

# ENSF 480 Term Project

Group: 5

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## **Brief Description of the System**

The **Movie Theater Ticket Reservation System** is a Java-based GUI application designed to allow users to reserve movie tickets in an intuitive and user-friendly manner. The system provides two types of users with tailored functionality: **Ordinary Users (OUs)** and **Registered Users (RUs)**.

### **Features of the System**

#### **1. For Ordinary Users (OUs):**

- **Search and Select Movies:** Browse a list of available movies across multiple theaters.
- **View Showtimes:** See available showtimes for selected movies.
- **Seat Selection:** Graphically view available seats for a specific show and choose a preferred seat.
- **Payment Processing:** Pay securely using a credit card.
- **Email Notification:** Receive the ticket and payment receipt via email.
- **Ticket Cancellation:** Cancel tickets and receive a credit with a 15% administrative fee deduction, valid for one year.

#### **2. For Registered Users (RUs):**

- **Exclusive Benefits:**
  - Exempt from the 15% admin fee for ticket cancellations.
- **Priority Booking:** Up to 10% of the seats are reserved exclusively for RUs.
- **Membership Management:** Pay an annual fee of \$20 to maintain their registered status.
- **Saved Information:** Store user details, such as name, username, password, and payment information, in the system's database for faster transactions.

### **Technical Implementation**

- **Java GUI:** The application utilizes Java's graphical user interface (GUI), ensuring an interactive user experience.
- **Database Integration:** A backend database stores information about movies, theaters, users, seats, transactions and more.
- **Payment System:** Includes credit card validation for transactions.
- **Seat Management:** Dynamically updates seat availability and enforces the 10% seat allocation rule for RUs.
- **Cancellation Policy Enforcement:** Tracks ticket purchases and calculates refund credits based on admin fee policy.

- **Email Integration:** Automatically sends tickets and receipts to the user's registered email address upon successful payment.

#### **Advantages**

- The system provides a seamless experience for both ordinary and registered users.
- RUs enjoy enhanced privileges and exclusive benefits.
- The seat allocation rules ensure fairness while maintaining priority access for RUs.
- A well-designed GUI improves usability and accessibility, making the ticket reservation process smooth and efficient.

# Use Case Diagram



User/Registered User uses **Browsers movie**: User is able to see available movies and browse what they would like to watch.

User/Registered User uses **select theatre/movies**: Users are able to select a movie at a selected theater and view available showtimes, if there are no available showtimes, the user will not be able to select the theatre or movie.

User/Registered User uses **view seats**: Users are able to view the available seats set in the menu.

User/Registered User uses **select seats**: Users are able to select any available seats, the registered user will be able to get priority on up to 10% of the seats before regular users are able too.

User/Registered User uses **payment**: Once users have selected the seats to the movie, they will have to go through with payment where the information is saved onto our database with their necessary information.

User/Registered User uses **receipt**: users are able to receive the details of their purchase through their "email", this is done through our email system which accesses the users information and gives them data.

User/Registered User uses **cancel ticket**: If users want a refund they will be able to get their refund accordingly, regular users lose about 15% (85% refund). While registered users through our app receive a full refund. Refund is communicated through our email system as well as their payment info

Registered user uses **Login**: Registered users are able to log into their account and access benefits exclusive to their tier.

Registered user uses **Annual fees**: Registered users must pay an annual fee to be eligible for the app, paying the fee gives them access to our many services. This will go through our payment system to verify that they have paid the fee and can access the registered users benefits.

Admin uses **Add Movies**: Admin is able to add movies onto the application

Admin uses **Remove Movies**: Admin is able to remove movies from the application

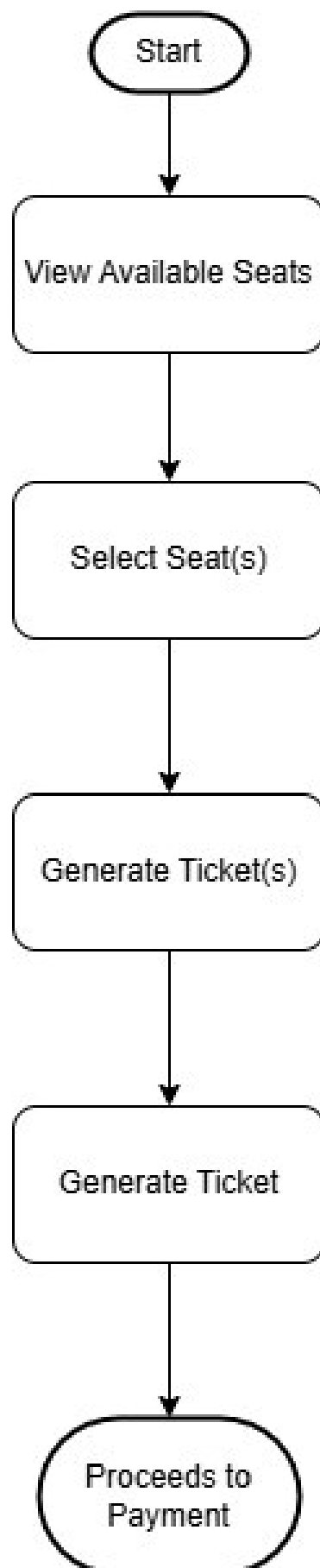
Admin uses **Modify Movies**: Admin is able to change movies and the information within it

Admin uses **Add Shows**: Admin is able to add showtimes to a movie onto the application

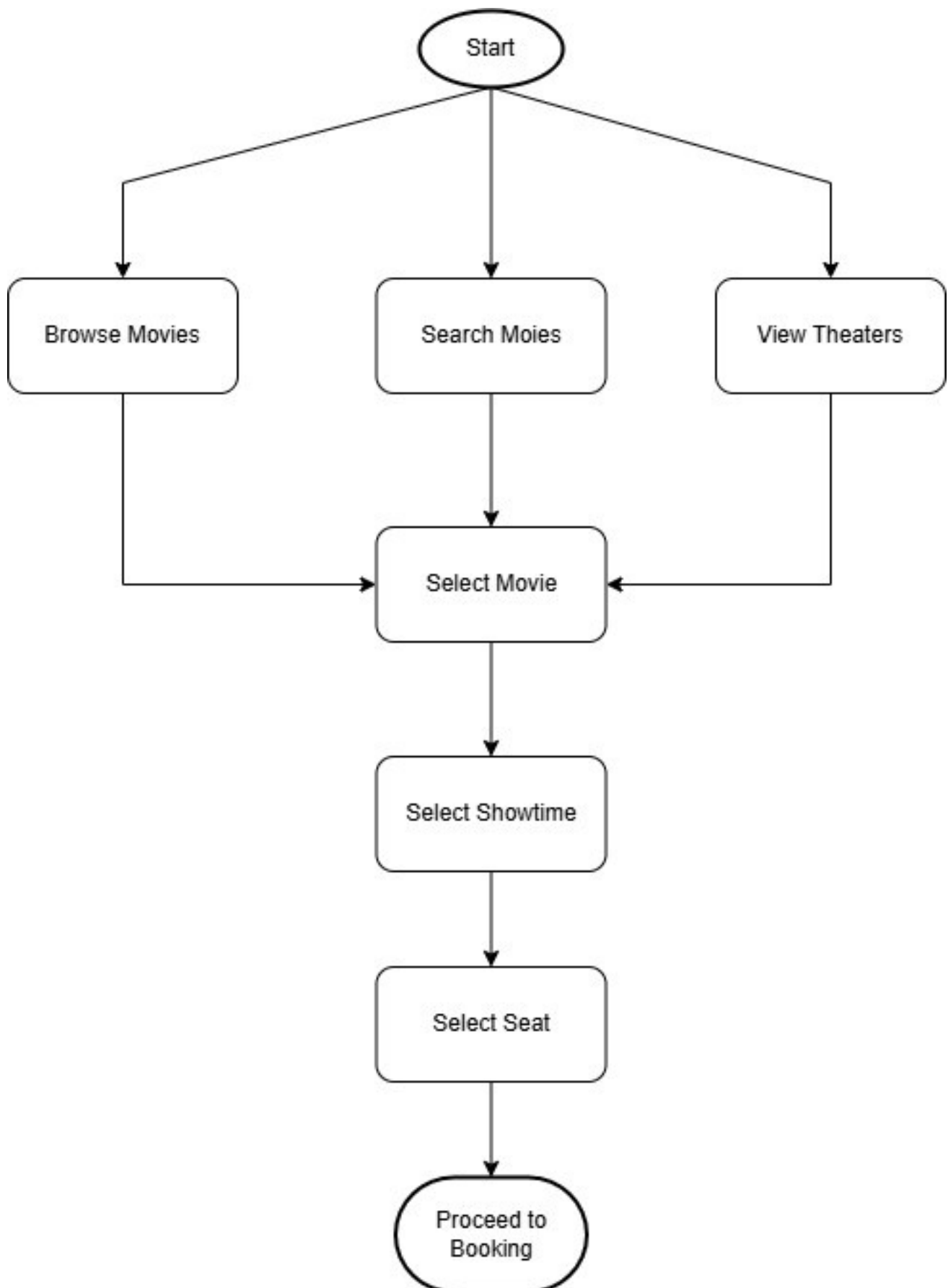
Admin uses **Remove Shows**: Admin is able to remove showtimes from a movie in the application

Admin uses **Modify Shows**: Admin is able to change any movie showtimes and the information within it said time

## System Activity Diagram – Booking

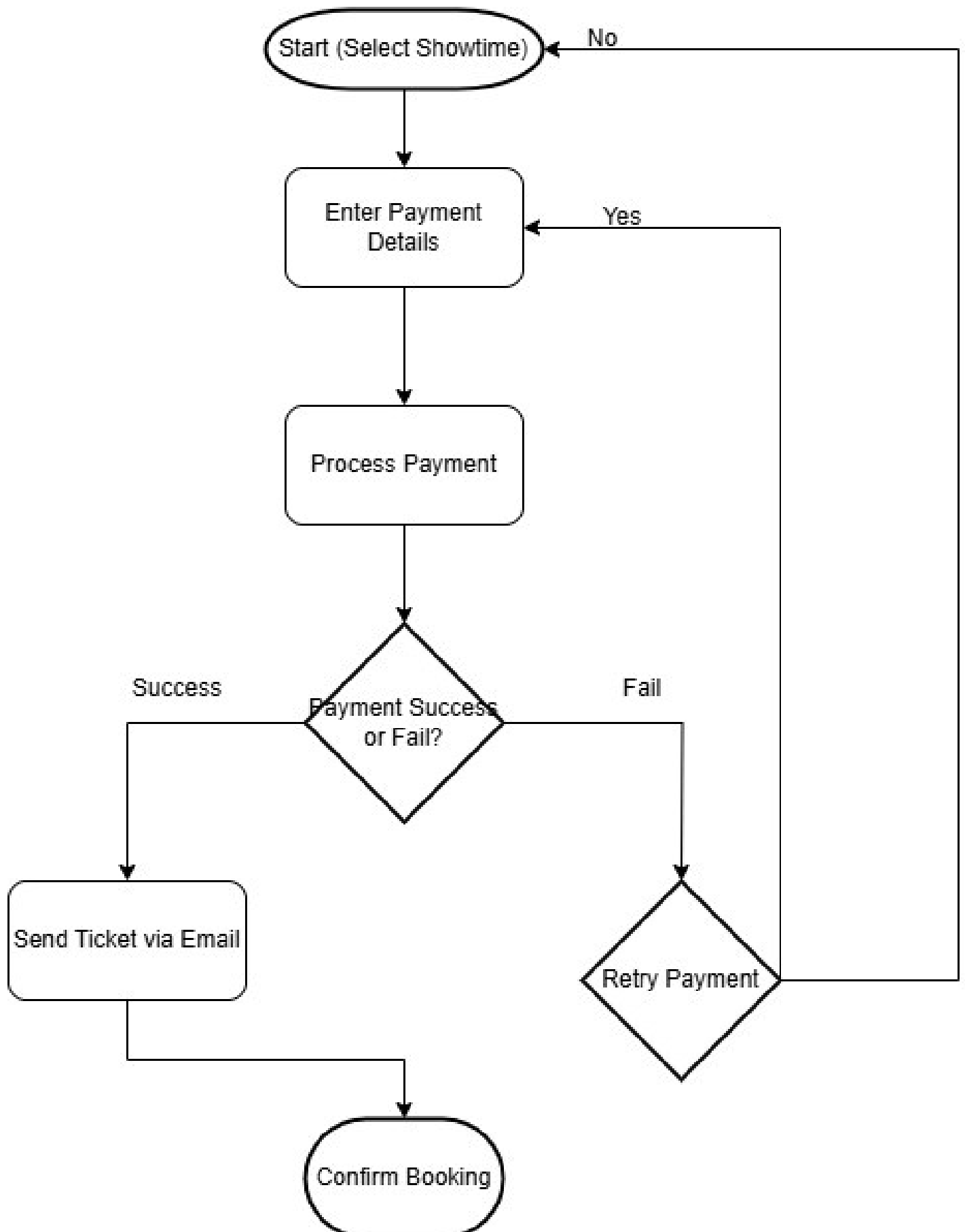


## System Activity Diagram – Browsing

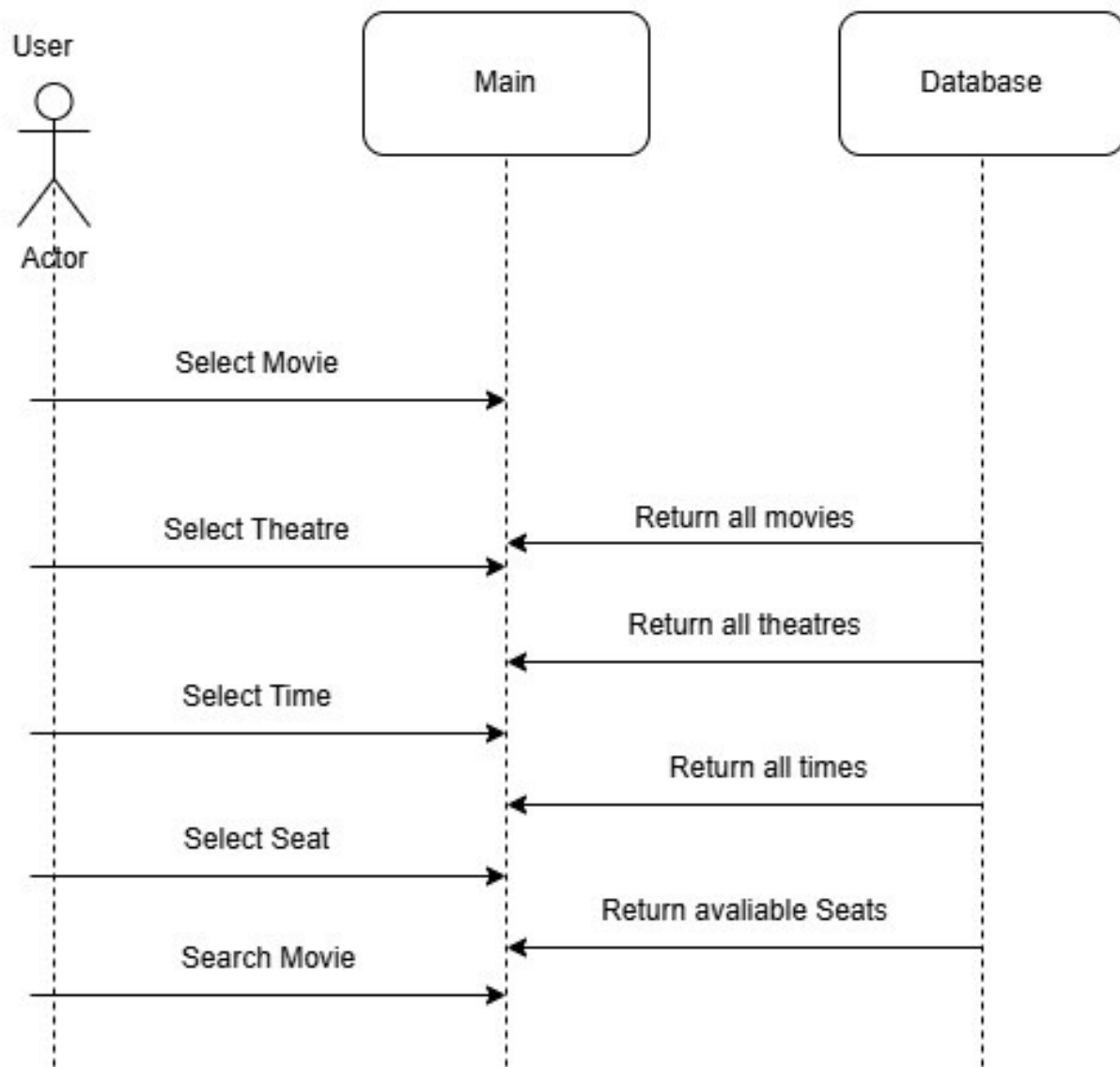




## System Activity Diagram – Payment

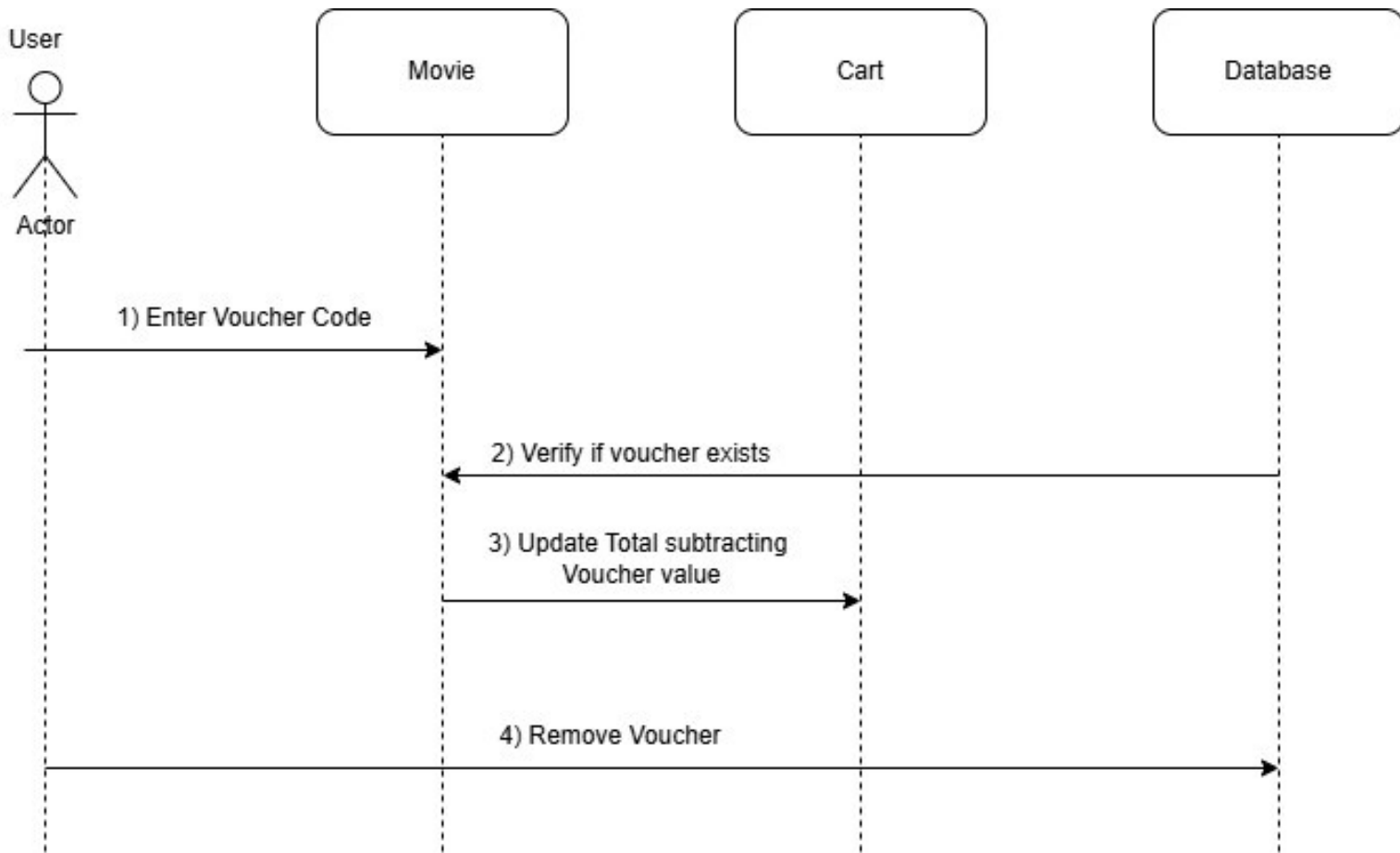


## Select/Search Movies, Theatres, Showtimes, Seats interaction diagram



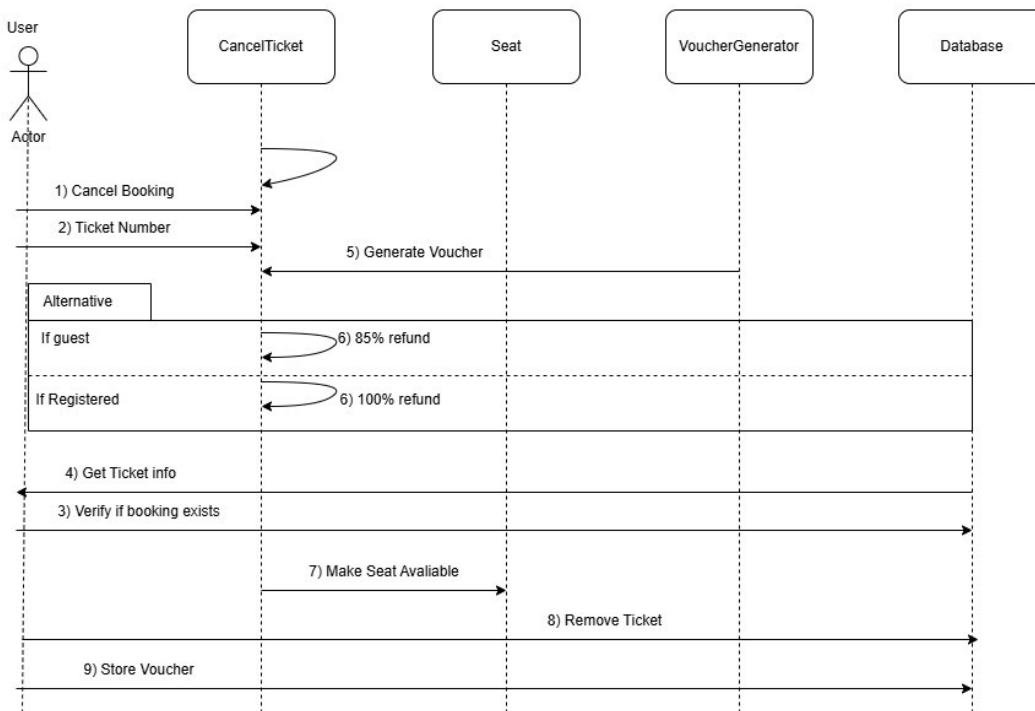
By: Taiwu Chen

## Voucher redeeming interaction diagram



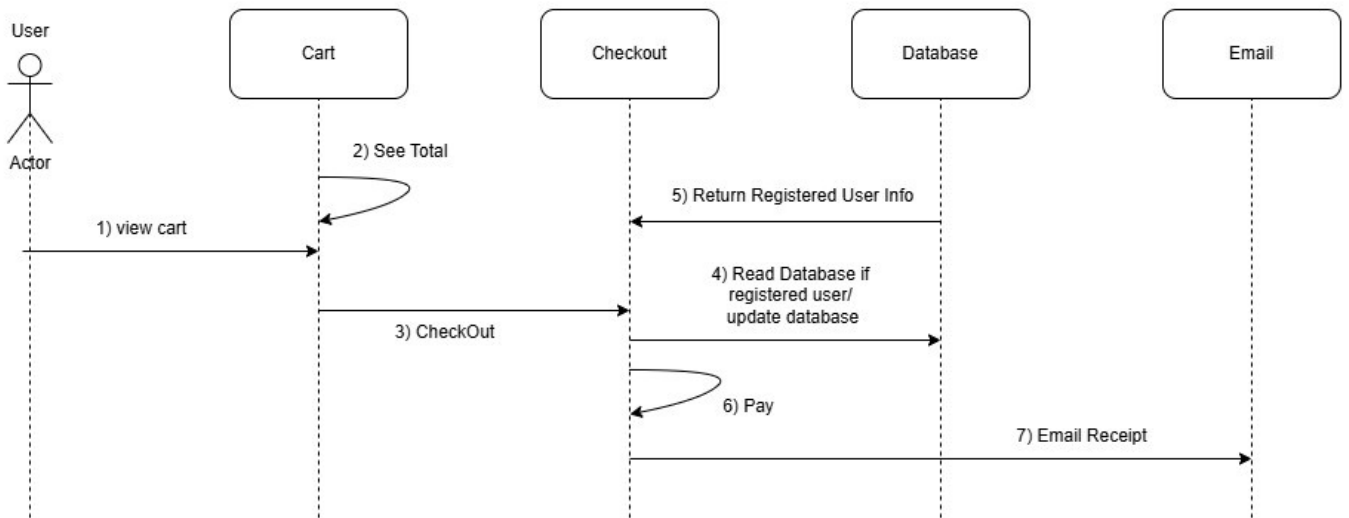
By: Younnus Iman

## Cancel Ticket interaction diagram



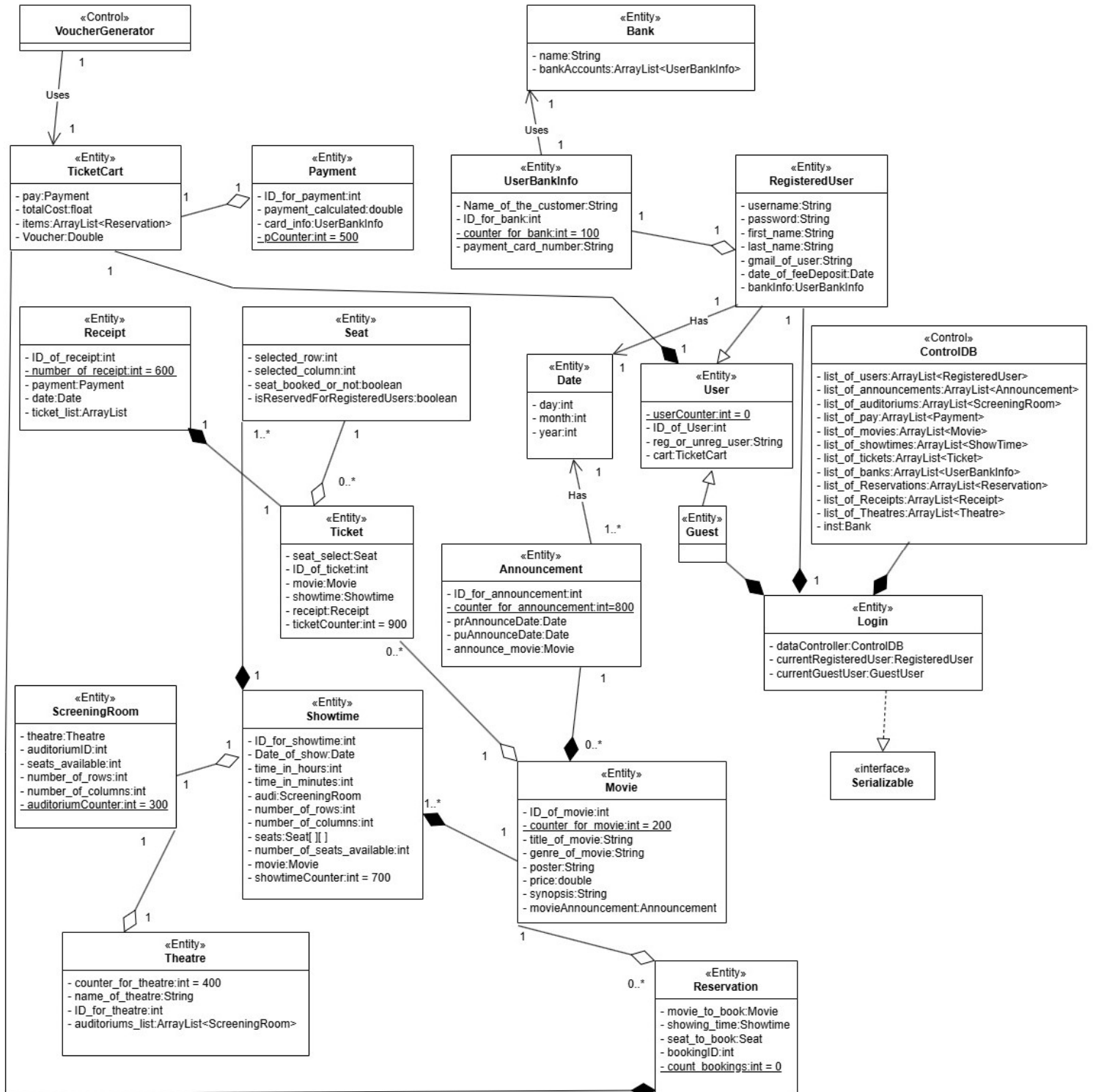
By: Abdul Rafay

## Payment interaction diagram

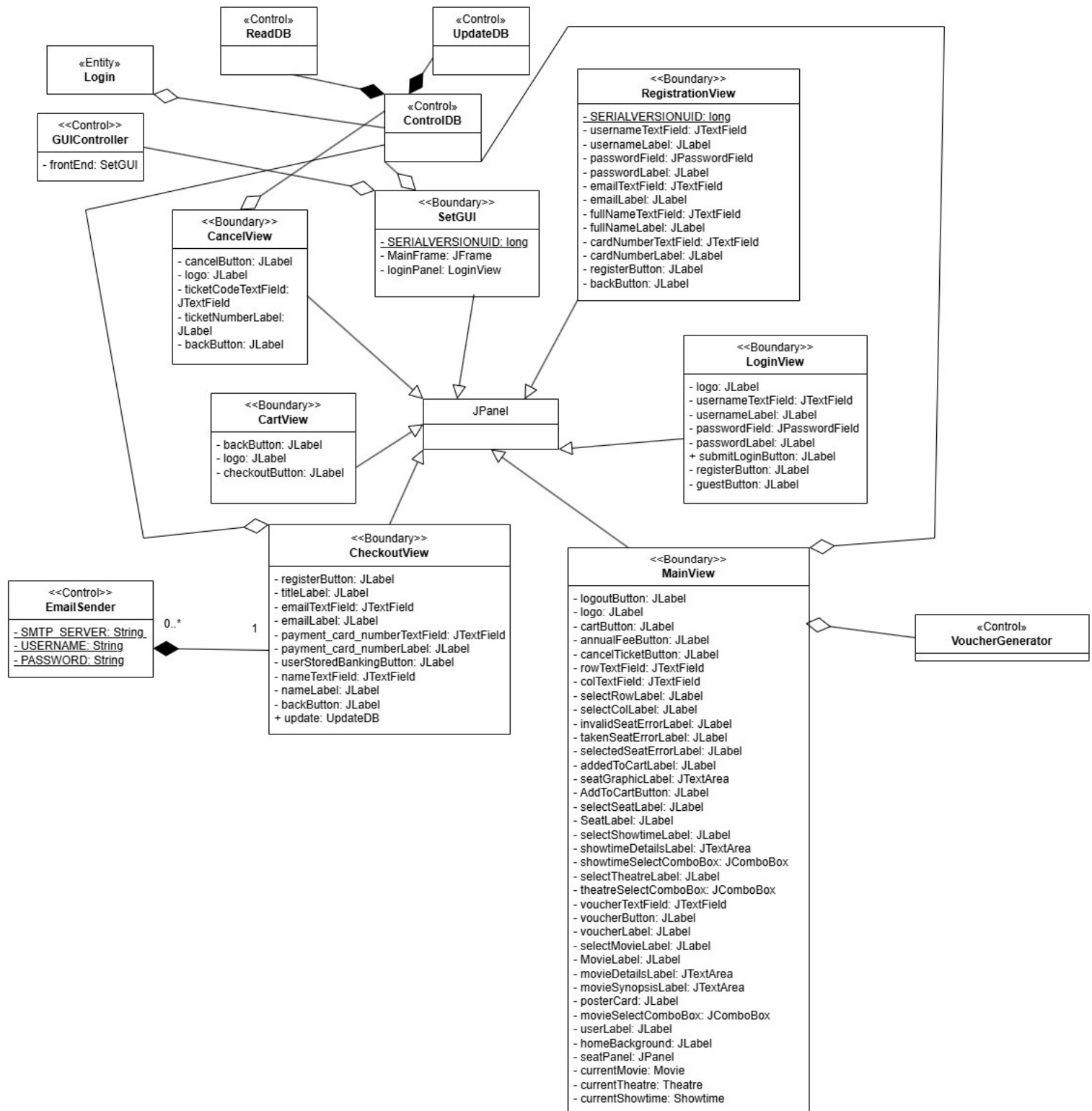


By: Mohammed Azmath Khan

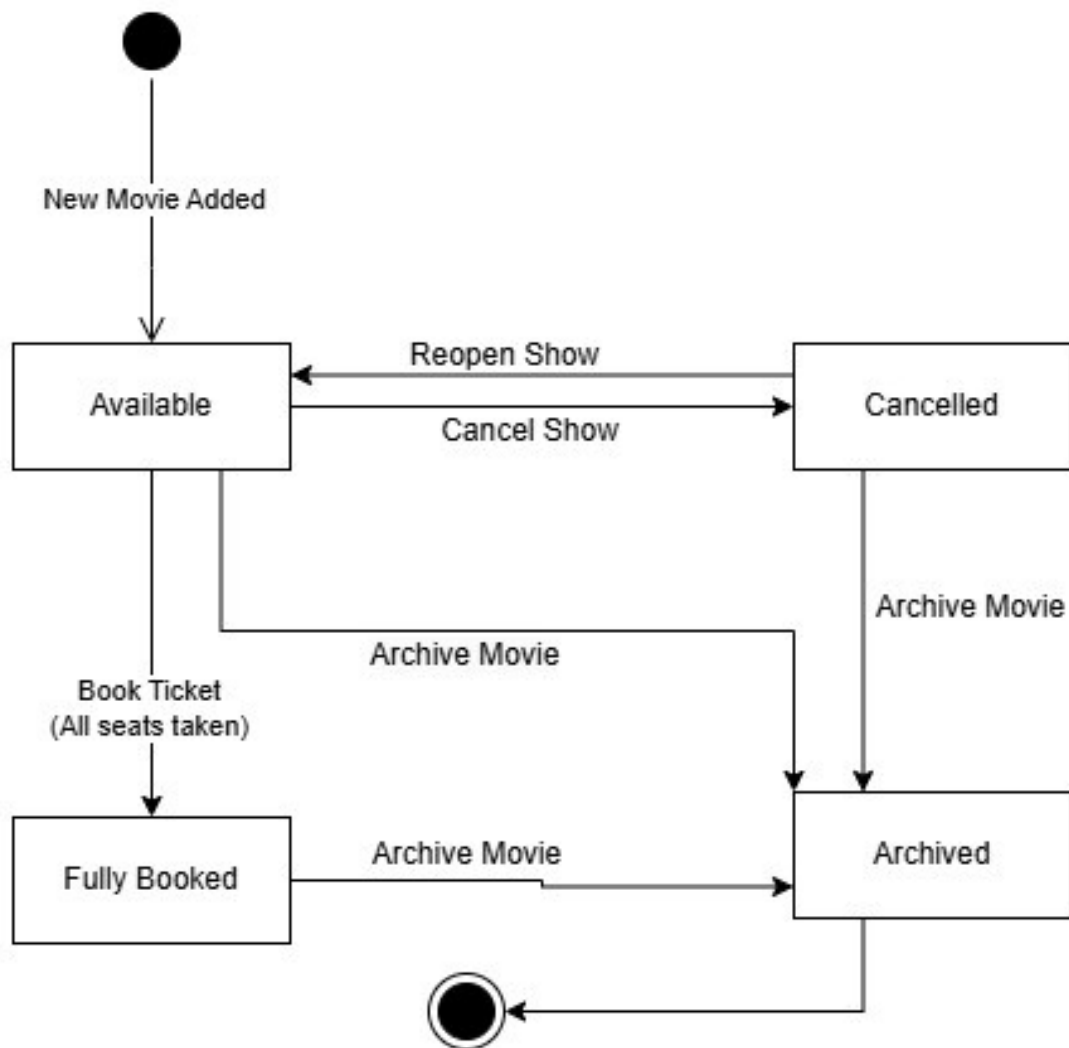
# Domain Layer Class Diagram



# Presentation Layer Class Diagram

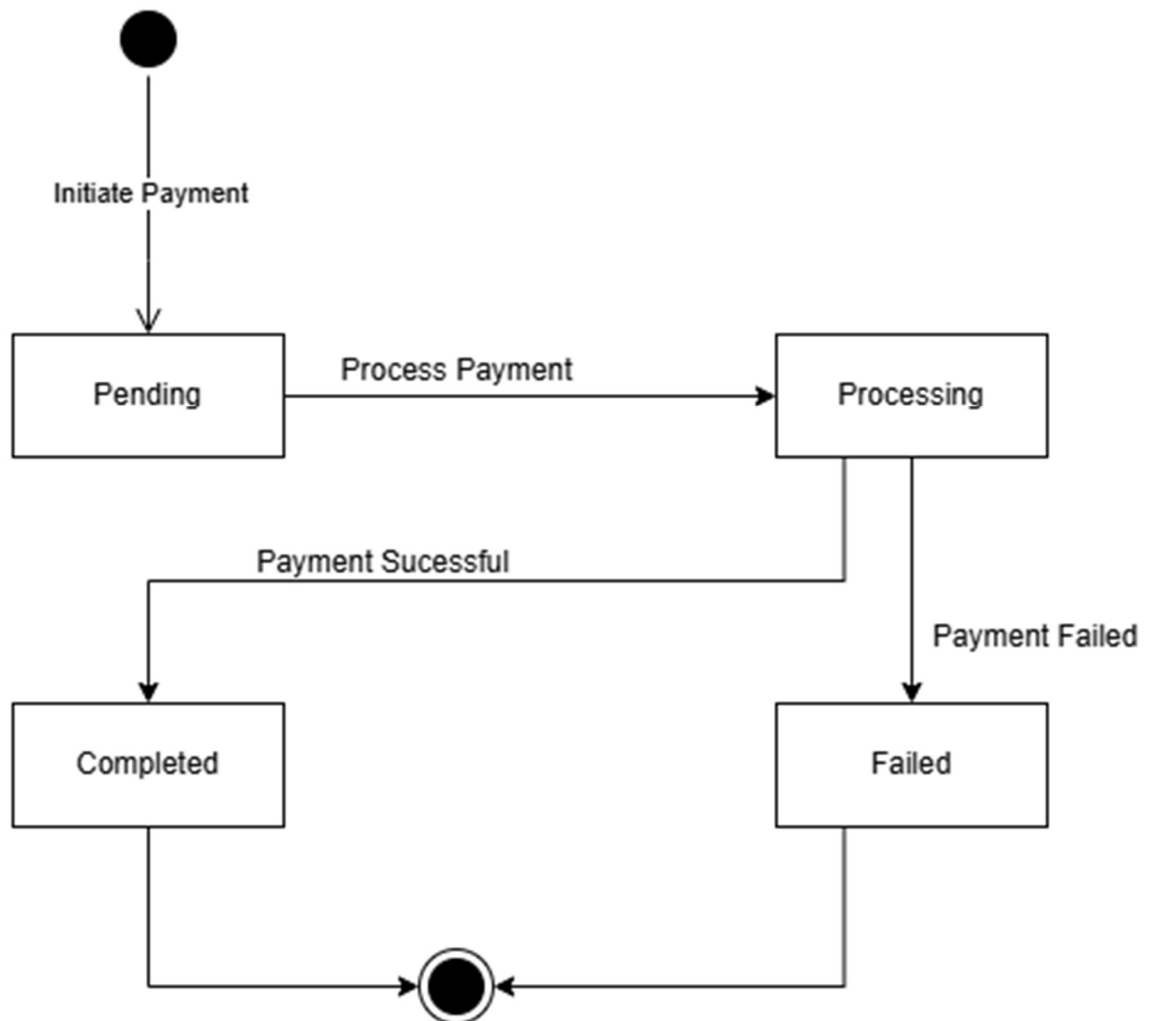


## Movie State Diagram

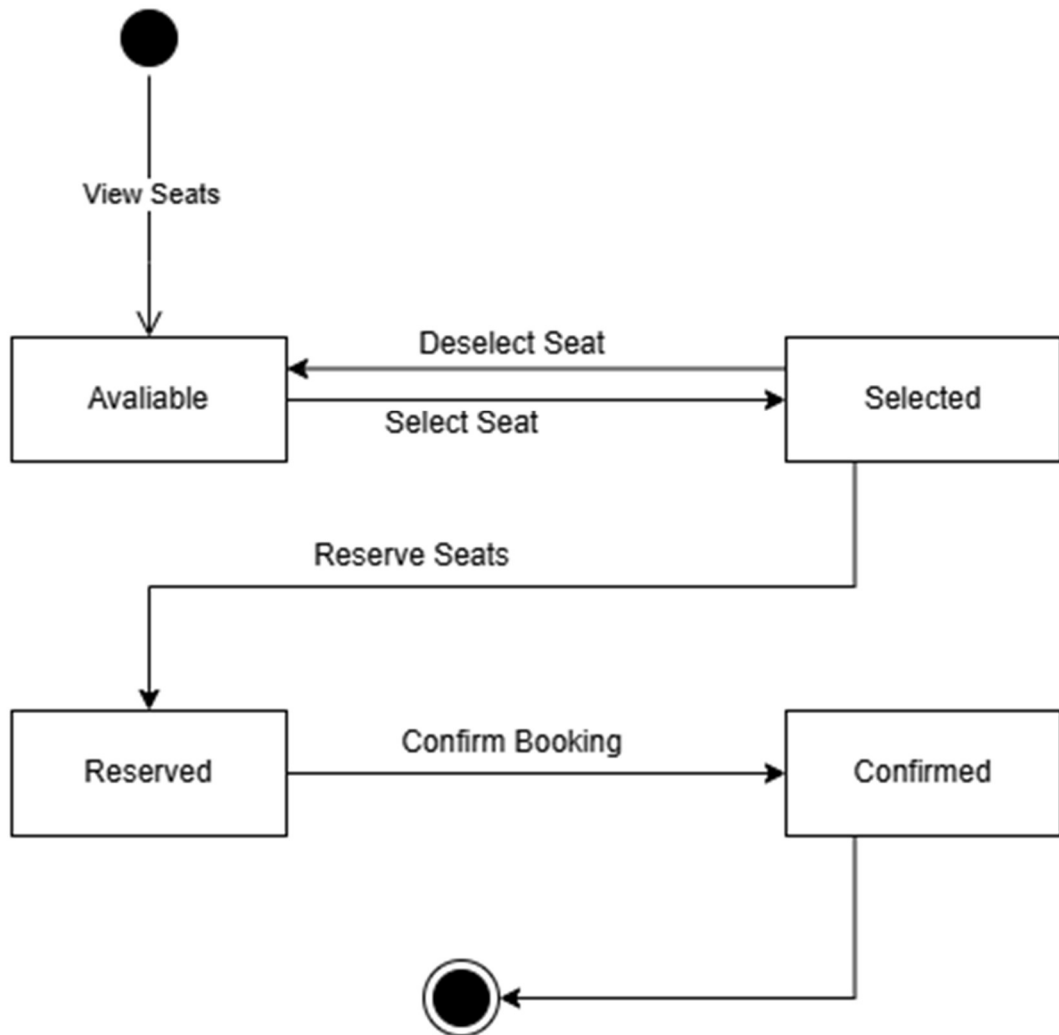




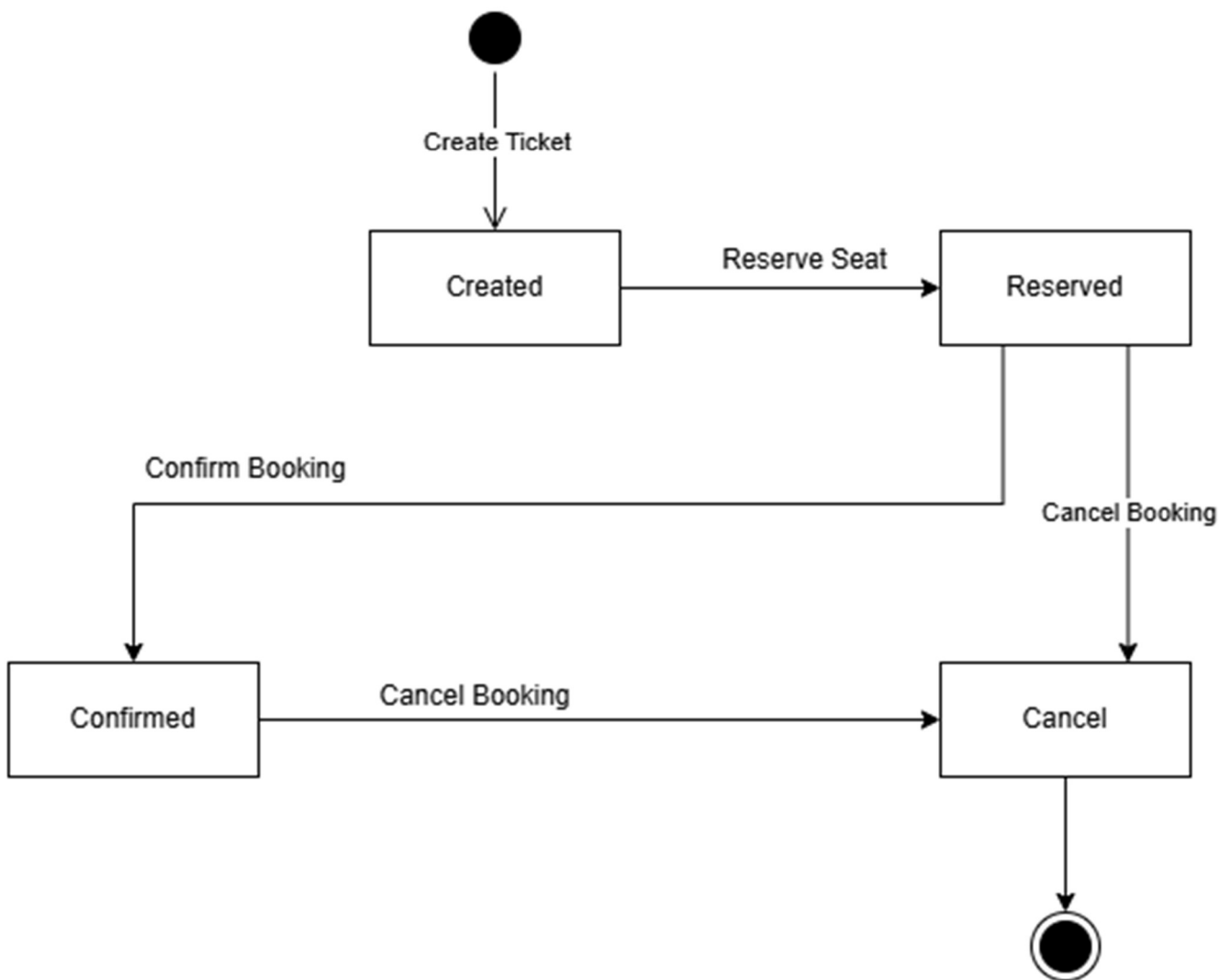
## Payment Process State Diagram



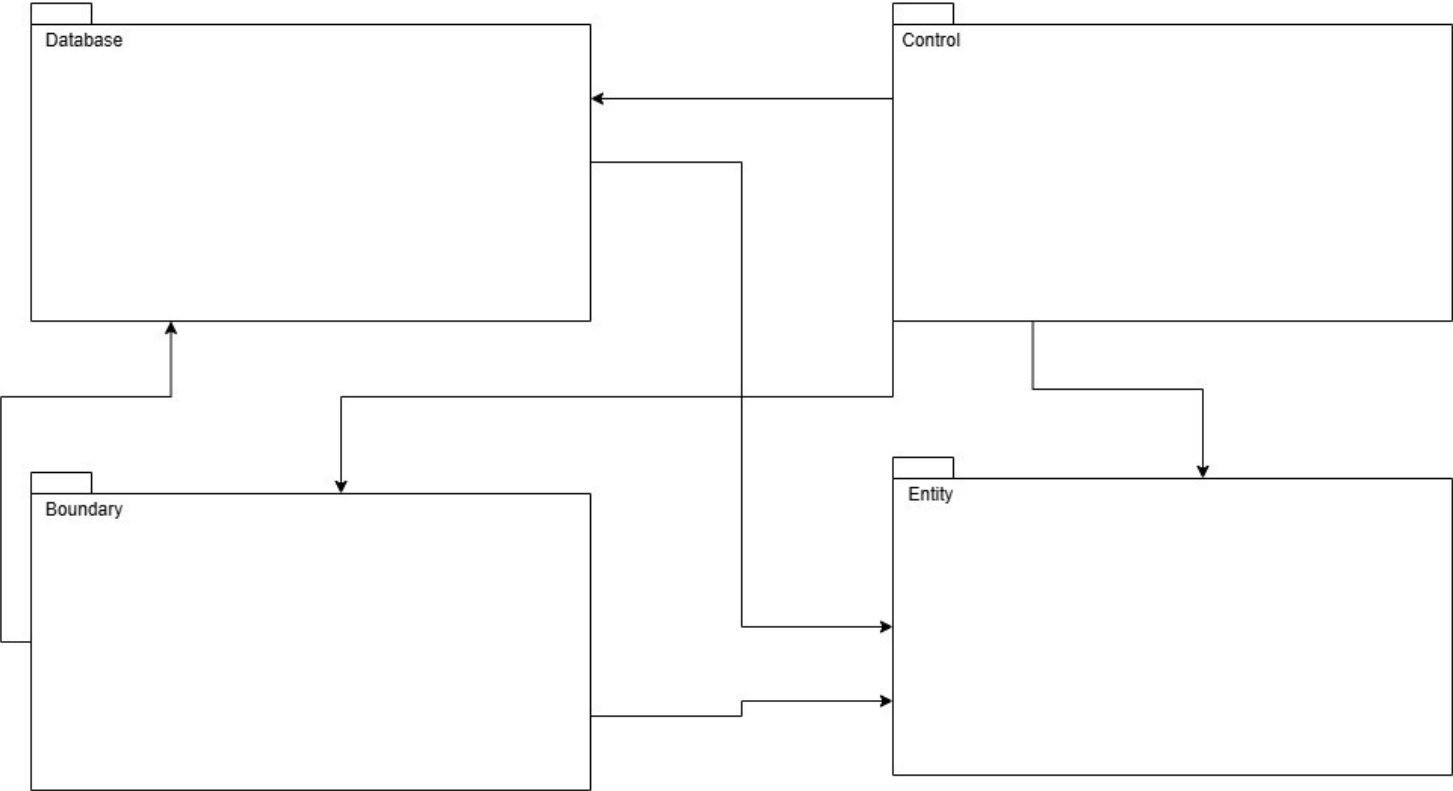
## Seat Selection State Diagram



## Ticket State Transition Diagram



# Package Diagram



## Deployment Diagram

