CIS417- System Analysis and Design [Term 1]
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Final Report For Flybook.com

Student Name
Batool Alsaffar
Raghed Aljassim
Yasmeen Ibrahim
Shahad Busaleh
Shaden Abdullah

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Chapter 1: project proposal

1. Introduction

Nowadays e-commerce has awards us with a lot of platforms and businesses that helps us to do everything with the simplest way, Booking.com is a popular online platform that offers a wide range of accommodations, including hotels, apartments, villas, and more, in various destinations around the world. It allows users to search for and book their preferred accommodations with ease. Aside from providing a vast selection of properties, Booking.com stands out because of it is user-friendly interface and it's search features. This means you can effortlessly filter your results based on price, location, amenities, and even guest reviews.

2. Problem statement

Booking.com has many problems. The app is not flexible with the booking policy, as they restrict customers from canceling their booking after a specific period. In addition, they change prices and regulations without informing customers due to the large number of reservations, and this is not professional behavior with their clients. Also, clients face communication problems with the company due to slow customer service and a failure to respond to complaints and inquiries. Sometimes the company does not confirm the hotel reservation even though the customer has confirmed the reservation in advance and completed all procedures, and when the customer arrives from travel, he finds himself without a hotel. These problems will negatively affect the application and its continuity.

3. Aims & Objectives

- Aims:
    1. Facilitating reservations steps.
    2. provide more accurate information in suitable manner.
    3. keep our application integrity and secure.
- Objective:
    1. Ensure accurate booking dates and that the reservation was successful.
    2. quickly update the reservation, costs, promotional offers, and discounts.
    3. give users a 3D view of the room.
    4. impose compensation from the hotel for those who were scammed and cancel our contract with them.

4. Limitations

- Insurance, in case there is damage to the booked room.
- Cancellation of the reservation after a specific period. If the customer decides to cancel his reservation a week after his reservation, his money will be returned to the application wallet. Otherwise, the money will be returned to his personal account.

Chapter 2 : Milestone 2

1. Introduction

1.1 Purpose

• The purpose of this document is to provide a complete picture of Flybooking.com app. how the app works, the app features, the app requirements, and who the target audience is.

1.2 Document Conventions

- Used IEEE format for the resources.
- Font size varies according to the special significance of the title. For the Software Requirements Specification (16pt), inherited requirements (14pt), and the details (12pt).
- Bold the main requirements.
- Front type is Calibri Light (Headings).

1.3 Intended Audience and Reading Suggestions Intended Audience

- Developers
- Project Managers
- Marketing staff
- Investors

1.4 Reading Suggestions

We suggest reading the document in the same order as the table of content.

1.5 Product Scope

Flybooking.com is designed to assist users who are organizing trips and are looking for a suitable location to stay at different price points. By creating a user-friendly interface (UI) accommodate on various devices, providing a different pay method. Additionally, it offers the customer a variety of housing possibilities at rates that may be within his means and that undoubtedly suit his unique style.

1.6 References

- IEEE -SRS
- SAAD book

2. Overall Description

2.1 Product Perspective

This is a self-contained item. It is a booking and comparison application for a wide variety of hotels, flights, the car rentals, and tourist activities. Users can book a taxi from the airport to their destination hotel or activity. It functions as a bridge between the service supplier and the travelers. As a platform, our goal for suppliers is to enable them to reach the most customers.

2.2 Product Functions

- Searching and comparing
- Booking
- cancelling booking

2.3 User Classes and Characteristics

(B2B) & (B2C)

We are targeting customers who are obsessed with travel, customers who rely on themselves to explore new destinations, and travel and tourist organizations who need to book for a large number of clients. This increases the quantity of reservations. In addition to our consumers, we are focusing on suppliers such as vehicle rental firms, airlines, and hotel places. Suppliers who want to market their services and take advantage of our diverse consumer base.

2.4 Operating Environment

Our program is compatible with several operating systems, which may be found on Google Play, the App Store, and the Hawaii Store. This means that you can use it on a variety of devices, including a tablet, phone, and desktop computer.

2.5 Design and Implementation Constraints

We have a number of restrictions and laws that regulate bookings and cancellations. It may restrict some options for the user, such as the customer's ability to book two different lodgings on the same date. In addition, we may encounter limitations as a result of the operating system.

2.6 User Documentation

There is user documentation such as on-line help. There is different instruction message pop up in different situations.

2.7 Assumptions and Dependencies

We rely on a third party for content, and all information about each service comes from the source. The problem is to keep our content up to date in order to be accurate and correct.

3. External Interface Requirements

3.1 User Interface:

- The system shall provide a user-friendly web-based interface accessible via standard web browsers.
- The user interface shall be responsive and mobile-friendly to accommodate users on various devices.
- The design and layout of the user interface should adhere to modern UX and UI design principles.
- reservations can be chosen by users and added to carts. Users can search for a reservation by clicking on the interface.

3.2 Hardware Interfaces:

- The system shall be compatible with standard web servers, database servers, and network infrastructure.
- Specific hardware requirements, if any, for server hosting, load balancing, or data storage, shall be documented.

3.3 Software Interfaces

- The system shall interact with external software components, such as payment gateways, email services for notifications, and content management systems for website updates.
- It shall use standard communication protocols and APIs to integrate with these external components.

3.4 Payment Gateway Interfaces:

- The system shall integrate with one or more payment gateways to facilitate secure online payments.
- Payment interfaces shall support common payment methods, such as credit cards, digital wallets, and bank transfers.
- Compliance with relevant payment industry data security standards, like PCI DSS, shall be ensured.

3.5 Data Interfaces:

- The system may integrate with external data sources, such as geographic information systems (GIS) for location-based services or external databases for information on local attractions, events, and weather.
- Data exchange formats, protocols, and data sources shall be specified.

4. System Features

4.1 Provide filtering

4.1.1 Description and priority

This feature appears when you search for a destination. It facilitates the search as it allows the user to specify the service criteria's that's he/she wants to reserve, such as specifying the category of service, whether it is transportation services, tourist tours, booking hotel, book fly ticket and specifying the price, expensive or cheap, and also providing the feature of searching for free cancellation if you want to cancel, also book and view offers and discounts.

4.1.2 Stimulus/Response Sequences

User interaction	System
User sign up in the website	when user press on signs up button and system will show sign up page then user will create new account
User sign in the system	when user press on signs in button and system will show sign in page then user will create new account
User Chooses a service	The system will show the services, so when user choosing a service and search about it
User use filtering to show his preferences	After searching, system will show results and provide options to filter the results so user can find what she/he wants and choose it
User make a reservation	After choosing system will direct user to filling information page to continue reservation process
User paid to the service chosen	The system will ask the user to fill in the credit card information, then the amount will be withdrawn from the customer and a message will be sent with a successful reservation.

Table 1

4.1.3 Functional Requirements

- REQ 1- Sign in
  If the user wants to make a reservation, then she/he needs and they have account in the website they just need to press on sign in button and sign via email or Facebook.
- REQ 2- Sign up
  If the user wants to make reservation and they don't have an account then she/he wants make new account to complete reservation.
- REQ 3- payment
- To complete the request, you need fill the credit card information to confirm it. The system will have third party in charge of security.
- REQ 4- Sign out
  After user complete the payment process the user will log out of the website.

4.2 Help center

4.2.1 Description and priority

When customer has inquiries or issues about the reservation, he/she can communicate with administrators to answer his/her request by sending message or call the help center and they list the common question if it's match with their questions to save their time. The system provides this page to enhance customer experience and satisfy them.

4.2.2 Stimulus/Response Sequences

User	System
User sign up in the website	when user press on signs up button and system will show sign up page then user will create new account
User sign in the system	when user press on sign in button and system will show sign in page then user will create new account
User use help center icon	The user can contact with help customer service by clicking on the help customer icon
User use frequently Asked question to find relates answer	In customer service page system has button to ask for help if he/she press on it system will direct him/her to another page to continue the process

User send a request	The system will ask user to fill she/he reservation number and password to help center and will receive it by clicking on continue button
User wants direct communication	System will send request to customer service to directly communicate with the user to solve his/her issue

Table 2

4.2.3 Functional Requirements

- REQ 1-: Sign in
  If the user wants to make a reservation, then she/he needs and they have account in the website they just need to press on sign in button and sign via email or Facebook.
- REQ 2-: Sign up
  To send your request to customer service you must have an account, to review your information about your mentioned request.
- REQ 3- : User interface
  User need the interface to interact with help center through call or sending message.
- REQ 4-: problem solution
  After reading and reviewing the message or call help center will send the solution to customer
- REQ 5- : Sign out
  When customer service solved the user problem and finish, then simply customer can sign out of she/her account

5. Other Nonfunctional Requirements

5.1 Performance Requirements

A desktop browser's response time for a website page that serves 4,000 people per hour must be 5 seconds or fewer, including text and image rendering and over-an LTE connection.

5.2 Safety Requirements

- Customers should upgrade their device's software to the most recent version to prevent any problems and take steps not to click on any suspicious pop-up advertisements that could cause their gadget to malfunction.
- Compliance with all IT compliance, data security and privacy, user authentication and authorization standards.

5.3 Security Requirements

- The gateway used for processing payments must comply with PCI DSS.
- Unauthorized access must be prevented by requiring the user to enter their password and email address in order to access their account.

- The website includes a password constraint such that the password requires at least eight numbers, including a number, a symbol, and at least one letter.
- uses a highly secure database to hold all consumer data.
- The website must comply with secure Sockets Layer (SSL) certificates.
- The website must comply with SSL server certificates.
- The website must comply with Hypertext Transfer Protocol Secure (HTTPS) certificates.

5.4 Software Quality Attributes

- Reliability: In a month, the system must function flawlessly in 95% of use cases.
- Maintainability: The average time it takes to restore the system (MTTRS) after a system failure must be no longer than ten minutes. Corrective maintenance time and delay time are both included in MTTRS.
- Availability: **The website** should be available daily to all users around the world 98% of the time.
- Usability: Users entering their payment information incorrectly on the checkout page cannot have a mistake rate higher than 7%.
- Business Rules
- All users need a valid email address. o It is necessary to acquire the user's phone number in order to reach them in multiple methods.

6. Other Requirements

6.1 Booking Capabilities:

- Create a comprehensive booking system that allows users to initiate, modify, and cancel reservations.
- Support diverse service types, such as hotels, flights, car rentals, and more.
- Implement real-time availability and pricing checks.
- Integrate secure payment processing with various payment gateways.
- Generate booking confirmations and unique reservation identifiers.
- Enable users to book multiple services in a single transaction.

6.2 Cancellation and Refund Policies:

- Enforce and communicate cancellation policies.
- Implement a refund process that adheres to the scenario outlined earlier.
- Handle partial refunds or penalties for cancellations made close to the booking date.

6.3 Notifications and Alerts:

- Set up a notification system, including email and in-app notifications, to keep users informed about booking statuses and updates.
- Implement a notification mechanism for service providers to receive booking notifications.

6.4 Reviews and Ratings:

- Allow users to submit reviews and ratings for services.
- Implement moderation and content guidelines for user-generated content.

6.5 Security and Compliance:

- Implement robust data security measures to protect sensitive user and payment information.
- Ensure compliance with data privacy regulations, such as GDPR.
- Establish access control and user permission systems.

6.6 Legal and Regulatory Considerations:

- Ensure compliance with all relevant local, national, and international laws and regulations governing booking services.

7. Appendix A: Glossary

Filtering: facilitate the search and allow the costumer to choose specific criteria from the category

8. Appendix c: To Be Determined List

Business Process Modelling

9. Business process Modeling (BPM)

9.1 1st Scenario: Reservation scenario

When customer opened the website, he/she will log in in their account then system will verfiys the account details with database if it is exiting system will confirm otherwise it will ask user to create new account. After that the customer my select a service system will check if chosen service is available with database if yes system will ask the customer to confirm if no request will be rejected and selection will cancelled .After customer confirm the reservation he/she need to pay and fill credit card information , if there available money in the credit then confirmation message success message will be received and invoice to the customer and he/she will log out and reservation is completed, if credit has no money system will send rejection message so the reservation will be rejected.

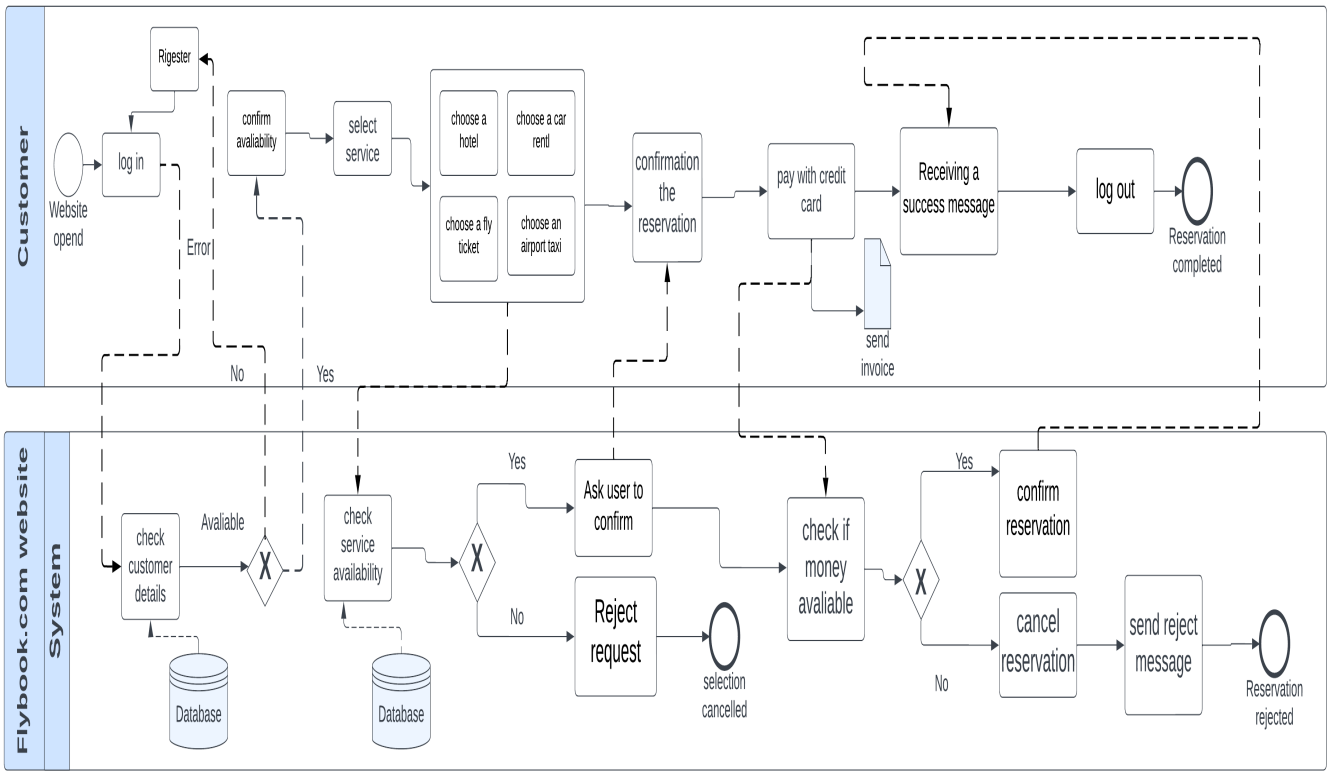


Figure 1

9.2 2st Scenario: Cancellation of reservation

the user will first access and log into the website. Subsequently, the user will select which reservation (hotel, car rental, etc.) to cancel. Prior to canceling on the database, the system verifies the request. Ultimately, the user receives their money back and the website's services are restored.

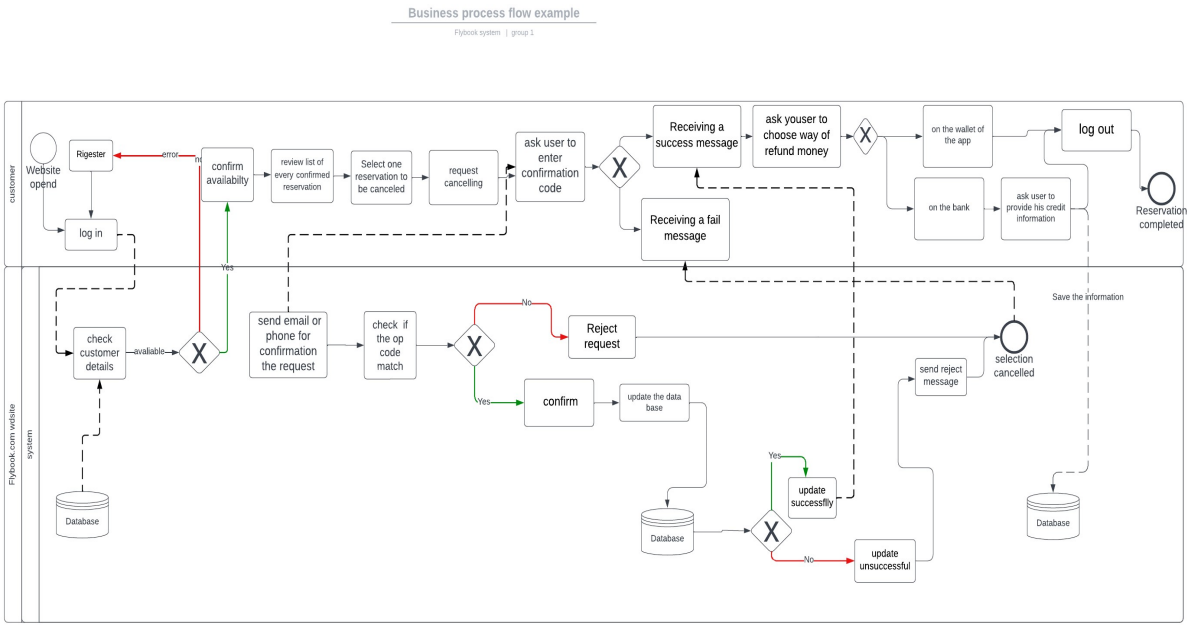


Figure 2

Chapter 3: Milestone 3

1. Use Case Diagram

1.1 Use case diagram (Sign Up)

Figure 3

1.2 Use case diagram (payment)

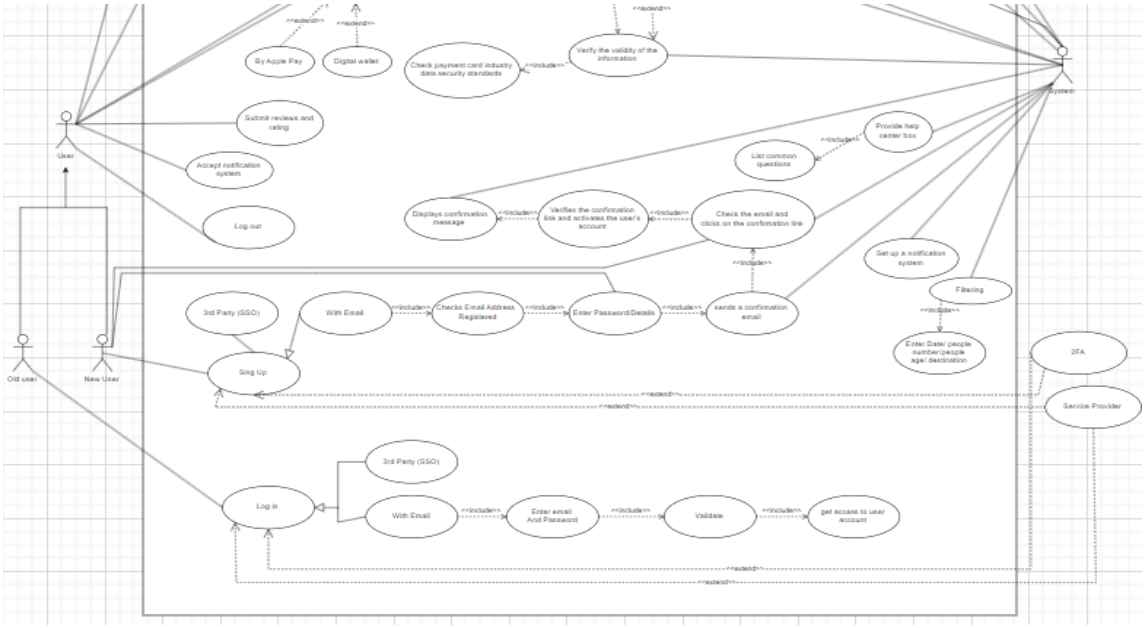
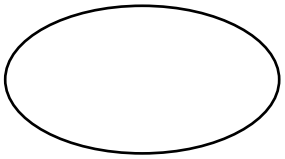


Figure 4

1.3 Descriptions tables

FILL CREDIT CARD INFORMATION USE CASE	 Fill credit card information
Name: Fill credit card information	
Actor: User	
Description: Describe the process used to fill credit card information	
Successful completion: **1.** The user writes the credit card information in the text box. **2.** The system verifies the accuracy and consistency of the information. **3.** The bank sends SMS verification code.	
Alternative:	

1. The user writes the credit card information in the text box. 2. The result of the verification process performed by the system is incorrect. 3. The system tells the user to re-enter the credit card information.
Precondition: Adhere to the type of data in the text box, and the number of digits entered
Postcondition: The user fills in the required information and pays to confirm his/ her reservation
Assumptions: None

Table 3

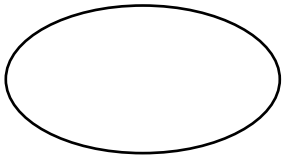
CHECK AVALIABLE MONEY USE CASE	 Check available money
Name: Check available money	
Actor: Bank	
Description: Describe the process used to check available money	
Successful completion: 1. The bank compares the value entered for the payment with the value of the funds in the user's account. 2. If the reservation value is less than or equal to the value of the funds in the user's account, the user will receive a confirmation code. 3. The user will receive the invoice through the system. 4. Approval of reservation.	
Alternative: 1. The bank compares the value entered for the payment with the value of the funds in the user's account. 2. If the reservation value is greater than the value of the funds in the user's account, the payment will be rejected.	
Precondition: the value entered for the payment is less than or equal the value of the funds in the user's account	
Postcondition: Approval of reservation	
Assumptions: None	

Table 4

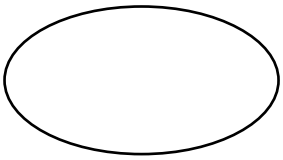
CHOOSING SERVICE USE CASE 
Name: Choosing service
Actor: User
Description: Describe the process used to choose the service offered by the system.
Successful completion: **1.** Users enter the flybook system. **2.** The user scrolls the screen or selects a filter. **3.** The user chooses the service he wants. **4.** If the service is available, the system displays its information. **5.** The user chooses the service and booking it if he wants it.
Alternative: **1.** Users enter the flybook system. **2.** The user scrolls the screen or selects a filter. **3.** The user chooses the service he wants. **4.** If the service is available, the system displays its information.
Precondition: User logged in
Postcondition: The user has now selected the service and can book it
Assumptions: None

Table 5

2. Sequence diagram for payment

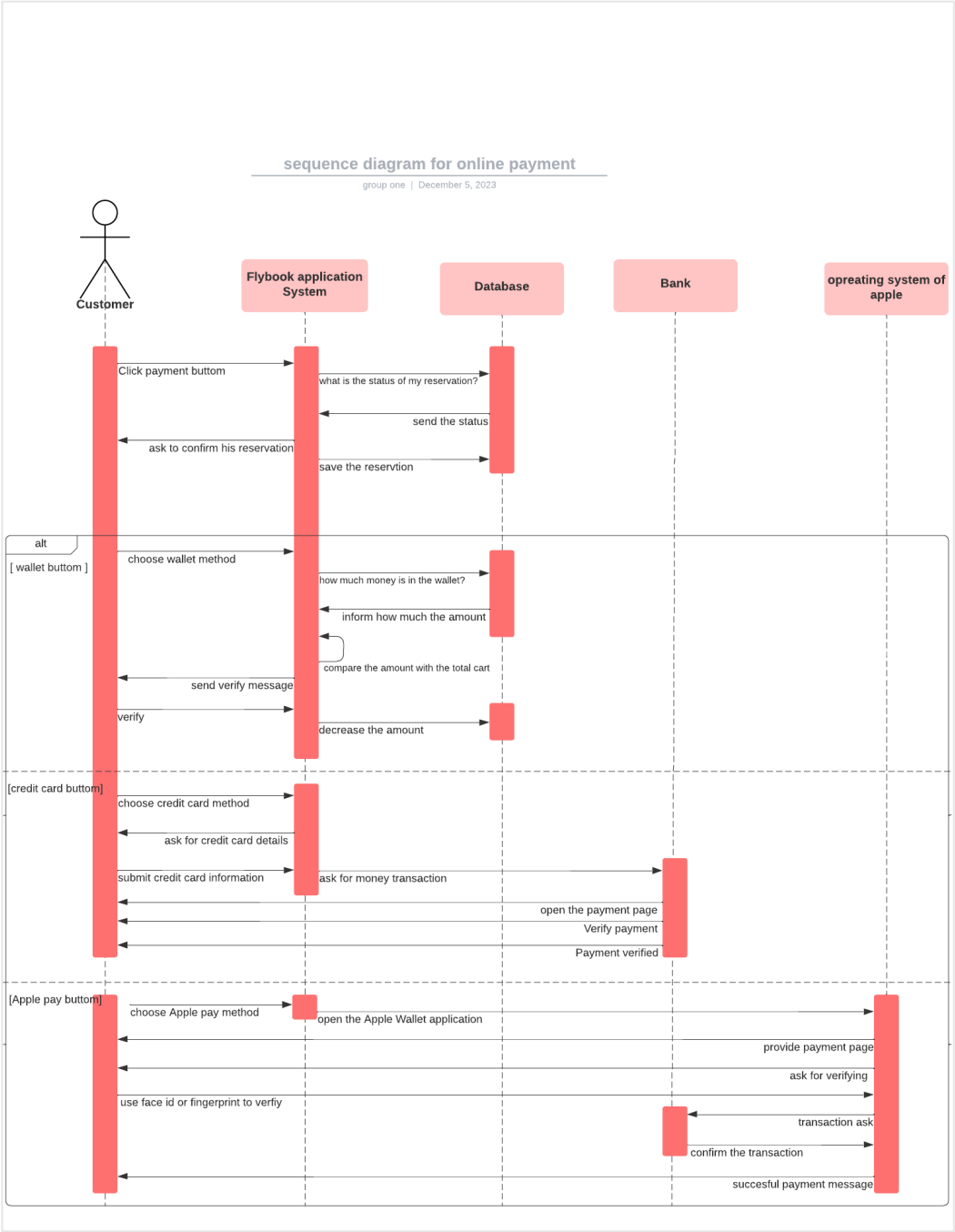


Figure 5

3. Sequence diagram for requesting support.

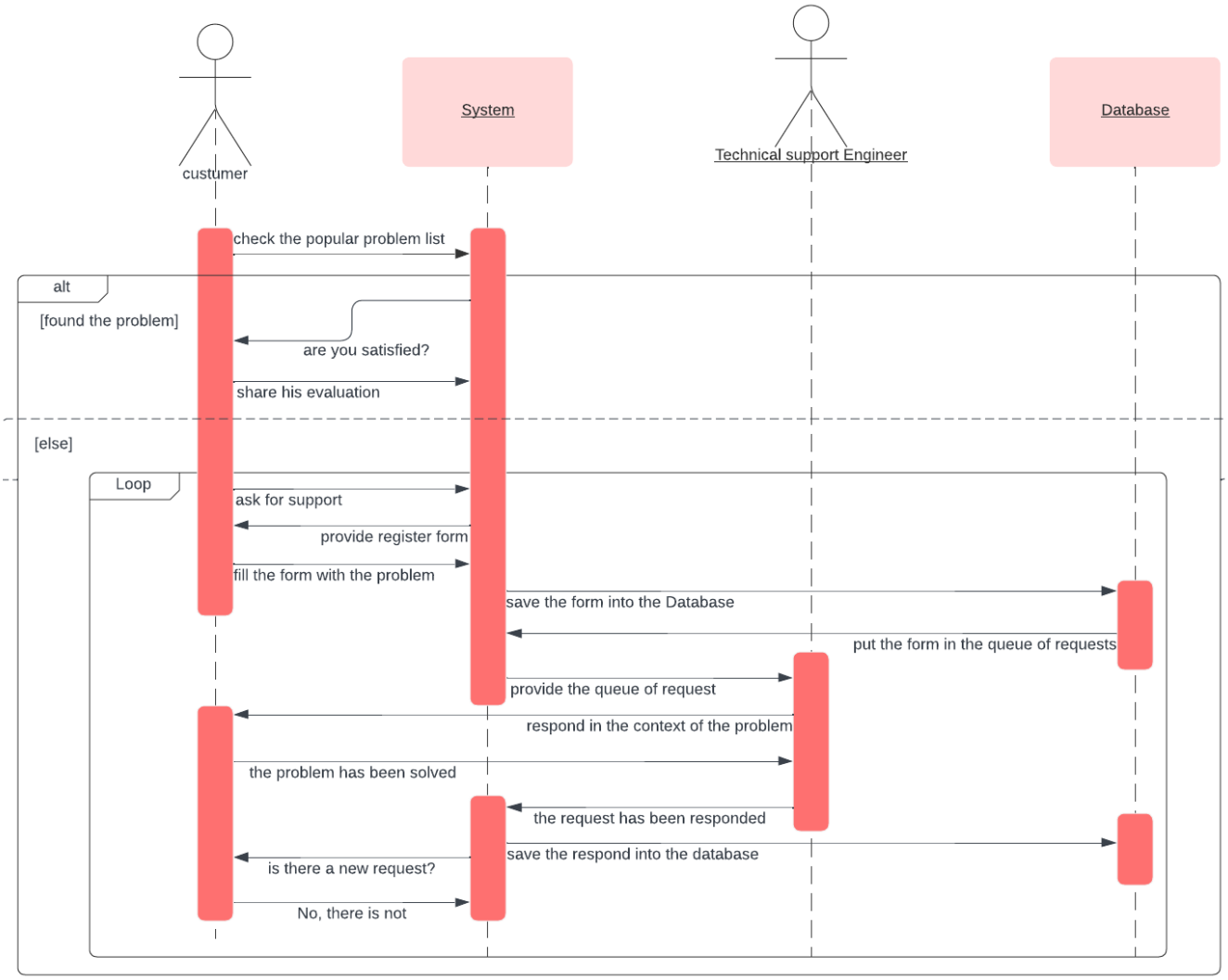


Figure 6

4.Activity diagram (Payment)

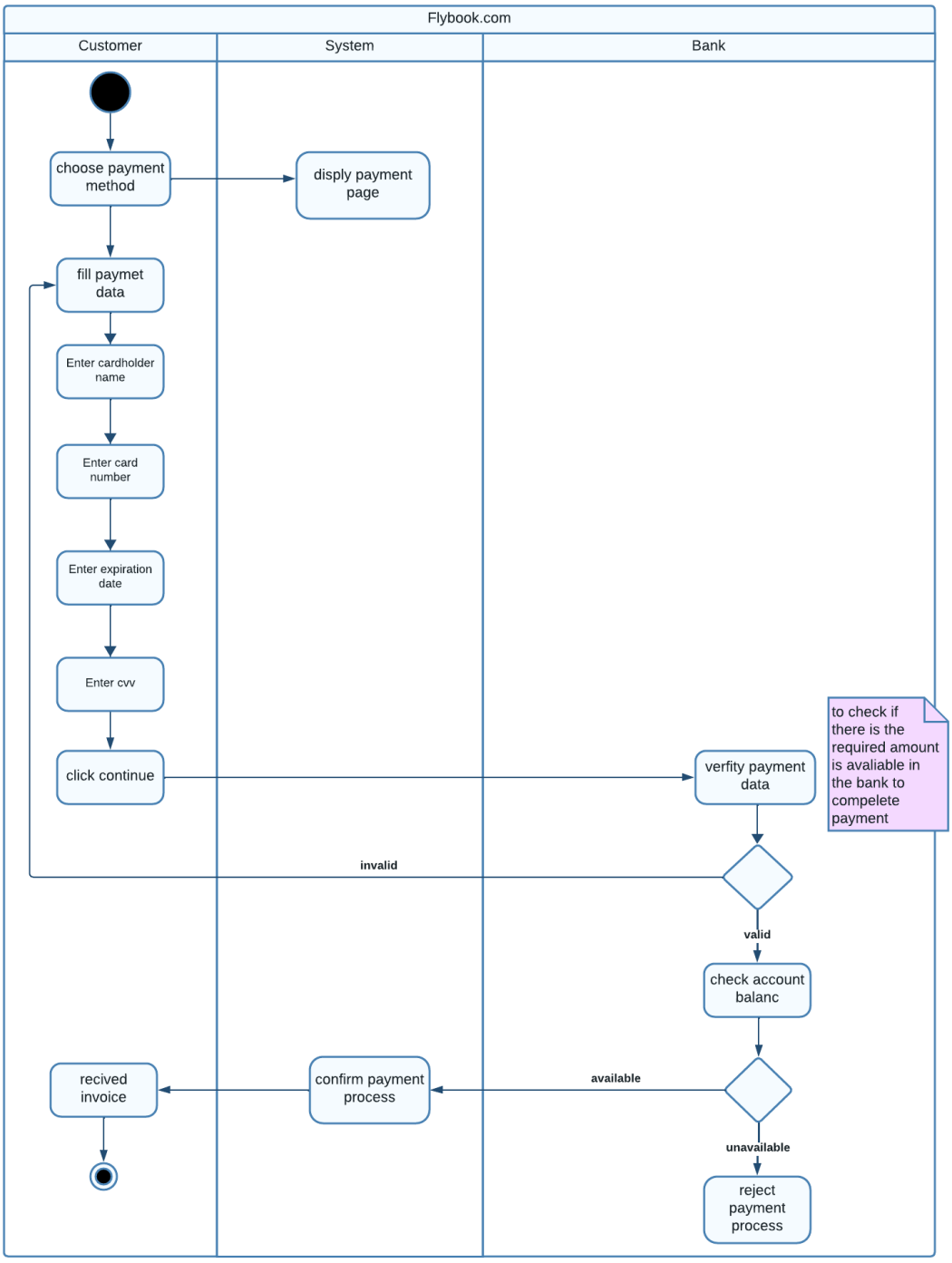


Figure 7

4. Activity diagram (support request)

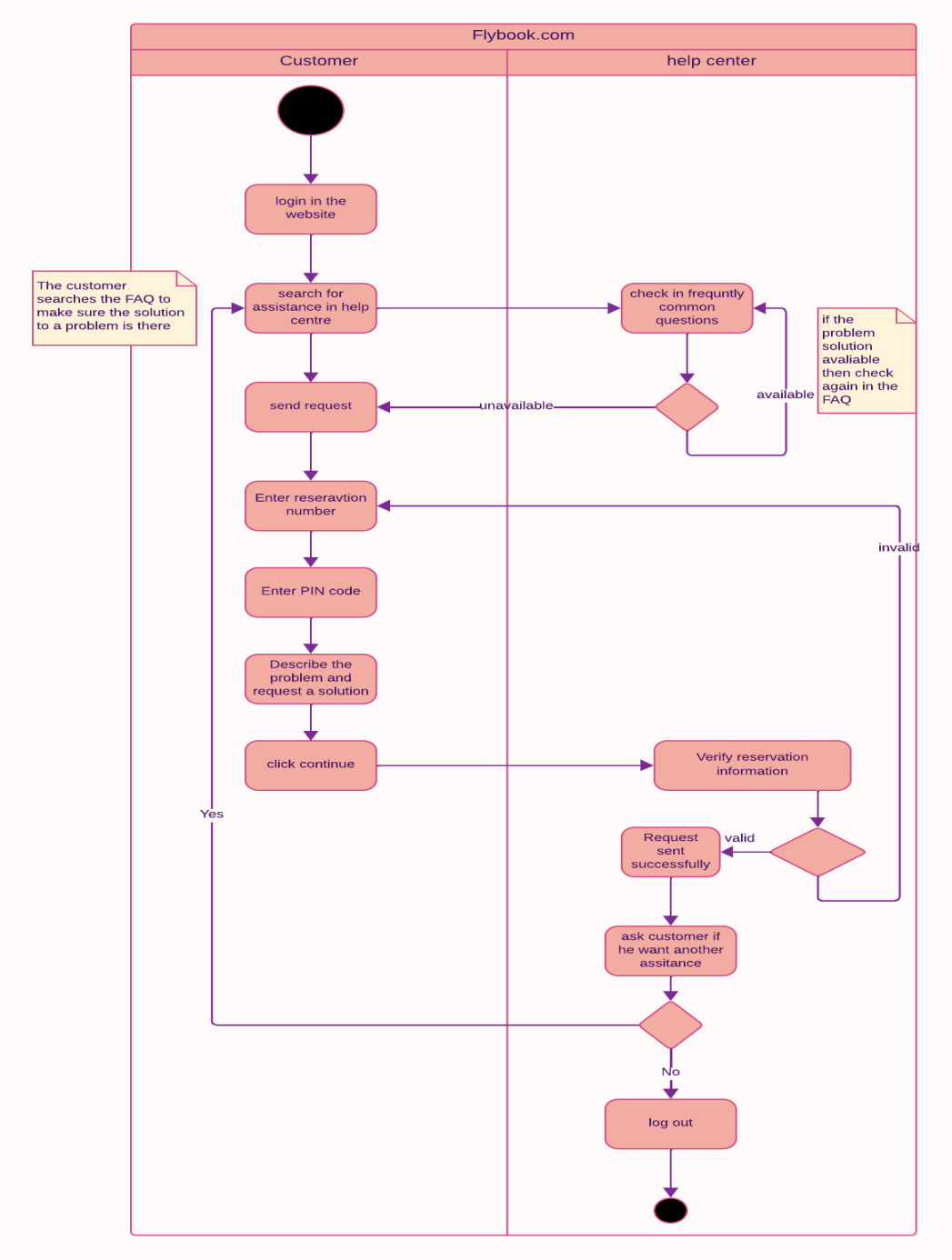


Figure 8

Team Contract for group work

Group2 - Team A

Participation:

We agree to:

- Attend all scheduled team meetings and project-related activities.
- Keep team members informed about any challenges or delays in completing assigned tasks.
- Share ideas, provide constructive feedback, and contribute to problem-solving.

Communication:

We agree that:

We couldn't have enough time to meet physically due to classes, so we chose to communicate via WhatsApp / Zoom to discuss distributed work tasks and we use Zoom to check the work update.

Meetings:

Most of our meetings are via WhatsApp.

We had discussed many things such as:

How to divide the task with ensure that every member capable to do her task.

Share our background information about systems.

Discussed what make system fail and how to make better one.

Some of members suggest specific system with us to analysis it’s strength and limits.

Conflict:

We had conflict to choose the project idea because everyone has different idea but at the end, we agree on one.

Deadlines: According to the course syllabus.

Team Member's Name	Team Member's Signature
Batool Alsaffar	Batool.j
Yasmeen Ibrahim	J
Shahad Busaleh	Shahad
Raghed Aljassim	Raghed
Shaden Abdullah	Shaden