

Design Document

ENSF 480 - Final Project

Lecture 3 Group 3

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Part A:

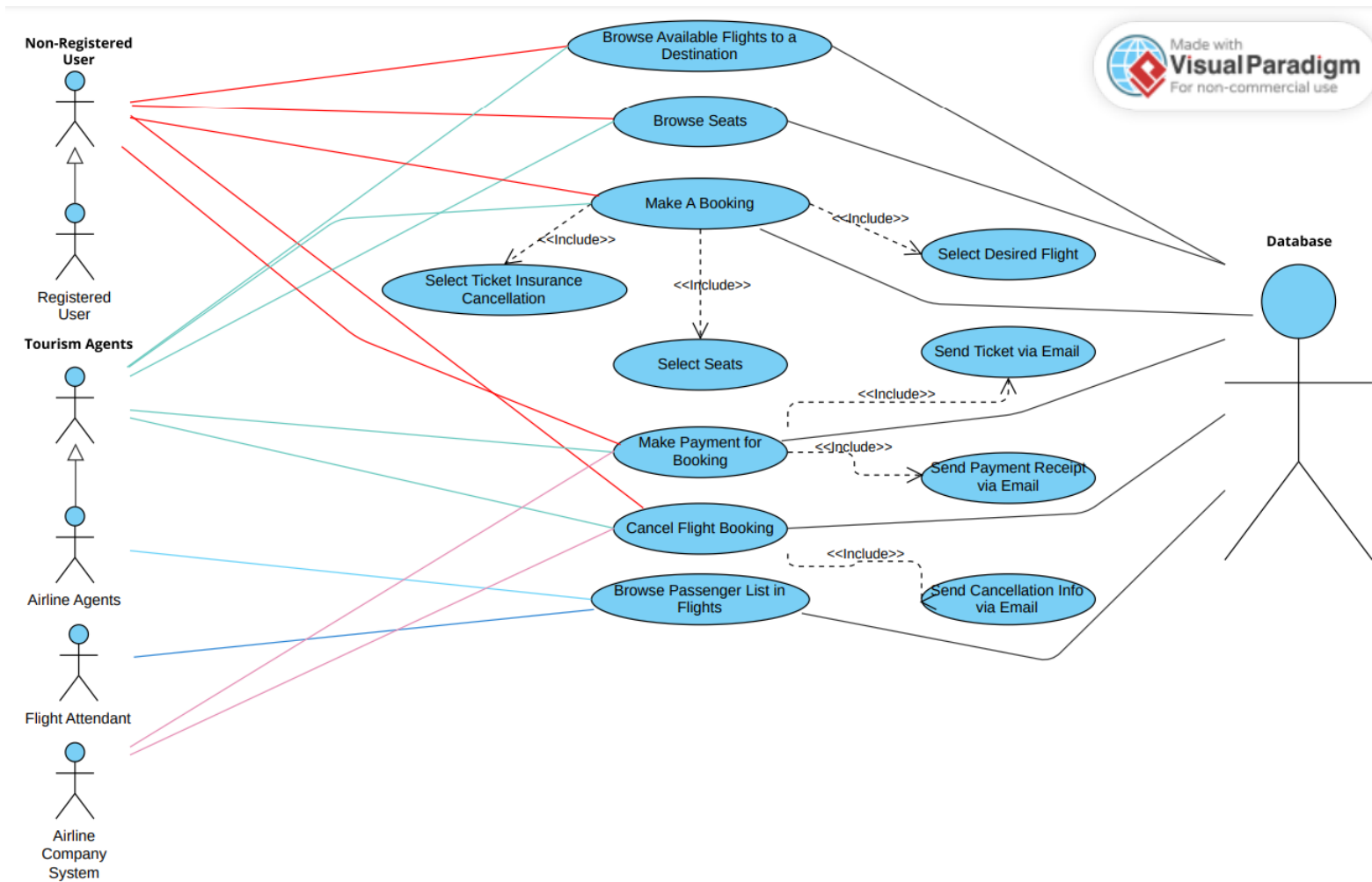
System Description:

Upon launching the application, users are greeted with a login screen where they input their login information or create an account. Only staff accounts can be created by administrators. Once logged in, customers can browse flights and, upon selecting a desired flight, can proceed to purchase or cancel seats. The company's aircraft offer various seat types, including Ordinary, Comfort, and Business-Class.

Upon seat purchase, both the ticket and the receipt are sent to the user's email address. Customers also have the option to become registered users, with their details saved in the company's database. Registered users enjoy several benefits, such as receiving monthly promotional news, accessing airport lounges at a discounted price, and receiving a complimentary companion ticket once a year.

Administrators have full control over the database, allowing them to manage flight information, view the crew and passengers for specific flights, and modify user accounts, available aircraft, and flight details. They also have access to the database of registered users. Staff members, upon logging in, can browse flights and view the list of passengers on each flight

System Use Case:



System Scenarios:

The “User Book a Flight Scenario”

- John, being a user (registered or non-registered) browses available flights to a destination.
- System asks to select a desired flight. John chooses a specific flight.
- From a list of available seats, John chooses a seat.
- The system asks if John wants to select Ticket Insurance Cancellation. John selects yes.
- The system adds the selected flights to John's checkout page.

The “Registered User Pays for the Flights with Voucher”

- Tom, being a registered user, enters login information. The login controller validates the login.
- Tom and then proceeds to checkout
- The system requests payment from Tom. Tom enters his free companion ticket. The system validates the voucher. Tom completes the payment.
- The system indicates that the activity is complete.
- The system sends the ticket and payment receipt via email to Tom.

The “Registered User Pays for the Flights”

- Tom, being a registered user, enters login information. The system validates the login.
- Tom proceeds to checkout
- The system requests payment from Tom. Since Tom is a registered user, the system pulls his stored billing information. Tom completes the payment.
- The system indicates that the activity is complete.
- The system sends the ticket and payment receipt via email to Tom.

The “Non-Registered User Pays for the Flights”

- Smith, being a non-registered user, proceeds to checkout
- The system requests payment from Smith. Smith, being a non-registered user, enters his credit card information. The system will validate the information. Smith completes the payment.
- The system indicates that the activity is complete.
- The system sends the ticket and payment receipt via email to Smith.

The “User cancels a Flight Scenario”

- A user checks his booked flights.
- User selects a flight to be canceled.
- System confirms cancellation and notifies the user. System processes refund.
- System emails the user of cancellation confirmation.

An Airline Agent Browses a Flight’s Passenger List

An airline agent logs into their employee account. From the menu they select “Flight information”. In the search bar on the flight information page, the agent enters a flight number. The agent finds a flight in the list of results and selects “View bookings”. A list of the passengers who have booked seats on the flight is shown, sorted by seat row and number.

A System Admin Browses the List of Flights

A system admin logs into their admin account. From the menu they select “Flight information”. A list of flights is displayed, sorted by the date and time of departure/arrival. The admin filters the list for departures, sorts the list alphabetically by destination airport code, and browses the list of flights.

A System Admin Checks a Flight’s Crew

A system admin logs into their admin account. From the menu, they select “Flight information”. In the search bar on the flight information page, the admin enters a flight number. They find a flight in the list of results and select “View information”. Flight information is displayed for the selected flight, including a list of the flight crew who have been assigned to the flight.

A System Admin Modifies Flight Information

A system admin logs into their admin account. From the menu they select “Flight information”. In the search bar on the flight information page, the admin enters a flight number. They find a flight in the list of results and select “View information”. Flight information is displayed for the selected flight, including the departure date and time, a list of the flight’s crew, a list of the flight’s destinations, arrival date(s) and time(s), and the flight aircraft. The admin clicks the pencil and paper icon in the upper right corner, and the flight information text fields become editable. The admin changes the departure date to “03/20/2024”, then clicks the “Save changes” button. The admin clicks “Confirm” when prompted, and the changes are saved.

A System Admin Adds a Crew Member to a Flight

A system admin logs into their admin account. From the menu they select “Flight information”. In the search bar on the flight information page, the admin enters a flight number. They find a flight in the list of results and select “View information”. Flight information is displayed for the selected flight, including a list of the flight crew who have been assigned to the flight. The admin clicks the button “Add crew” and the application prompts them for an employee number. After the admin enters a number, they are shown the employee’s name and position, and prompted for confirmation. They press “Confirm” and the employee is added to the flight’s crew.

A System Admin Removes a Crew Member from a Flight

A system admin logs into their admin account. From the menu they select “Flight information”. In the search bar on the flight information page, the admin enters a flight number. They find a flight in the list of results and select “View information”. Flight information is displayed for the selected flight, including a list of the flight crew who have been assigned to the flight. The admin clicks the button “Remove crew” and the application prompts them for an employee number. The admin enters the number of an employee from the list of the flight’s crew, is prompted for confirmation, and presses “Confirm”. The employee is removed from the flight’s crew.

A System Admin Adds An Aircraft to the Company Fleet

A system admin logs into their admin account. From the menu they select “View fleet”. The application displays a list of aircraft models, along with their manufacturers and quantities. The admin selects a specific aircraft, the Boeing 737 MAX 8, and the application displays a list of the planes of that model that are within the company fleet. The admin presses “Add aircraft” and the side prompts them for the plane’s identifier and status. After the admin enters an aircraft’s information, they are prompted for confirmation. They press “Confirm” and the plane is added to the company’s fleet.

A System Admin Removes an Aircraft from the Company Fleet

A system admin logs into their admin account. From the menu they select “View fleet”. The application displays a list of aircraft models, along with their manufacturers and quantities. The admin selects a specific aircraft, the Boeing 737 MAX 8, and the application displays a list of the planes of that model that are within the company fleet. The admin clicks the button “Remove aircraft” and the system prompts them for an aircraft identifier. The admin enters the identifier of an aircraft within the fleet, is prompted for confirmation, and presses “Confirm”. The aircraft is removed from the fleet.

A System Admin Adds a Destination to a Flight Plan

A system admin logs into their admin account. From the menu they select “Flight information”. In the search bar on the flight information page, the admin enters a flight number. They find a flight in the list of results and select “View information”. Flight information is displayed for the selected flight, including a list of the flight’s destinations. The admin presses “Add a stop” and is prompted for an airport code, time of arrival, and time of departure. After entering “YYC”, 12:54 AM 11/13/2023, and 5:12 AM 11/13/2023, the system displays the airport’s information and prompts for confirmation. The admin presses “Confirm” and the destination is added to the flight plan.

A System Admin Removes a Destination from a Flight Plan

A system admin logs into their admin account. From the menu they select “Flight information”. In the search bar on the flight information page, the admin enters a flight number. They find a flight in the list of results and select “View information”. Flight information is displayed for the selected flight, including a list of the flight’s destinations. The admin presses “Remove a stop” and is prompted for an airport code. After entering “YYC”, the system displays the airport’s information and prompts for confirmation. The admin presses “Confirm” and the destination is removed from the flight plan.

A System Admin Adds Flight Information

A system admin logs into their admin account. From the menu they select “Flight information”. On the flight information page, they click the “New flight” button. The application displays a form requiring departure time, primary destination and arrival time, secondary destination(s) and arrival time(s), aircraft, and crew members. The admin fills out the form with flight information and presses “Create flight”. They are prompted for confirmation, the press “Confirm”, and the flight is added to the list of flights.

A System Admin Removes Flight Information

A system admin logs into their admin account. From the menu they select “Flight information”. In the search bar on the flight information page, the admin enters a flight number. They find a flight in the list of results and select “Cancel flight”. The system displays a warning message and prompts for confirmation. The admin presses “Confirm”, and the flight is removed from the list of flights.

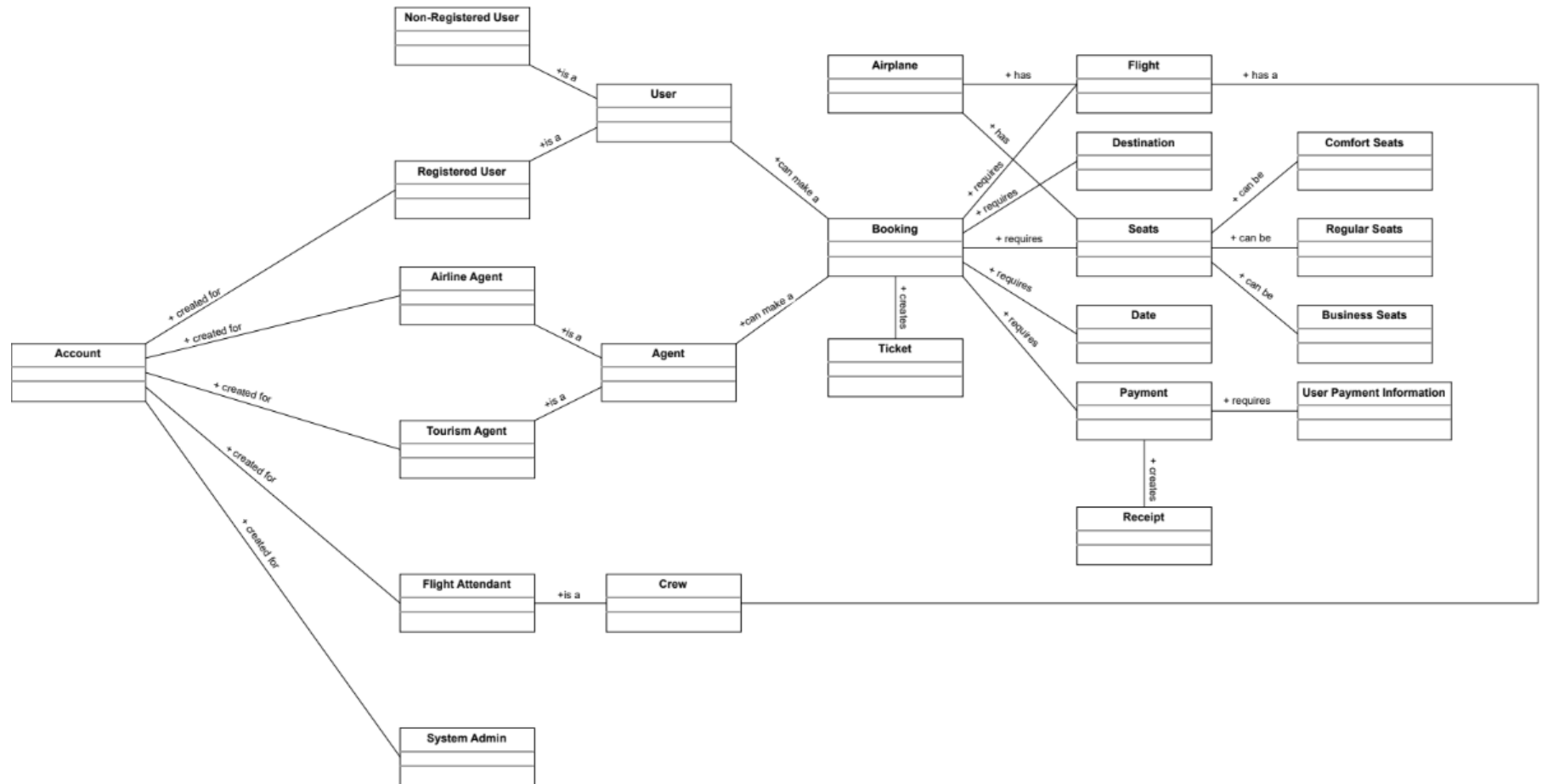
A System Admin Browses the Company’s Fleet

A system admin logs into their admin account. From the menu they select “View fleet”. The application displays a list of aircraft models, along with their manufacturers and quantities. The admin selects a specific aircraft, the Boeing 737 MAX 8, and the system displays a list of the planes of that model that are within the company fleet.

Table of Candidate Objects

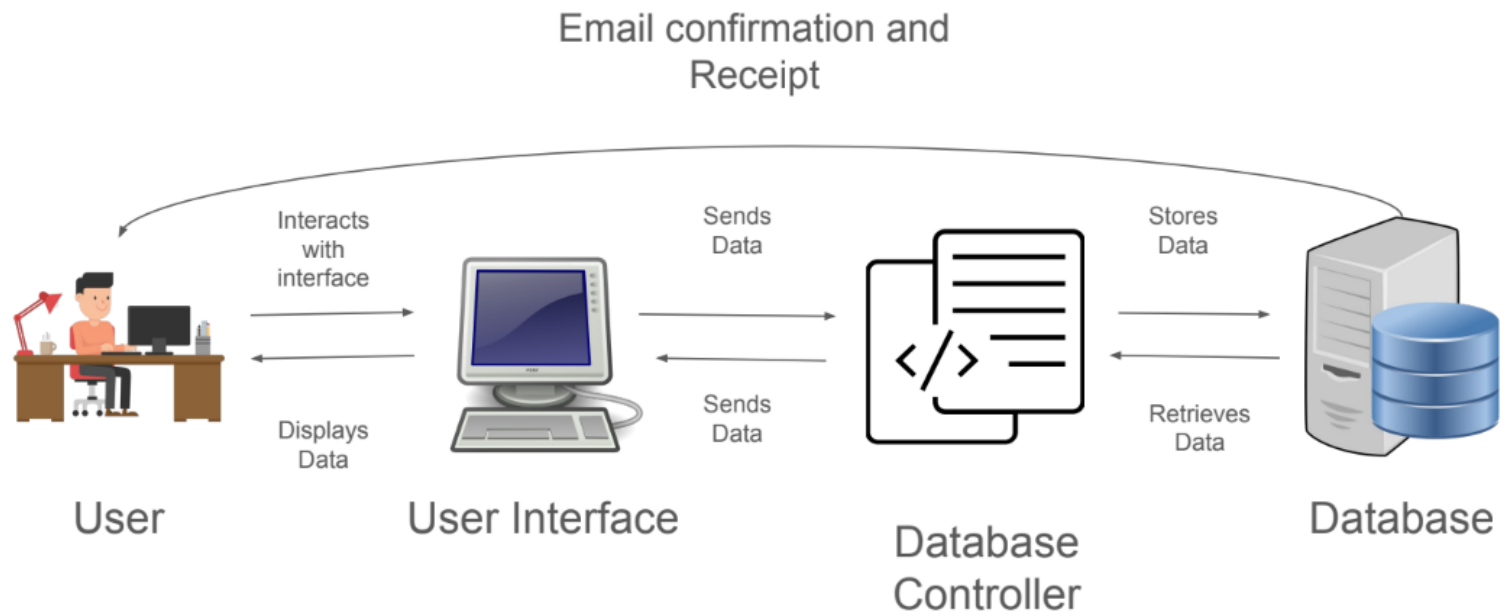
| Object Name | Use |
|--------------------------|---|
| Active User/Session User | Stores info about the user actively using the application |
| Flight | Stores various information about the flights |
| Location | Stores location information |
| Seat | Stores seat information |
| Registered User | Stores information about registered users |
| Login | Stores login info |
| Payment | Stores payment information |
| Ticket | Stores ticket information |
| Receipt | Stores purchase and booking information for receipts |
| Flight Booking | Stores booking information |
| Agent | Stores agent information |
| Employee/Crew member | Stores crew information |
| Admin | Stores admin information |
| Date and Time | Stores date and time information |
| Aircraft | Stores aircraft information |

System Conceptual Model:

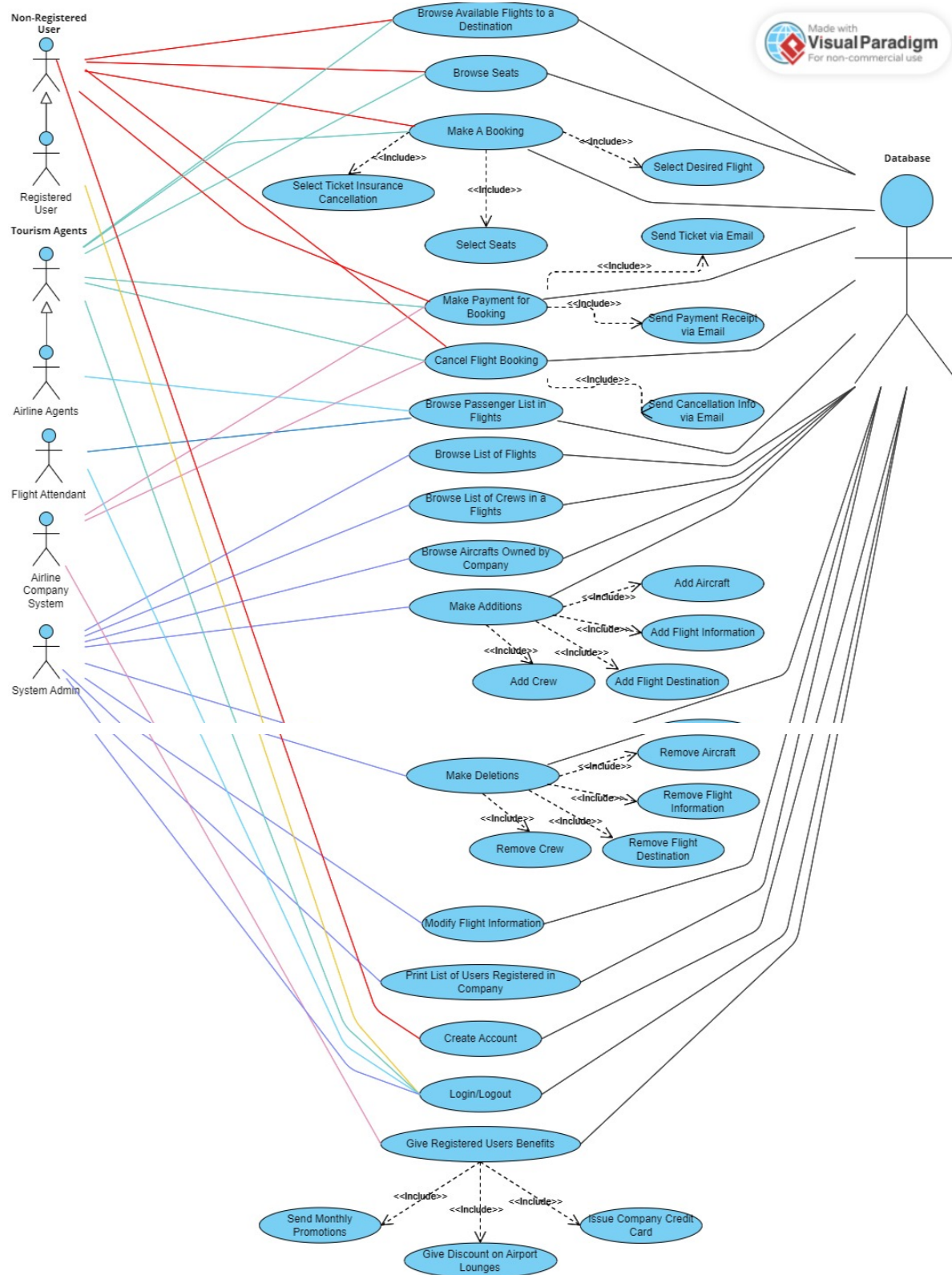


Part B:

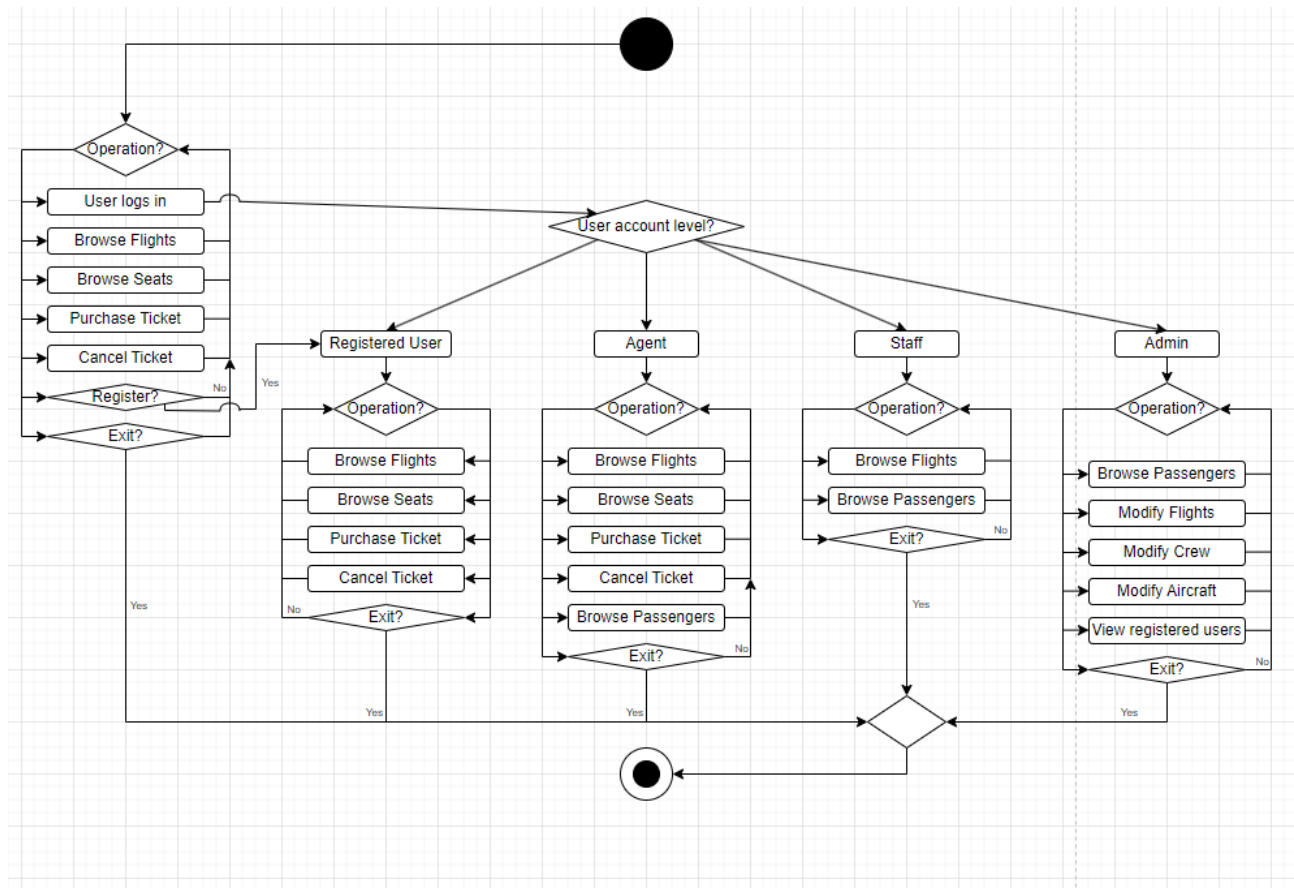
System Architecture Diagram:



Updated Use Case:

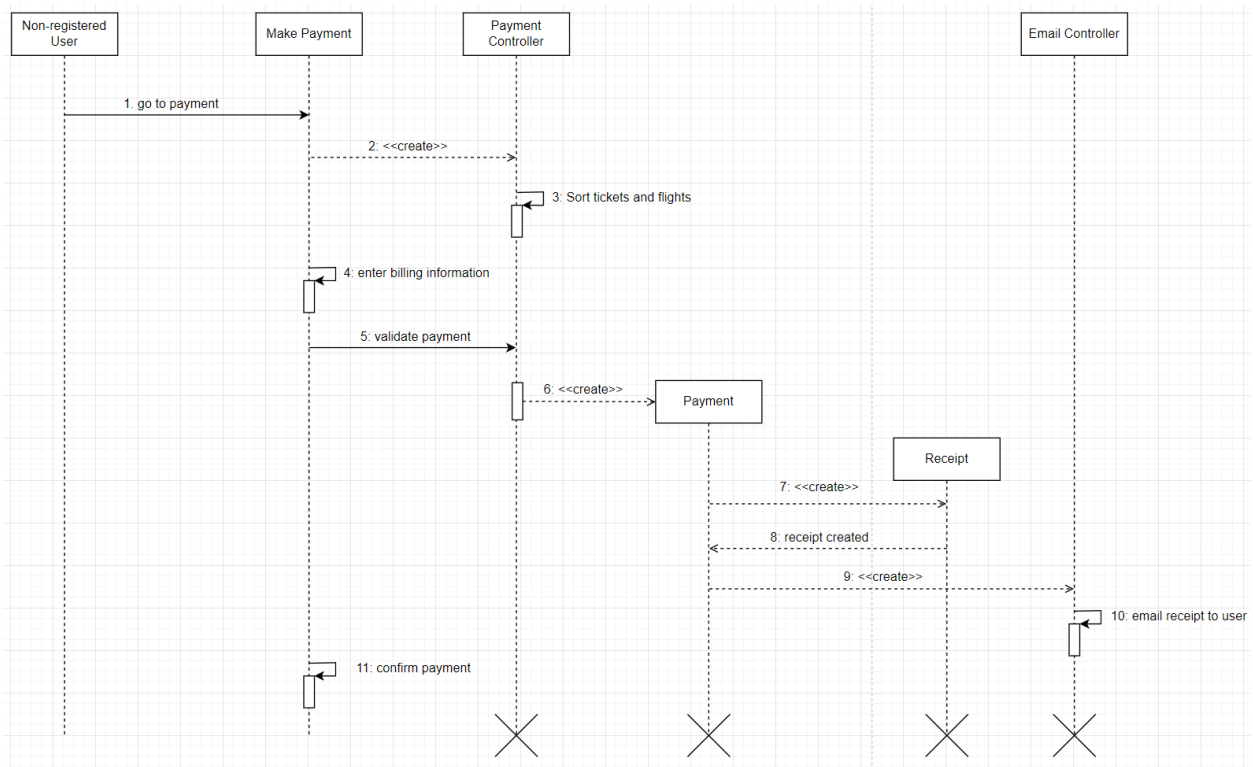


System Activity Diagram:

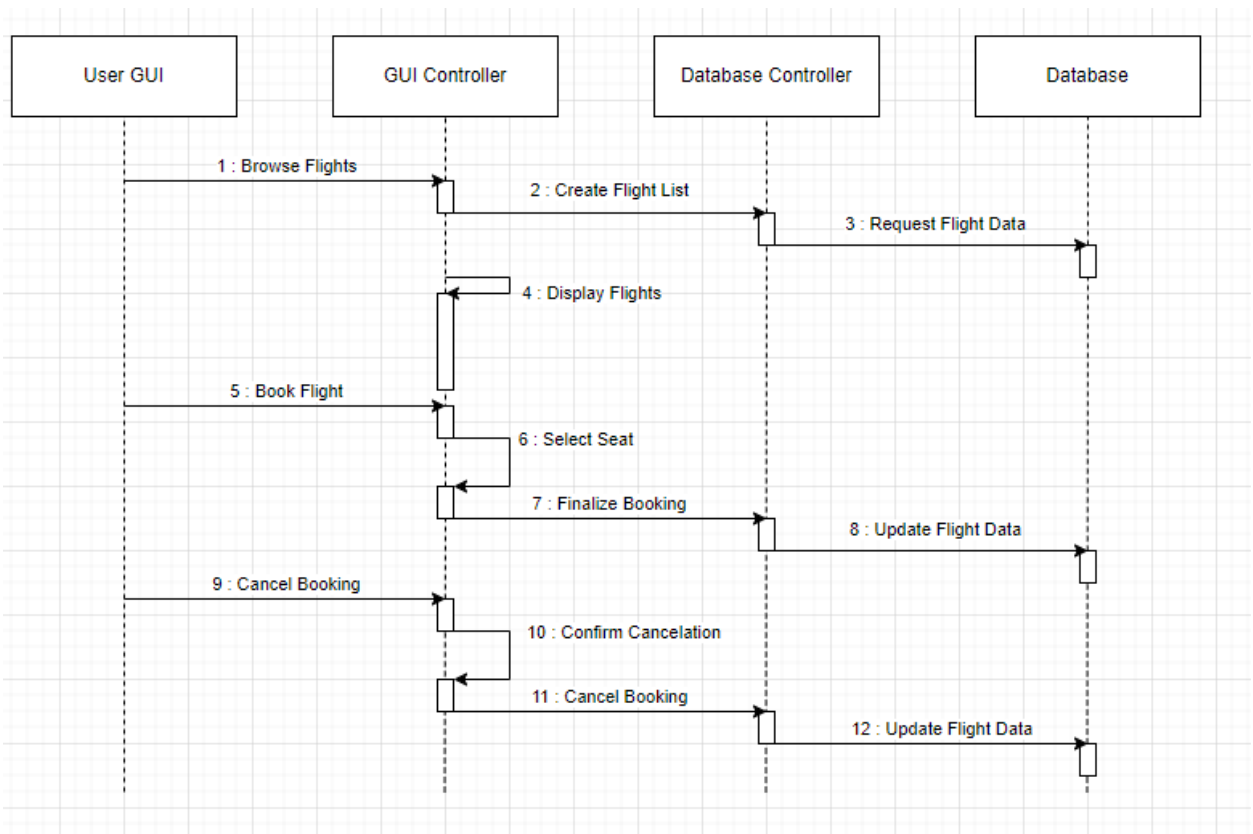


Sequence Diagrams:

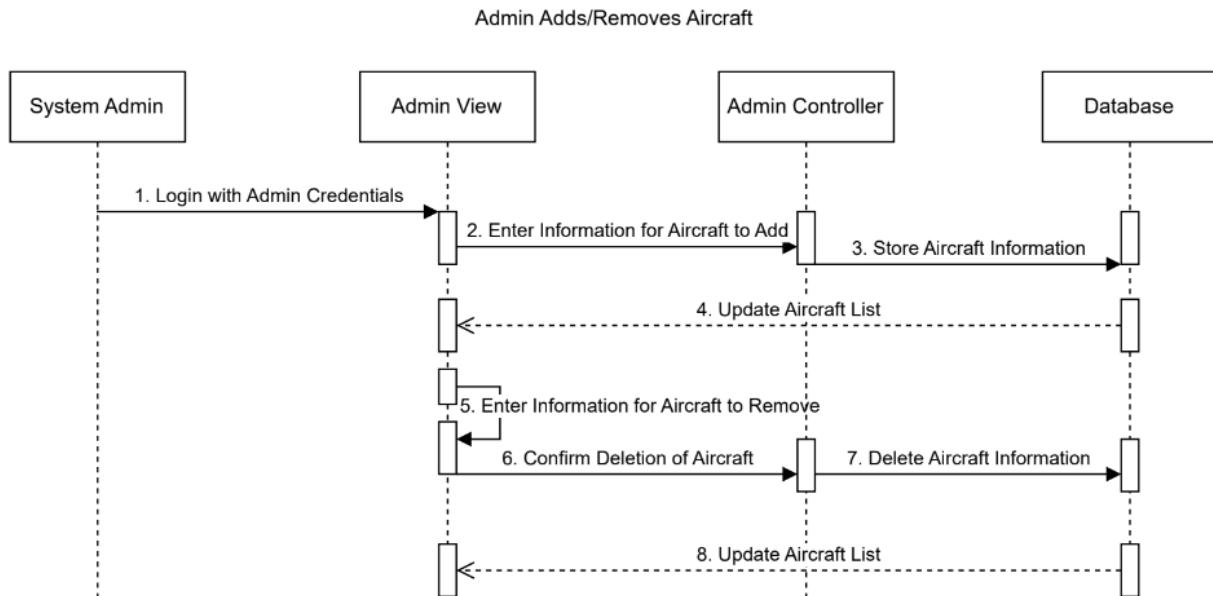
Payment Sequence



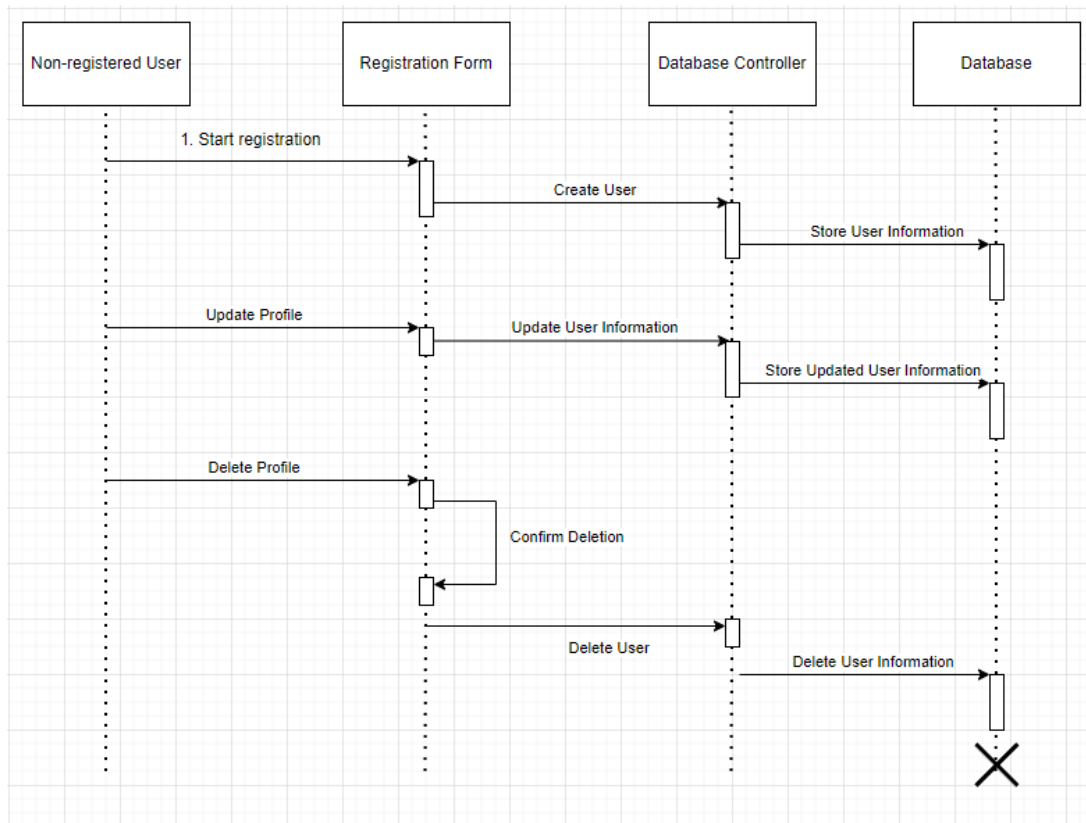
User Searches for Flight:



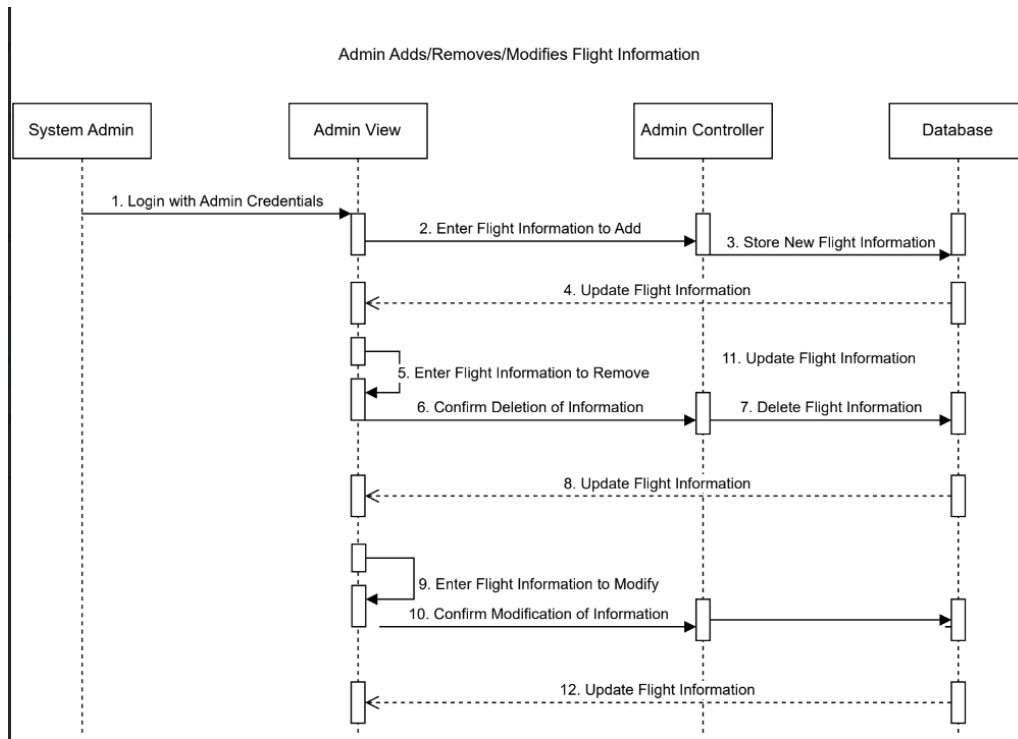
Admin Adds/Removes Aircraft:



User Registration:

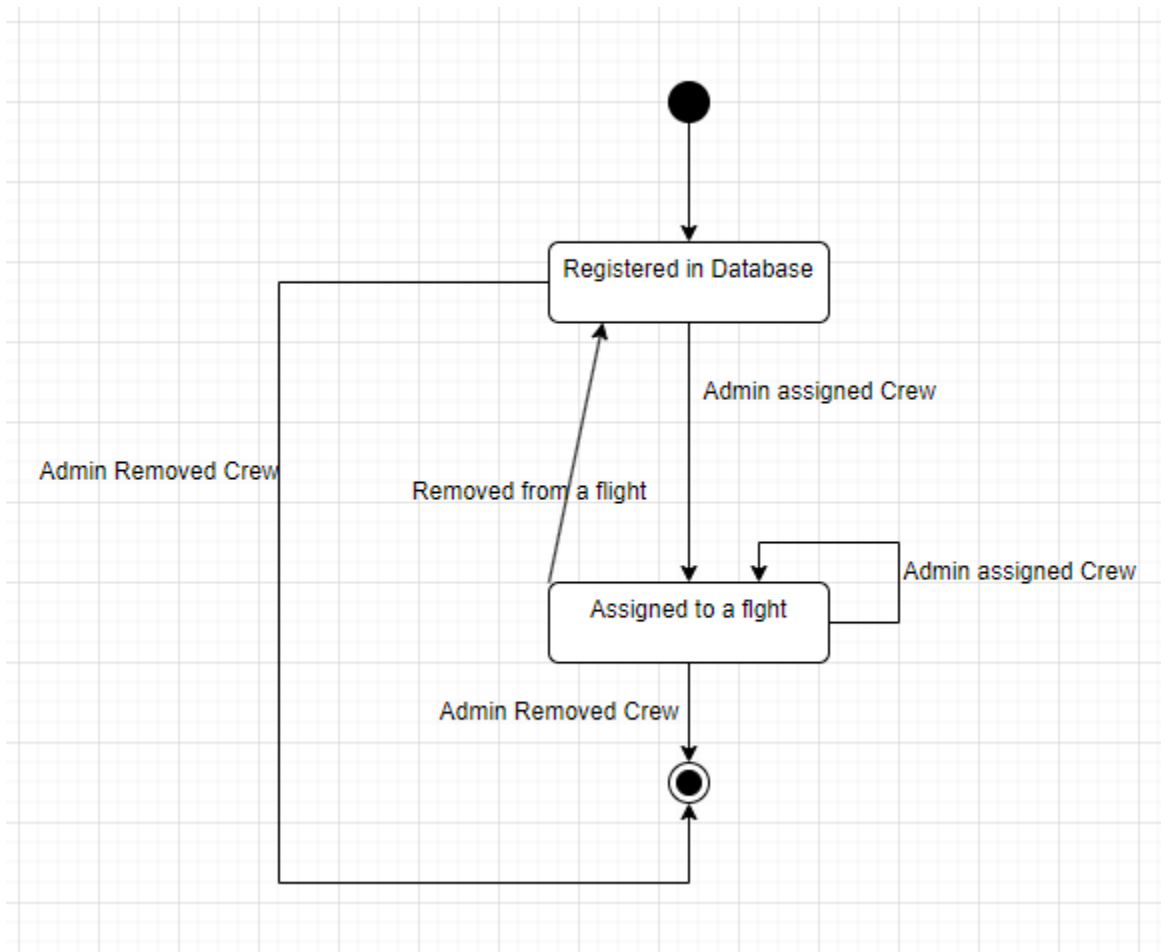


Admin Adds/Removes/Modifies Flight Information

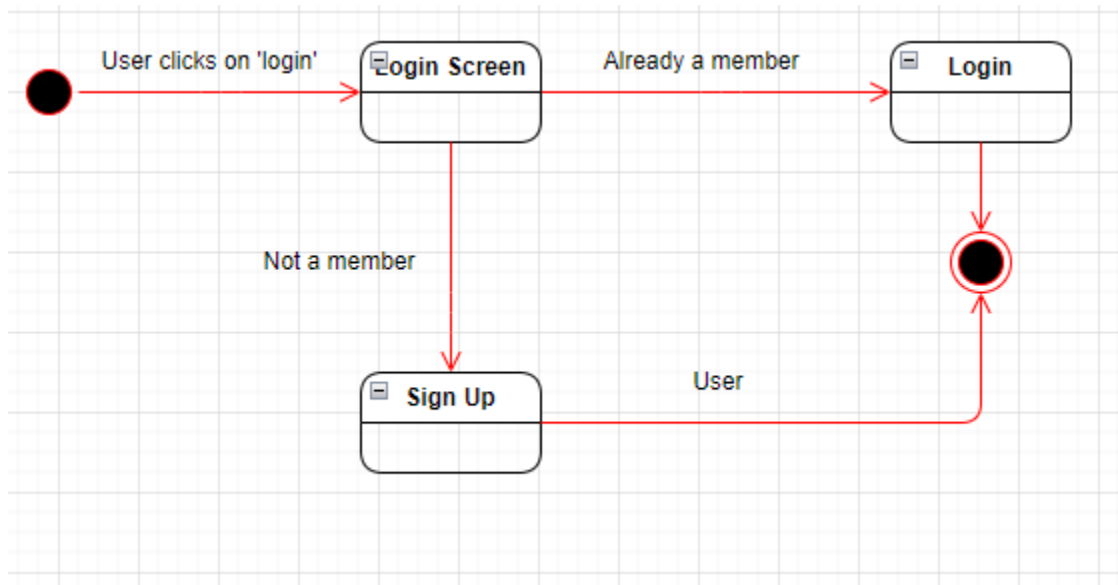


State Transition Diagrams:

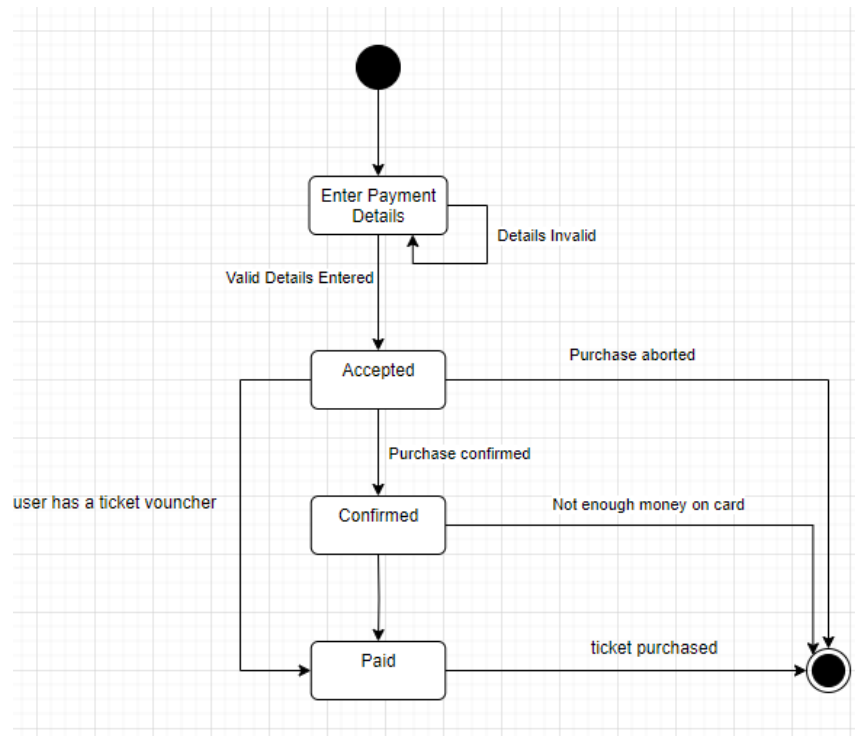
Crew Member



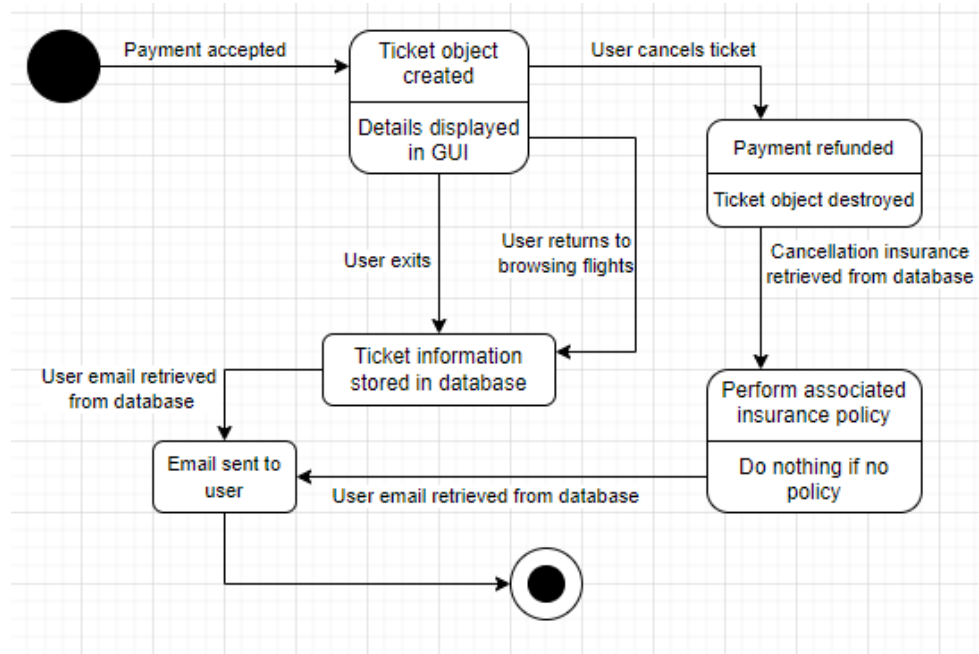
Login



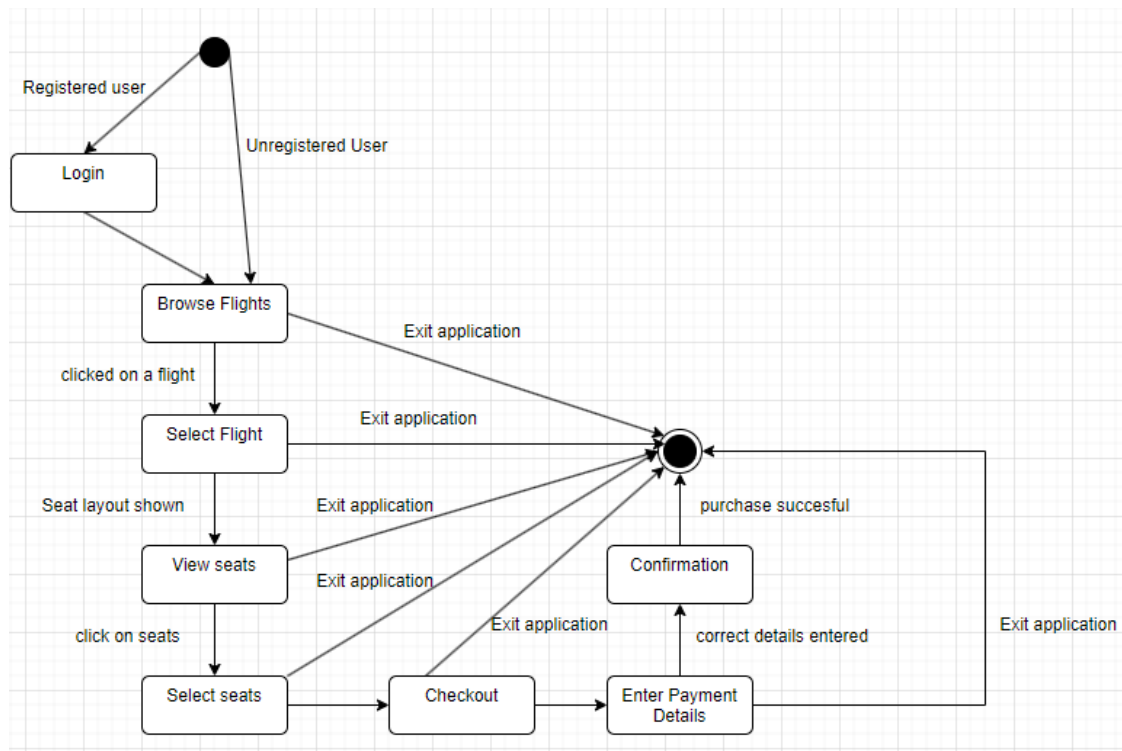
Payment:



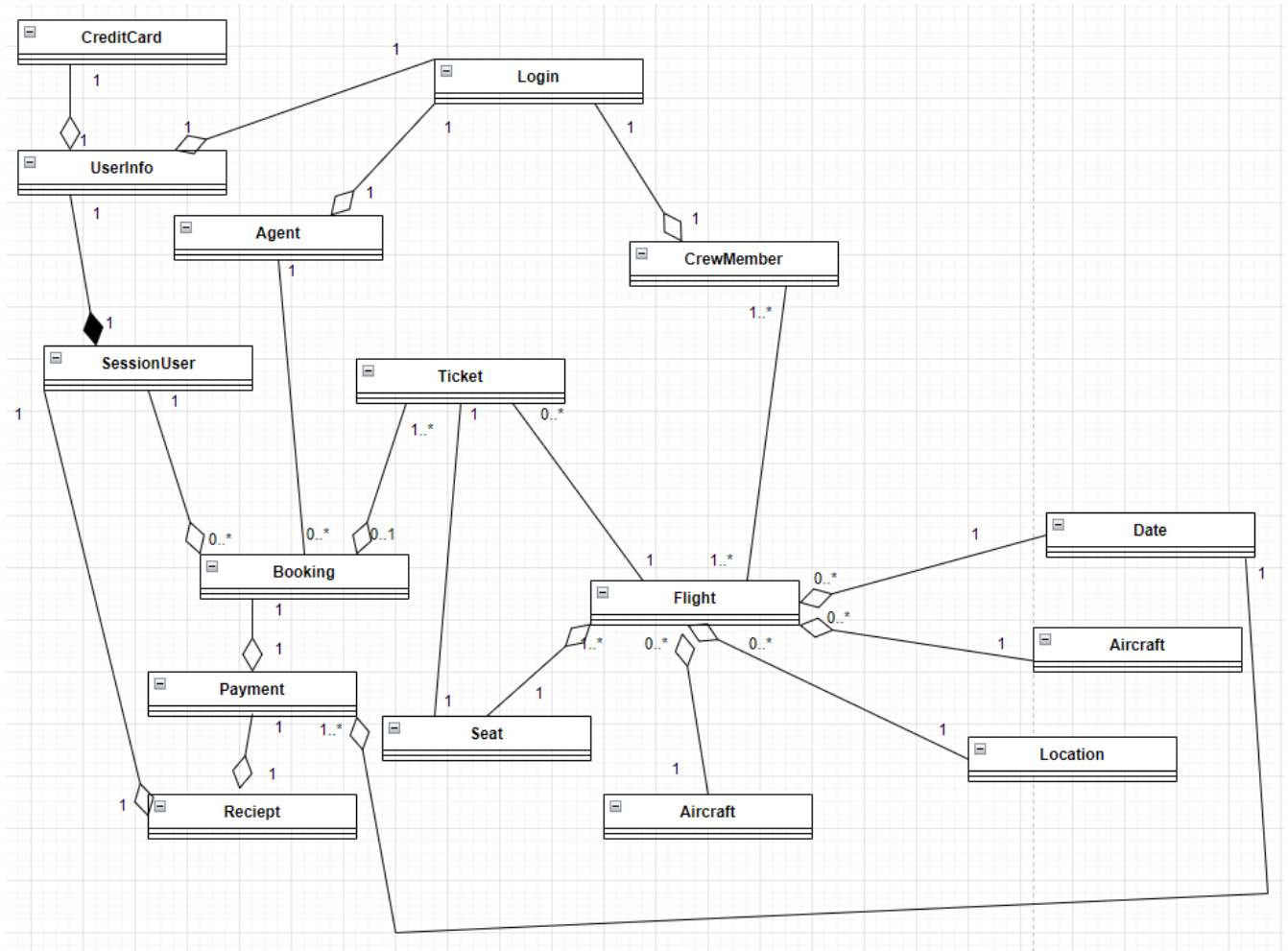
Ticket



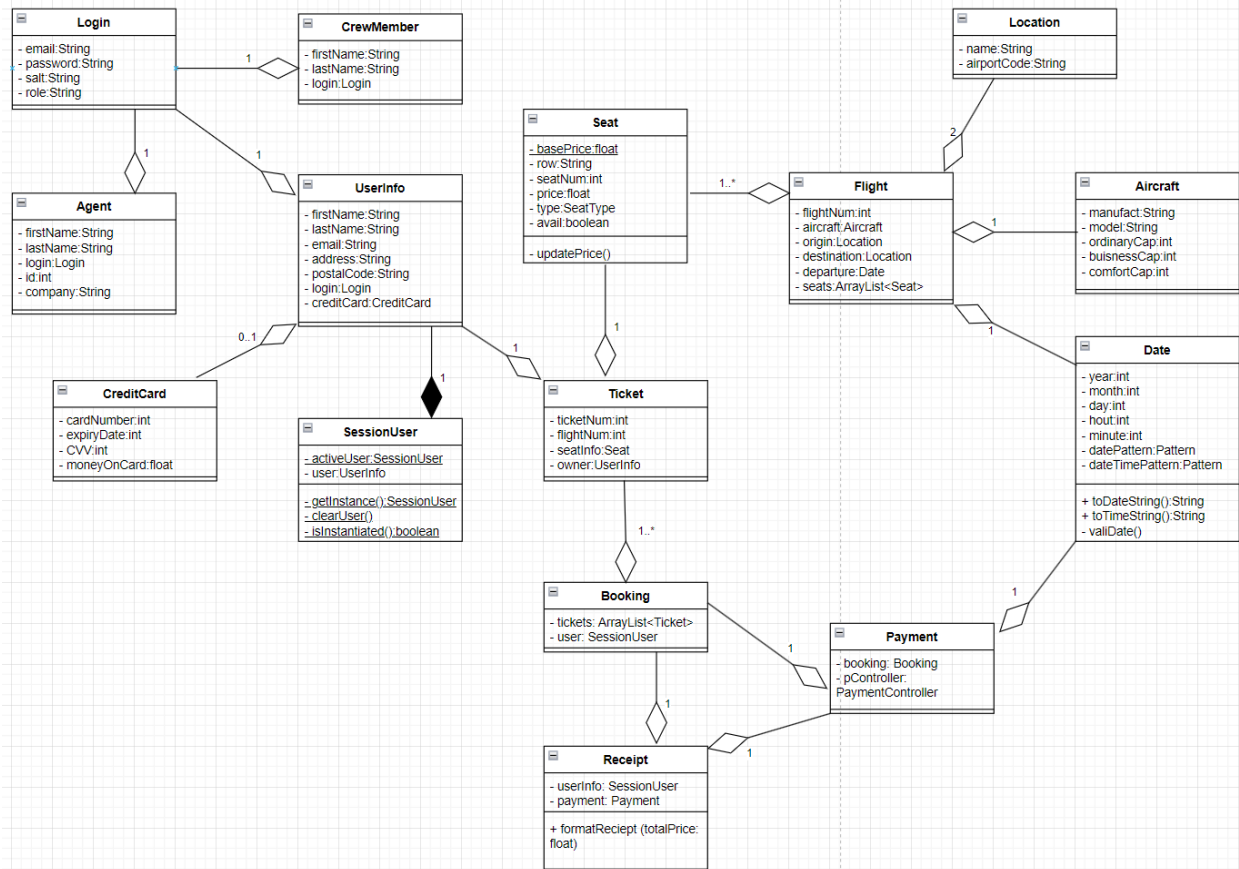
User



System Domain Class Diagram (No Attributes):

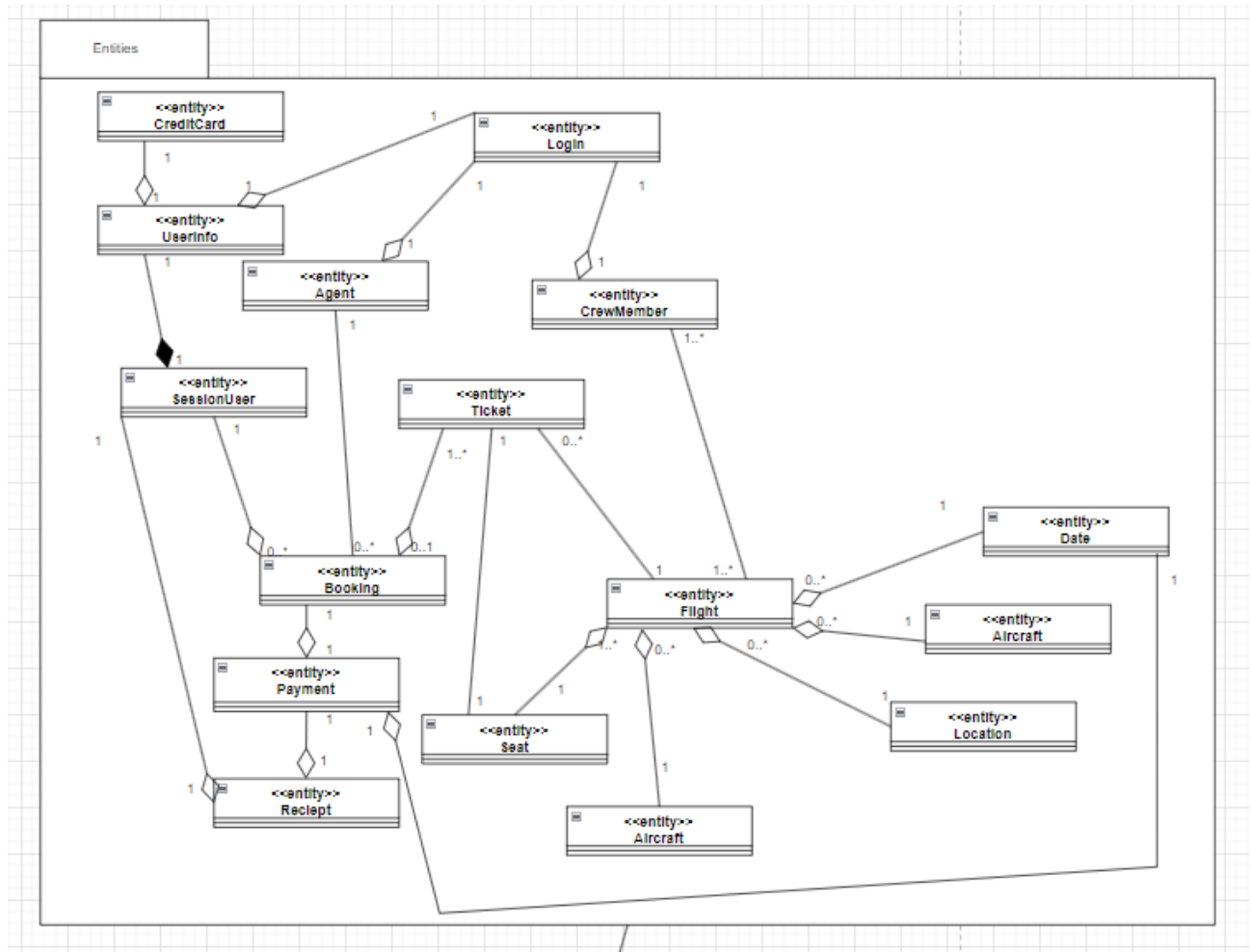


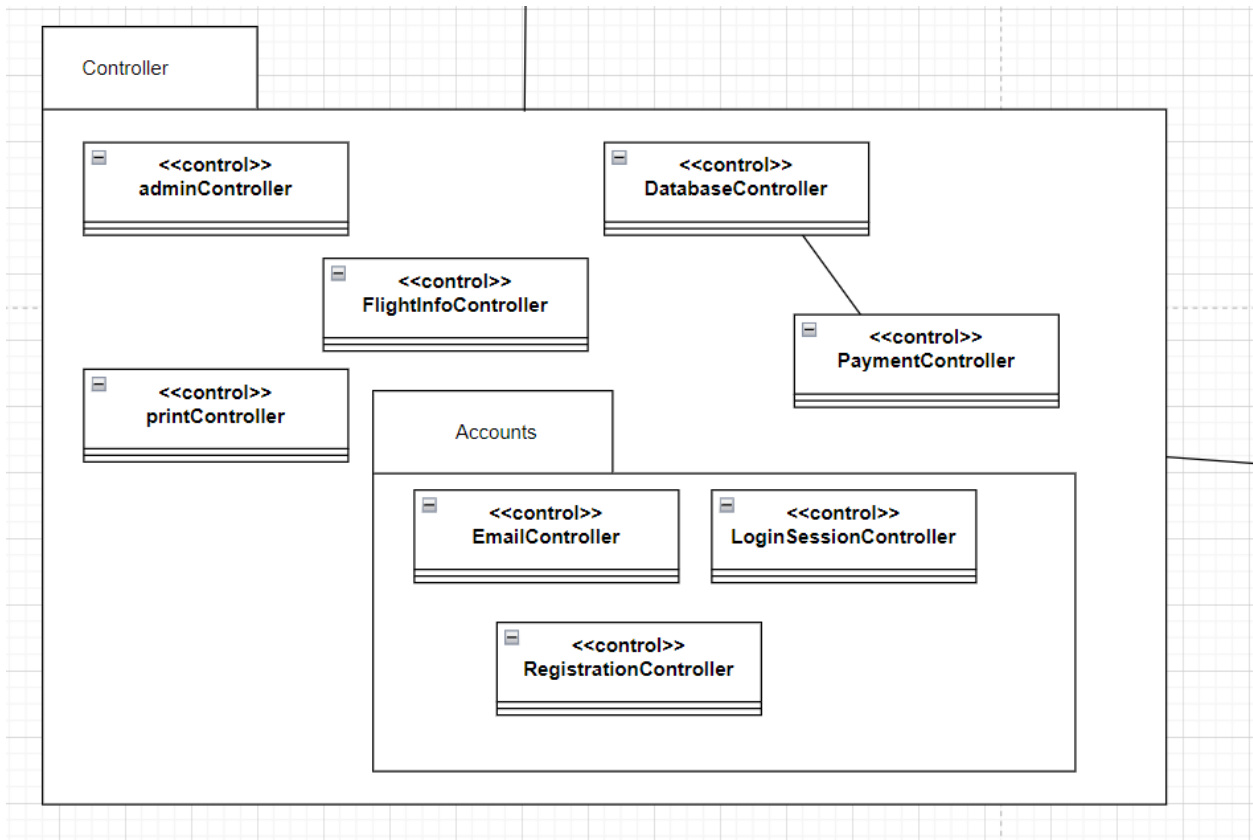
System Domain Class Diagram (With Attributes):

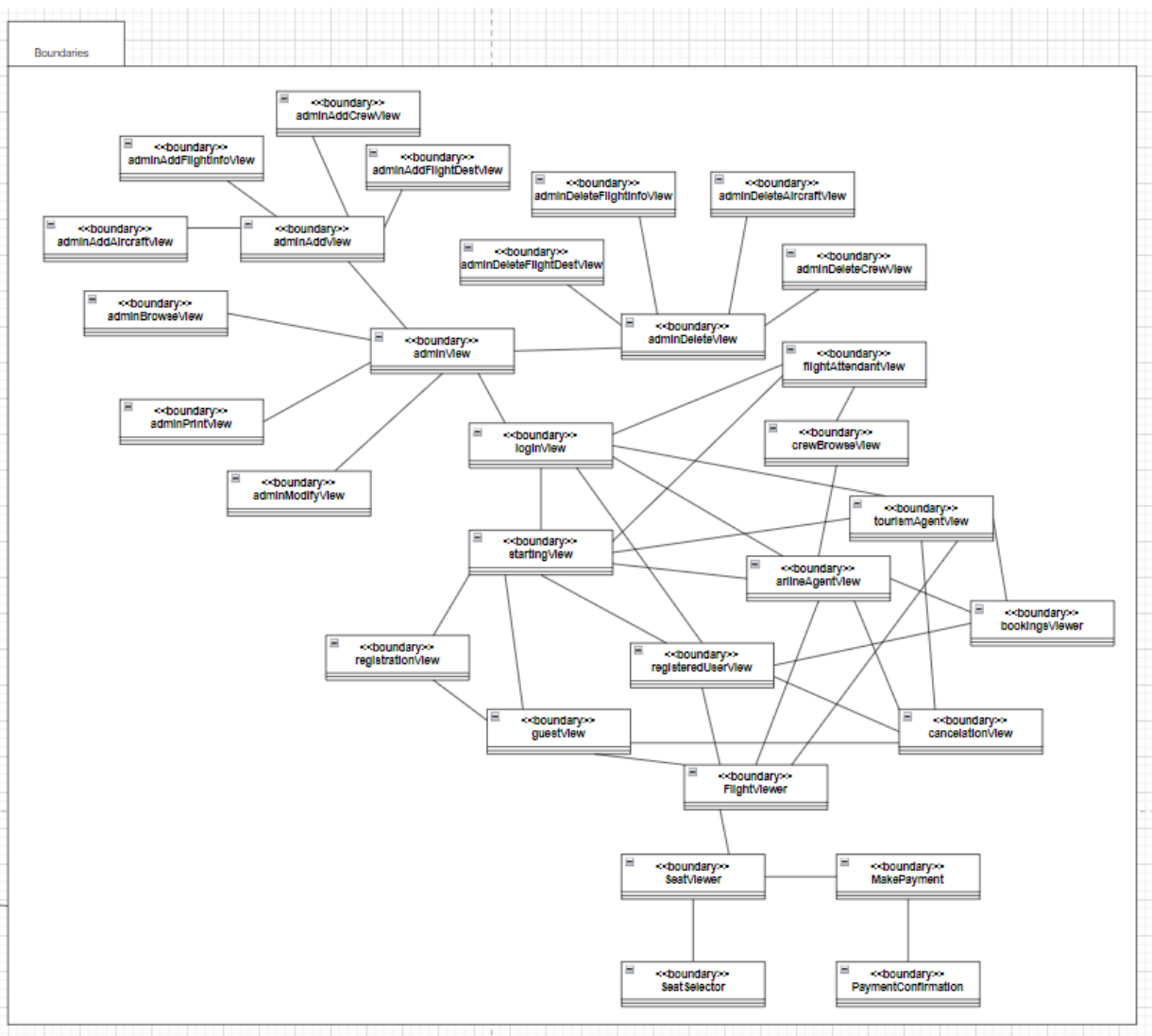


Part C:

Final Detailed Design-Class Diagram:

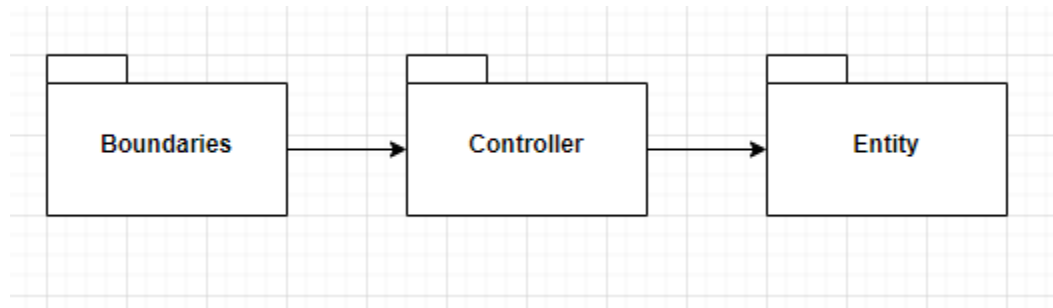






Part D:

Package Diagram:



Deployment Diagram:

