# OOP Group 5 - Subgroup A

## Airline Reservation System

# Group Members

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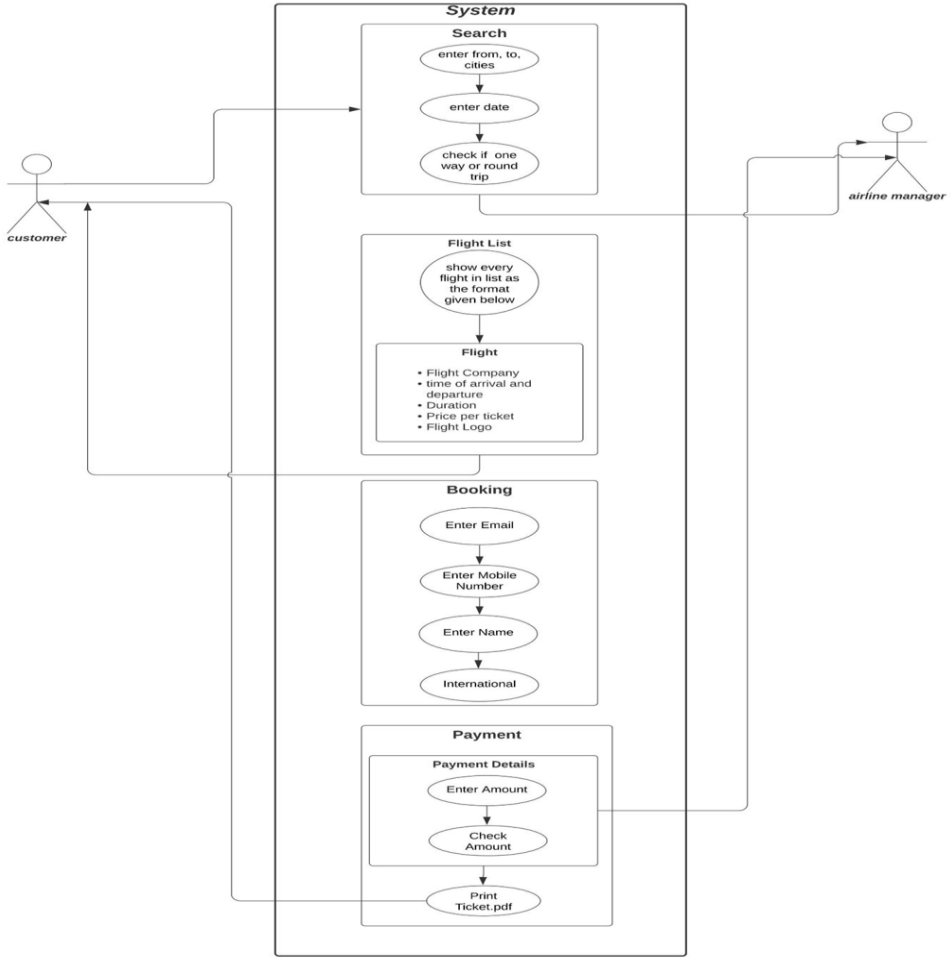
# Use Case diagram for Airline Reservation System



# Brief Description

Online airline ticketing saves time and money for the customer as well as the airline company thereby making air travel more customer-centric. This project is an attempt to simulate the basic concepts of an airline reservation system.

Our airline ticket reservation system has the following features:-

- Customers can:

➢ Create an account
➢ Search for available flights for a particular city-pair
➢ Book tickets in the class of their choice
➢ Cancel booked tickets
➢ View booked tickets history

# Brief Description

- Flights can be sorted according to price, number of stops and duration.
- For international flights, the customers will be redirected to fill in VISA and passport details.
- If a customer is a student, the person gets an additional discount.

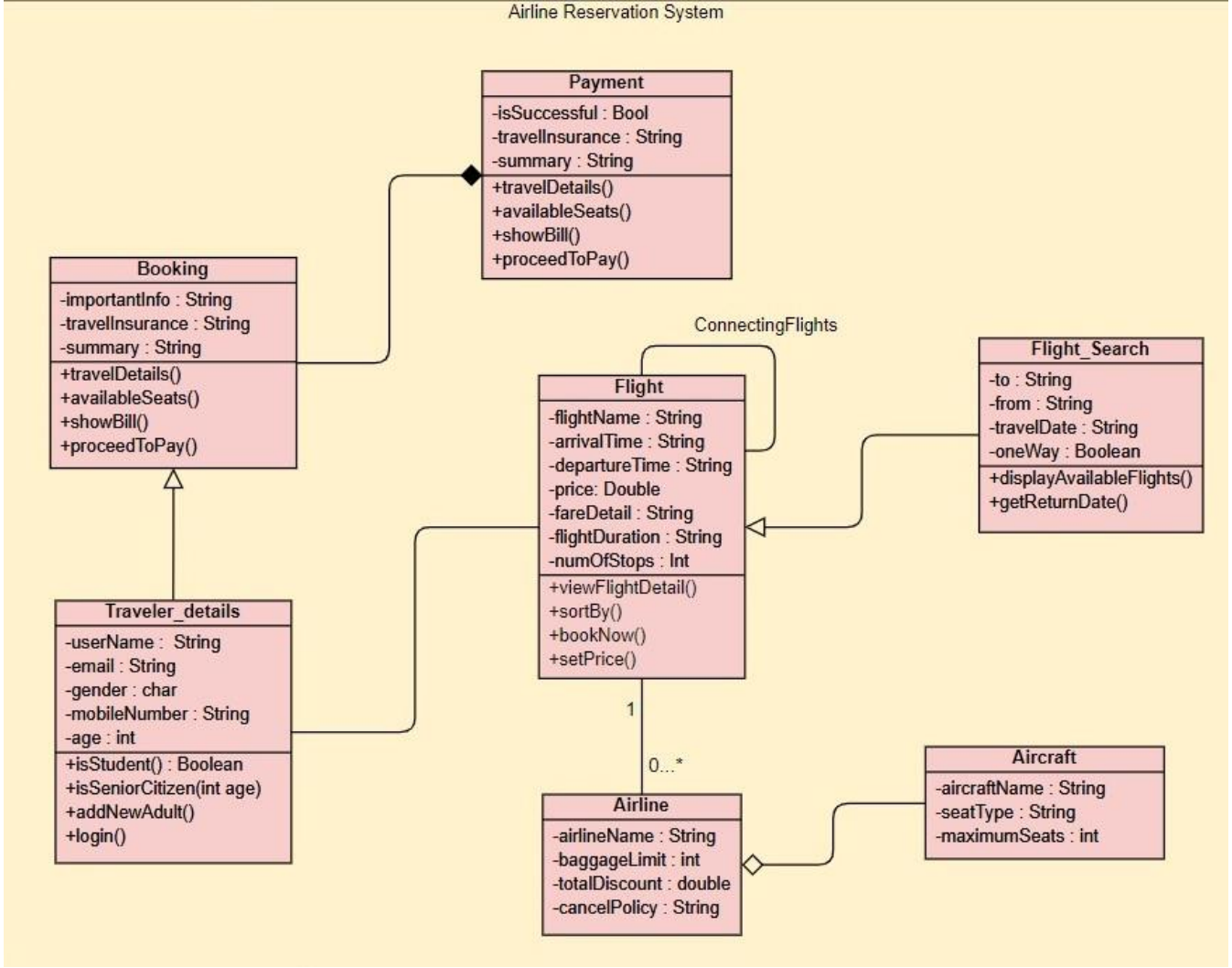
# Use Case Specification

| | |
|---|---|
| Number | 1 |
| Name | Search flight |
| Summary | User searches for the flights available from the destination |
| Preconditions | User has visited the website |
| Postconditions | User has selected both the places for start and end of journey |
| Primary Actor(s) | Passenger |
| Secondary Actor(s) | Airport Database |
| Trigger | The user has accessed the airline reservation website and is searching for flight. |

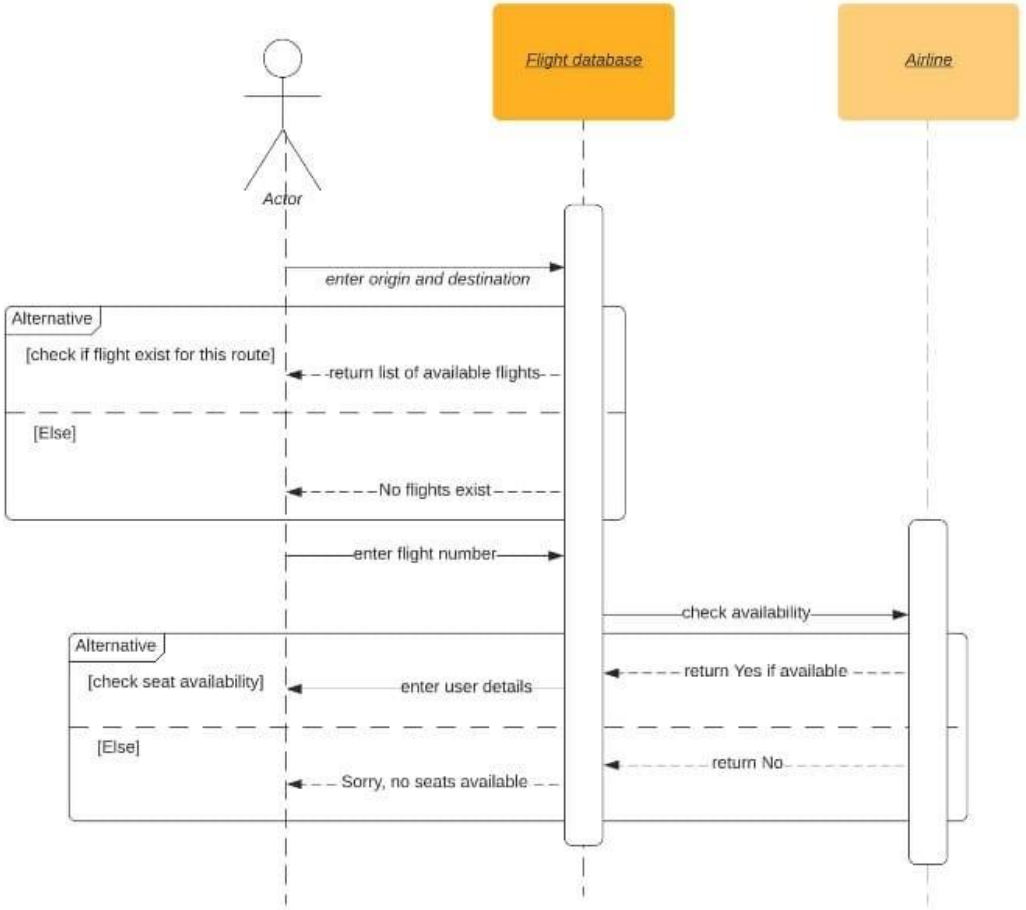
| Main Scenario | Step | Action |
|---|---|---|
| | 1 | User selects both the origin and destination of air travel from the list |
| | 2 | A list of airlines with flight times and prices is displayed |
| | 3 | User selects the convenient flight with reasonable price |
| | 4 | Airline database checks for available seats |
| | 5 | User books number of seats according to availability |
| | 6 | User is redirected to enter details |
| Extensions | Step | Branching Action |
| | 5 a | Not enough seats are available, returns user to step 2 |

| | | |
|---|---|---|
| Number | 2 | |
| Name | User details | |
| Summary | User enters details (Email id, mobile number, name, student or not) | |
| Preconditions | User has selected the flight | |
| Postconditions | User has entered details | |
| Primary Actor(s) | Passenger | |
| Secondary Actor(s) | Airline Manager | |
| Trigger | The user has finalized the selection of the flights and has clicked “Enter details”. | |
| Main Scenario | Step | Action |
| | 1 | An empty form with fields is displayed |
| | 2 | User enters details |
| | 3 | Details are recorded and user is directed to make payments |
| Extensions | Step | Branching Action |
| | 3a | User selects an International flight |
| | 3b | System directs the user to enter VISA and Passport details |

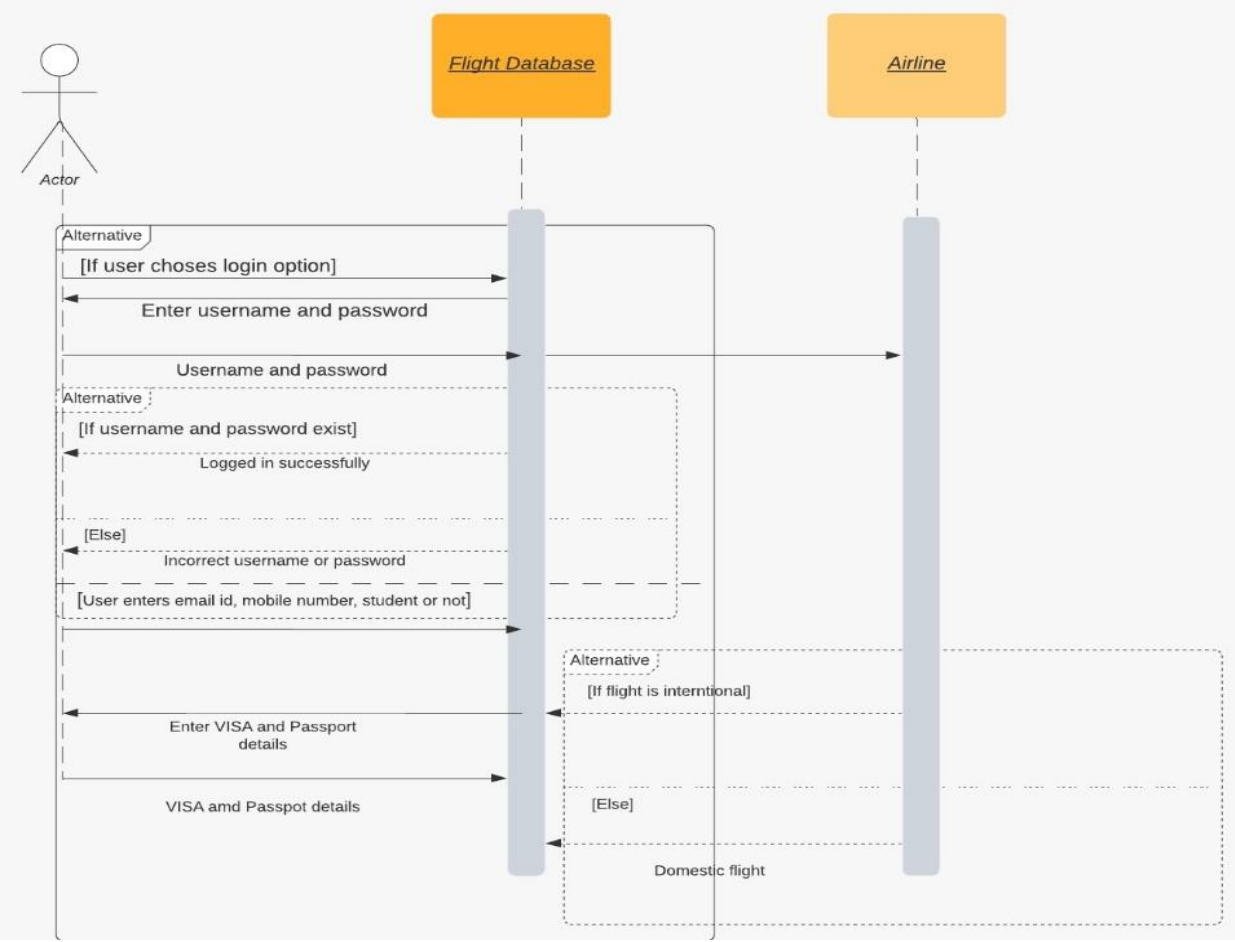
| | | |
|---|---|---|
| Number | 3 | |
| Name | Payment | |
| Summary | User enters amount to be paid | |
| Preconditions | User has selected flight and entered details | |
| Postconditions | User has made the payment, receives receipt | |
| Primary Actor(s) | Passenger | |
| Secondary Actor(s) | Admin, Payment Gateway | |
| Trigger | User has clicked the ‘Pay Fare’ button | |
| Main Scenario | Step | Action |
| | 1 | Payment window is shown to the user |
| | 2 | User is prompted to select UPI as payment option |
| | 3 | User enters his/her UPI ID in the field and makes payment |
| | 4 | Ticket is generated and receipt is shown to the user |
| Extensions | Step | Branching Action |
| | 3 b | If UPI ID is invalid, return to step 2 |


Airline Reservation System
Payment
-isSuccessful : Bool
-travelInsurance : String
-summary : String
+travelDetails()
+availableSeats()
+showBill()
+proceedToPay()
Booking
-importantInfo : String
-travelInsurance : String
-summary : String
+travelDetails()
+availableSeats()
+showBill()
+proceedToPay()
ConnectingFlights
Flight
-flightName : String
-arrivalTime : String
-departureTime : String
-price: Double
-fareDetail : String
-flightDuration : String
-numOfStops : Int
+viewFlightDetail()
+sortBy()
+bookNow()
+setPrice()
Flight_Search
-to : String
-from : String
-travelDate : String
-oneWay : Boolean
+displayAvailableFlights()
+getReturnDate()
Traveler_details
-userName : String
-email : String
-gender : char
-mobileNumber : String
-age : int
+isStudent() : Boolean
+isSeniorCitizen(int age)
+addNewAdult()
+login()
1
0...*
Airline
-airlineName : String
-baggageLimit : int
-totalDiscount : double
-cancelPolicy : String
Aircraft
-aircraftName : String
-seatType : String
-maximumSeats : int

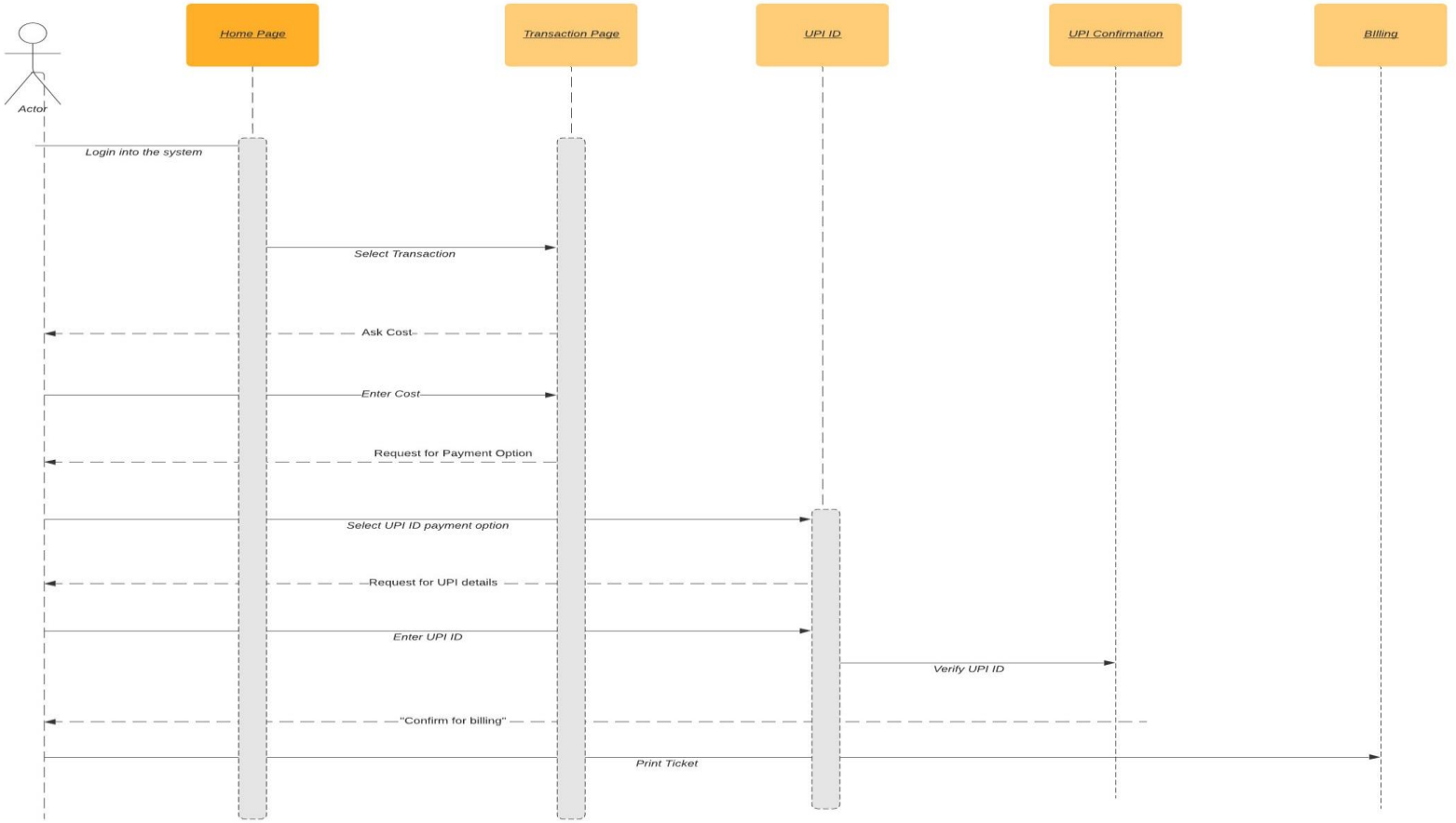
# Sequence Diagram: Search Flights



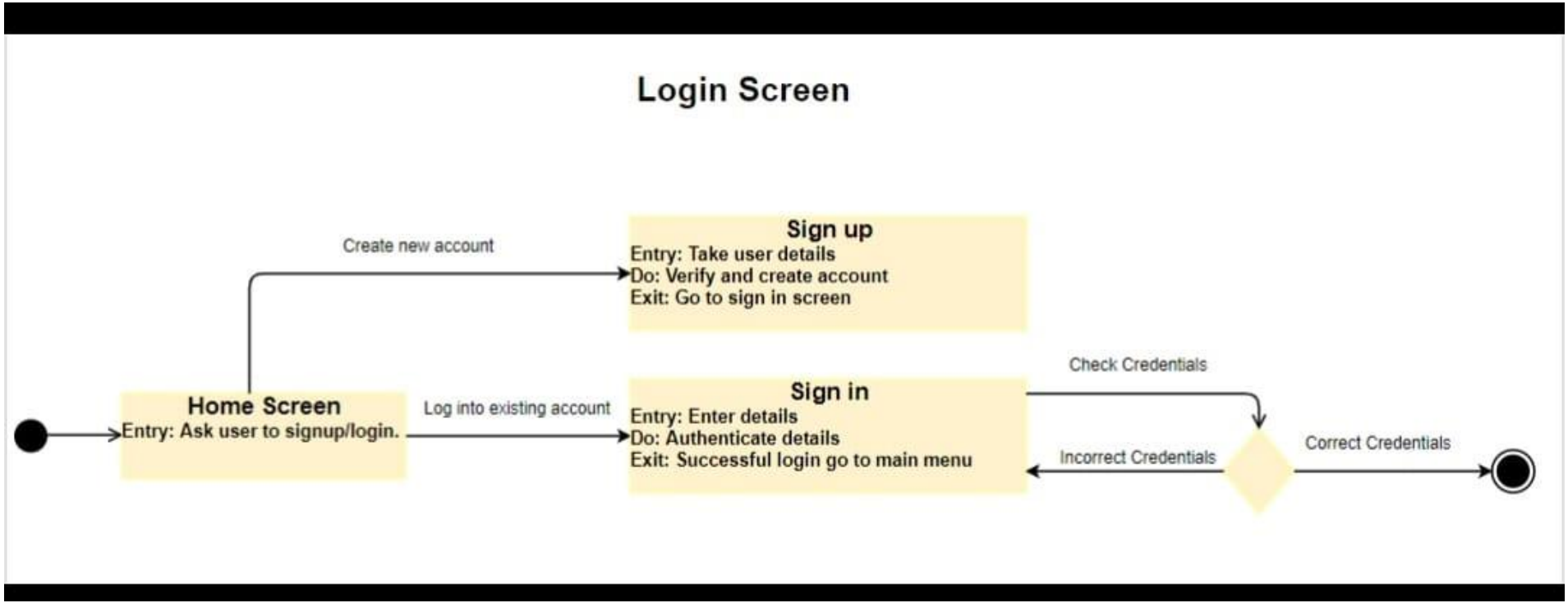
# Sequence Diagram: Login



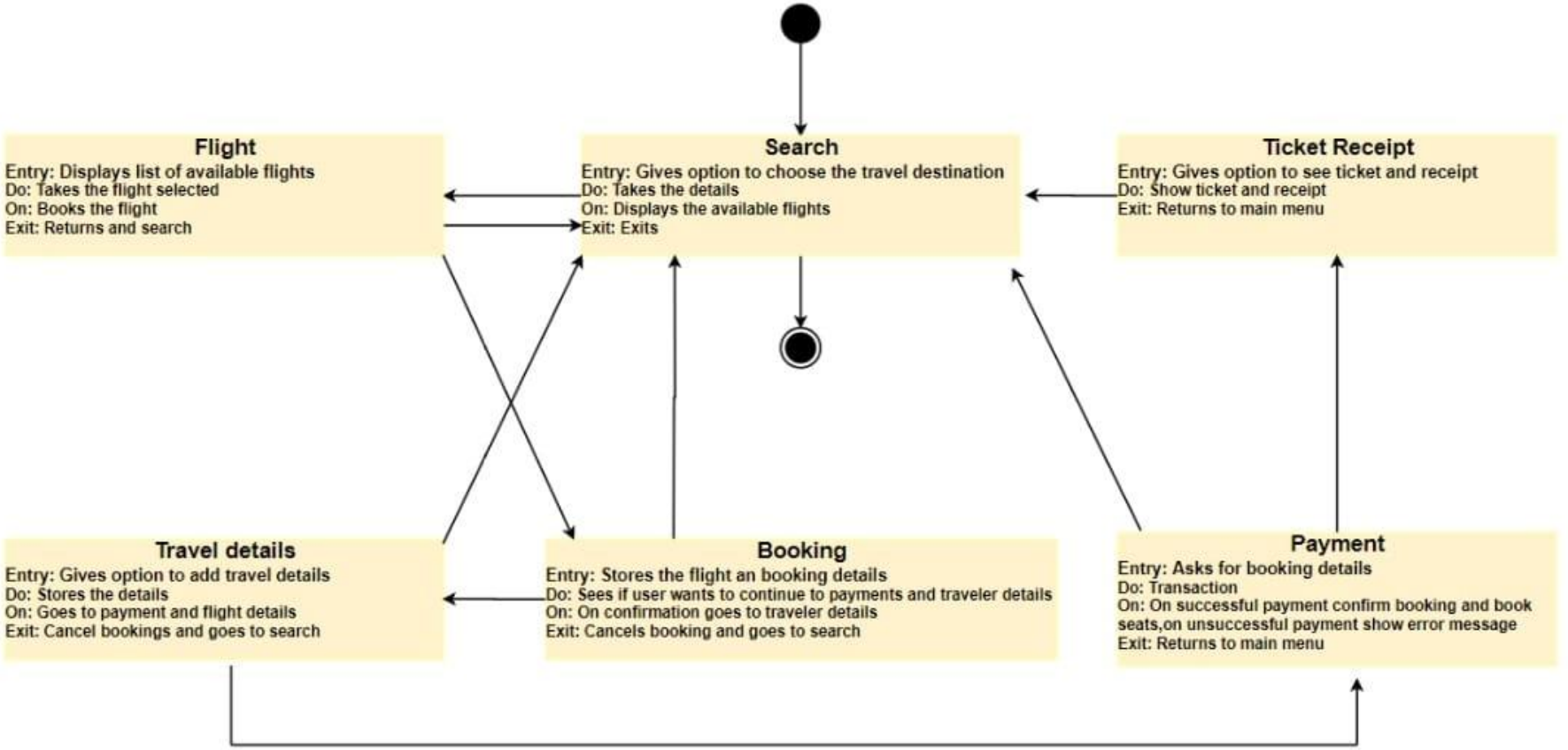
# Sequence Diagram: Payment



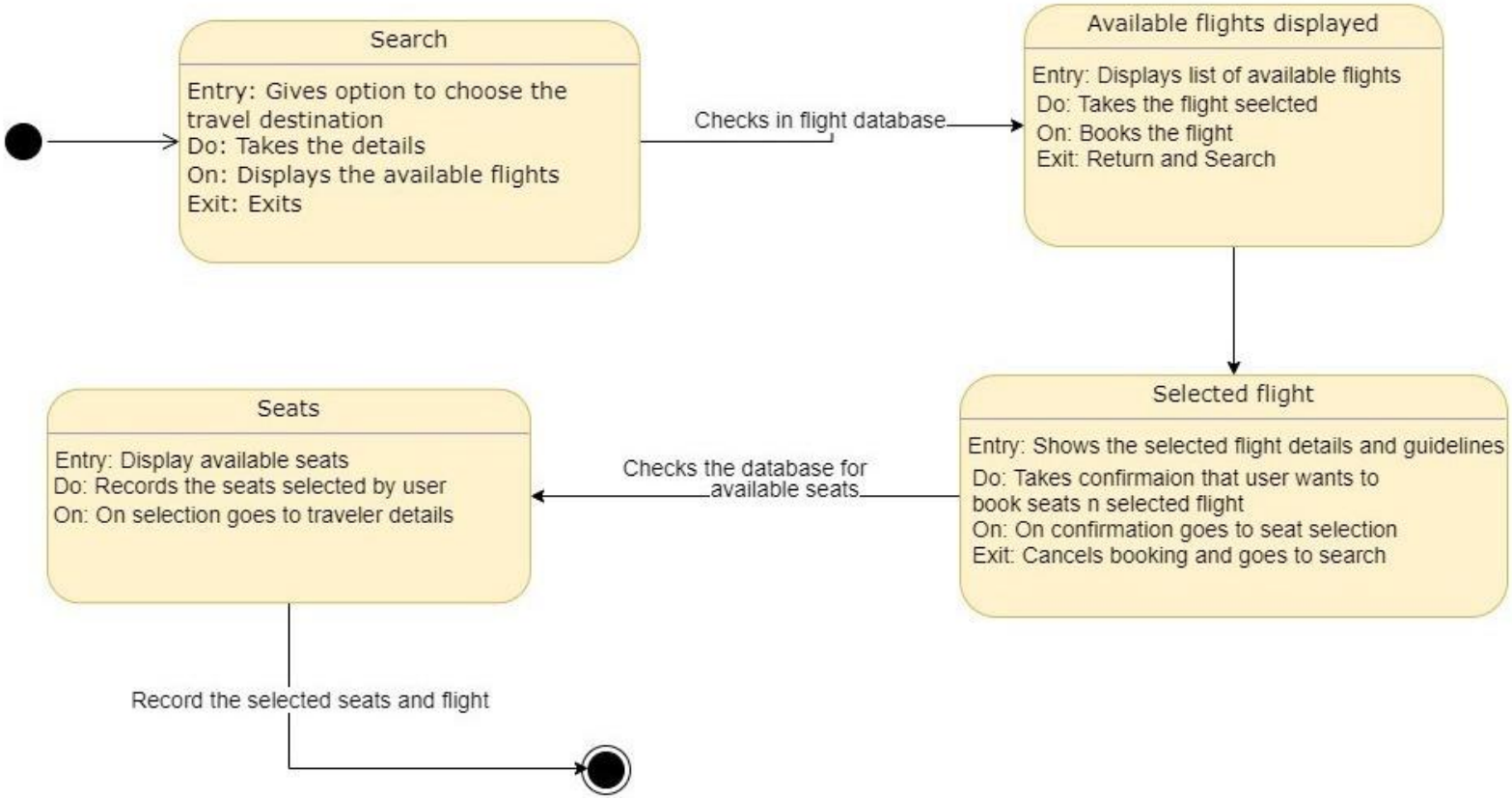
# State-chart Diagrams



# Main Menu

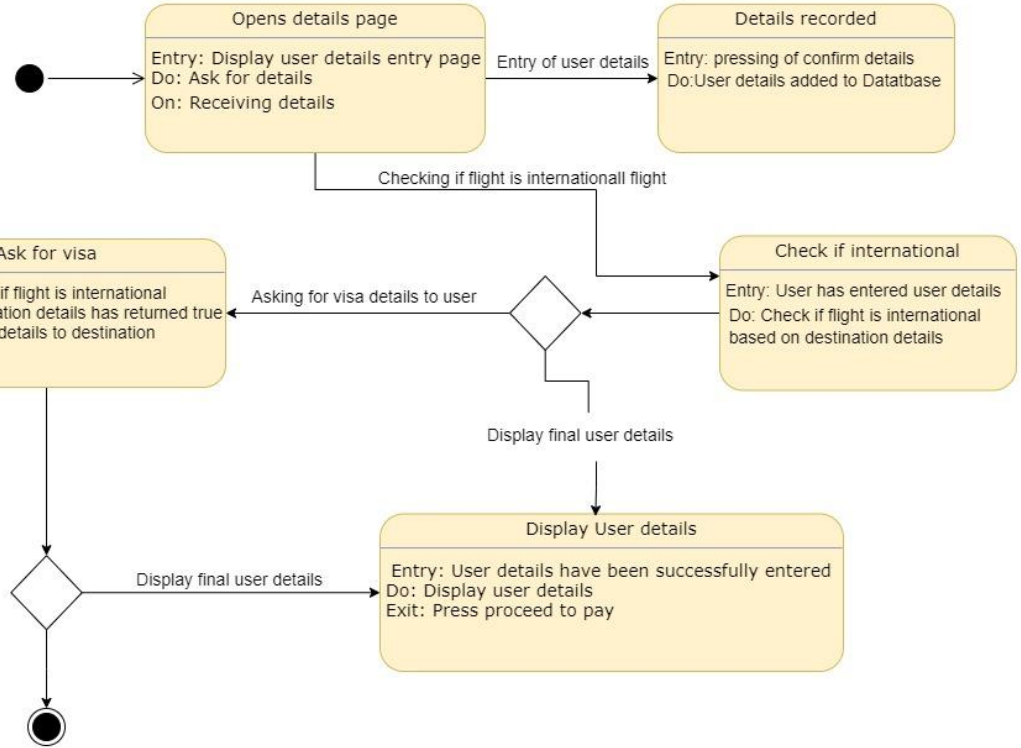

Flight
Entry: Displays list of available flights
Do: Takes the flight selected
On: Books the flight
Exit: Returns and search
Search
Entry: Gives option to choose the travel destination
Do: Takes the details
On: Displays the available flights
Exit: Exits
Ticket Receipt
Entry: Gives option to see ticket and receipt
Do: Show ticket and receipt
Exit: Returns to main menu
Travel details
Entry: Gives option to add travel details
Do: Stores the details
On: Goes to payment and flight details
Exit: Cancel bookings and goes to search
Booking
Entry: Stores the flight an booking details
Do: Sees if user wants to continue to payments and traveler details
On: On confirmation goes to traveler details
Exit: Cancels booking and goes to search
Payment
Entry: Asks for booking details
Do: Transaction
On: On successful payment confirm booking and book seats,on unsuccessful payment show error message
Exit: Returns to main menu

# Search Flights



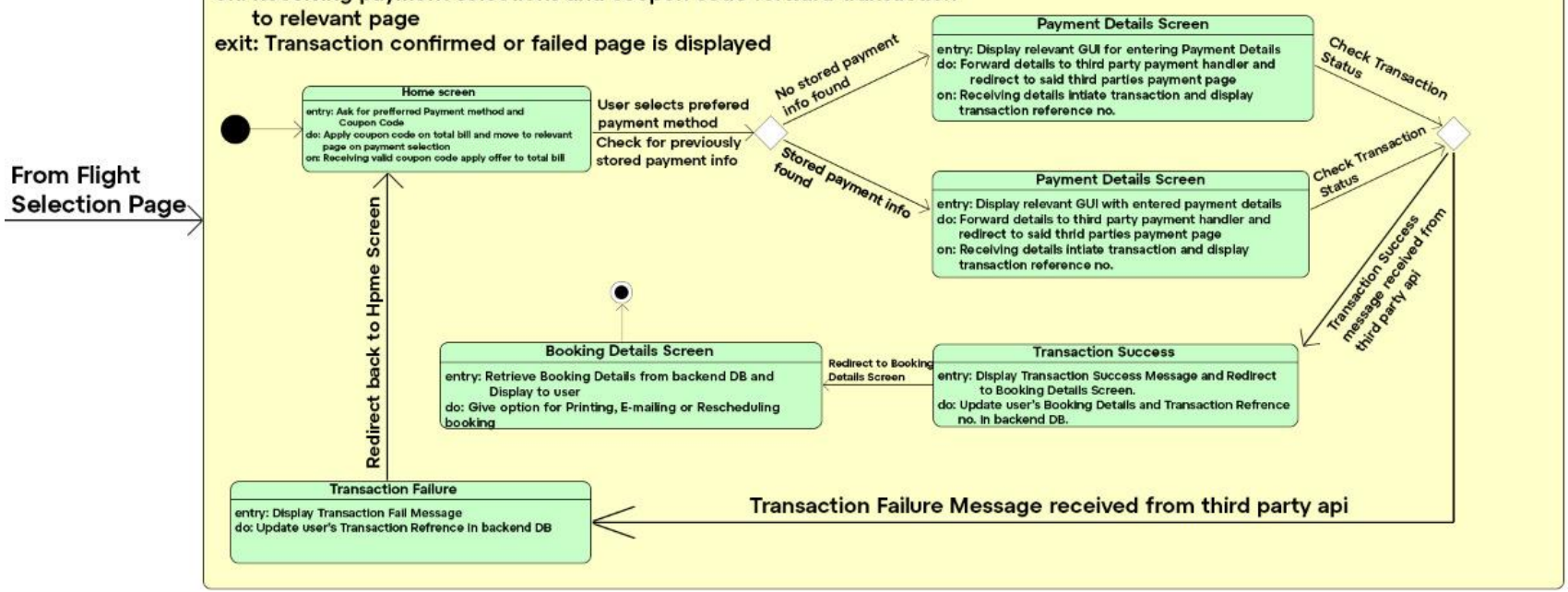
## Displaying User Details

**Entry: Open enter details page asking for user details**
**Do: Ask for user details and confirm them**
**On: Recieving user details check for international travel visa if flight is international**
**Exit: User details confirmed and Proceed To Pay button is selected**



# Payment Screen

entry: Payment options are displayed and Coupon codes if any held are asked
do: Ask for Payment options and Coupon Codes
on: Receiving payment selections and coupon code forward transaction to relevant page
exit: Transaction confirmed or failed page is displayed



# Scenarios of Use

Success scenario 1(a): 1. User searches domestic flight successfully.

2. (a) User enters details or

(b) User uses login option.

3. User makes successful payment.

Success scenario 1(b): 1.User searches international flight successfully.

2. (a) User enters details and passport, VISA or

(b) User uses login option and enters passport, VISA.

3. User makes successful payment.

Unsuccessful scenario 1: 1. User searches for domestic flights successfully.

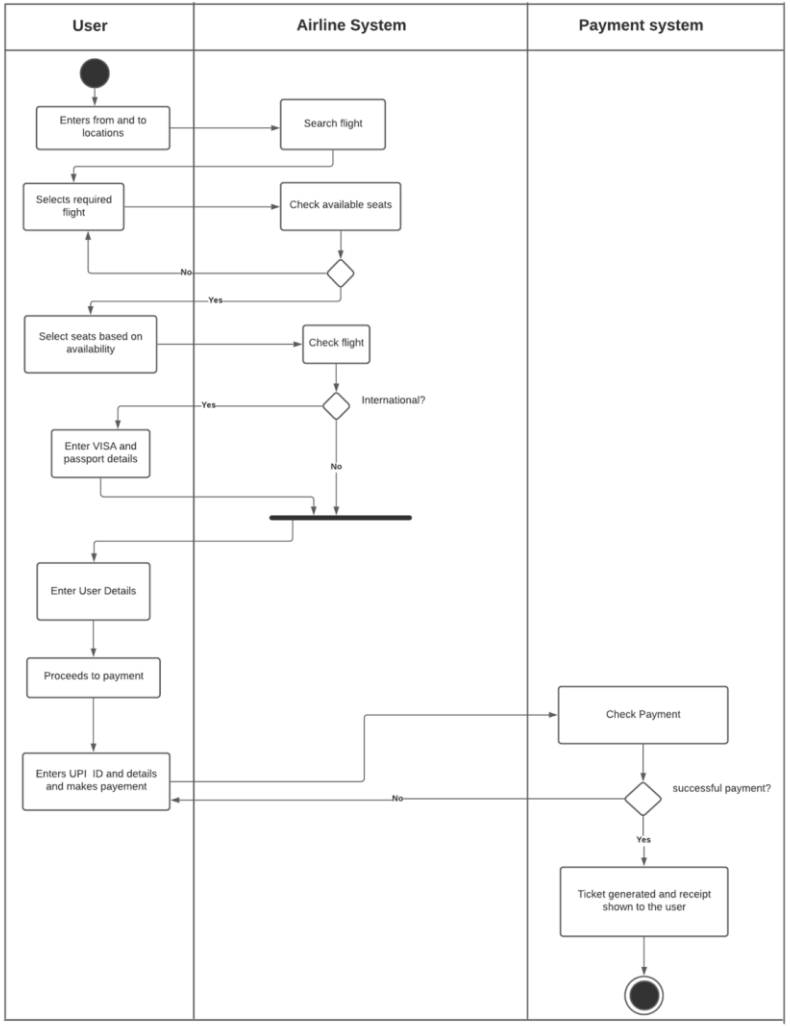
2. User enters details or uses login option.

3. User fails to make successful payment.

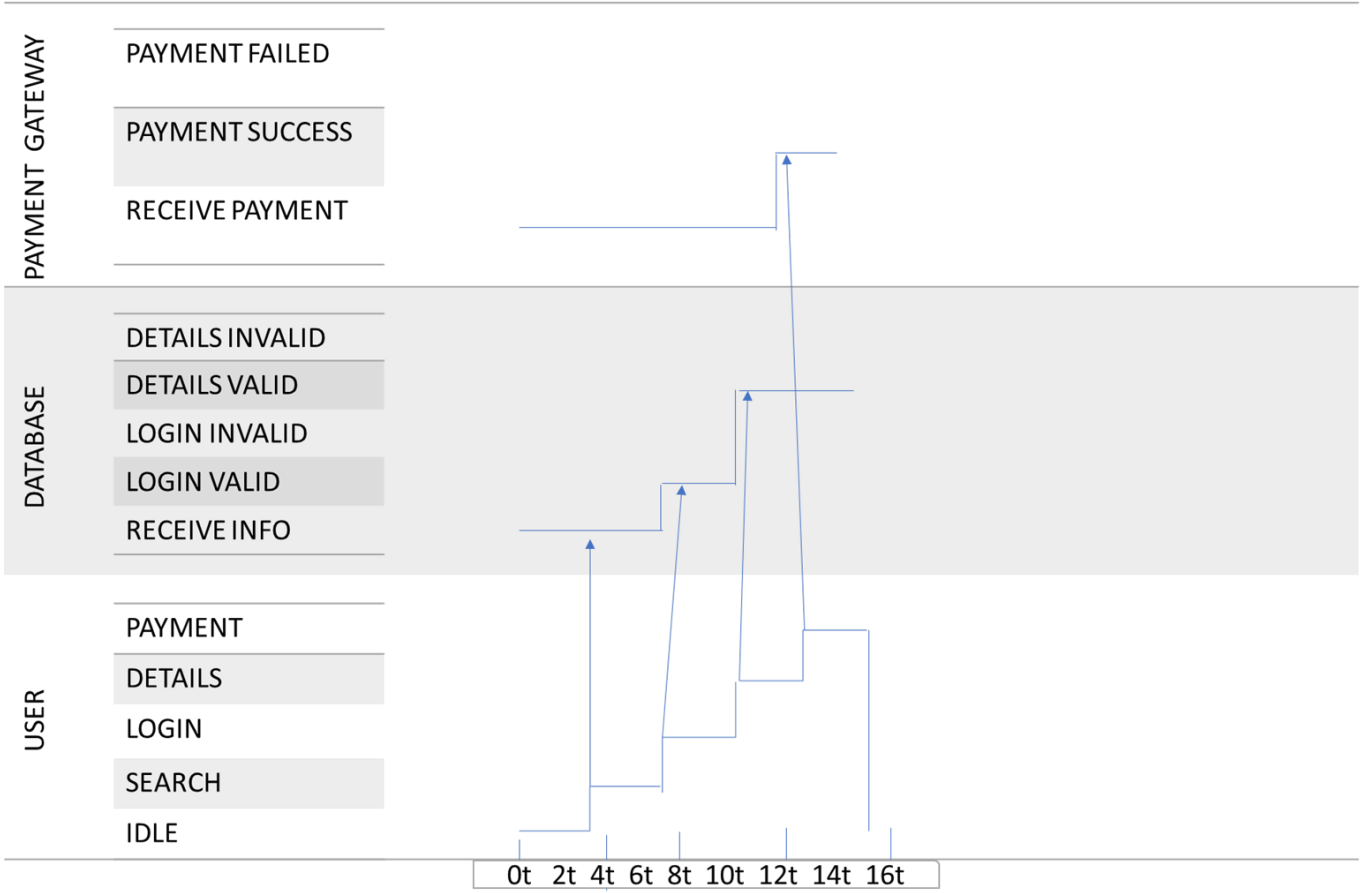
Unsuccessful scenario 2: 1. User searches for international flight successfully.

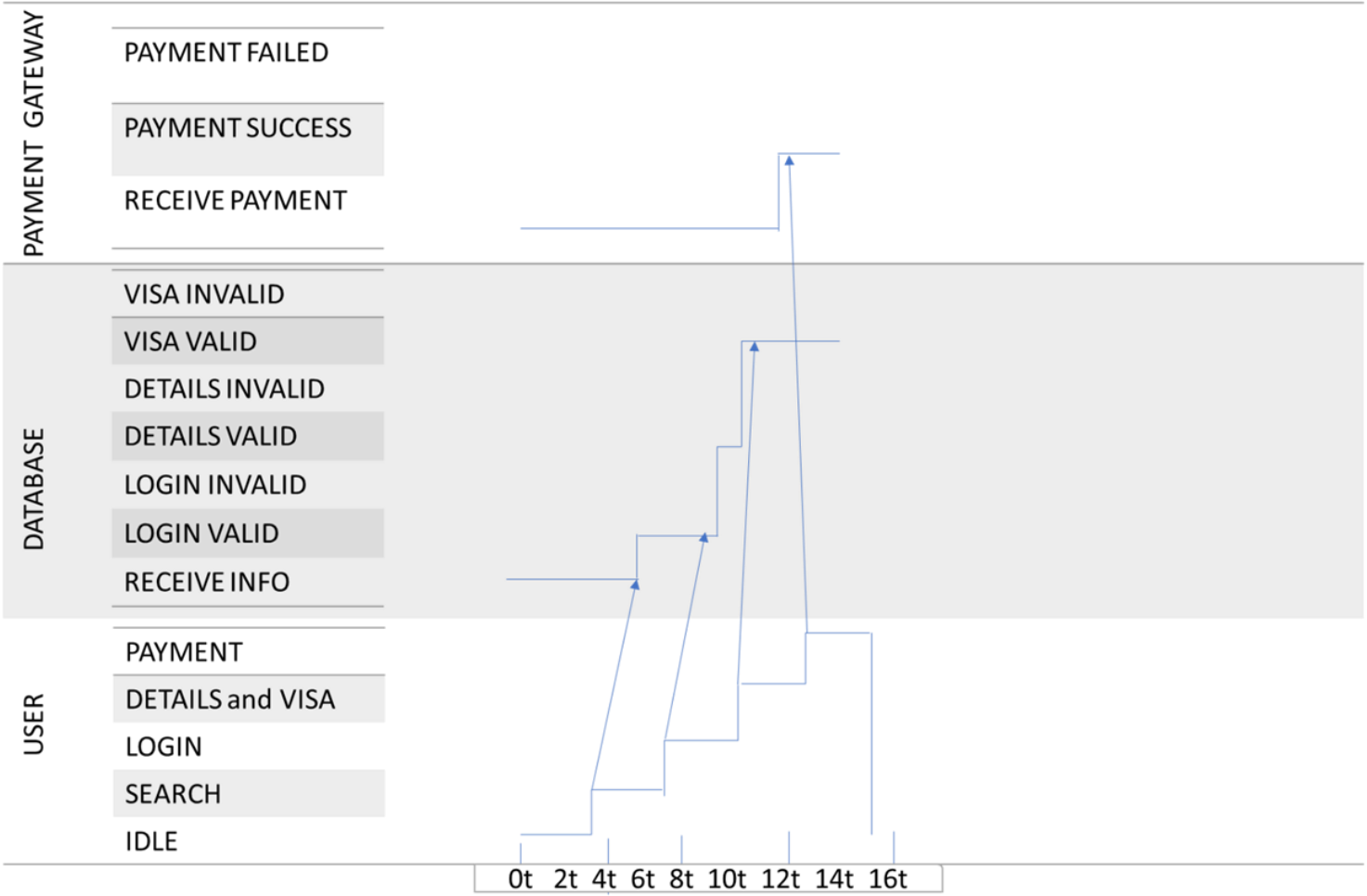
2. User performs login but fails to provide VISA and passport details.

# Activity Diagram

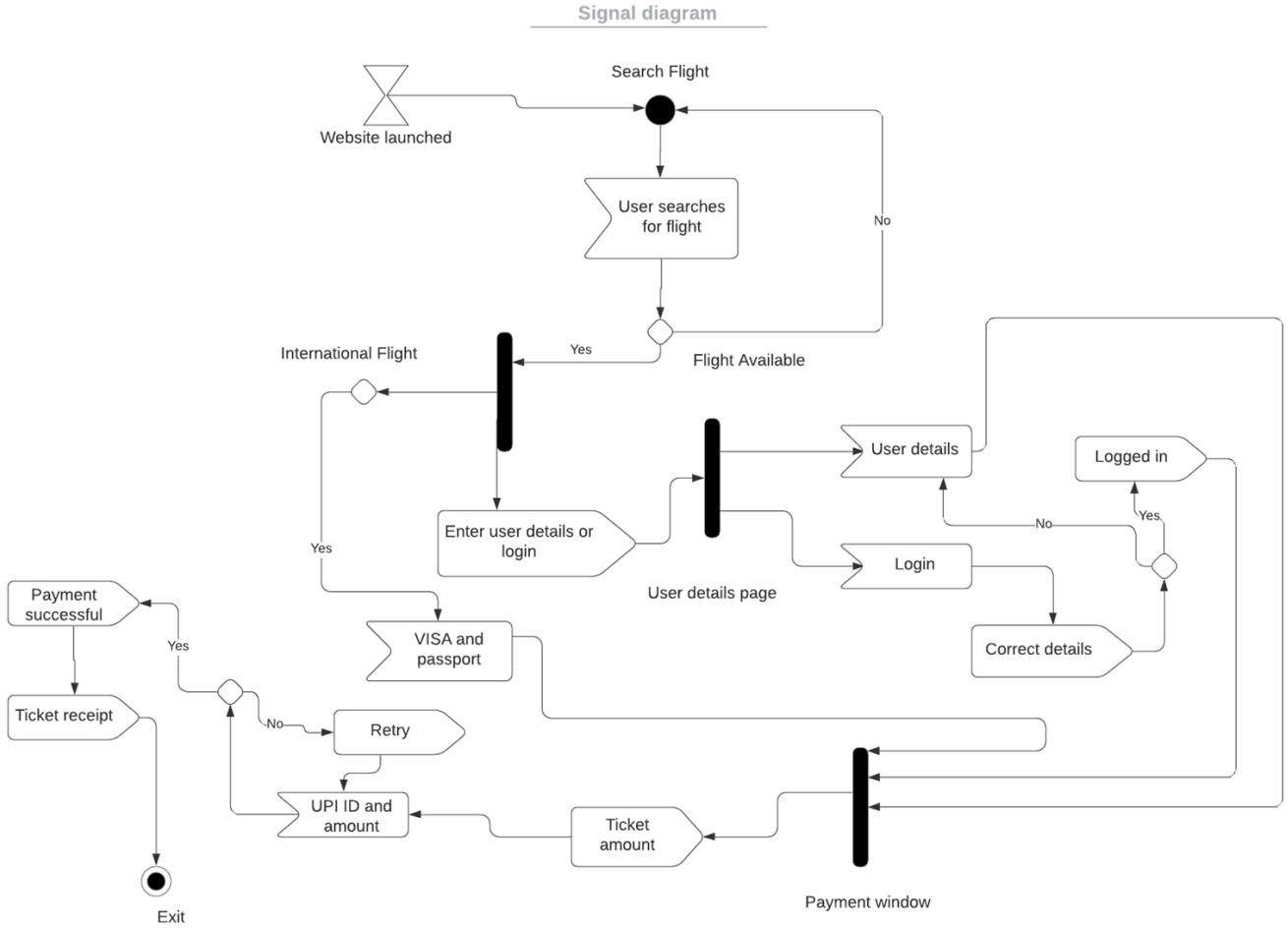


# Timing Diagram




PAYMENT GATEWAY
PAYMENT FAILED
PAYMENT SUCCESS
RECEIVE PAYMENT
DATABASE
VISA INVALID
VISA VALID
DETAILS INVALID
DETAILS VALID
LOGIN INVALID
LOGIN VALID
RECEIVE INFO
USER
PAYMENT
DETAILS and VISA
LOGIN
SEARCH
IDLE
0t 2t 4t 6t 8t 10t 12t 14t 16t

# Signals


Signal diagram
Search Flight
Website launched
User searches for flight
No
Flight Available
Yes
International Flight
Yes
User details
Logged in
Enter user details or login
User details page
No
Yes
Login
Payment successful
VISA and passport
Correct details
Yes
Ticket receipt
No
Retry
UPI ID and amount
Ticket amount
Payment window
Exit