficiency of its delivery processes, and the overall satisfaction of its customers. The shop's commitment to excellence is evident in its dedication to providing a seamless online cake shopping experience, emphasizing not only the delicious end product but also the journey of customization, ordering, and receiving a delightful cake tailored to each customer's preferences.

Customers can easily order meals by selecting what they want from the menu online without the need to create an account. They can simply request a meal, fill out a form with their names, phone numbers, email addresses, location, and payment details (credit card, Mastercard, Upon receipt, or PayPal). After submitting the form, our customer service will approve the order, provide an estimated delivery time, and receive the payment. If customers choose to sign in, they can have their information saved for future orders and share reviews about their meal experiences.

Online Cake Shop involves customers who seek a delightful ordering experience, skilled bakers creating perfect cakes, delivery personal ensuring timely deliveries, and customer support. Together, they create a seamless and enjoyable online cake shopping experience.

Cake Shop operates in a lively space, featuring a user-friendly website, a bustling kitchen with skilled bakers crafting delicious cakes, well-organized delivery routes, efficient communication tools, spaces for valuable customer feedback, and a secure online payment system. In terms of business details and demands, the shop caters to a diverse customer base, serving approximately 50 customers daily seeking a delightful cake shopping experience. The operation involves a dedicated team of employees, including skilled bakers, delivery personnel, and customer support staff, totaling around 5 employees, ensuring efficient handling of the demands of crafting, delivering, and managing orders. On average, the Cake Shop processes a moderate volume of daily orders, reflecting the popularity of its cakes and the effectiveness of its services. The business actively encourages customer feedback, utilizing designated spaces to adapt to preferences, refine offerings, and maintain a high level of customer satisfaction. Prioritizing the safety of online transactions, the Cake Shop ensures a secure way for customers to pay, contributing to a trustworthy and reliable online shopping experience.

## Task 2.2: [Group Task]

### User Requirements:

- 1-The system shall provide the ability to create an account and log in.
- 2-The user can search for types of cakes
- 3- The system shall provide a cart feature for users.
- 4-The system shall inform customers about preparation and delivery details.
- 5- The system shall provide communication channels for users.
- 6-Your online cake shop will support a range of secure payment options.
- 7-The customer must be able to evaluate the system from all aspects ,such service and quality of cakes.
- 8-The system must contain a general and fast communication method.
- 9-The system creates a list of sales every week.

### System Requirements:

#### **1 The system shall provide the ability to create an account and log in.**

- 1.1 The system shall present users with a registration form comprising fields for name, password, email, and phone number during the account creation process.
- 1.2. Upon submitting the registration form, the system shall validate and store the user's information securely.
- 1.3. A confirmation email shall be sent to the user's provided email address for account verification.
- 1.4. Users must be able to log in using their registered email and password.
- 1.5. The system shall provide an option for users to reset their password by sending a verification code to the registered email address.
- 1.6. Users should have the ability to customize and update their account information after successful login.

## **2- The user can search for types of cakes:**

- 2.1. Testing language selection during cake search to ensure it reflects the chosen language for search results.
- 2.2 Conducting system testing to verify the effectiveness of sorting and filtering options based on cost, duration, and specifications.
- 2.3. User testing will confirm that cakes added to the Wishlist are stored and can be easily accessed by the customer.

## **3-The system shall provide a cart feature for users:-**

- 3.1Users can add selected cakes to the cart.
- 3.2The cart should display the updated price when a cake is selected.
- 3.3Users can add multiple cakes from various items to the cart.
- 3.4Users can delete any item from the cart.
- 3.5The cart shall have a summary, including the number of selected cakes and the total price.

## **4 -The system shall inform customers about preparation and delivery details:**

- 4.1-Clear delivery information and cost for each location shall be displayed on the website.
- 4.2-After selecting an item and payment method, the user shall receive a confirmation message with details about delivery time, delivery method, and the final price.

## **5 -The system shall provide communication channels for users:**

Upon order confirmation, the system shall send a message containing all order details .A specific email or phone number shall be provided for users to inquire about their or

## **6 -The online cake shop should support a variety of secure payment options**

- 6.1-Online payment options by Visa, and PayPal shall be available.
- 6.2-If any error happens while making the payment it shall not exceed 10 seconds and no money will be taken from the user
- 6.3-If the user chooses to pay online, his or her card information must be saved and secured for future payments.
- 6.4-For any online payment the user shall receive the payment details



## **7 -The customer shall be able to rate each type of cake as well as the service.**

7.1-The system offers two different types of evaluation, one directed at evaluating each type of cake, and the other specific to the service in general. The rating is represented by numbers from 1 to 5, which provides a quick overview of customer satisfaction.

7.2-The system constantly collects evaluations for each type of cake, which provides each employee with a better view of the result of the work he provided and its development. For example: If the evaluation of making the cake and its quality is bad, the employee who made it must improve the quality of the workmanship, and if the evaluation of the delivery is bad, he must The service employee improves the service and so on.

7.3-The system updates average ratings in real time as soon as customers submit their ratings, providing live feedback and improving performance.

7.4-The system displays an instant confirmation message to customers when a review is successfully submitted, to reinforce positive communication and valuable customer engagement.

## **8- The system must contain a general and fast communication method**

8.1-For inquiries or messages, please reach out via email.

8.2-Our contact details are prominently displayed, with a readily available phone number and a clearly visible email address.

8.3-Obtain information on the expected timeframe for timely responses to customer inquiries.

8.4-Integrate direct social media links for cake shop.

## **9-The system creates a list of sales every week.**

9.1-The system shall automatically generate a comprehensive weekly sales report at a 5:30pm, summarizing all transactions within last 7 days period.

9.2-The weekly sales report should include details such as total revenue, the number of orders processed, and a breakdown of sales by product or category.

9.3-The generated sales list should be available for review by authorized personnel at the beginning of week day.

## Effort Estimations:

**pw**= person week; **pm**= person month; **w**= week; **m**= month

**effort**= the effort required for a person employed all month/week long

**Schedule time** = time needed to complete including based on working days only(including holidays etc.)

UR	Estimated Effort	Estimated No. of Developers	Total Effort
UR1- registration	1 pw	2	$2*1=2$
UR2- search	1 pw	1	$1*1=1$
UR3- Add To Cart	2 pw	2	$2*2=4$
UR4-Estimated Time/Cost	1 pw	2	$1*2=2$
UR-5 Payment	2 pw	2	$2*2=4$
UR-6 rating	1 pw	1	$1*1=1$
UR-7 Contact us	2 pw	2	$2*2=4$
UR-8 report	1 pw	2	$1*2=2$
Total effort average	11 pw	$14/8 = 1.7$	20
Schedule time 30%	$11*1.30 = 14.3$ w (min time to complete)		$20* 1.3 = 26$ w (max time to complete)
Cost		AVG salary = 600\$	$600* 26$ w = \$15600
Profit Margin (min=10%, max=30%)		min cost → max cost →	$15600*1.10 =$ \$17160 $15600 * 1.30 =$ \$20280

We are a start up company with 10 developers.

We follow a strategy to optimize development time by partitioning independent tasks

Between developers and do them in parallel.

## Phase Three

# Requirements Analysis and Modelling

## Task 3.1: Scenario Analysis

Ahed Ghnimat 1201849.

Scenario Analysis (Project N.2 cake shop). A scenario for Cake Shop:  
How to access the account? (login))

**Initial assumption:** the customer is reviewed by the service employee who collected information about him, and created a special record for him through information about the customer's name, phone number, order date, and delivery address.

**Normal:** If the customer does not already have an account, the system initiates the account creation process. The customer is prompted to provide necessary personal information, such as name, contact number, and address, to establish a new account securely within the system. Once the required details are submitted, the system generates a unique account for the customer. For customers who already have an account, the system performs an authorization check. The customer is required to log in using their established credentials (e.g., username and password). Upon successful authentication, the system verifies the customer's authorization status. Once authorized, the customer gains access to the order initiation process. The system presents the available products or services, and the customer can proceed to select items, specify preferences, and complete the order. The order details, including the chosen items, delivery preferences, and any additional instructions, are recorded securely within the system. This clearly defined normal scenario outlines the specific steps involved in the account creation and order initiation process. It ensures a systematic and secure approach to managing both new and existing customer interactions within the business service."

**Create a new account:** A new account is created by entering the name, address, phone number, email address, and password

After creating the account, the customer can update personal information at any time he wants. When the employee logs back into the account, he can see the history of previous orders, and if he wants to order again, he can add new details.

After entering the necessary information, the information entered by the customer is confirmed and saved.

The employee can also log in through the employees page, and if he is a new employee, a new account is created for him by the employee responsible for that. The employee can access the customer's account through the name and number and can also access the order, and details about the order in terms of quantity are added. Specifications, delivery date, and any other additions.

## What can go wrong?

- Alternative : If the customer attempts to log in, and the system cannot locate their account, an alternative solution could involve guiding the customer to create a new account. The customer would then enter personal information, such as name, number, and address, to establish a new profile in the system.
- Alternative: In cases where customers are unwilling or unable to provide all the necessary personal information, the system should communicate a message informing them of the missing information and its potential impact on the order.

## Other Activities: Restricted access to anyone's profile.

- Alternative: To safeguard information integrity and privacy, the system should restrict account entry to authorized employees only.

**System State on Completion:** When the login is completed, the system records the information and records the preferences that the employee entered when ordering and any suggestions he entered, and it saves the date of the delivery date and the rest of the information, such as the delivery address, phone number, and name, correctly and securely so that he can refer to them when the order is delivered or at any other time.

**Initial assumption:** Choose interactive cakes and experience seamless transactions.

**Normal Flow:** In the normal flow, customers visiting the online cake shop experience an engaging and personalized cake selection process. Upon accessing the website or mobile app, the system identifies the customer and suggests interactive cake options based on their past preferences and order history. Customers then engage with the recommended cakes, utilizing interactive features to customize their selections, adjusting flavor, design elements, and size to their liking. The seamless ordering process follows, as customers effortlessly add their customized cakes to the cart. The system provides a transparent breakdown of costs, and customers securely complete the transaction using various payment options such as credit cards or PayPal. Following a successful payment, the system generates an order confirmation with details on the delivery date, time, and final cost. Post-delivery, the system actively seeks customer feedback, contributing to continuous improvement and refinement of the recommendation algorithm for future transactions.

**Alternative Flow:** In the alternative flow, customers have the flexibility to opt for a manual cake selection process or directly initiate customization independently. For those who prefer a hands-on approach, the manual selection option allows customers to browse through clear categories and choose cakes manually. This alternative accommodates diverse preferences, enabling customers to explore the comprehensive cake catalog independently. On the other hand, the direct customization alternative caters to customers who wish to bypass the recommendation algorithm and initiate the customization process from the homepage or a dedicated customization section. These alternative flows provide customers with different channels for selecting and customizing cakes, enhancing the overall versatility of the online cake shopping experience.

**Error Flow:** potential challenges during the cake selection and ordering process are addressed. If a technical glitch occurs, such as the temporary failure of the recommendation algorithm, the system responds by displaying an error message. This message informs the customer about the issue and encourages them to retry the cake selection process. In the case of a payment processing failure, the system generates an error message, notifying the customer of the problem and providing alternative payment options to ensure a smooth transaction. Furthermore, if there is server downtime during the feedback collection phase post-delivery, the system displays a message apologizing for the inconvenience and prompts the customer to provide feedback at a later time. These error flows prioritize transparency and offer alternative solutions, demonstrating the system's responsiveness and commitment to maintaining a positive customer experience even in the face of unexpected challenges.

**Other Activities:** Beyond the core cake selection and ordering process, the system actively encourages customer feedback through reviews, contributing to continuous improvement. Direct contact details, including a prominently displayed phone number and email address, facilitate quick customer inquiries. The integration of social media links enhances customer engagement by providing updates on promotions and offerings. These additional activities underscore the business's commitment to a holistic and satisfying online cake shopping experience, encompassing communication, feedback collection, and promotional outreach.

**System state on completion:** After a successful cake order, the system securely stores customer information, sends an email confirmation with delivery details, and encourages feedback for continuous improvement. For those with accounts, information is retained for future personalized experiences, ensuring a secure and streamlined transaction.

## **Scenario: Pay for Order by Credit Card in an Online Cake Shop.**

**Initial Assumption:** A customer, enthusiastic about an upcoming celebration, explores and orders a customized cake from the online cake shop.

### **Normal Flow:**

1. The customer, after meticulous cake selection, proceeds to the checkout phase.
2. In the checkout, the system prompts the customer to choose a payment method; "Credit Card" is selected.
3. The customer securely enters credit card details (number, expiration date, CVV, billing address).
4. The system rigorously validates credit card information for accuracy and completeness.
5. Upon successful validation, the system securely communicates with the external bank for credit card transaction authorization.
6. If authorization is successful, the specified amount is deducted, and the order status is updated to "Paid."
7. An on-screen confirmation assures the customer of successful payment, and a detailed email with order summary and delivery information is dispatched.
8. Transaction details are logged for future reference, accessible by the Shop Manager for reporting.

### **What Can Go Wrong?**

**Alternative Flow :** If the credit card transaction encounters issues during authorization, the system provides a clear error message, guiding the customer to review and correct details or choose an alternative payment method.

**Other Alternative Flow :** If the customer opts to save credit card details, the system prompts with a secure option. The customer may save or decline, and the system respects their choice, displaying clear messages for saving or declining, ensuring the utmost security. Additional security measures are in place to safeguard saved information.

**Error:** If the client enters invalid credit card information, the system provides specific error messages, guiding the customer to correct errors seamlessly with detailed instructions, ensuring a smooth and error-free transaction.



**Mohand Idrees 1212236.**  
**Scenario Analysis (Project N.3 cake shop).**  
**Place order**

**Initial assumption:** The customer has successfully added the items to the cart.

**Normal:** the customer confirms the order by clicking the "Confirm Order" button, The customer chooses the order to be delivered to him. The system displays a message "Order confirmed! Your estimated preparation time is X minutes, delivery time is Y minutes, and the total cost is Z\$. Please fill out the delivery information below." A form opens with fields for name, address, and phone number. The user fills out the form and selects "pay by cash." A message appears: "Thank you for your order! Your cake will be delivered within Y minutes. We'll call you upon arrival."

**What can go wrong?**

- **Alternative:** the customer confirms the order by clicking the "Confirm Order" button, The customer chooses to come and pick up his order. and the system displays a message "Order confirmed! Your estimated preparation time is X minutes, and the total cost is Z\$. The customer selects "pay by cash." A message appears: "Thank you for your order! Your cake will be ready within Y minutes".
- **Alternative:** the customer confirms the order by clicking the "Confirm Order" button, The customer chooses to come and pick up his order. and the system displays a message "Order confirmed! Your estimated preparation time is X minutes, and the total cost is Z\$". The customer selects to pay by card, and the browser will redirect him to a secure payment gateway, Once payment is successful A message appears: "Thank you for your order! Your cake will be ready within Y minutes".

**Error Flow:** The system detects an error "declined card" during the payment process, the software will notify the user and explains the error clearly, The system guides the user on how to resolve the payment error it could include suggesting alternative payment methods, checking and correcting payment details, or recommending a retry after a brief moment.

**Error Flow:** The system detects an error "invalid CVV" during the payment process, the software will notify the user and explain the error clearly, The system guides the user on how to resolve the payment error it could include suggesting alternative payment methods, or rewrite the CVV again.

**Rayan Ghnimat 1211073.**  
**Scenario Analysis : Cake Rating**  
**Service for a Bakery Buisness**

**Initial Assumption:**

The customer has successfully completed a purchase on the online cake shop's website.

**Normal:**

- Email Confirmation:
  - After a customer completes a purchase, an automated system generates an order confirmation email.
  - The email includes a personalized thank-you message, a summary of the order, and a prominently displayed link to the feedback form.
- Feedback Form Integration:
  - The link directs the customer to a dedicated page on the cake shop's website, where the feedback form is seamlessly integrated.
  - The website uses secure and user-friendly protocols to ensure a smooth transition from the email to the feedback form.
- User-Friendly Feedback Form:
  - The feedback form is designed with a clean and intuitive user interface.
  - Clear fields are provided for the customer to rate specific aspects of their experience, such as product quality, delivery time, and overall satisfaction.
  - A user-friendly rating system (e.g., stars or numerical scale) simplifies the process.
- Optional Comments Section:
  - Alongside the ratings, there is an optional comments section where customers can express their thoughts in a free-text format.
  - The form encourages customers to provide detailed feedback by including prompts or suggestions, such as "Tell us about your experience."
- Validation and Error Handling:
  - The system includes validation checks to ensure that all required fields are completed before submission.
  - Clear error messages are displayed if any issues arise, guiding customers to correct their input.
- Data Storage:
  - Upon submission, the feedback form data is securely transmitted to a server.
  - The server validates the data integrity and ensures that it meets predefined criteria.
  - The information is then stored in a dedicated customer feedback database for future analysis.

- Confirmation Message:
  - After successful submission and validation, a confirmation message is displayed, acknowledging the customer's feedback.
  - An option to return to the website or explore additional services may be provided to enhance the overall user experience.

## What Can Go Wrong?

- **Server Downtime during Feedback Submission**

**Alternative:** when the customer tries to give feedback using the link, they might face issues because the server is not working well. This could happen because of things like unexpected maintenance, too many people using the system, or problems with the server. When the system notices that the server isn't working, it automatically takes action by telling both the technical support team and the customer about the issue. The customer gets a sorry message for the trouble, along with an idea of when the problem might get fixed. To make sure everything goes smoothly later on, the system sends another email with the feedback link once the server is working again. This way, the customer can give their feedback when the system is stable. This problem is about the whole system having trouble, not just one specific thing going wrong, making it different from other possible issues

- **Payment Processing Failure:**

**Alternative:** when the customer tries to buy something, there's an issue with paying. The bank has trouble approving the payment, so it doesn't go through. The system quickly tells the customer about the problem and says sorry, giving tips like checking the payment info or trying another way to pay. At the same time, the tech support team gets a heads-up to look into the issue. Someone from support then gets in touch with the customer, either by email or phone, to help personally and fix the payment issue. This shows that sometimes problems happen specifically with paying, and it's important to fix them to make sure customers have a good experience.

## **Other Activities:**

### **1. Feedback Medium Choices:**

- Customers are given alternative options for providing feedback beyond traditional forms. The system offers choices such as voice feedback through an interactive voice response (IVR) system, text-based feedback through a chatbot interface, or the conventional written feedback form. This allows customers to choose the method that best suits their preferences.

### **2. Feedback Channel Preferences:**

- In addition to email, customers can opt for alternative feedback channels. The system provides options such as a dedicated customer feedback hotline or a live chat platform, allowing customers to share their thoughts and concerns through real-time communication channels.

### **3. Real-Time Feedback Alerts:**

- To address urgent issues, the system sends real-time alerts to the customer support team when feedback highlights immediate concerns. This proactive approach ensures that critical feedback is promptly addressed and resolved, enhancing customer satisfaction.

### **4. Feedback Categorization and Prioritization:**

- Implementing an automated system, feedback is categorized and prioritized based on its nature. This alternative method allows the system to identify critical issues and generate prioritized support tickets for the customer support team to address promptly.

### **5. Feedback Modification Options:**

- Customers have the flexibility to modify or update their feedback using alternative options. The system allows customers to add further comments, provide clarifications, or adjust their ratings even after initial submission, ensuring a more dynamic and iterative feedback process.

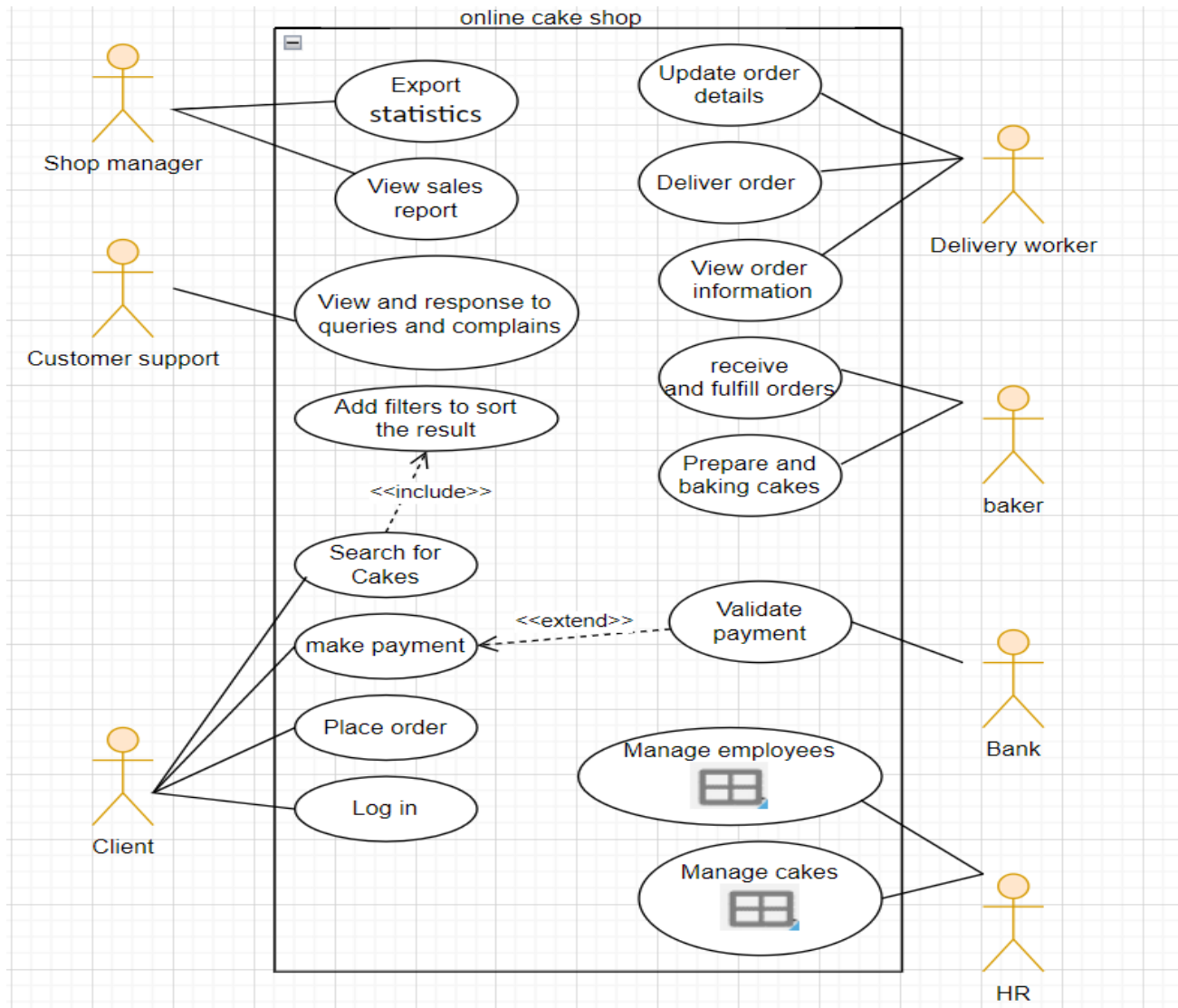
### System State on Completion:

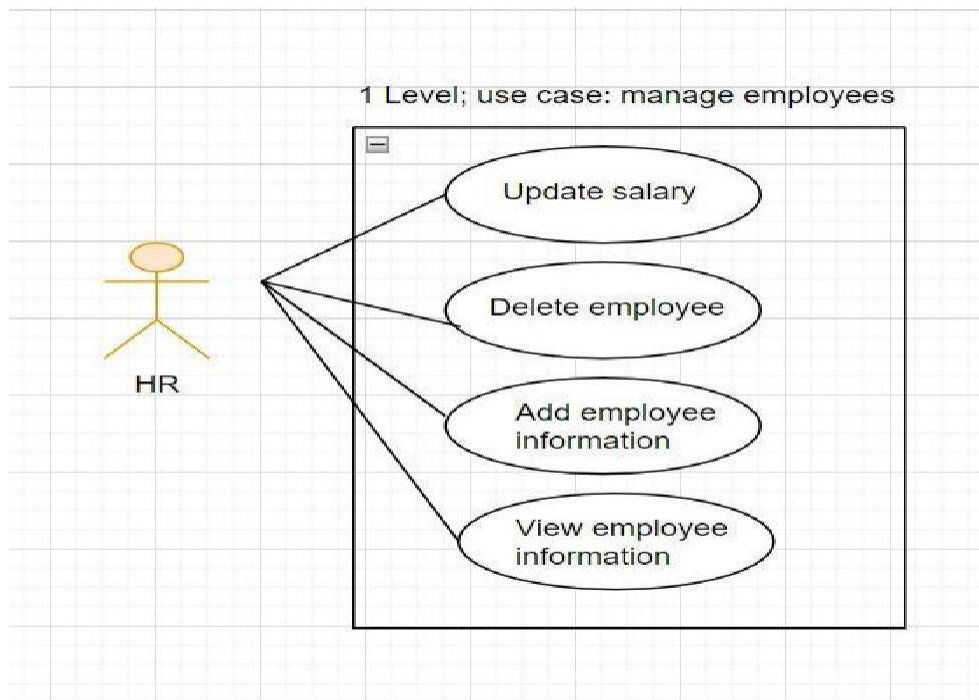
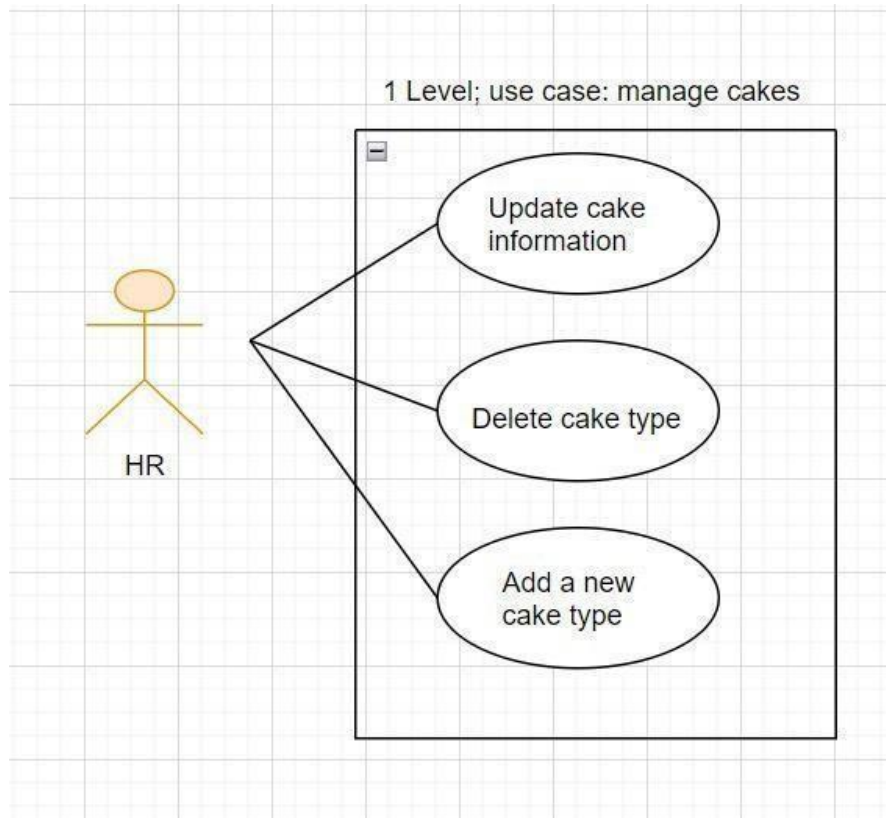
- The feedback is securely recorded in the customer feedback database.
- If applicable, the customer support team is alerted to address specific issues raised by the feedback
- The customer receives a thank-you message, fostering a positive relationship with the cake shop

## Task 3.2: Actor Analysis

ACTOR	Semantics/Description
<b>Customer</b>	Represents individuals who visit the cake shop to purchase cakes or other related products. Customers interact with the system to browse the available cakes, place orders, and create account.
<b>Shop Manager</b>	This actor oversees the overall operation of the cake shop. The manager/administrator interacts with the system to view sales reports and Export statistics.
<b>Delivery worker</b>	Represents individuals responsible for delivering cake orders to customers, especially for online. The delivery personnel interact with the system to receive order details, deliver the order, and update the order status upon successful delivery.
<b>Cakes Maker</b>	Refers to the individuals responsible for preparing and baking the cakes. The baker interacts with the system to receive and fulfill orders,
<b>Customer Support</b>	refers to the person who receive customer queries and Complaints and response to the user.
<b>Bank</b>	This actor represents an external system which verifies customers' accounts and complete payment transactions.
<b>HR employee</b>	This represents a person employed at the cake shop. He can manage employee and manage products.

## Task 3.3: Use-Case Modelling







### Task 3.4: Use-Case Specification:

Ahed Ghnimat 1201849.

Use case Analysis (Project N.2 cake shop).

(How to access the account? (login)):

<b>Actors</b>	<ul style="list-style-type: none"><li>• Customer.</li><li>• Employee</li></ul>
<b>Description</b>	The customer visits the website of the online cake shop to see the options available in cakes. The system displays a simple user interface for logging in or creating an account and entering the necessary information. The employee also logs in and can reach the place he wants with his work authorization. Once the customer does not enter or call and see all the other details about the store.
<b>Pre-conditions</b>	<ul style="list-style-type: none"><li>• The user (customer or employee) has successfully logged into their respective account.</li></ul>
<b>Sequence/Flow of Events</b>	<ol style="list-style-type: none"><li>1- Creating a customer account: If the customer does not have an account, he begins the process of creating an account. The system asks the customer to enter the name, email, and password, and after the success of the process, he creates the account.</li><li>2- The customer logs in to his account using the account name and password. If the data entered is incorrect, the system will provide an error message and allow the customer to re-login.</li></ol>
<b>Data</b>	Log in information (name, password, date of birth, and [optional] email address , phone number).
<b>Stimulus/Trigger</b>	The customer begins the browsing process after correctly logging in to the online cake shop website.
<b>Post-conditions/ Response</b>	After the customer logs in successfully and confirms the request after going through several stages, he must finally log out of the system while confirming the information. If there is a defect or lack of information, a message is given to him and after confirmation, he logs out.

**Comments**

This situation focuses on the customer's ability to create an account or log in to the account.

**Qusai Jaber 1191511**

**Use case analysis (Project N.2 cake shop).**

<b>Actors</b>	Customer
<b>Description</b>	The Cake Search and Checkout use case depicts the sequence of actions initiated by the Customer when exploring and purchasing cakes on the online cake shop's website. This process is crucial for customers looking to either add cakes to their Wishlist for future reference or make immediate purchases. The following steps outline the detailed flow, including alternative and error scenarios.
<b>Pre-conditions</b>	Customer must have the intent to search for specific cakes, either to add them to the Wishlist for future reference or for immediate purchase.
<b>Sequence/Flow of Events</b>	<ol style="list-style-type: none"><li>1. Customer navigates and customized cake choices.</li><li>2. Selected cakes are added to the virtual cart.</li><li>3. Customer initiates the checkout process.</li><li>4. System prompts the customer for delivery information.</li><li>5. Customer enters accurate details.</li><li>6. Customer selects preferred payment method (e.g., credit card).</li><li>7. Completes the secure payment process.</li><li>8. System processes the order in real-time.</li><li>9. Confirmation email with detailed order information is sent to the customer.</li></ol>
<b>Data</b>	Cake information (Size, price and type of cake), Client information (name, gender, date of birth, and [optional] email address).
<b>Stimulus/Trigger</b>	The client decision to actively engage with the online cake shop's website and explore cake options, driven by the intent to make a purchase, serves as the primary trigger for the cake selection and checkout process.
<b>Post-conditions/ Response</b>	<ol style="list-style-type: none"><li>1. Search Results Displayed: The system displays a list of relevant cake options based on the customer's search criteria.</li><li>2. Interactive Exploration: Customers can interact with the displayed cakes, exploring details such as flavors, sizes, and designs.</li><li>3. Wishlist Updates (Optional): If the customer chooses, they can add selected cakes to their Wishlist for future reference.</li><li>4. Refinement Options: Customers have the option to refine search results based on additional criteria (e.g., price range, cake type).</li><li>5. User-Friendly Navigation: The system ensures a seamless and user-friendly navigation experience during the search process.</li></ol>
<b>Comments</b>	No comments

### Use-Case Specification (Pay for Order by Credit Card in an Online Cake Shop ):

<b>Title</b>	Pay for Order by Credit Card
<b>Purpose</b>	Facilitate secure payment for customized cake orders using a credit card.
<b>Description</b>	Customer , having selected and customized cakes, proceed to pay using the credit card. This outlines steps for completing a payment transaction.
<b>Actors</b>	Customer ,Bank, Shop Manager
<b>Pre-conditions</b>	1. Customer is logged into the online cake shop. 2. Customer has selected and customized a cake.
<b>Sequence/Flow of Events</b>	<ol style="list-style-type: none"><li>1. <b>Customer initiates payment:</b><ol style="list-style-type: none"><li>1.1. The process begins as the Customer navigates to the checkout after completing the cake customization.</li></ol></li><li>2. The system prompts the Customer to select a payment method, and the Customer chooses "Credit Card."</li><li>2. <b>Entering Credit Card Details:</b> The Customer securely enters credit card details into the system.</li><li>3. <b>Validation and Authorization:</b><ol style="list-style-type: none"><li>3.1. The system validates the entered credit card information for accuracy.</li><li>3.2. Upon successful validation, the system communicates with the external bank.</li><li>3.3. The external bank authorizes the credit card transaction.</li></ol></li><li>4. <b>Transaction Confirmation:</b><ol style="list-style-type: none"><li>4.1. If authorization is successful:<ol style="list-style-type: none"><li>4.1.1. The specified amount is deducted from the Customer's account.</li><li>4.1.2. The order status updates to "Paid."</li></ol></li><li>4.2. An on-screen confirmation assures the Customer of the successful payment.</li></ol></li><li>5. <b>Email Confirmation:</b><ol style="list-style-type: none"><li>5.1. Simultaneously, a detailed email containing the order summary and delivery information is sent to the Customer.</li></ol></li><li>6. <b>Logging Transaction Details:</b><ol style="list-style-type: none"><li>6.1. The system logs transaction details for future reference.</li><li>6.2. The Shop Manager can access this information for reporting.</li></ol></li></ol>
<b>Data</b>	Customer login credentials, selected cakes, credit card details, transaction details.
<b>Stimulus/Trigger</b>	Customer interacts with the payment interface.
<b>Comments</b>	<ol style="list-style-type: none"><li>1. System ensures security and confidentiality of credit card information.</li><li>2. Appropriate error handling guides Customers through payment process issues.</li><li>3. Payment interface is user-friendly with clear confirmation messages.</li></ol>

## Use-Case Specification (Place an order in an Online Cake Shop):

<b>Title</b>	<b>Place order</b>
<b>Purpose</b>	to order the items in the cart
<b>Description</b>	The customers complete their shopping cart by clicking "Confirm Order", choose a payment method card or cash, Choose the method of receipt, deliver the order to them or they come to pick it up, and complete their purchase.
<b>Actors</b>	Customer
<b>Pre-conditions</b>	<ol style="list-style-type: none"> <li>1. Customer has added the items to the shopping cart.</li> <li>2. Customer clicks the " confirm order " button on the cart page.</li> </ol>
<b>Sequence/Flow of Events</b>	<ol style="list-style-type: none"> <li>1- The customer clicks "confirm order"</li> <li>2- The System displays order details with prices, delivery options, and total cost.</li> <li>3- Customers can review the order items and update</li> <li>4- If the customer chooses the order to be delivered to him. The system displays a message "Order confirmed! Your estimated preparation time is X minutes, delivery time is Y minutes, and the total cost is Z\$. Please fill out the delivery information below." A form opens with fields for name, address, and phone number.</li> <li>5- The system offers payment methods: "Pay Online" or "Cash on Delivery."</li> <li>6- If the user selects to pay using a card the user. <ul style="list-style-type: none"> <li>• will be redirected to the online payment gateway.</li> <li>• the customer adds his card information.</li> <li>• if the process succussed Order status updates to "Paid," a confirmation message is sent, and baking begins.</li> <li>• If the process not succussed System informs customer, allows retrying or choosing another method.</li> </ul> </li> <li>6- Order confirmation message displays with estimated delivery time.</li> <li>7- Baking begins.</li> </ol>
<b>Data</b>	<ul style="list-style-type: none"> <li>• Shopping cart items</li> <li>• Customer information (optional for cash on delivery)</li> <li>• Payment details (for online payment)</li> </ul>

**Post- conditions/Response**

The customer receives a confirmation message and order information  
The baker receives order information and begins preparing the cake(s).

## Use-Case Specification (Rating a Cake in an Online Cake Shop):

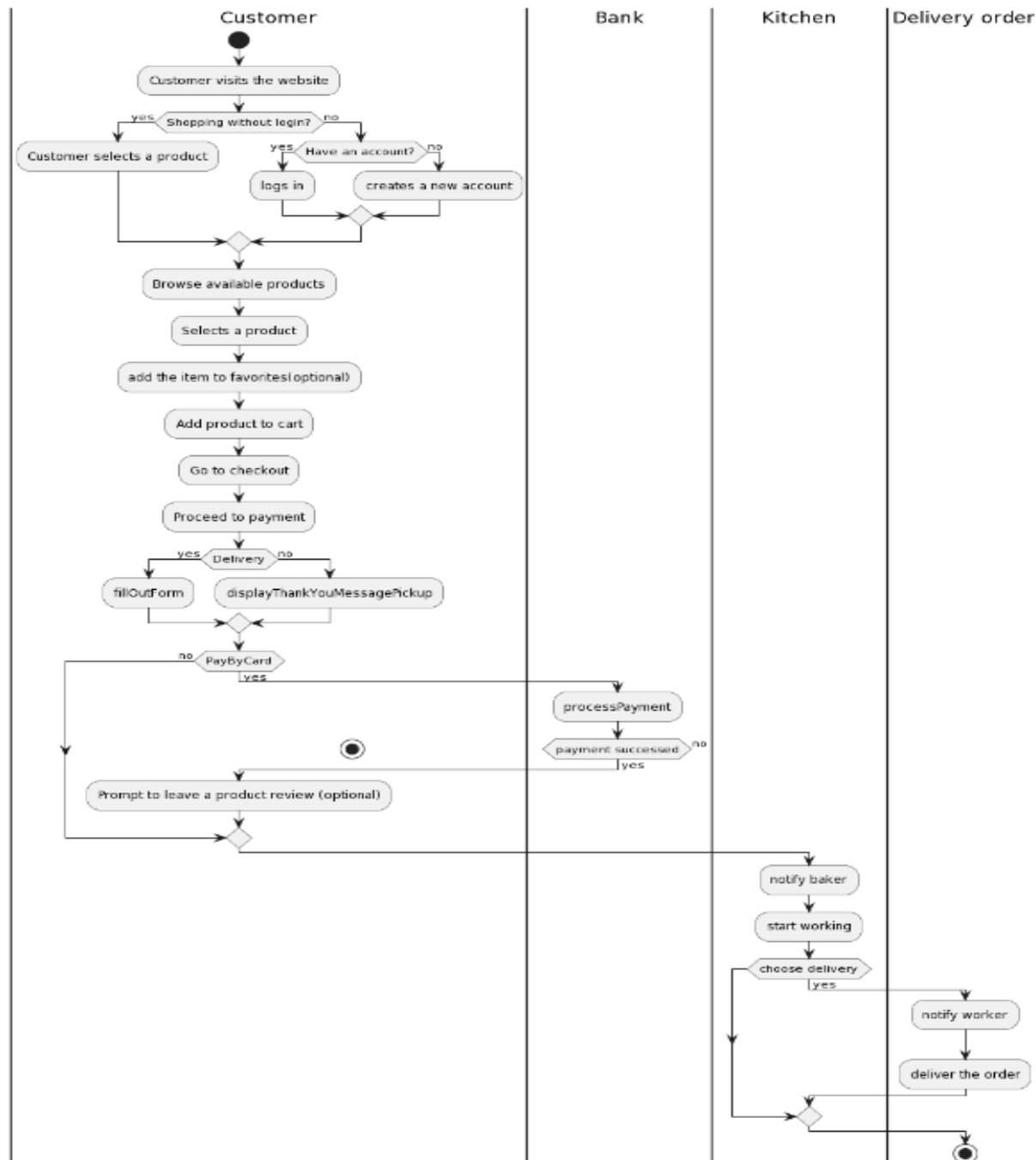
<b>Actors</b>	Customer
<b>Description</b>	The Cake Rating Service scenario revolves around gathering customer feedback following a successful purchase on an online cake shop's website. The system aims to provide a seamless and user-friendly experience for customers to share their thoughts and ratings on various aspects of their cake-buying experience.
<b>Pre-conditions</b>	<ol style="list-style-type: none"><li>1. A customer has successfully completed a purchase on the cake shop's website.</li><li>2. The system is operational and capable of sending emails, integrating feedback forms, and securely storing customer feedback.</li></ol>
<b>Sequence/Flow of Events</b>	<ol style="list-style-type: none"><li>1. Email Confirmation:<ul style="list-style-type: none"><li>- An automated system generates an order confirmation email after the customer completes a purchase.</li><li>- The email includes a thank-you message, a summary of the order, and a link to the feedback form.</li></ul></li><li>2. Feedback Form Integration<ul style="list-style-type: none"><li>- The customer clicks on the link, directing them to a dedicated page on the cake shop's website with a seamlessly integrated feedback form.</li></ul></li><li>3. User-Friendly Feedback Form:<ul style="list-style-type: none"><li>- The feedback form features a clean and intuitive interface with clear fields for rating various aspects of the customer's experience.</li><li>- An optional comments section encourages customers to provide detailed feedback.</li></ul></li><li>4. Validation and Error Handling:<ul style="list-style-type: none"><li>- The system checks that all required fields are completed before submission.</li><li>- Clear error messages guide customers in case of any issues, ensuring correct input.</li></ul></li><li>5.*Data Transmission and Storage:<ul style="list-style-type: none"><li>- Upon submission, the feedback form data is securely transmitted to a server.</li><li>- The server validates the data integrity and stores it in a dedicated customer feedback database for future analysis.</li></ul></li><li>6. Confirmation Message:<ul style="list-style-type: none"><li>- After successful submission and validation, a confirmation message is displayed, acknowledging the customer's feedback.</li><li>- Optionally, the customer may be provided with links to return to the website or explore additional services.</li></ul></li></ol>

<b>Data</b>	<ol style="list-style-type: none"> <li>1. Customer Feedback Data: <ul style="list-style-type: none"> <li>- This encompasses the feedback provided by customers through the dedicated form. It includes ratings for specific aspects such as product quality, delivery time, and overall satisfaction. Additionally, the optional comments section captures detailed written feedback, allowing customers to express their thoughts more elaborately.</li> </ul> </li> <li>2. Order Details: <ul style="list-style-type: none"> <li>- Information related to the customer's purchase, obtained during the transaction process, is integral to the feedback system. This may include the specifics of the ordered items, transaction IDs, and any other relevant details tied to the purchase.</li> </ul> </li> <li>3. Validation and Error Data: <ul style="list-style-type: none"> <li>- Data related to the validation process and error handling is crucial for maintaining the integrity of the feedback system. This includes information about successfully validated submissions as well as instances where errors occurred during the feedback submission process.</li> </ul> </li> <li>4. Confirmation Message Data: <ul style="list-style-type: none"> <li>- Data related to the confirmation message serves to acknowledge the customer's feedback and may include details such as the time and date of submission, the customer's ID, and the unique identifier for the confirmation message.</li> </ul> </li> <li>5. Server Status Data (Alternative Scenario): <ul style="list-style-type: none"> <li>- In the event of server downtime, data related to server status is essential. This includes timestamps indicating when the server went down, the nature of the issue (e.g., unexpected maintenance or high traffic volume), and the estimated time for issue resolution.</li> </ul> </li> <li>6. Payment Processing Data (Alternative Scenario): <ul style="list-style-type: none"> <li>- In the case of a payment processing failure, data related to the payment attempt is critical. This includes details about the payment method used, error codes from the bank, and any additional information pertinent to the payment failure.</li> </ul> </li> <li>7. Real-Time Alert Data (Additional Activities): <ul style="list-style-type: none"> <li>- If real-time alerts are triggered, data related to the alert mechanism is valuable. This may include timestamps for when alerts were sent, the nature of the feedback triggering the alert, and any categorization or priority information associated with the alert.</li> </ul> </li> </ol>
<b>Stimulus/Trigger</b>	Completion of a customer purchase triggers the automated generation of an order confirmation email with a feedback form link.



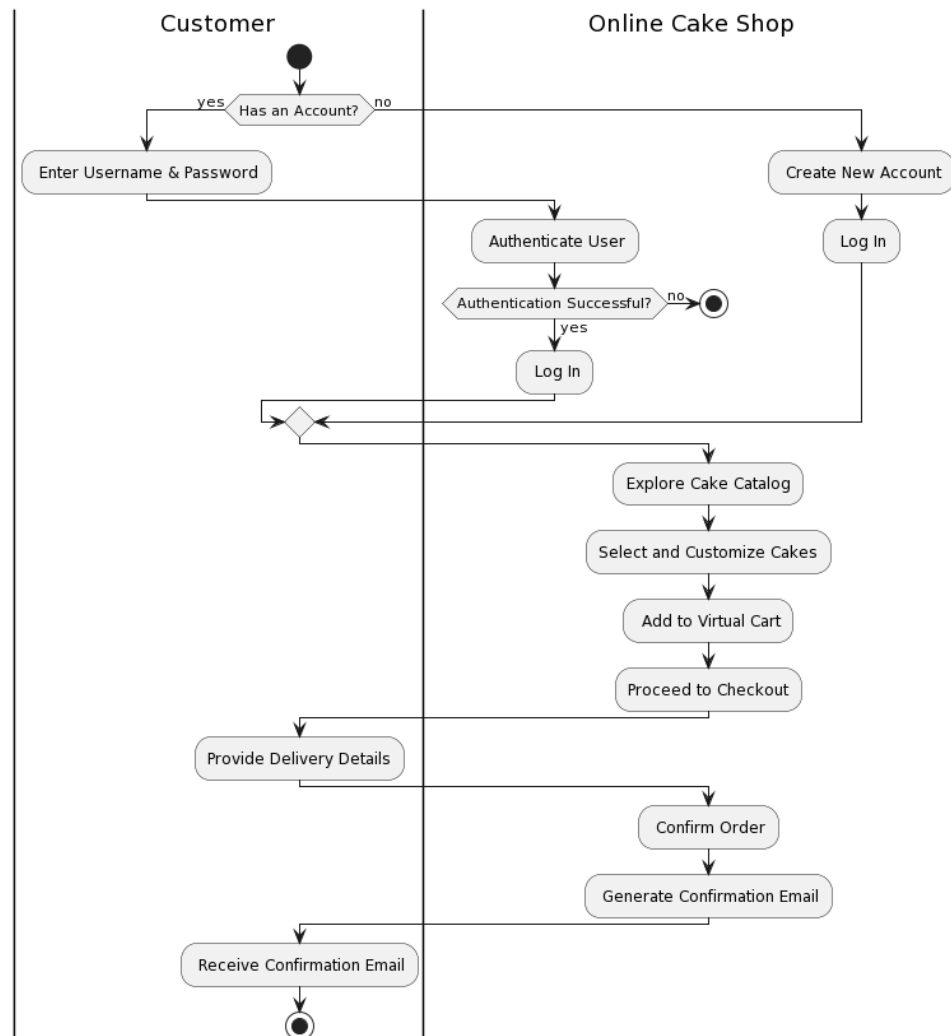
<b>Post-conditions/ Response</b>	<ol style="list-style-type: none"> <li>1. Customer Feedback Database Update: <ul style="list-style-type: none"> <li>- The customer's feedback, including ratings and optional comments, is securely and accurately recorded in the dedicated customer feedback database. This database serves as a repository for valuable insights into customer experiences, forming the basis for future analysis and improvement initiatives.</li> </ul> </li> <li>2. Customer Support Team Alert (if applicable): <ul style="list-style-type: none"> <li>- If the customer's feedback highlights specific issues or concerns, the customer support team is promptly alerted. This alert system ensures that the support team can swiftly address and resolve any identified issues, providing personalized assistance to the customer and contributing to overall customer satisfaction.</li> </ul> </li> <li>3. Thank-You Message Sent: <ul style="list-style-type: none"> <li>- A thank-you message is sent to the customer, acknowledging their feedback and expressing gratitude for their valuable input. This post-condition aims to foster a positive relationship between the customer and the cake shop, enhancing the overall customer experience and encouraging future interactions.</li> </ul> </li> </ol>
<b>Comments</b>	<ul style="list-style-type: none"> <li>• The system is designed to provide a user-friendly and flexible feedback mechanism, accommodating various customer preferences and potential issues.</li> <li>• Proactive measures, such as server downtime and payment processing failure alternatives, demonstrate a commitment to addressing challenges promptly.</li> <li>• Additional activities, like varied feedback mediums and real-time alerts, contribute to a more dynamic and responsive feedback system, enhancing the overall customer experience.</li> </ul>

## Task 3.5: Activity Modelling



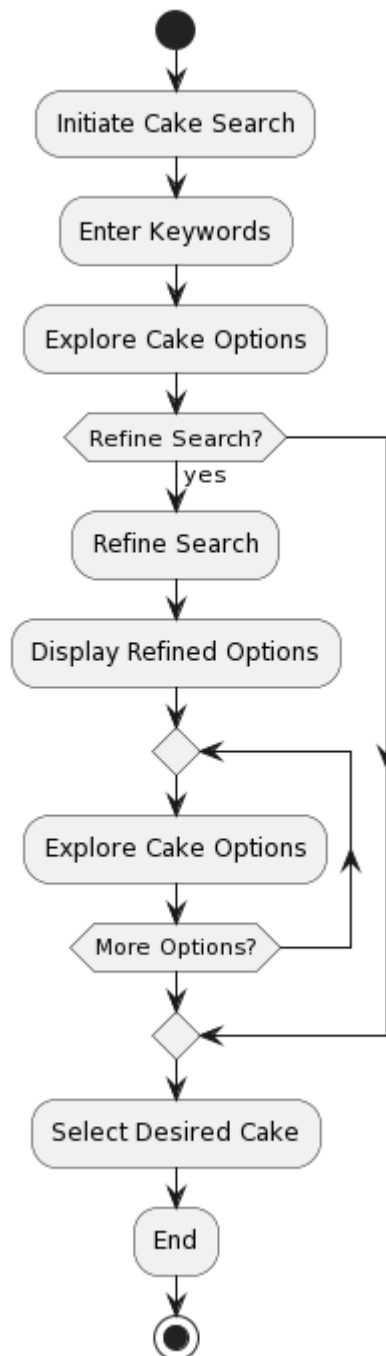
## Task 3.6: Use-Case Activity Modelling

Ahed Ghnimat 1201849.  
Use case model (Project N.2 cake shop):  
(How to access the account? (login)):



Qusai Jaber 1191511

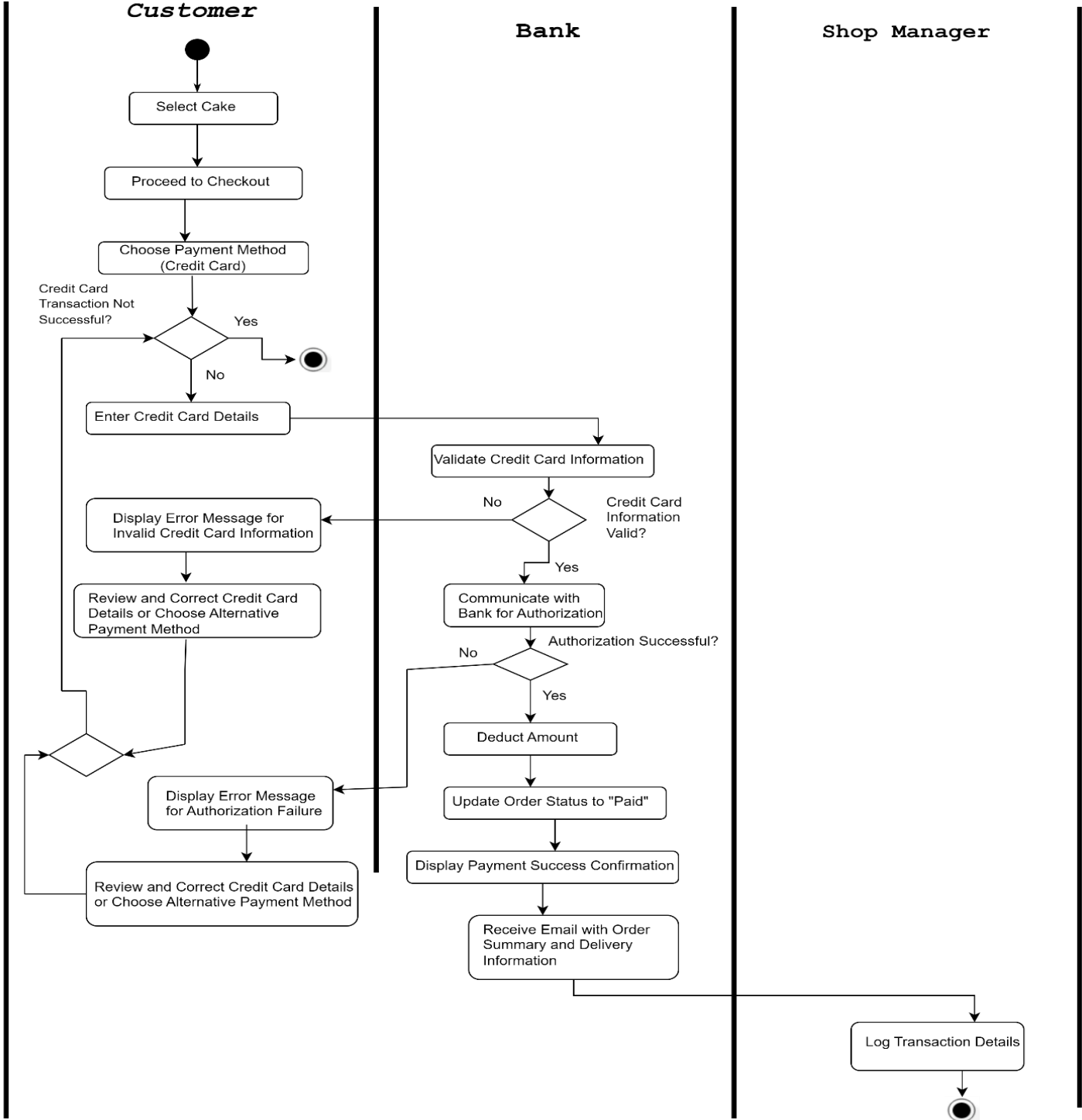
Use case model (Project N.2 cake shop).



Sanaa Obied ,1211079

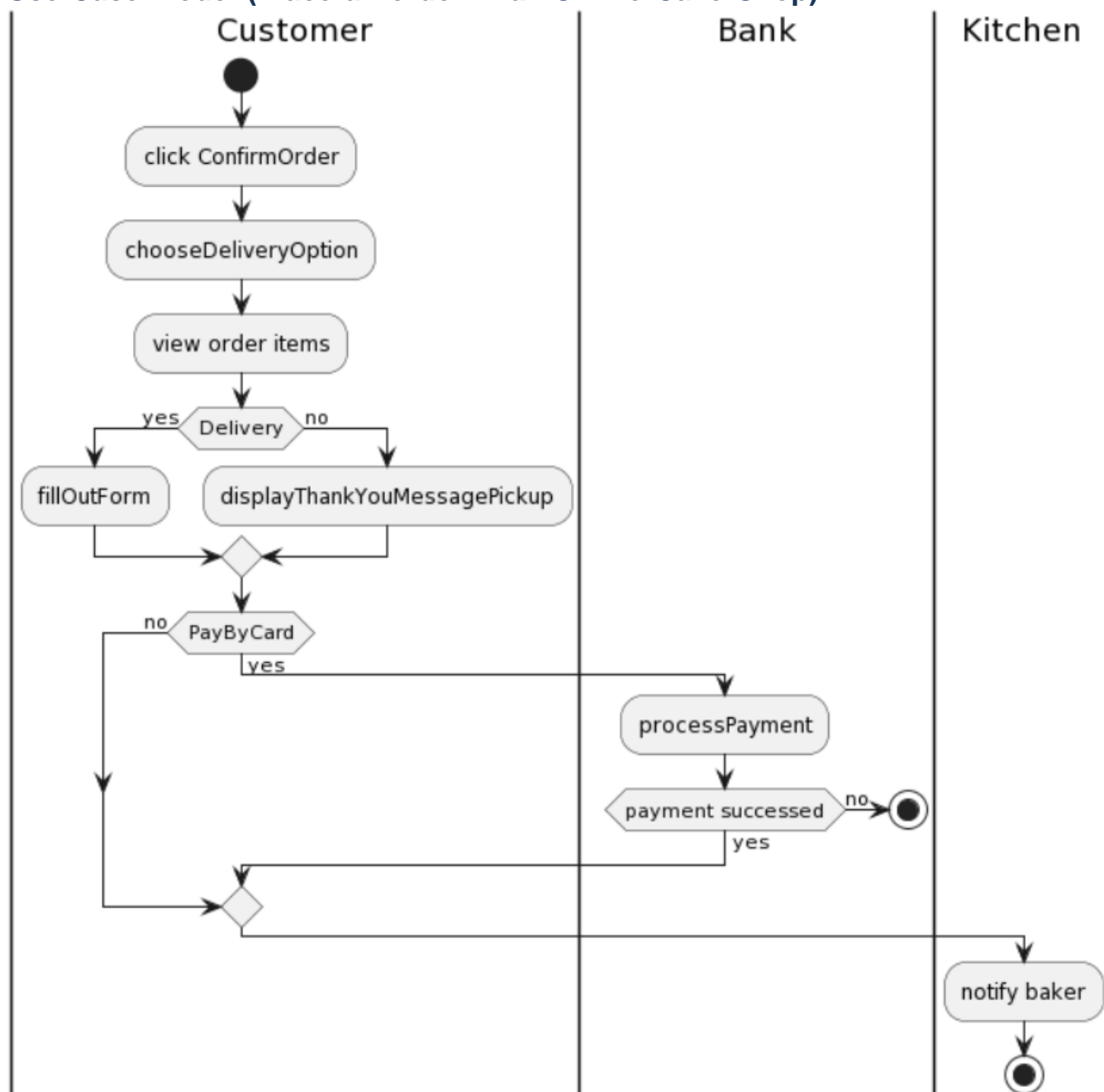
# Use-Case model (Pay for Order by Credit Card in an Online Cake Shop)

Pay for Order by Credit Card in an Online Cake Shop

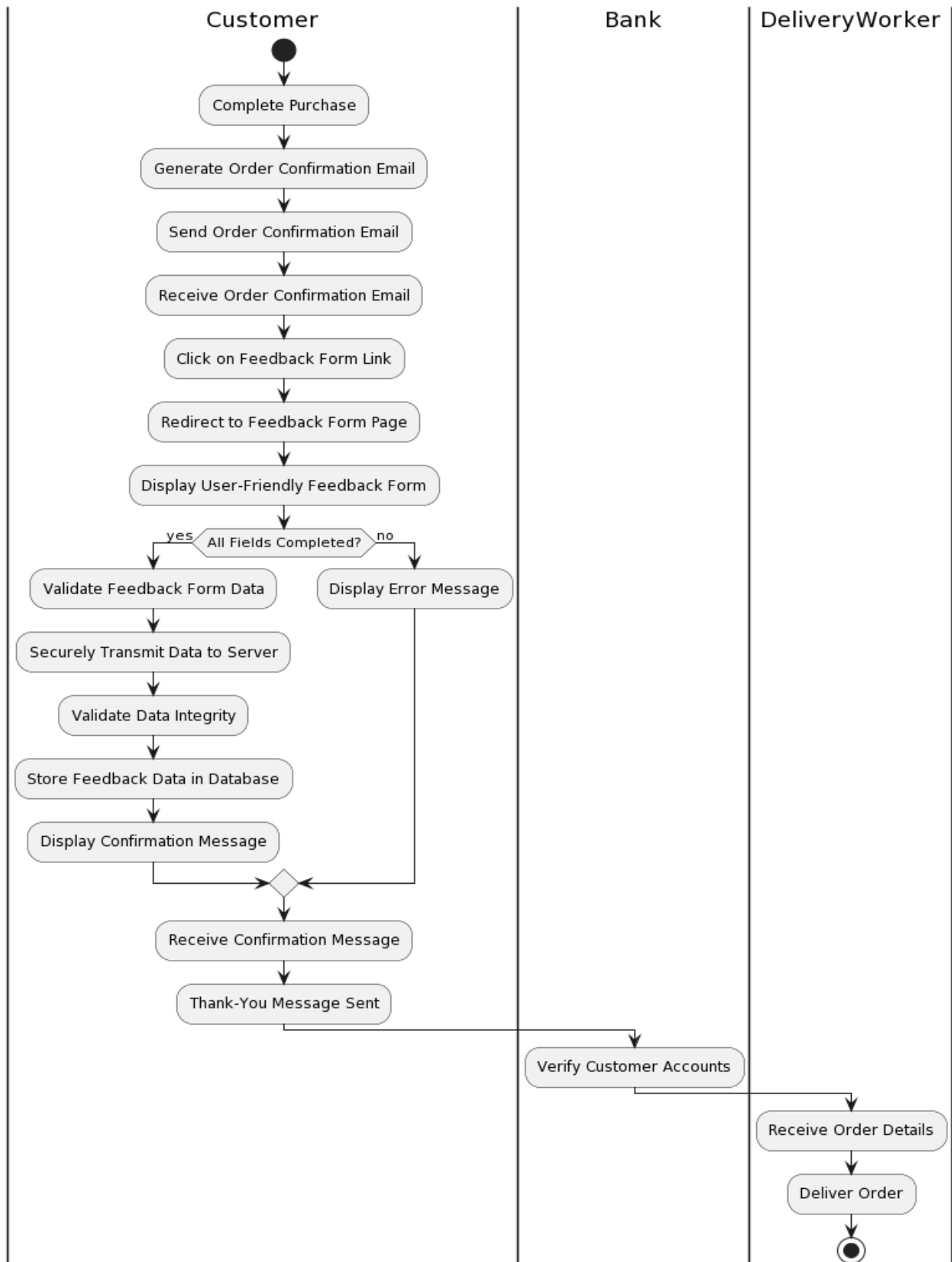


Mohand Idrees 1212236

### Use-Case model (Place an order in an Online Cake Shop):



Use-Case model (rate an order in an Online Cake Shop):



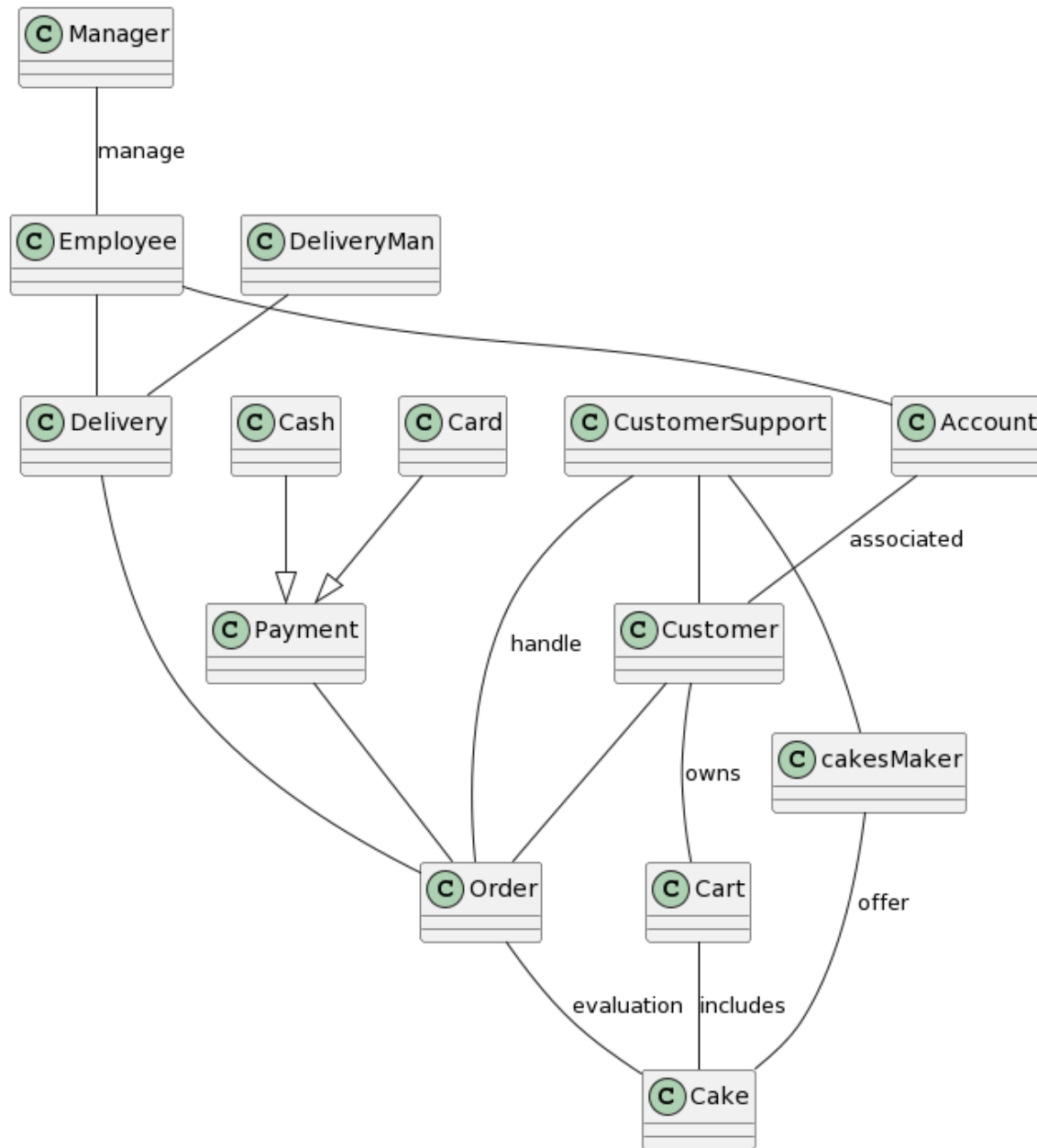
## Phase Four

# System Modelling and Design

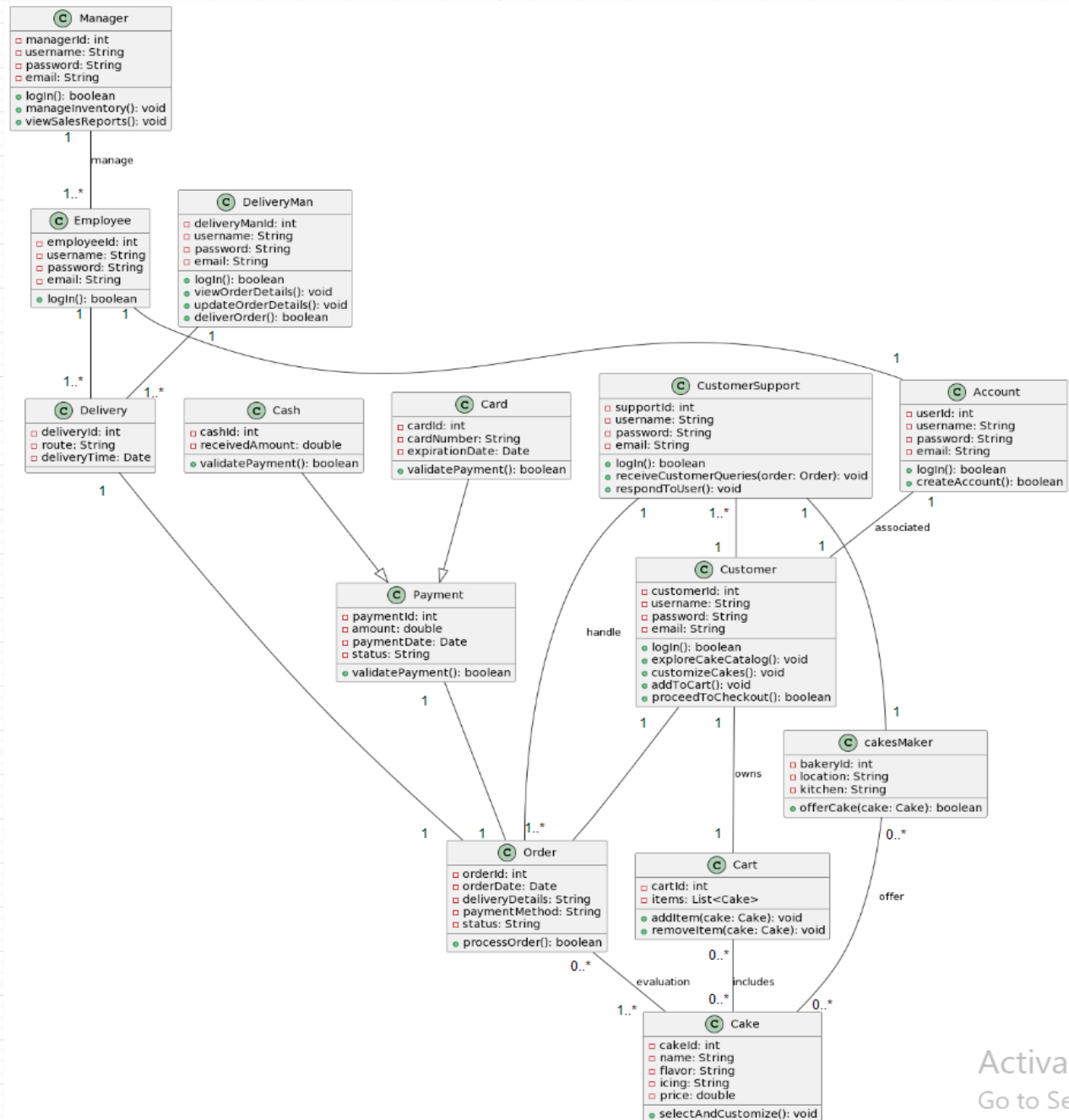


## Task 4.1- [Group Task] System Class modelling and Analysis:

### ANALYSIS CLASS Diagram:

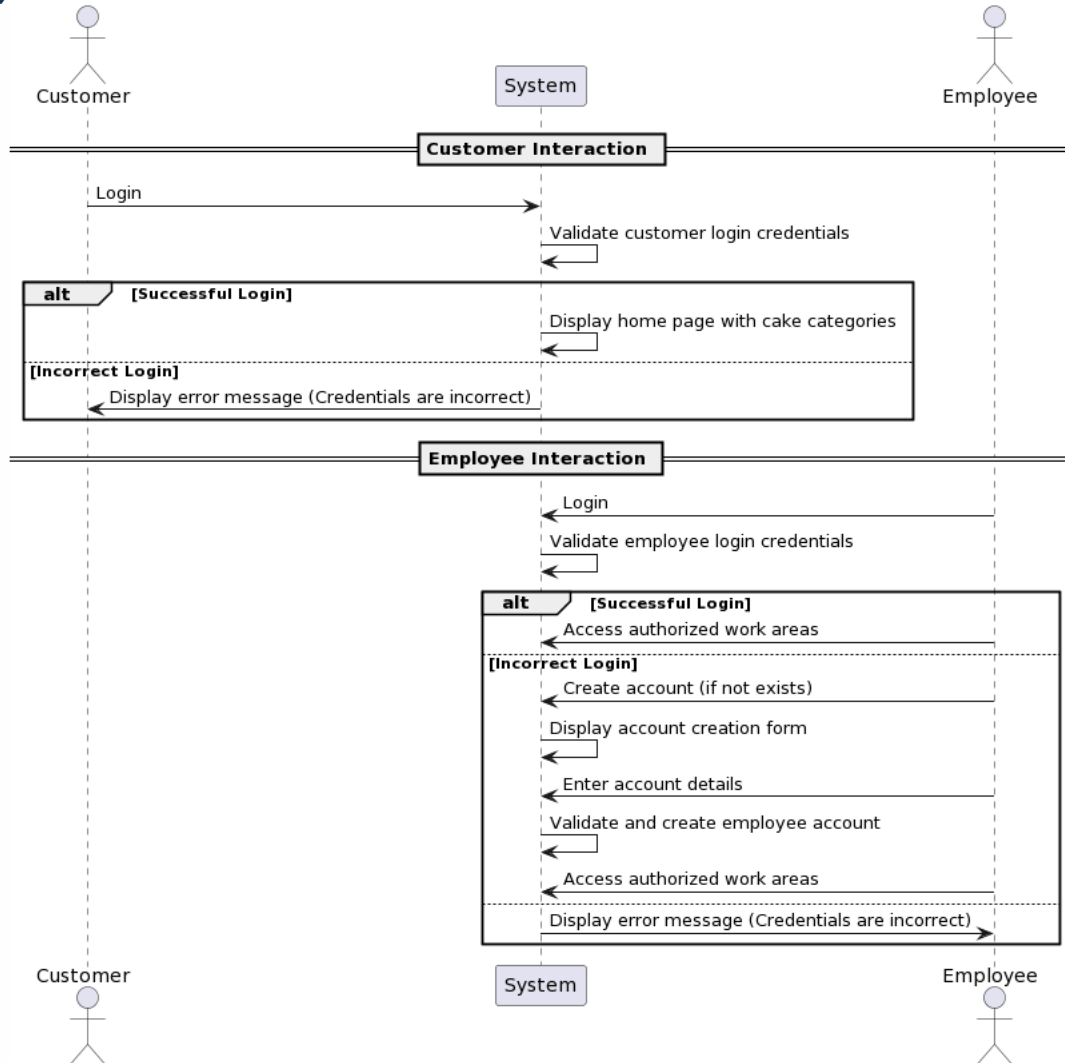


## DETAILED CLASS Diagram:



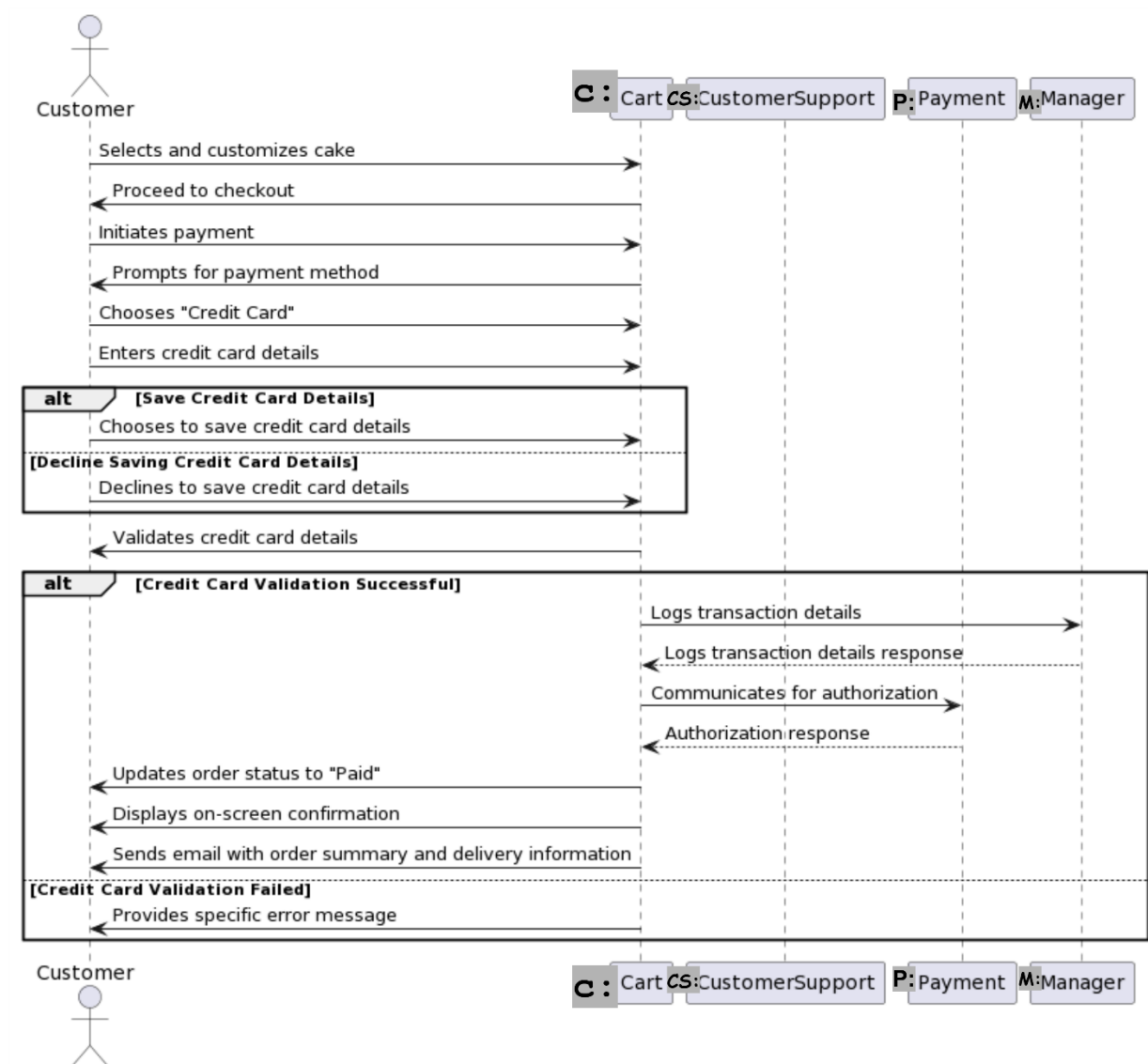
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## System Sequence modelling and Analysis:(How to access the account? (login))



Sanaa Obied 1211079

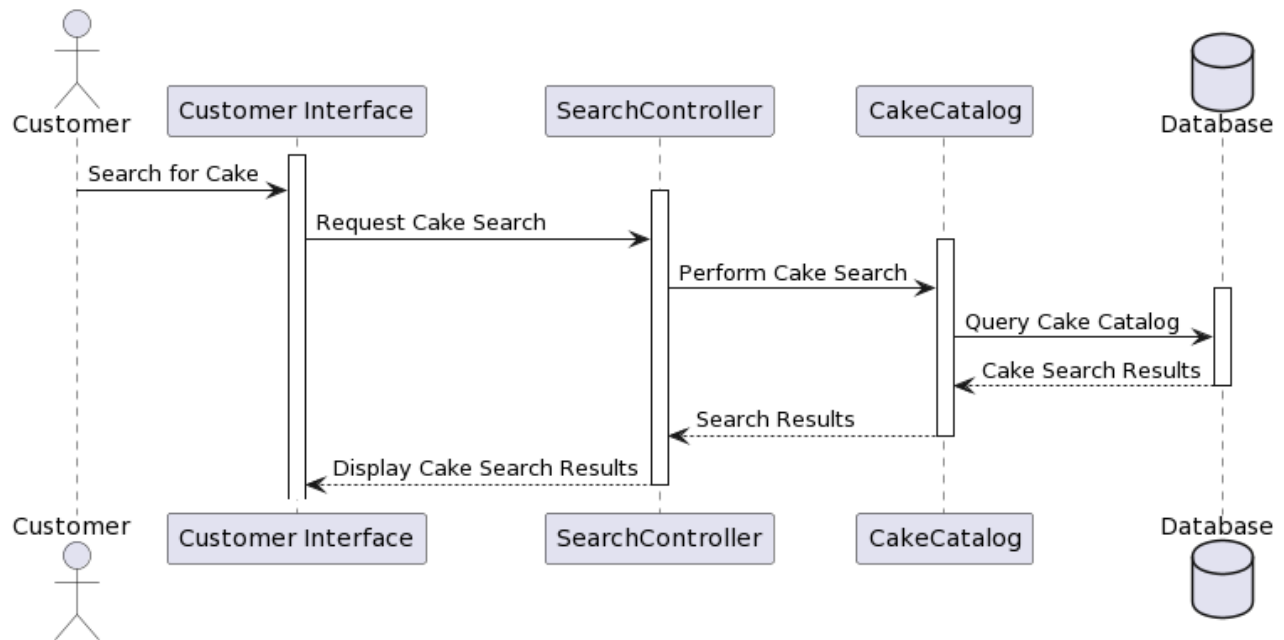
## System Sequence modelling and Analysis(Pay for Order by Credit Card in an Online Cake Shop):



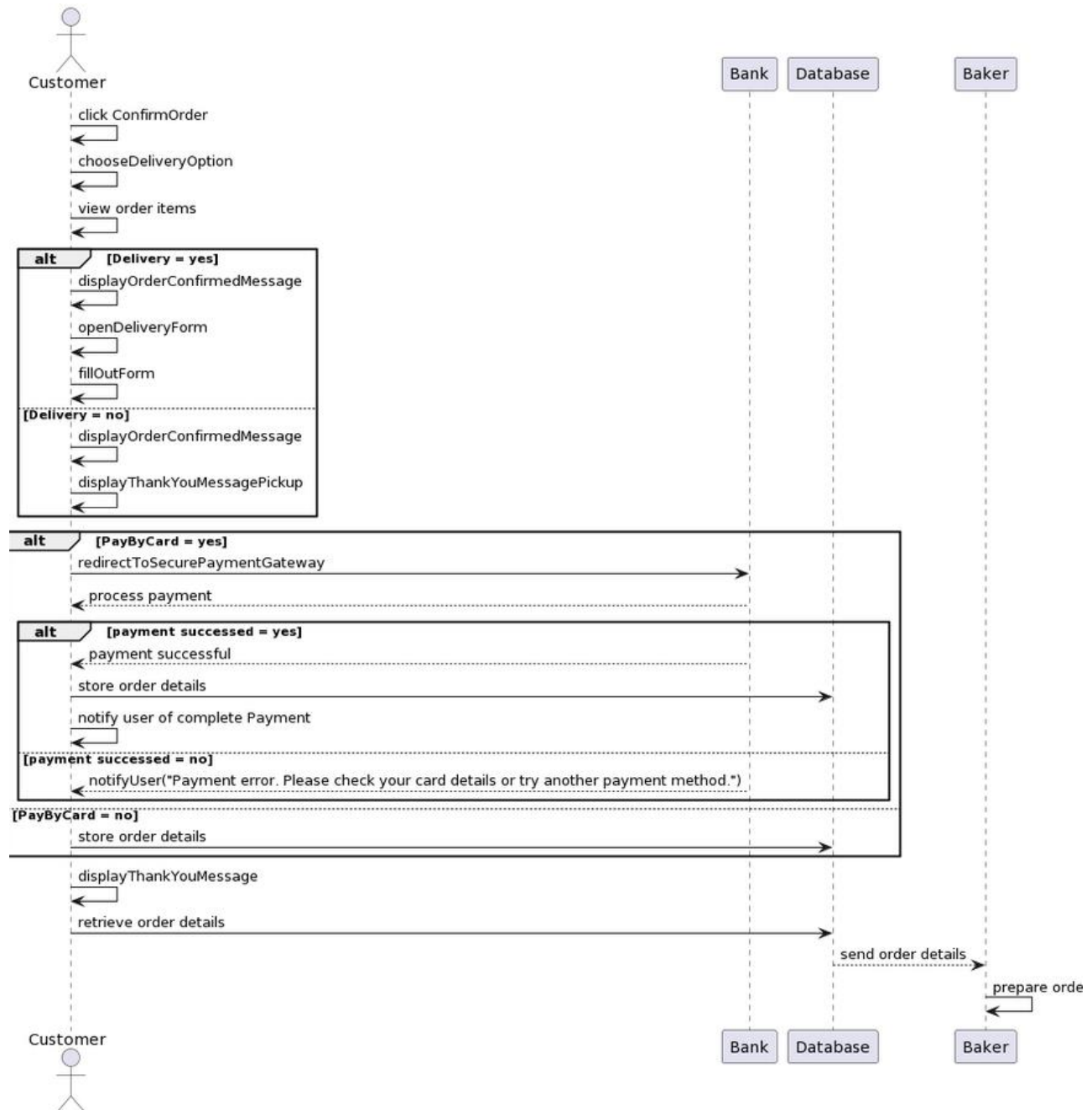
## Task 4.2

Qusai Jaber 1191511

**System Sequence modelling and Analysis for the use case "Search for Cake in an Online Cake Shop."**

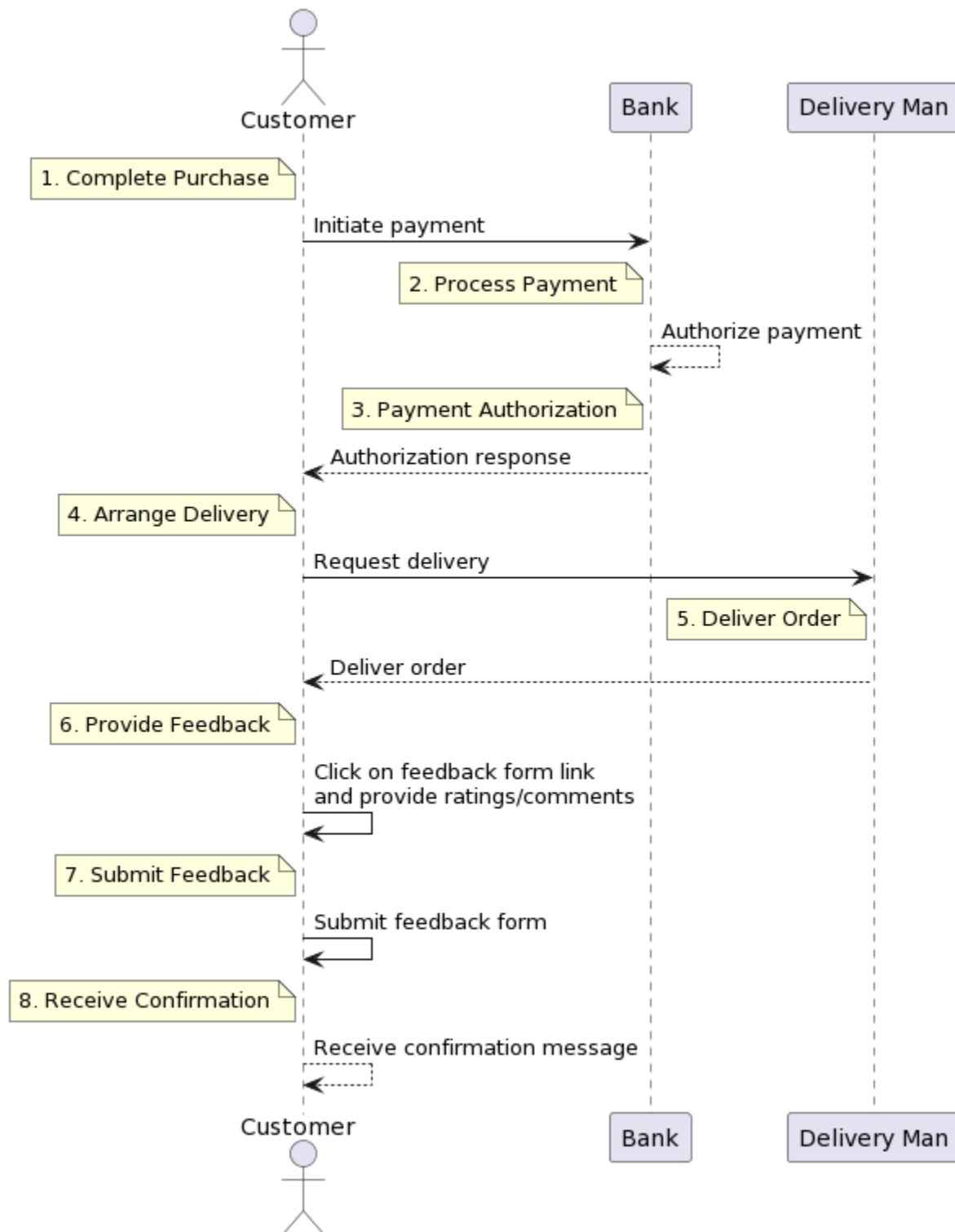


## System Sequence modelling and Analysis for the use case "Place an order".



Rayan Ghnimat 1211073

System Sequence modelling and Analysis for the use case "Rating a cake".



## Task 4.3- [Group Task] System Design Goals:

### System Design Goals for the Online Cake Shop:

#### General Design Goals:

##### 1. Low Coupling:

- *Objective:* Minimize interdependencies to enhance flexibility and maintainability.
- *Implementation:* Design classes and components strategically, highlighting benefits for adaptability and seamless enhancements.

##### 2. High Cohesion:

- *Objective:* Organize system components with a focus on distinct functionality to reduce complexity.
- *Implementation:* Recommend separation based on unique functionalities, emphasizing benefits for better system manageability.

##### 3. Scalability:

- *Objective:* Design the system to handle an increasing number of users, orders, and data without compromising performance.
- *Implementation:* Utilize scalable architecture, such as cloud services, and implement load balancing to ensure the system scales seamlessly with growing demand.

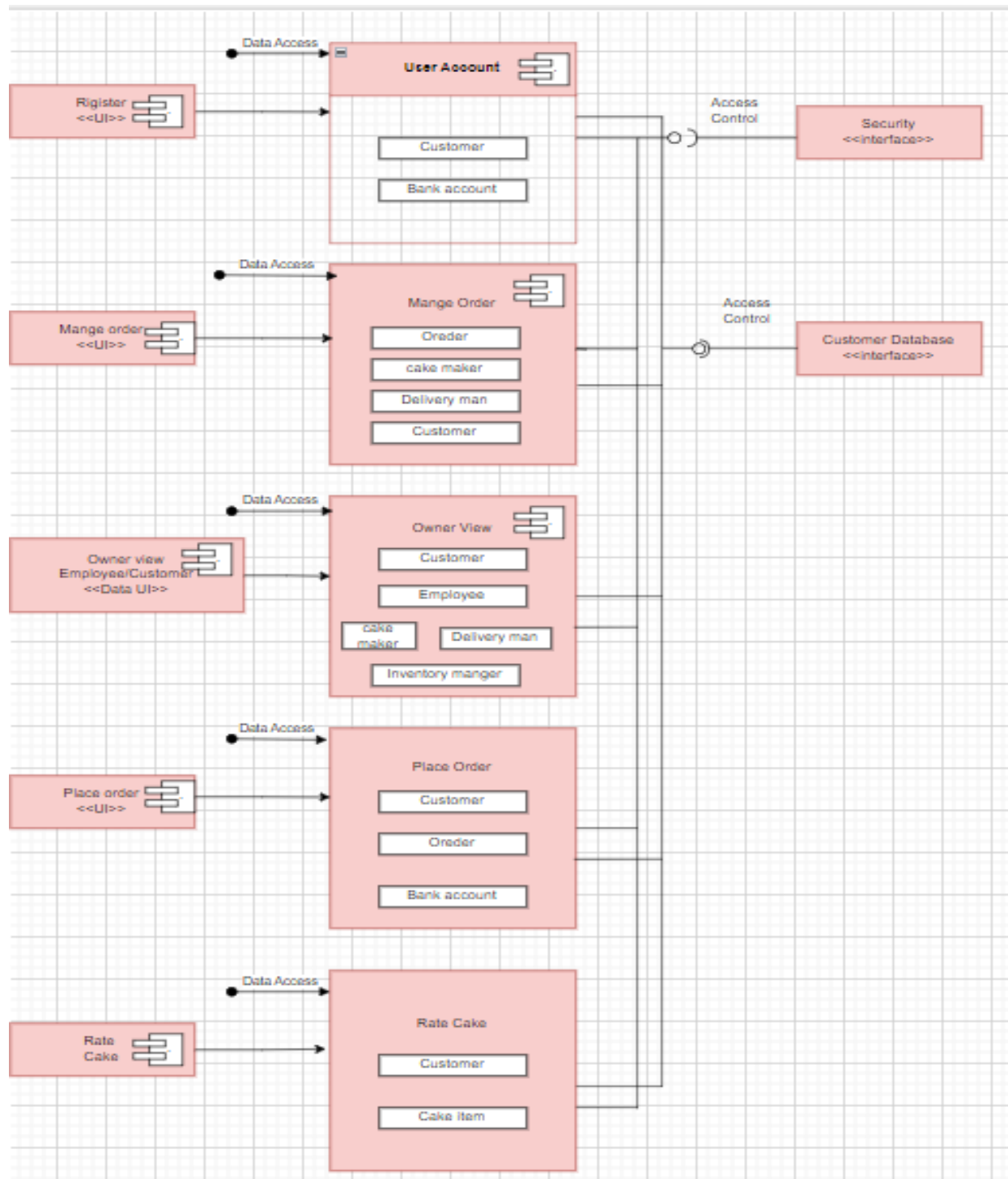
#### Specific System Design Goal:

##### 4. User-Friendly Interface:

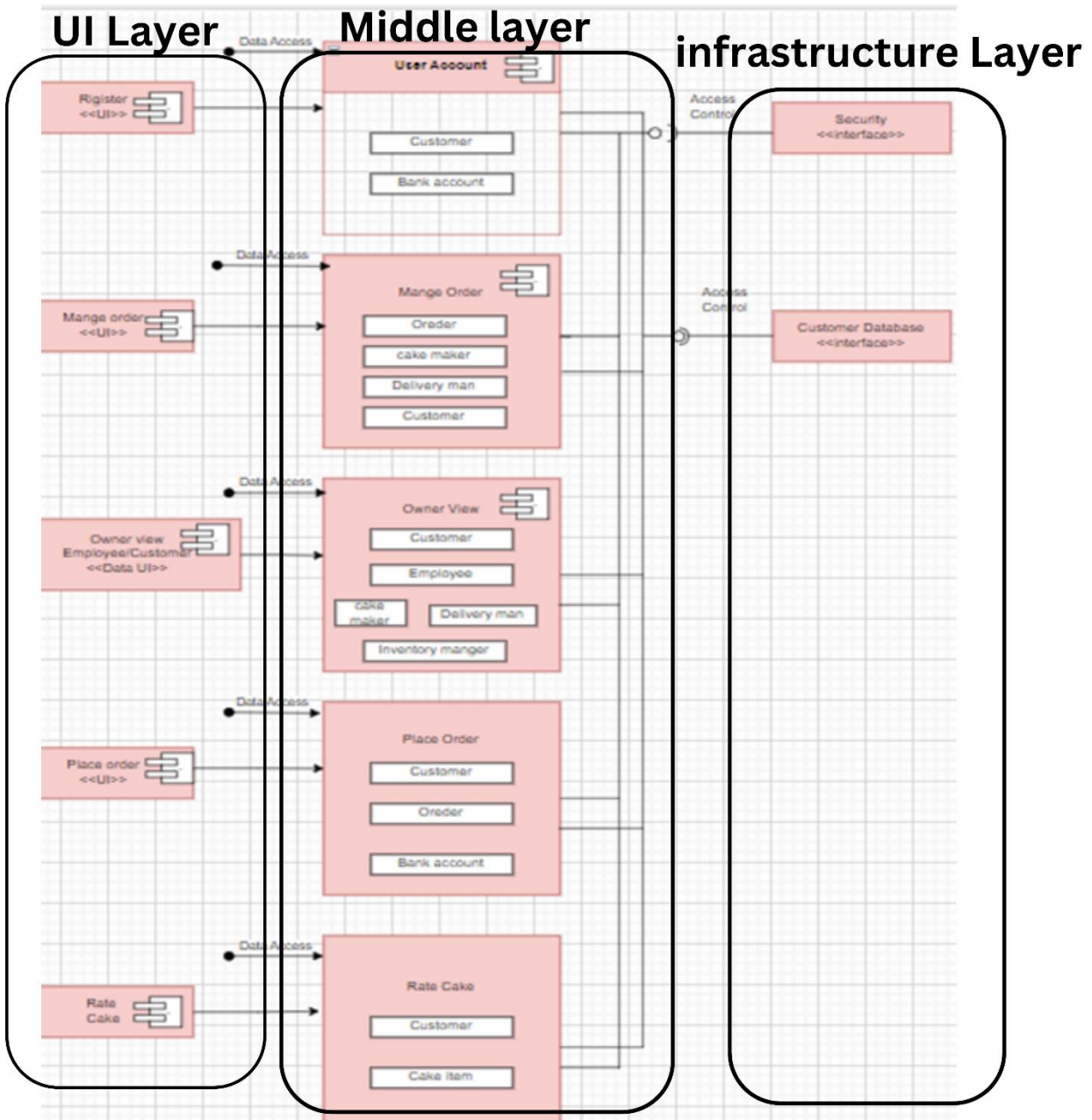
- **Objective:** Ensure a user-friendly interface for seamless navigation and an enjoyable customer experience.
- **Implementation:** Conduct user experience (UX) studies to understand customer preferences. Design an intuitive and visually appealing interface with easy navigation. Implement responsive design for compatibility across different devices. Provide clear and concise messaging to guide users through the ordering process.



## Task 4.4- [Group Task] System and Component modeling:



## Task 4.5- [Group Task] System and architectural Design



## Task 4.6- [Group Task] System and Deployment modelling

