

ENSF 614 – Fall 2023
Term Project
Flight Reservation Application

Group #7

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Part One - System Analysis:

1. System Description:

The Java GUI-Based Flight Reservation Application serves as a desktop interface for managing flight reservations for an airline. This system caters to various types of users, including customers, airline agents, and system admins, each with specific functionalities tailored to their roles.

System features for customers and airline agents include:

- Browsing flights
- Flight selection
- Browsing seat map
- Seat selection
- Ticket cancellation insurance selection
- Secure payments
- E-Ticket and receipts via email
- Flight cancellation
- Browsing passenger list in a flight

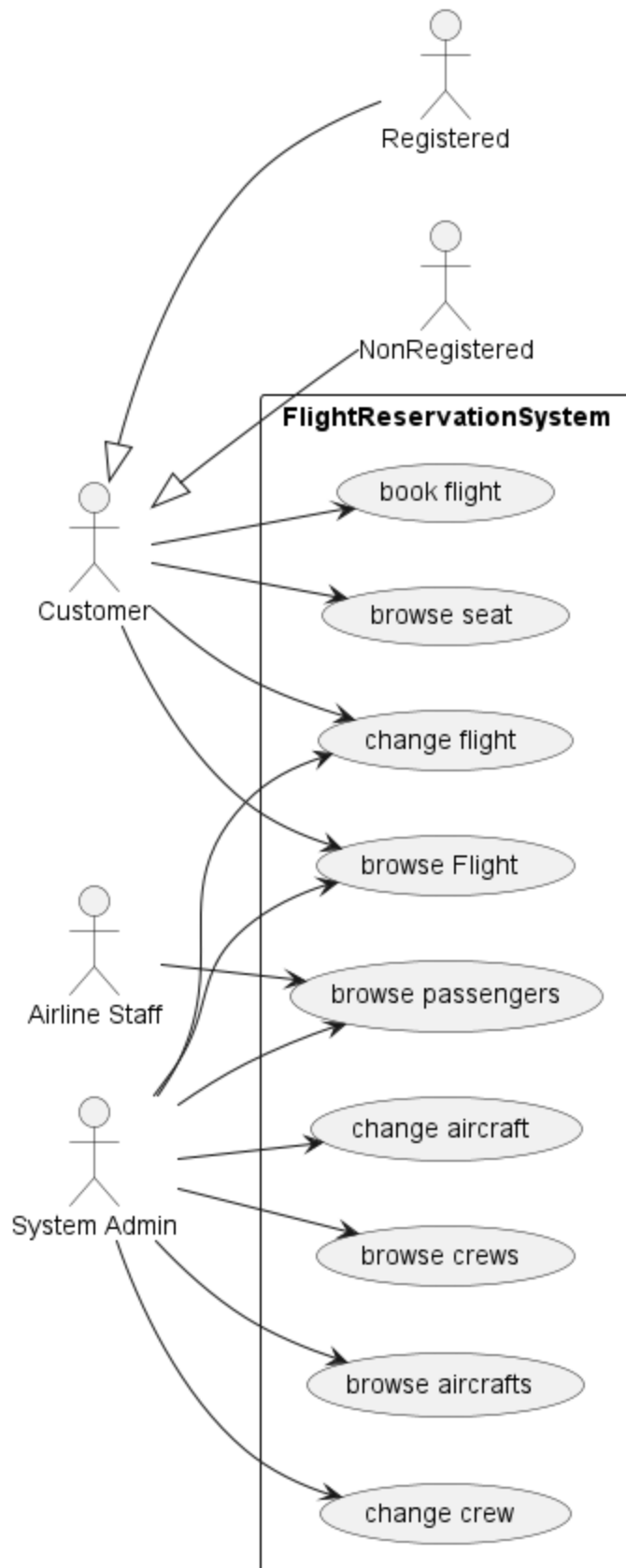
System features for system admin include:

- Browsing flights
- Modifying flights
- Seat type and price management
- Crew and aircraft management
- User management

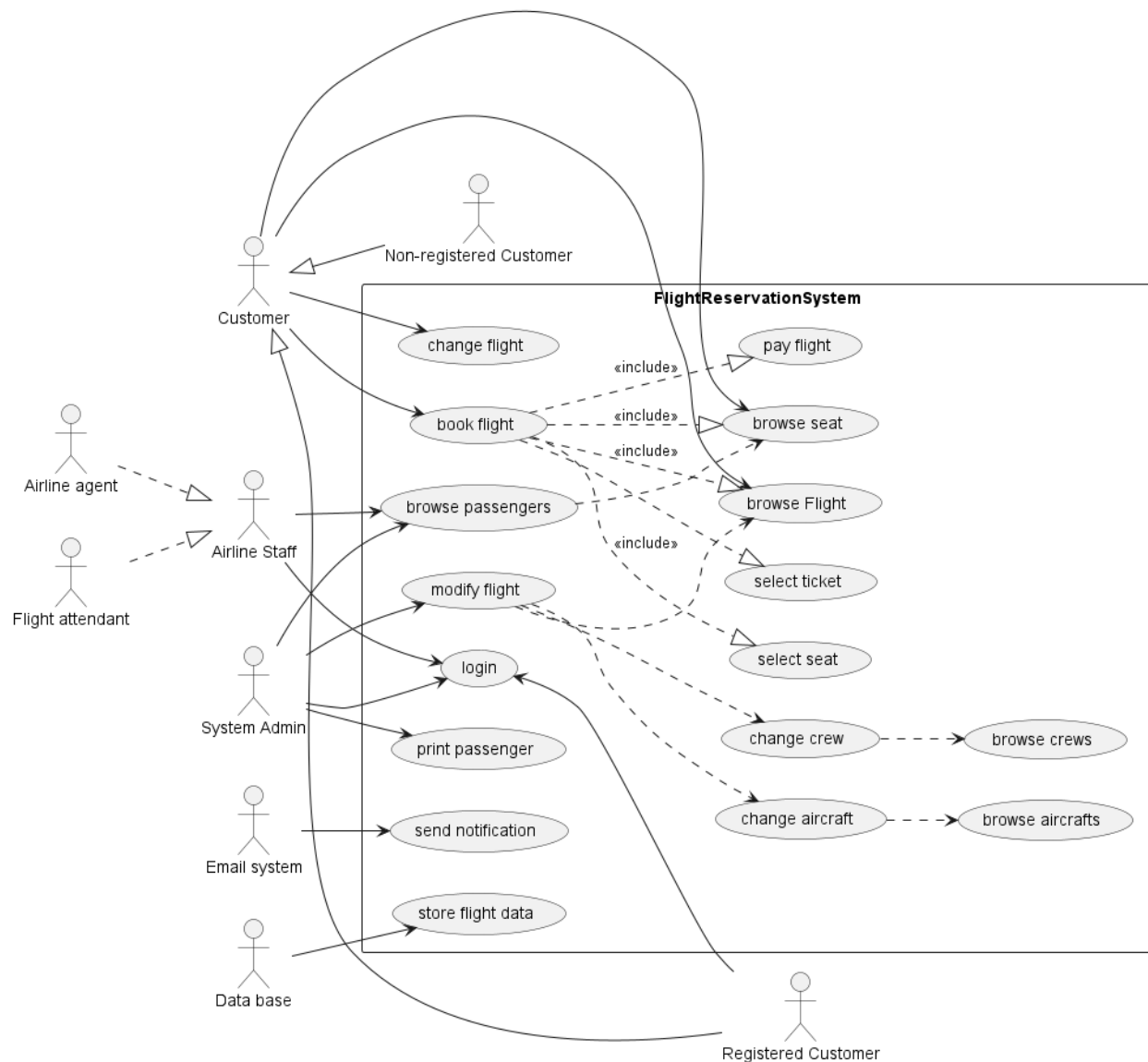
Additional system features include:

- Login management
- Membership benefits
- Credit card application
- Database integration

2. System Use-case diagram version 1:



Usecase Diagram version 2:



3. System scenario for each use case:

Note: the customers mentioned below include airline agents, tourism agents (both are registered customers).

Browsing Flights:

A customer goes to the webpage. He/she enters a date, origin, and destination. The system presents a list of available flights.

Flight Selection:

The customer picks a specific flight from a list of available flights and clicks the select button for reservation.

Browsing Seat Map:

The customer clicks on the "show seat map" button. The system retrieves the seat map for the selected flight, presenting a graphical representation of seats for browsing.

Seat Selection:

Presented with the seat map, the customer selects a seat on the seat map and confirms it by clicking on the "confirm seat" button.

Ticket Cancellation Insurance Selection:

The customer opts for the "Ticket Cancellation Insurance" by ticking the box next to the option.

Make Payment:

The system asks if the customer would like to log-in (for registered customers) or sign-up for an account. Note that the registered customer may have some discount and perks which the system will ask if the customer wants to apply to this booking. Then, the customer can proceed to payment with their credit card. The web page may redirect the customer to a third party website where he/she can enter the credit card information.

E-Ticket and Receipts via Email:

After successful payment, the system automatically generates and sends an e-ticket and payment receipt to the customer's email address.

Flight Change:

A customer wants to change his flight. A registered customer can log-in, and a non-registered customer can enter the confirmation number received, and the booked flight information. He/she then repeats all the steps above in booking-flight to change the flight.

Flight Cancellation:

The customer decides to cancel a reserved flight. The registered customer login and accesses the "my flight" option and clicks on the "cancel flight" button. The non-registered customer goes to the website, selects "flight cancellation" and enters the confirmation number and the flight information. The system processes the cancellation and sends a confirmation email to the customer.

Browsing Passenger List in a Flight:

An airline staff logs into the system and selects the "Browsing Passenger List in a Flight" option and enters the flight info. The system retrieves and displays the list of passengers for a specific flight.

Print Passenger List in a Flight:

An airline staff can log into the system to print the list of the passengers.

Modify flight:

The system admin log-in to his account. He/she can browse the list of flight and its crews, list of aircraft. He can modify these information as needed (eg. add or remove crew, aircraft, etc.) as needed.

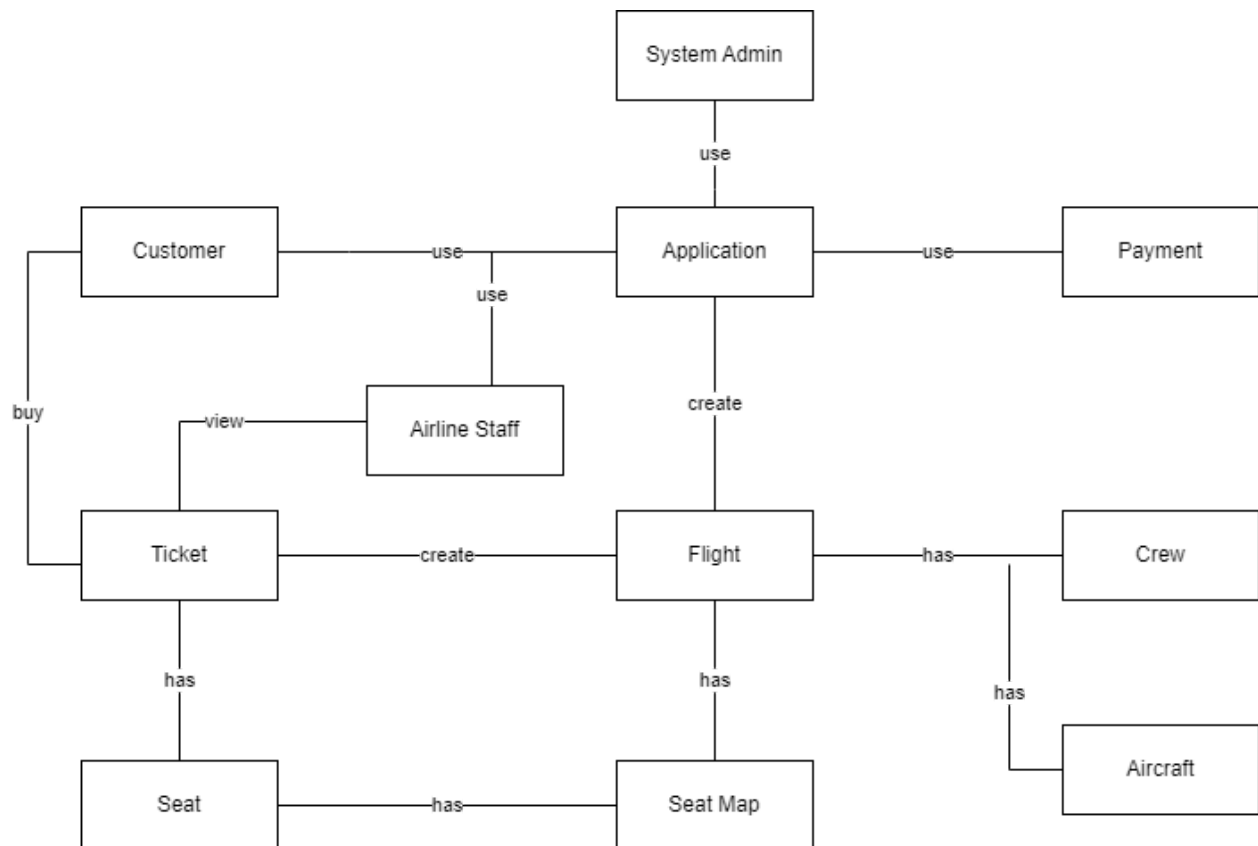
Login:

A registered customers, airline staff, and system admin can login to the system

In the next revision of the use-case diagram, a registered user will receive some perks from the airline such as promotion, discount code. The system admin can manage these benefits for the customers after logging in.

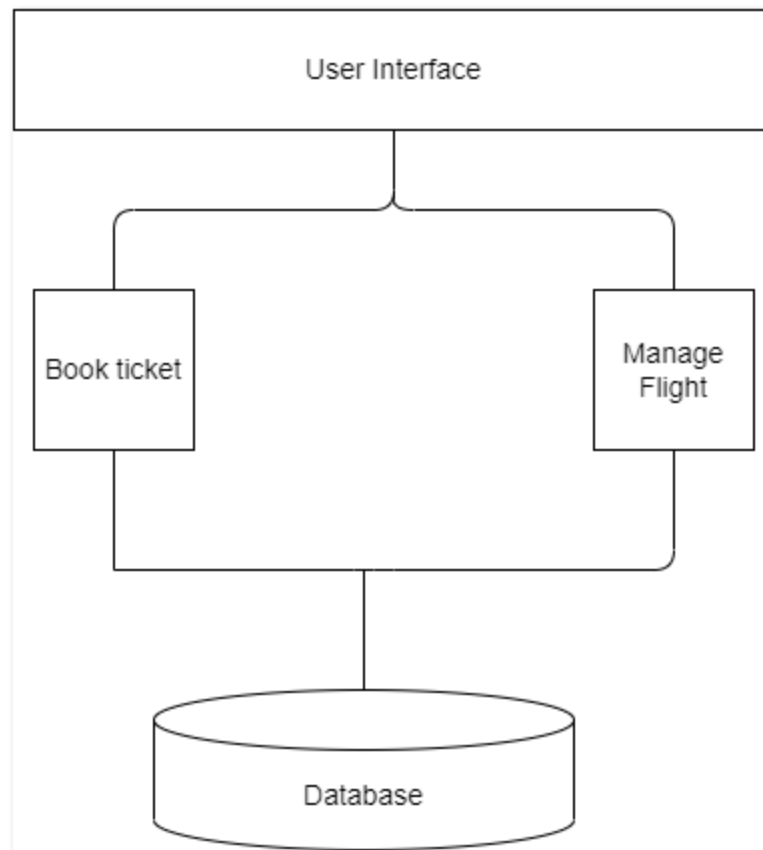
All the information will be stored in a database. And finally, a notification/confirmation will be sent by an email system to the customer about their flight information.

4. System Conceptual model:

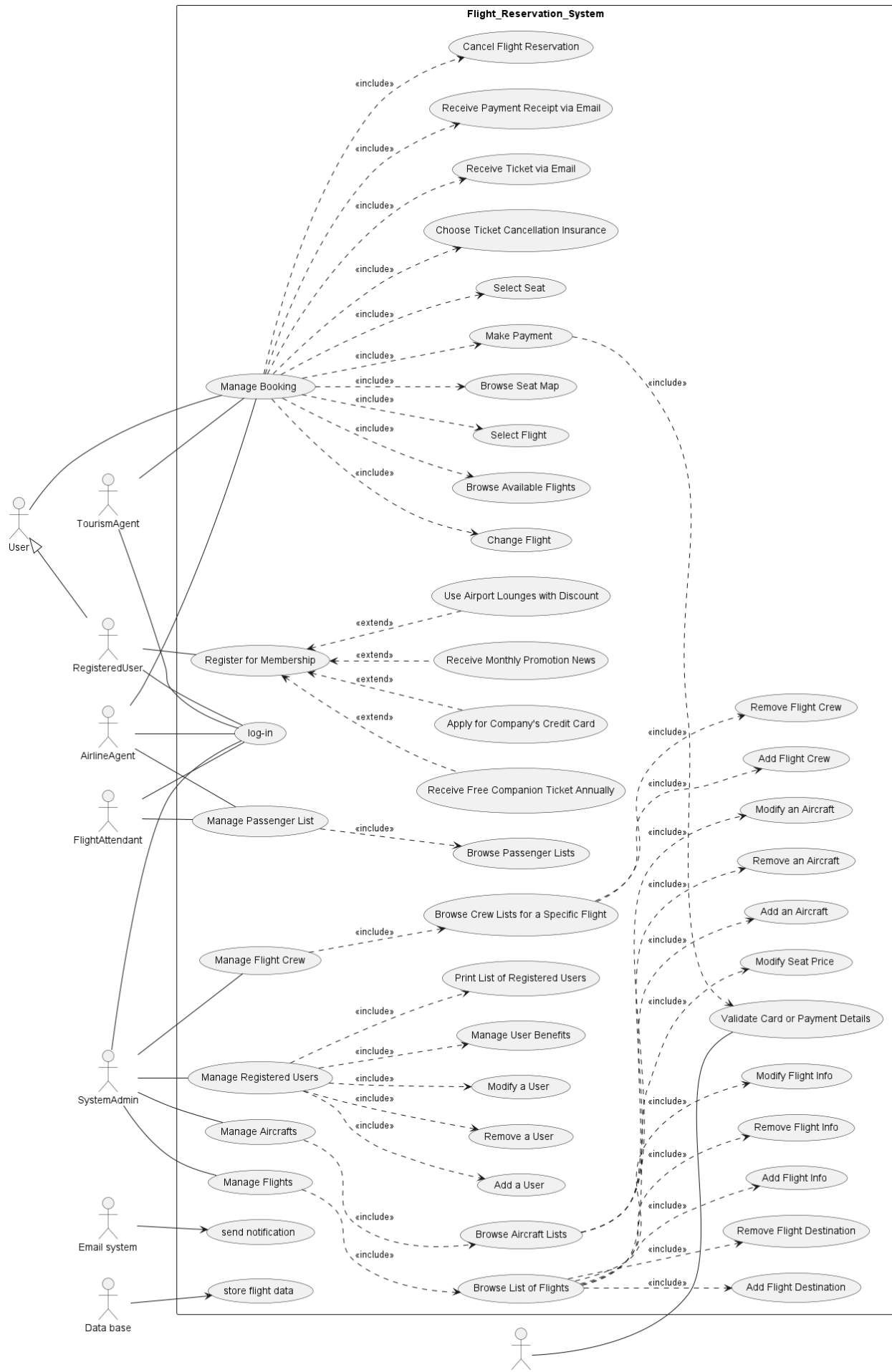


Part Two - Domain Diagram:

1. System architecture:

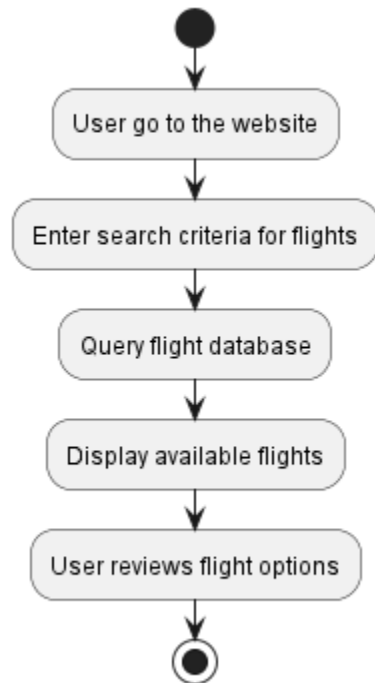


2. Use case diagram revision:

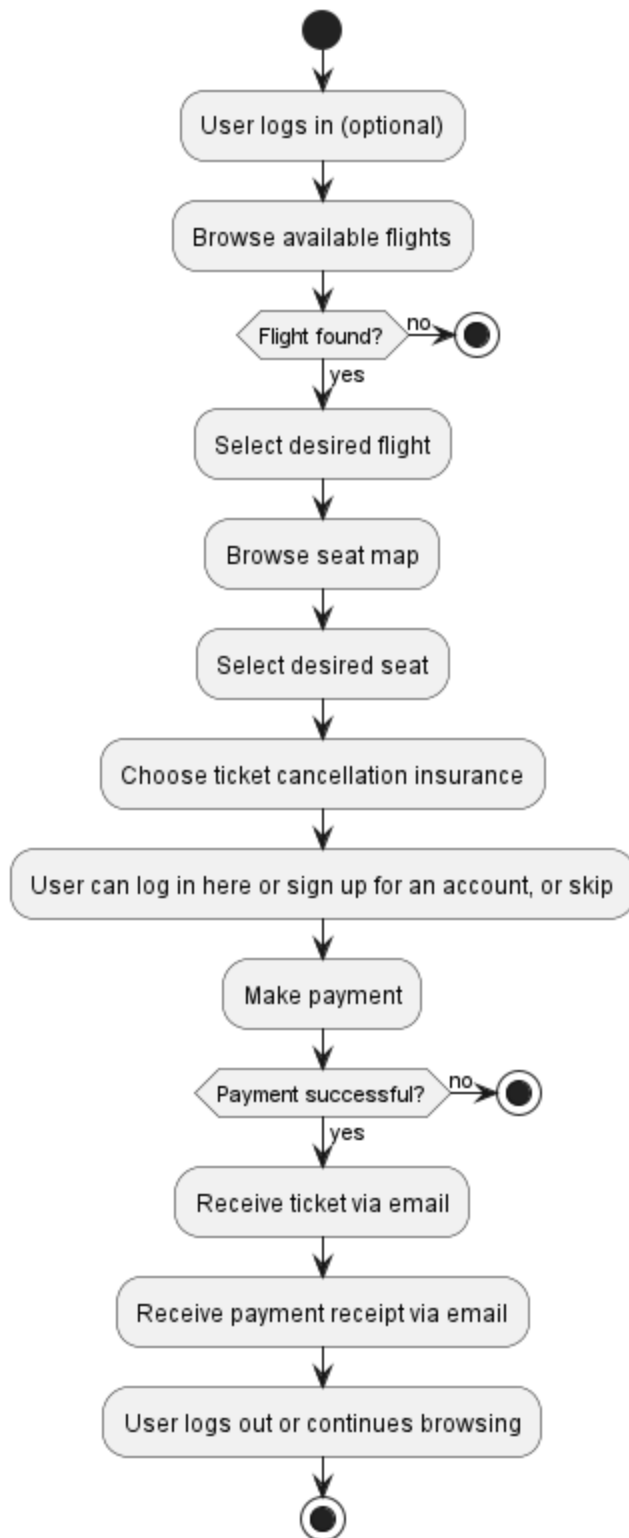


3. System activity diagram:

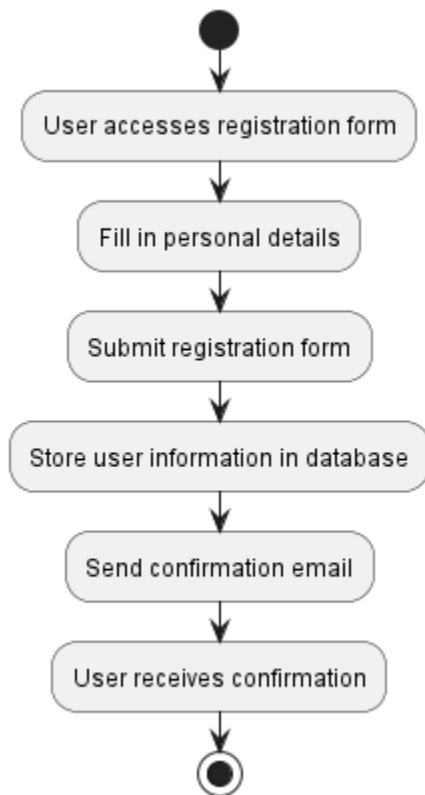
Browse Flight:



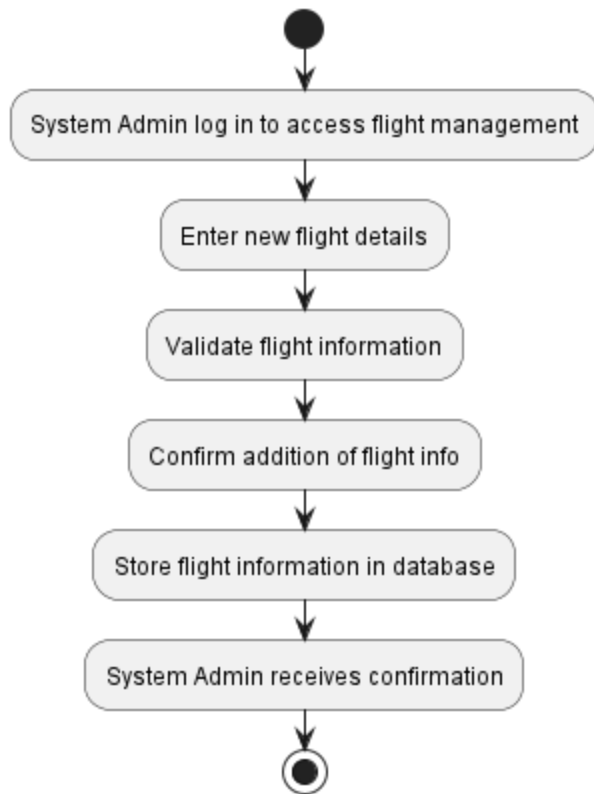
Book flight:



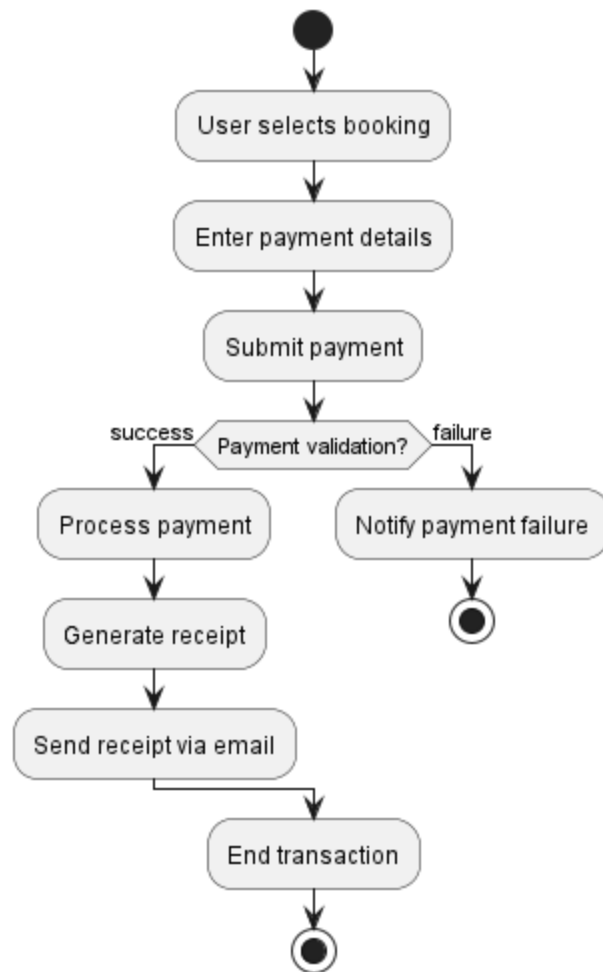
Membership registration:



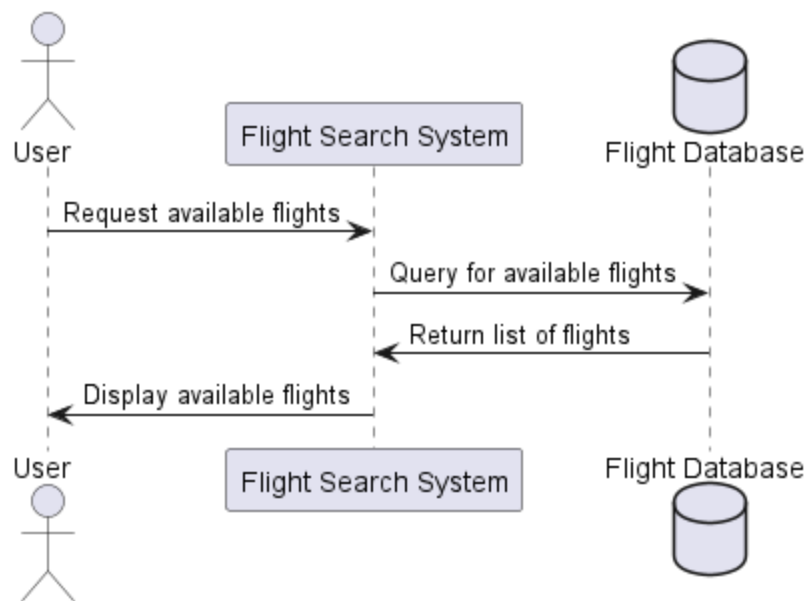
Admin add flight:



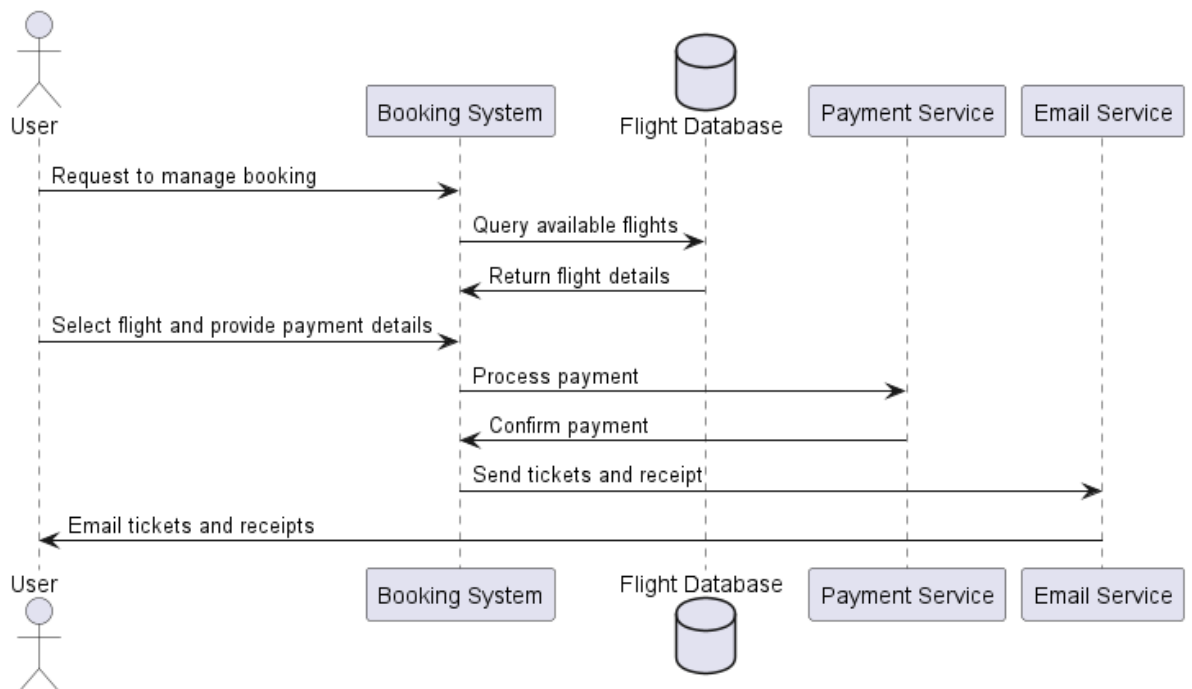
Payment Activity:



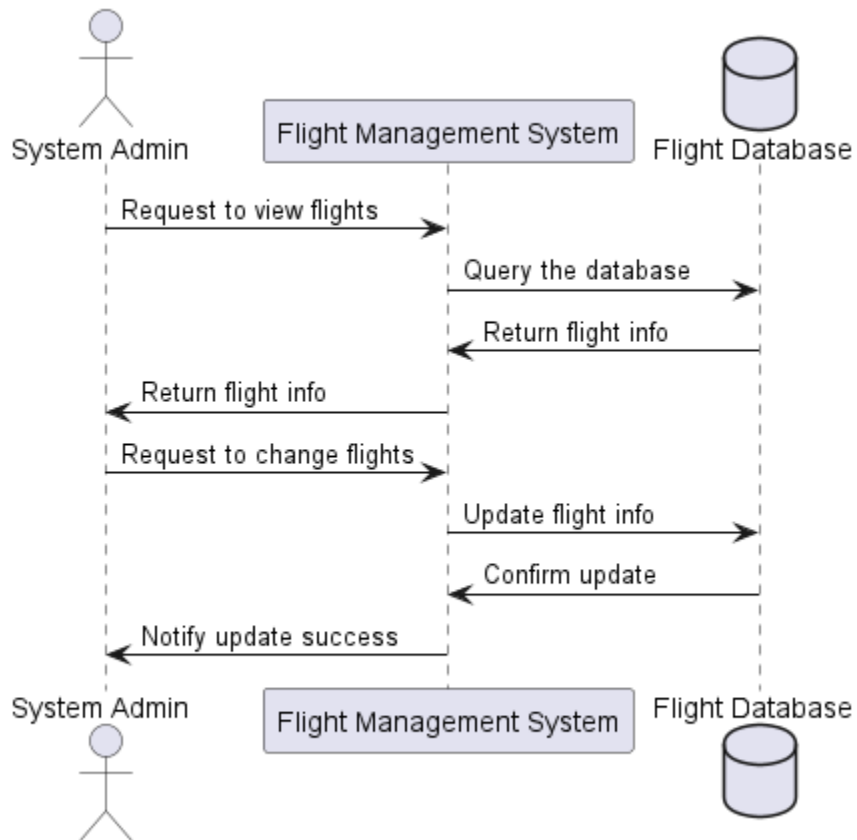
4.Sequence diagram (4 or 5 use cases)
Browse flight:



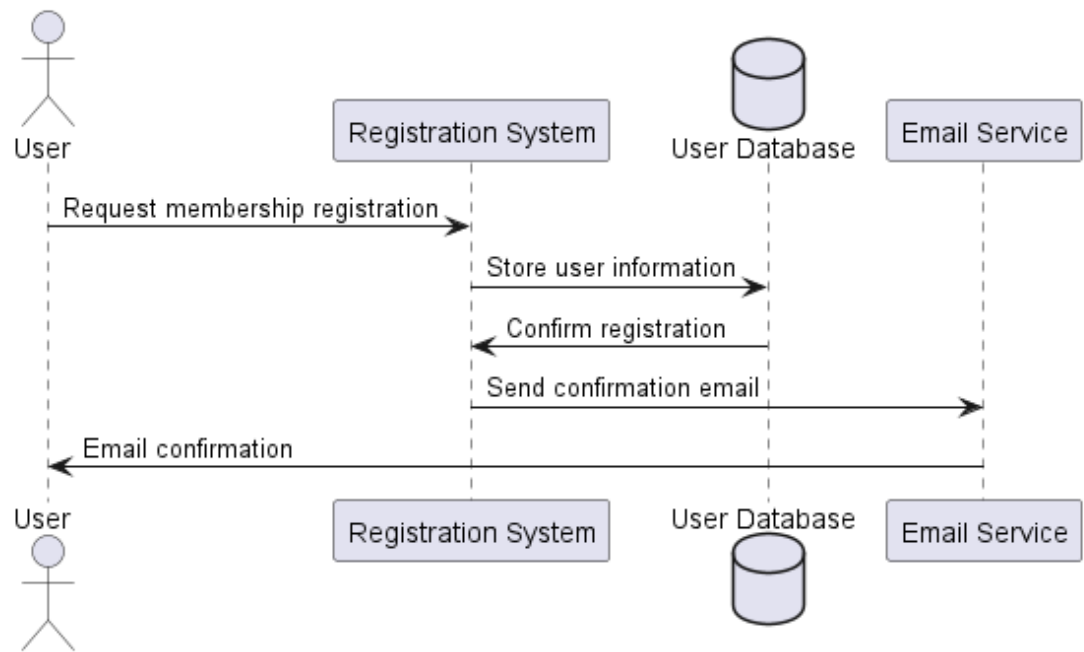
Book flight:



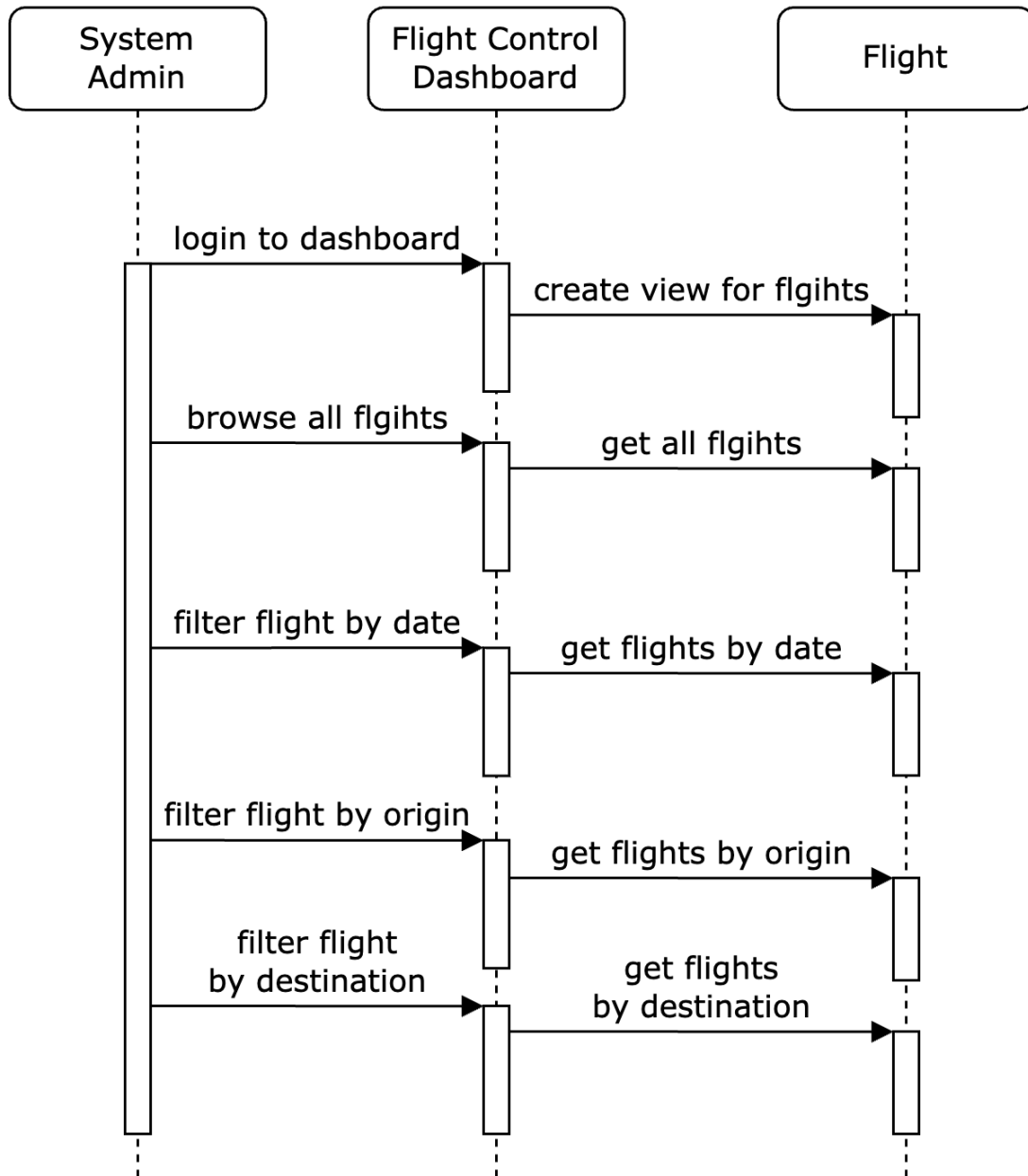
Modify flight:



Registration:

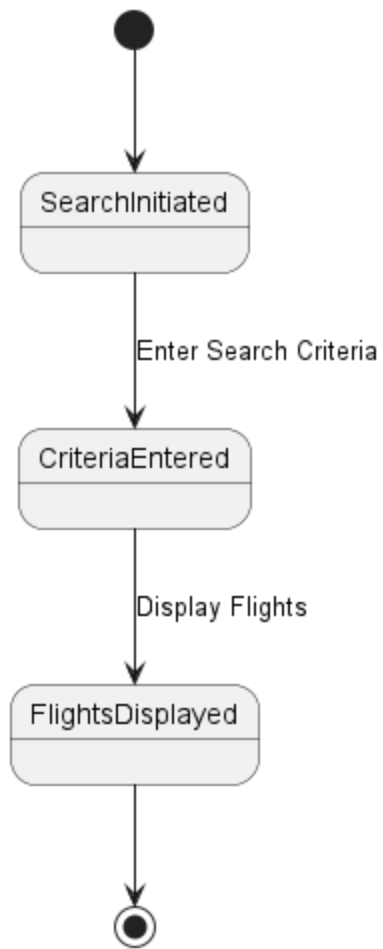


System admin browse the list fights, their origin and destination in a specific date.

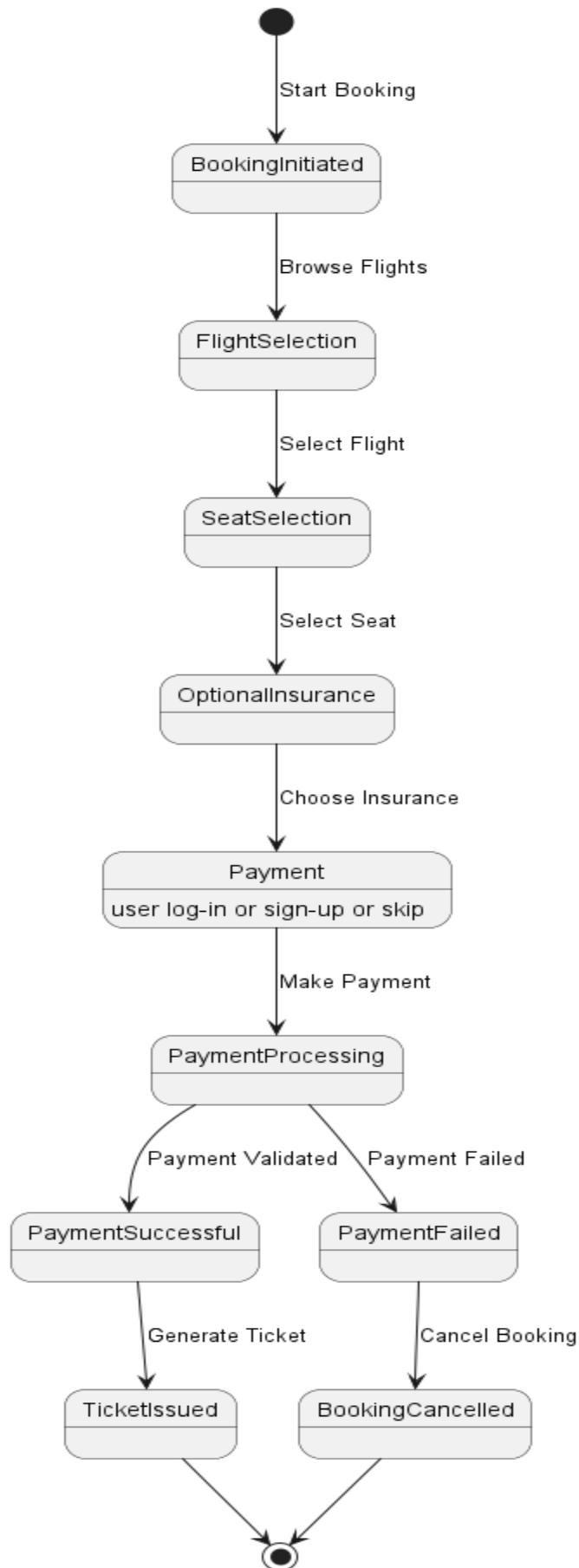


5. State diagram :

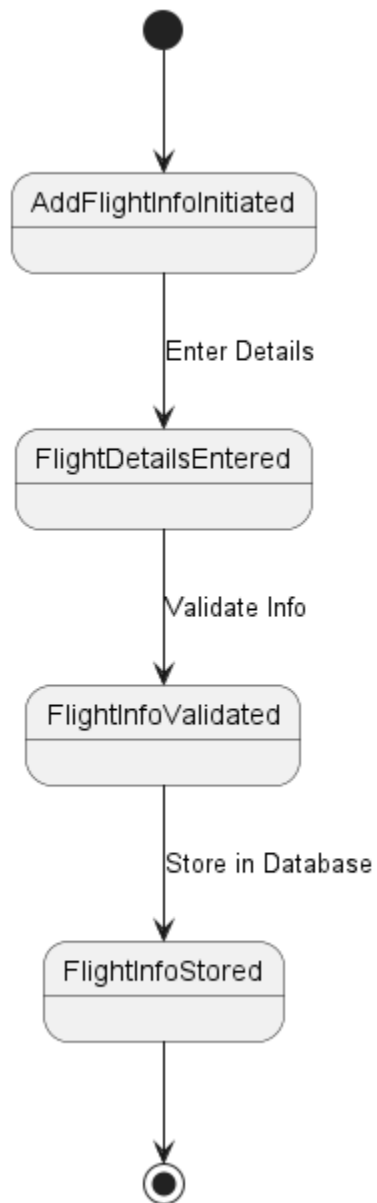
Browsing flight:



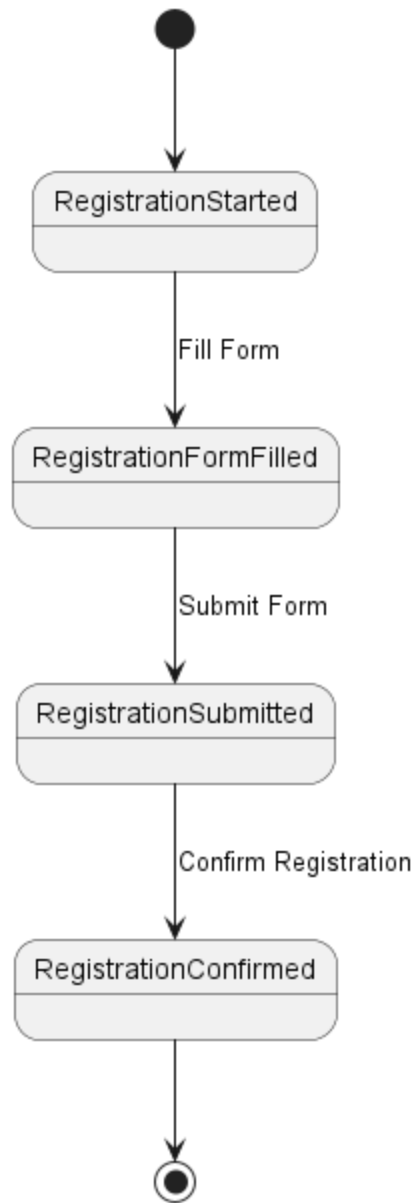
Booking flight:



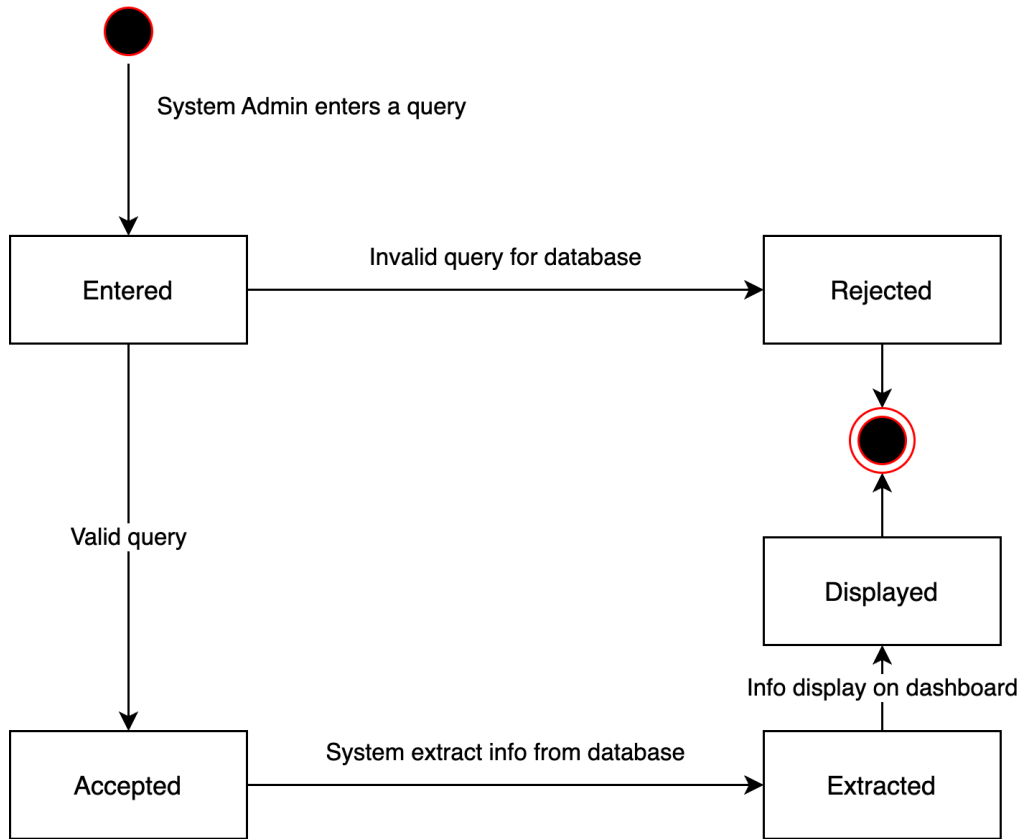
Add flight:



Registration:

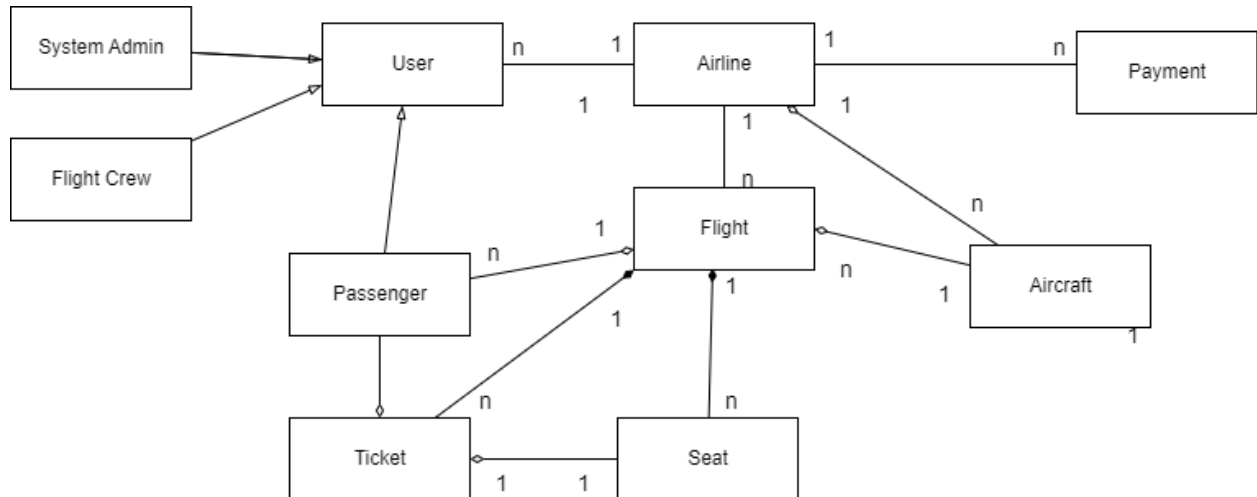


Admin:

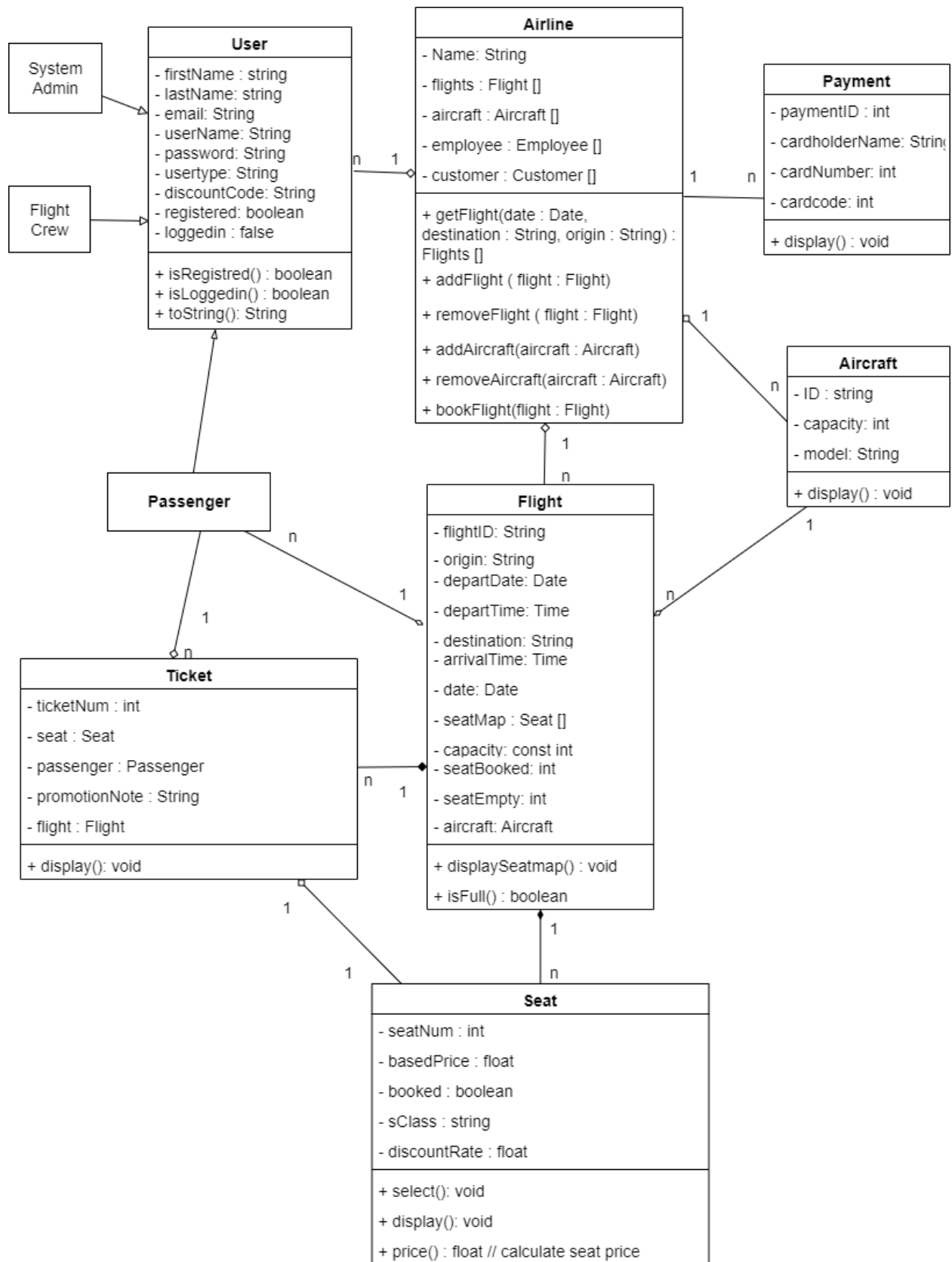


6. System domain class diagram - relationship & multiplicities:

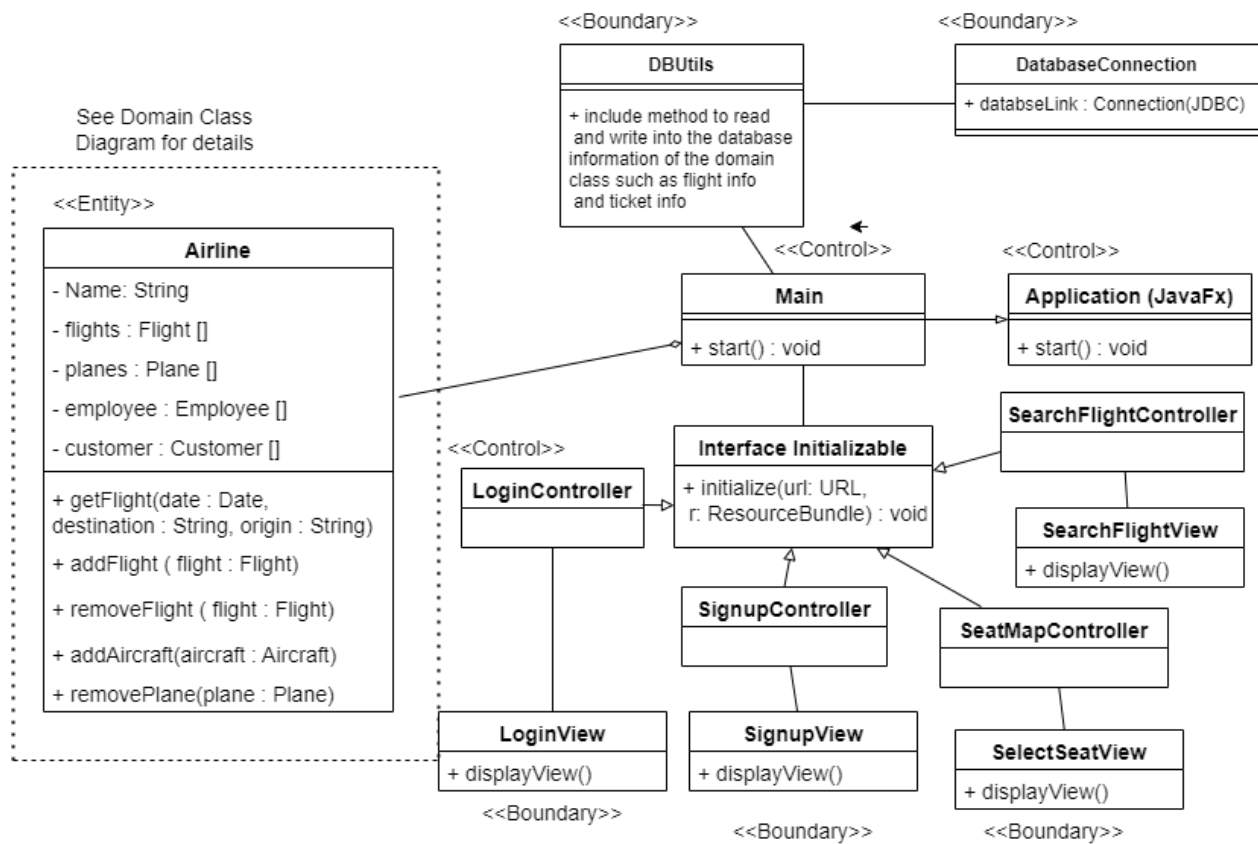
Note: For this project, it is assumed that the system is designed for one airline only.



7. Full system domain class diagram:



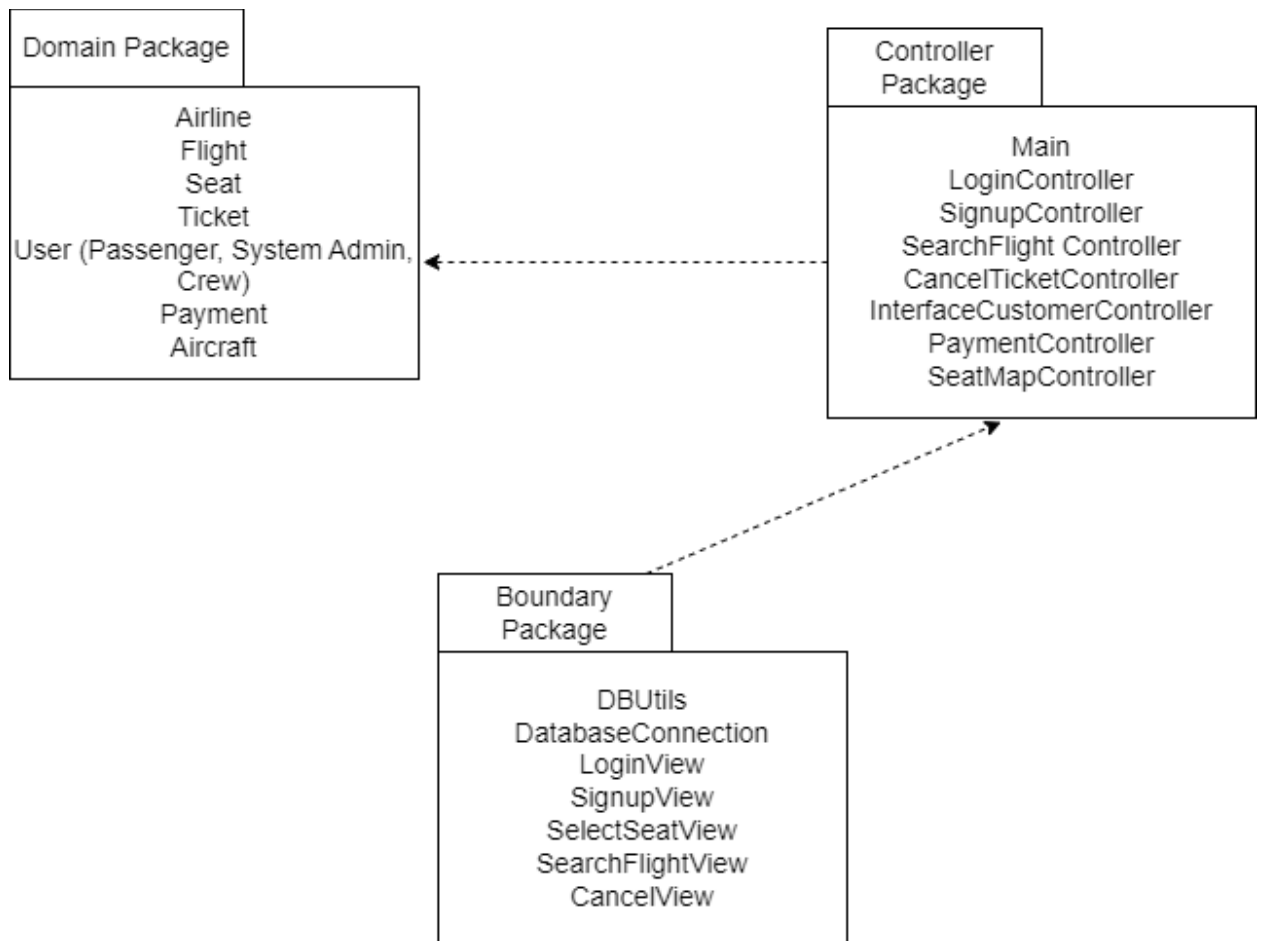
Part Three - System Detail-Design-Class Diagram: Include domain classes, boundary classes, controller class



Note: Due to space limitation, not all view are displayed in this diagram.
Since JavaFX is used for the implementation, the boundary and controll class are an extension of the JavaFX packages

Part Four - High-Level System Architecture

1. Package diagram:



2. Deployment diagram:

