Title of the Project: Flight Management System

Group Number: 10

Group Members: Team Omega

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Introduction

- This is a Flight Management System. This system is mainly for Passengers, Airlines Authority and Airport Admin use. The purpose of this System is to help the user to do their work very easily and efficiently.

Motivation

- The motivation behind this application is to make the flight system easier and hassle-free. As going to the airport physically and booking a ticket with all information forms is very hectic and also for the airline and airport admin it is tough to keep track of all records and manage all updates. So, this system helps the passenger to book a ticket, airline and airport admin will be able to check and update all their information in one system.

System Request

1.1 Business Sponsor

1.2 Business Need

1.3 Business Requirements

1.4 Business Values

1.5 Special Issues and Constraints

System Request

1. Project Sponsor:

Jawad Hamid, Board of Director, Bangladesh Biman Corporation

2. Business Need:

This system is made to help the passenger to get a hassle-free booking process. All kinds of information will be provided through the system so they don't have to search or find more. Also, it will help the Airline authority to manage their flights from a single system. They can get all kinds of information sorted in one place so that it will be easy for them to moderate their flight. Lastly, the Airport Admin will be benefited from this system because they will be able to control the whole airport from a single application. Admin can get all kinds of access to change or edit limits or systems. In a summary, this system will help the user or moderators to have a smooth and satisfactory experience of air travel.

3. Business requirements:

3.1 Passenger:

3.1.1. Passengers can easily book tickets

3.1.2. Passengers can track their flight location and time.

3.1.3. Passengers will get an alert of their flight time like a reminder.

3.1.4. Passengers will get the flight time which is given by authorities.

3.1.5. Flight details of different airlines will give the passenger a general idea of what kind of flight they are going to.

3.1.6. Passengers can use cards or any digital payment system to pay.

3.1.7. International Passengers can also pay with a MasterCard.

3.2 Airline Authorities:

3.2.1. Easily they can check their seat status.

3.2.2. They can change their Fight time which will automatically get updated in the application.

3.2.3. Airlines authorities can control their flight management system by scheduling the pilot and other details.

3.2.4. Pilots can check the departure and landing time of their flight which is given by the authority.

3.2.5. Airline authorities will get all kinds of feedback from the higher authority through the application.

3.3 Airport Admins:

3.3.1. Airport admin can get access to all the airlines' details like departure, landing and others.

3.3.2. Airport Admin can manage all the information of the airlines.

3.3.3. Airport Admin can send alerts or warnings to particular airlines.

3.3.4. They can set the airport schedule for all the airlines, for when which flight will fly.

3.3.5. AIrport Admin will get the highest power to get access to all the passenger details so that they can check their background for safety purposes.

4. Business Values:

4.1 Tangible values:

4.1.1. Airlines have to pay a certain 10-20 lakh to get service on the system for 5 years.
4.1.2. Airlines have to give 15% profit from the sale of tickets.
4.1.3. Passengers can get premium access by paying a 25 dollar/ 2100 taka for a lifetime.
4.1.4. From the yearly revenue we will invest 20% money for the development of the airlines and system.

4.2 Intangible Values:

4.2.1. Improve System bugs for better user satisfaction.
4.2.2. Managing all the information of all passengers under a high-security system.
4.2.3. Getting a user-friendly interface for the system.

5. Special Issues or Constraints:

5.1. A Specific Budget will be needed for the development of the system. (For approaching different airlines and the higher security purpose)

5.1.2. Enough skilled developers are needed to maintain the app up to date.

5.1.3. Airlines Authority pressure of giving the proper details of the flight and pilot.

5.1.4. Bad weather is also a constraint.

5.1.5. It can be difficult to date the information on the server if there is heavy traffic.

Requirement Analysis

1.1 Functional Requirements

1.1.1 Passenger

1.1.2 Airline Authority

1.1.3 Airport Admin

1.2 Non- Functional Requirements

1.2.1 Operational

1.2.2 Performance

1.2.3 Security

1.2.4 Political and Culture

Requirements Analysis

1. Functional Requirements

1.1 Passengers

1.1.1 Passengers can sign In with their mobile number or email and password if they are already Registered. Otherwise, they can sign up by giving their information like name, address, e-mail, phone number and then set the password.

1.1.2 Passengers can book flight tickets online by giving details like start from, destination, preferred airlines, date and time.

1.1.3 Passengers can pre-book the flight ticket.

1.1.4 Passengers can get the Flight Details of Different Airlines

1.1.5 3D view of the flight will be given to passengers.

1.1.6 Passengers can pay through card or mobile banking (Bkash, Rocket, Upay, Nagad) and for International passengers they can use (PayPal, Visa Card, Payoneer, American Express).

1.1.7 For the payment, they will get a confirmation mail and e-ticket on their registered mail.

1.1.8 Passengers can see the history of search and transaction.

1.1.9 Passengers can request to cancel tickets and get notified if the tickets are cancelled or not.

1.1.10 The helpline will help the passenger to find all the emergency and necessary contact.

1.2 Airline Authorities

1.2.1 Airline authorities can schedule their flight according to the destination.

1.2.2 Airline authorities can see passenger’s purchase information.

1.2.3 They will get a notification in case of emergency or when a passenger wants to cancel tickets and can approve or deny the request by the situation.

1.2.4 Can update the flight time which will automatically update and it will also show if there's any clash with another flight time.

1.2.5 Can Modify the seat status of the flight and also the pricing of the seat. Like for Business class, if they want to increase the cost from 100$ to 150$, it will automatically be updated for the passenger.

1.2.6 Airline Authority can assign Pilot and co-pilot according to their availability.

1.2.7 Can assure the payment of the staff of the company.

1.2.8 The pilot can give feedback and complain.

1.2.9 Can Set the flying hour of a pilot and also count the extra flying hour of a pilot.

1.2.10 All kinds of e-formality of the prototype can be conducted.

1.3 Airport Admin

1.3.1 Airport Admin will have a flight tracking system that will help them to find how many flights are flying in the country’s air space.

1.3.2 Air traffic control updates which flight is taking off or which one is in the queue of landing.

1.3.3 Airport Admin can do System check-up like all airlines update.

1.3.4 Flight limits can be set for a specific airport.

1.3.5 Airport Admin can check weather updates also.

2. Non-Functional Requirements

2.1 Operational

2.1.1 The system should be responsive which will run on the phone, tablet, pc or any type of device and any time of the operating system.

2.1.2 The system should be well organized and have a smooth user interface so that users can easily use the system.

2.1.3 The users should also be able to get the necessary update for system upgrades.

2.1.4 The system should be able to connect wirelessly to printers.

2.1.5 There will be some discounts for users base on the usages of the system.

2.2 Performance

2.2.1 The system will be designed so the interaction between the user and the system should not be more than 5 seconds.

2.2.2 The system should be available to use 24 hours per day, 7 days per week.

2.2.3 The system can support 10,000 users at a time.

2.2.4 For system refresh, every day there will be allocated 1 hour time between 1 am to 4 am it will vary from the location.

2.3 Security

2.3.1 Every user will have different IDs. Like the passenger won't get the accessibility of an Airport admin or Airlines Authority.

2.3.2 Airport Admin can restrict the user's access. Also can make the limit for the user.

2.3.3 Airport admin can access the whole database of the system so that they can easily access all kinds of information.

2.3.4 One User ID can be logged in to one device at a time.

2.3.5 One user won’t be able to see another user’s information.

2.3.6 The system includes all available safeguards from viruses, worms, Trojan horses, etc.

2.4 Political and Culture

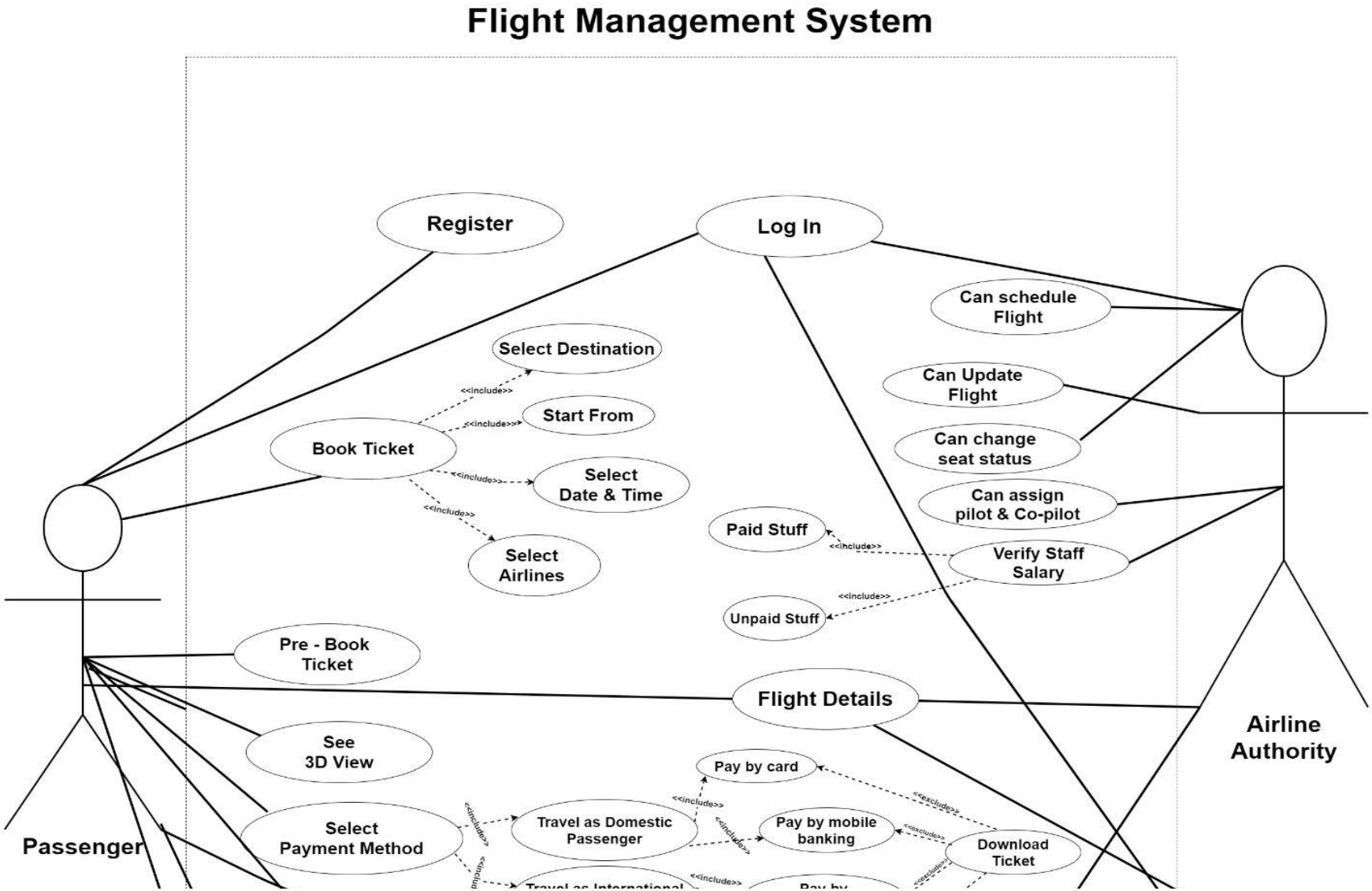
2.4.1 The system will follow the rules & regulations under The Bangladesh Biman Corporation Ordinance, 1977

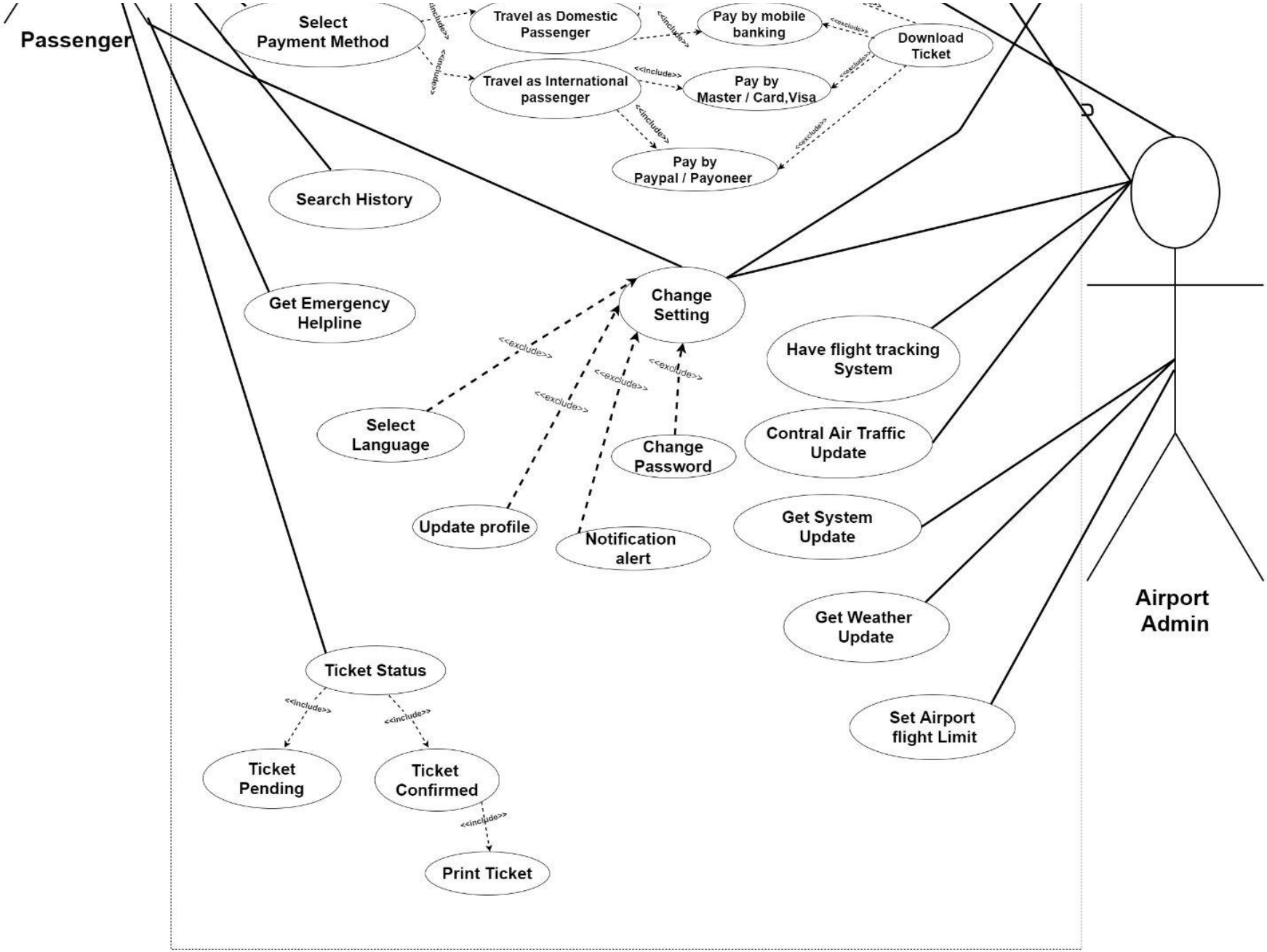
2.4.2 The system should distinguish between Bangladeshi Currency and other national currencies.

2.4.3 The system will provide default language English but users can change the language to their native language.

2.4.4 Personal information will be secured under The Digital Security Act of 2018.

Use Case Diagram

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Travel as International passenger
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Pay by Master / Card,Visa
Pay by Paypal / Payoneer
Download Ticket
Search History
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Change Setting
Select Language
Change Password
Update profile
Notification alert
Have flight tracking System
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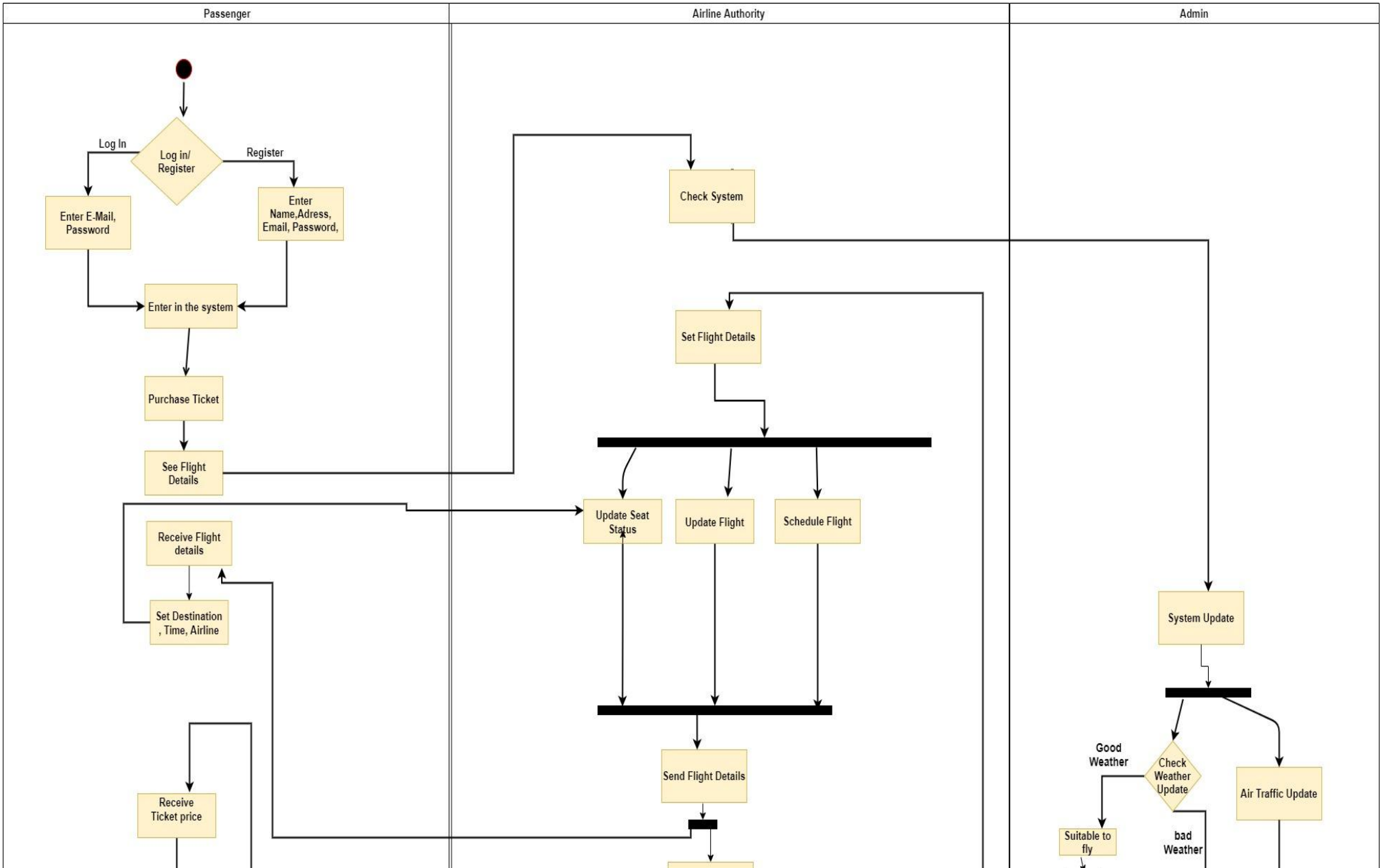
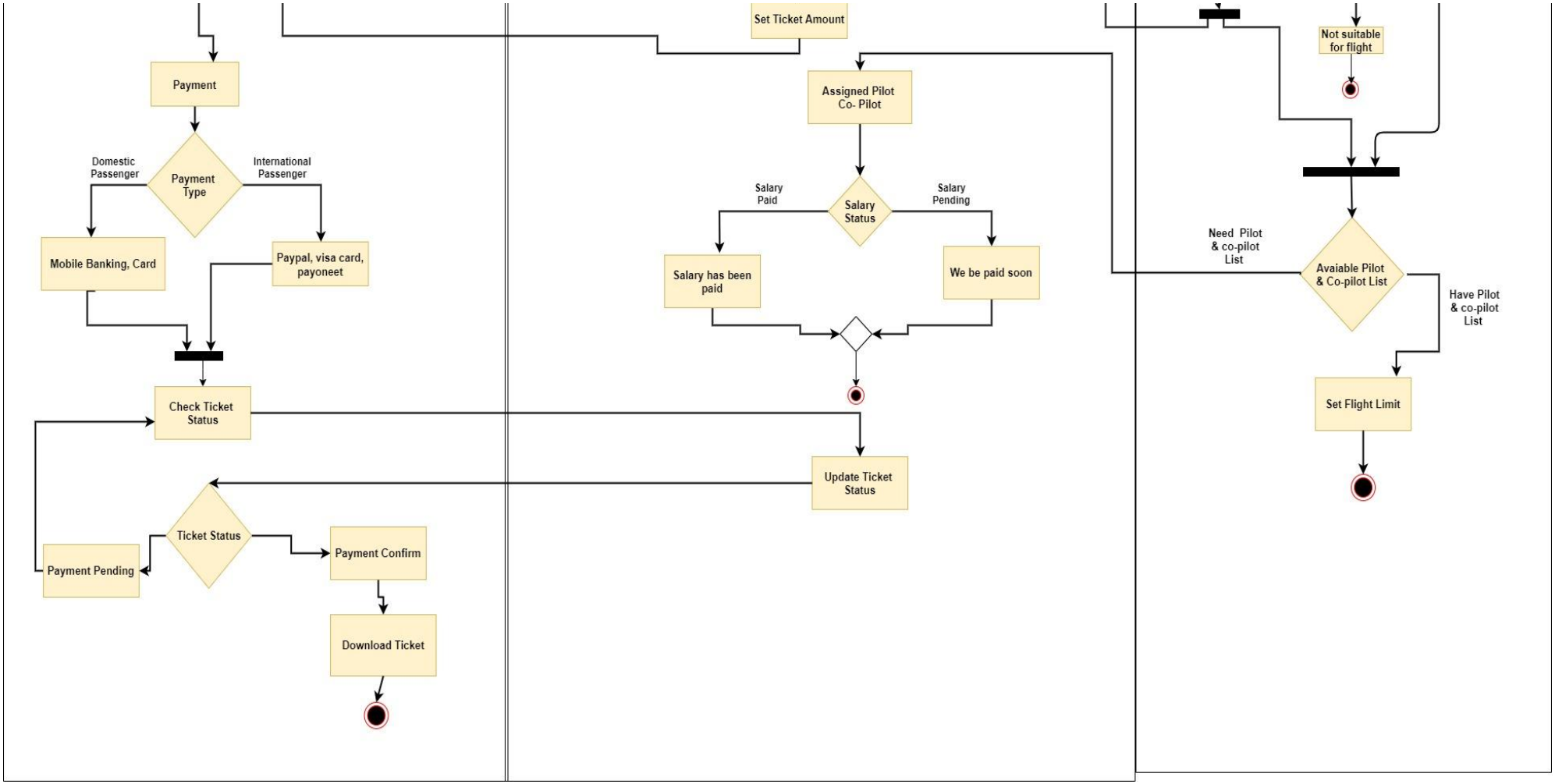
Activity Diagram

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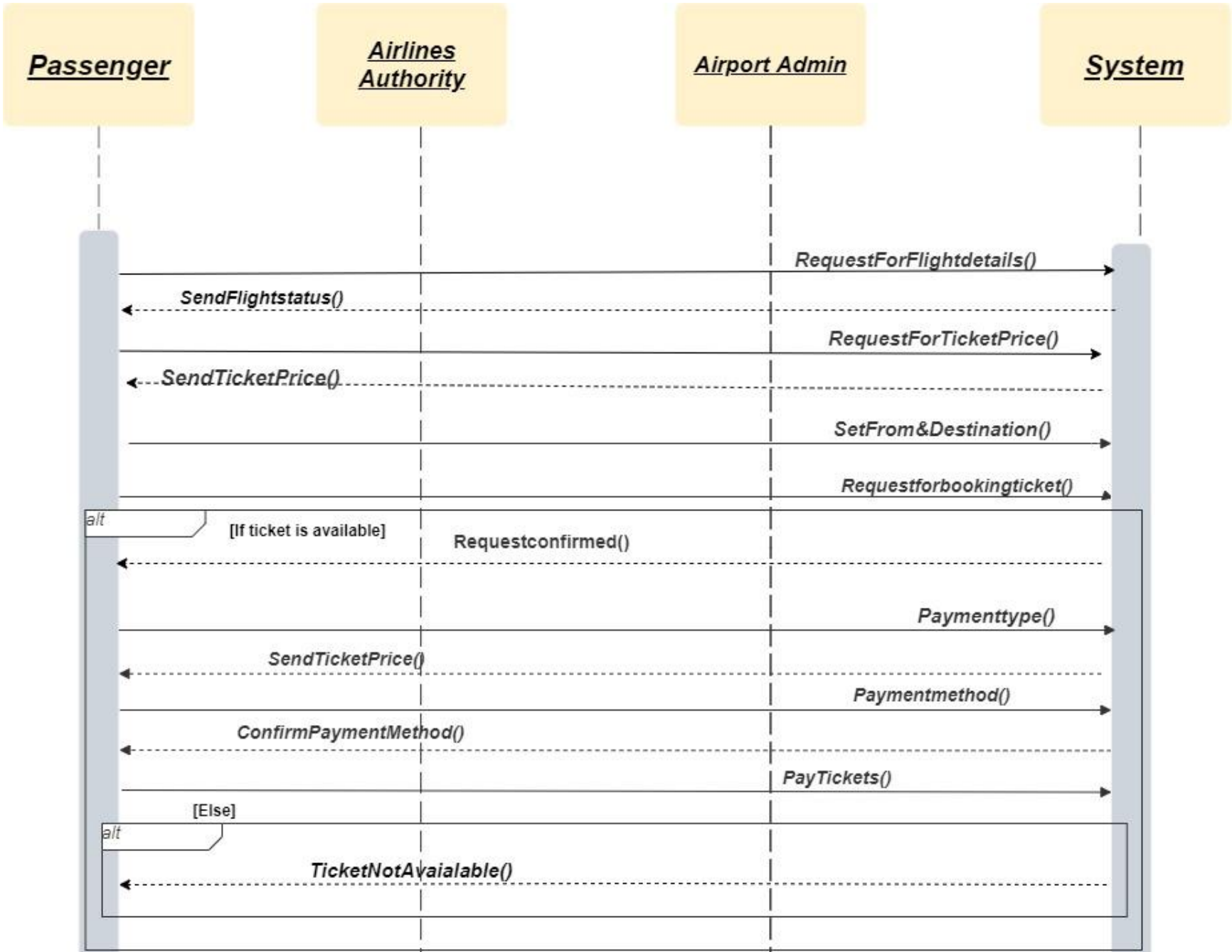
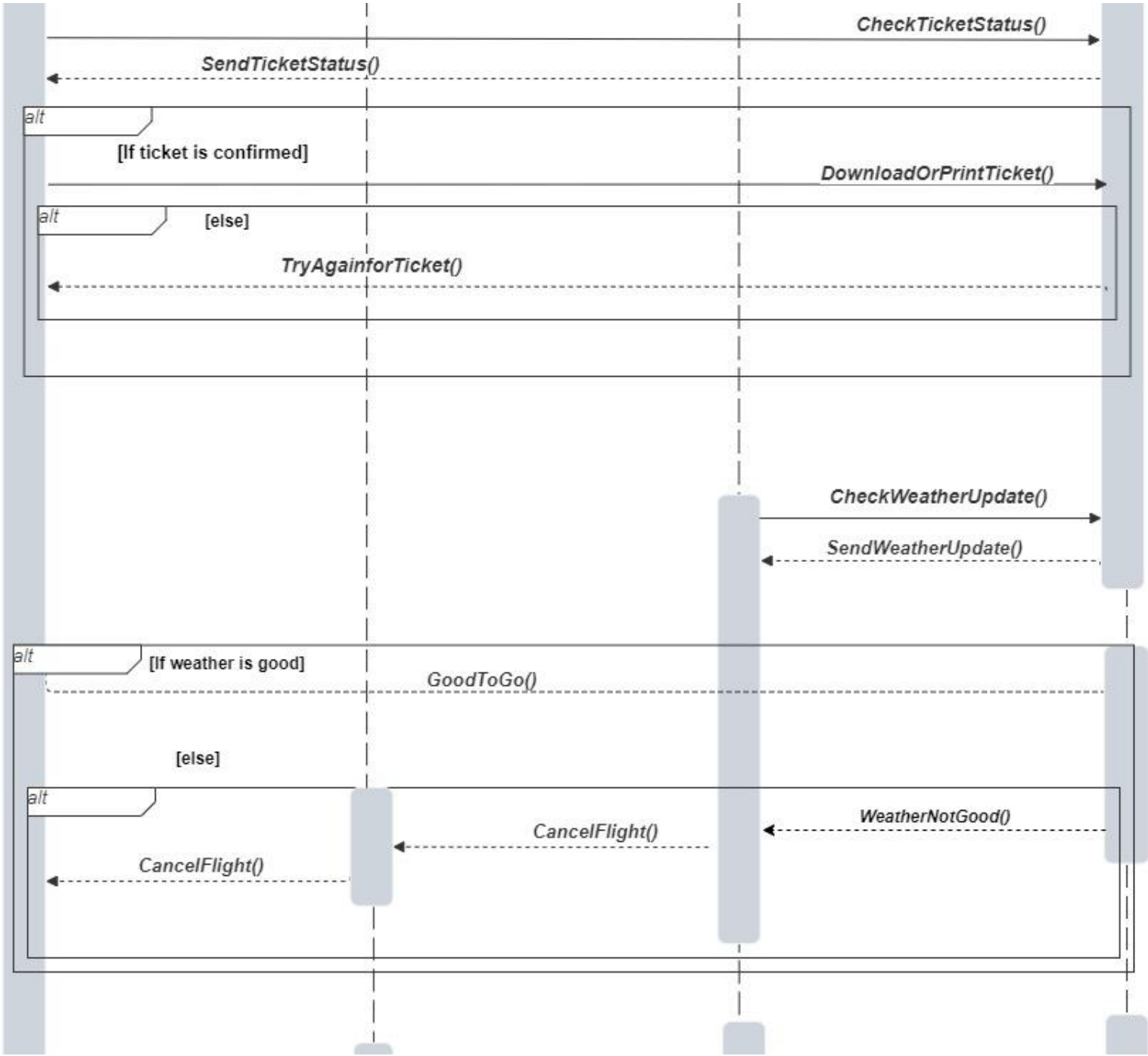
Domestic Passenger
Payment Type
International Passenger
Mobile Banking, Card
Paypal, visa card, payoneet
Check Ticket Status
Ticket Status
Payment Pending
Payment Confirm
Download Ticket
Set Ticket Amount
Assigned Pilot Co- Pilot
Salary Paid
Salary Status
Salary Pending
Salary has been paid
We be paid soon
Update Ticket Status
Not suitable for flight
Need Pilot & co-pilot List
Avaiable Pilot & Co-pilot List
Have Pilot & co-pilot List
Set Flight Limit

Sequence Diagram

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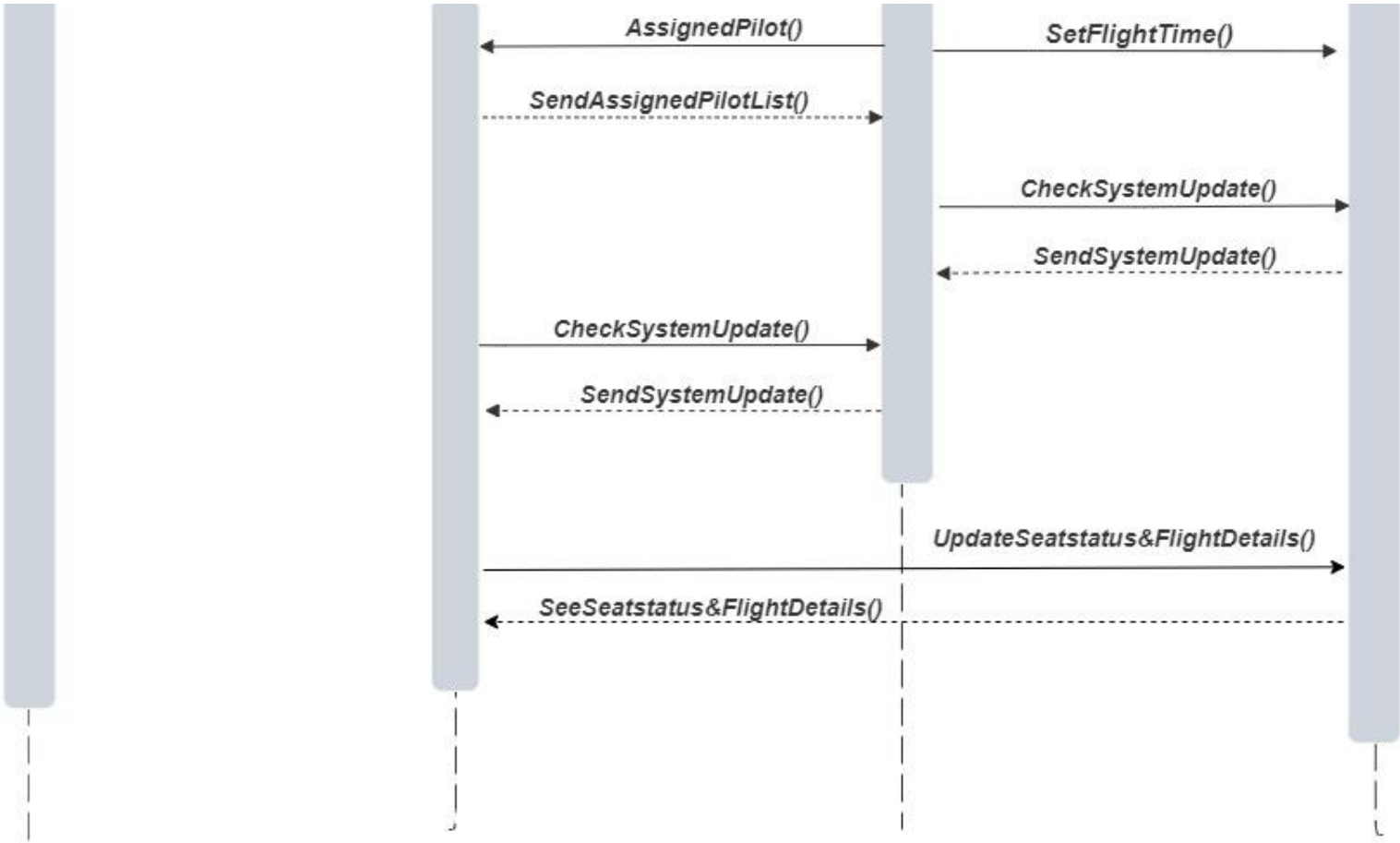
SendTicketStatus()
alt
[If ticket is confirmed]
DownloadOrPrintTicket()
alt
[else]
TryAgainforTicket()
CheckWeatherUpdate()
SendWeatherUpdate()
alt
[If weather is good]
GoodToGo()
[else]
alt
WeatherNotGood()
CancelFlight()
CancelFlight()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SetFlightTime()
SendAssignedPilotList()
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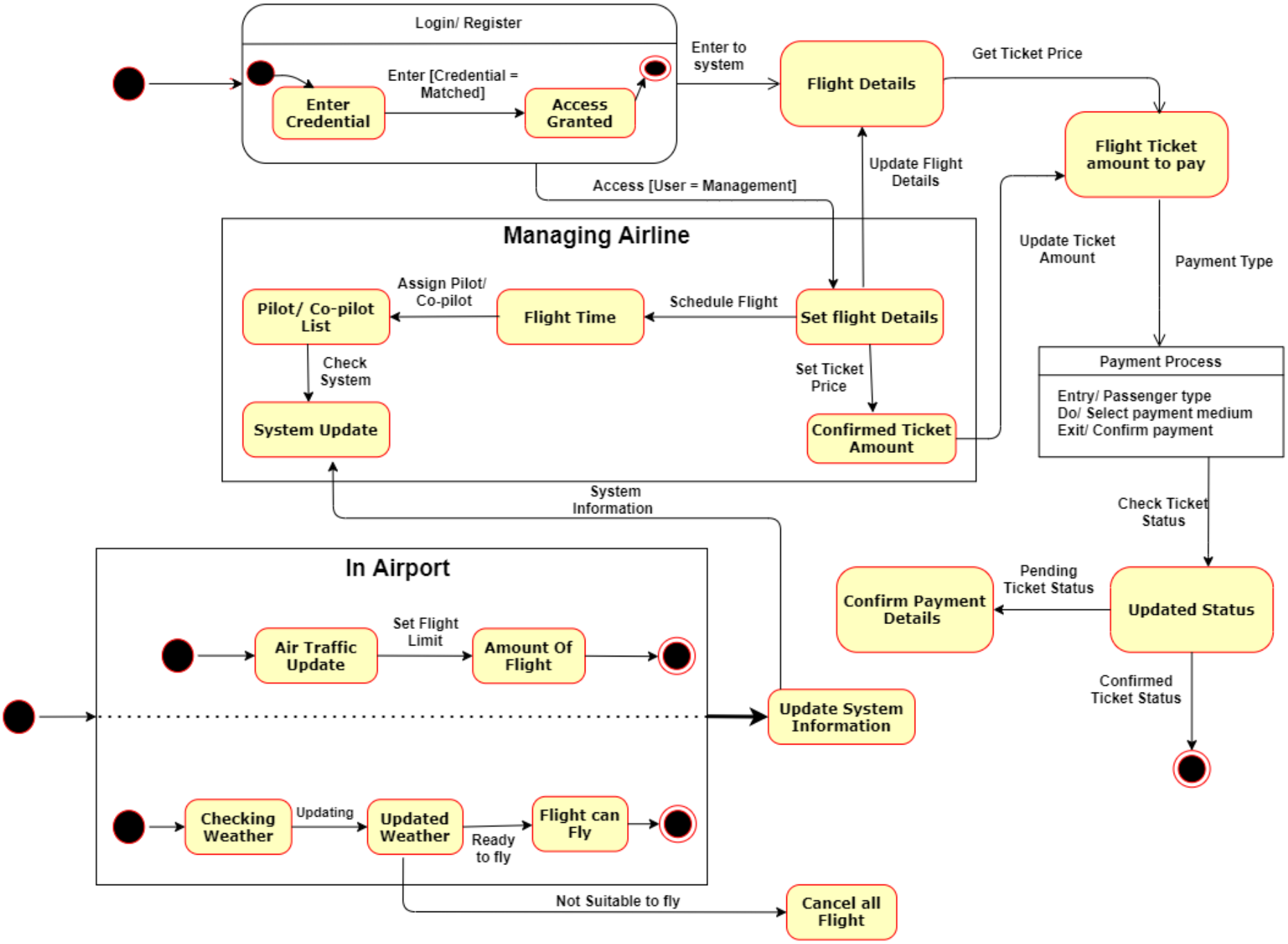
CheckSystemUpdate()
SendSystemUpdate()
UpdateSeatstatus&FlightDetails()
SeeSeatstatus&FlightDetails()

State Machine Diagram



Data Flow Diagram

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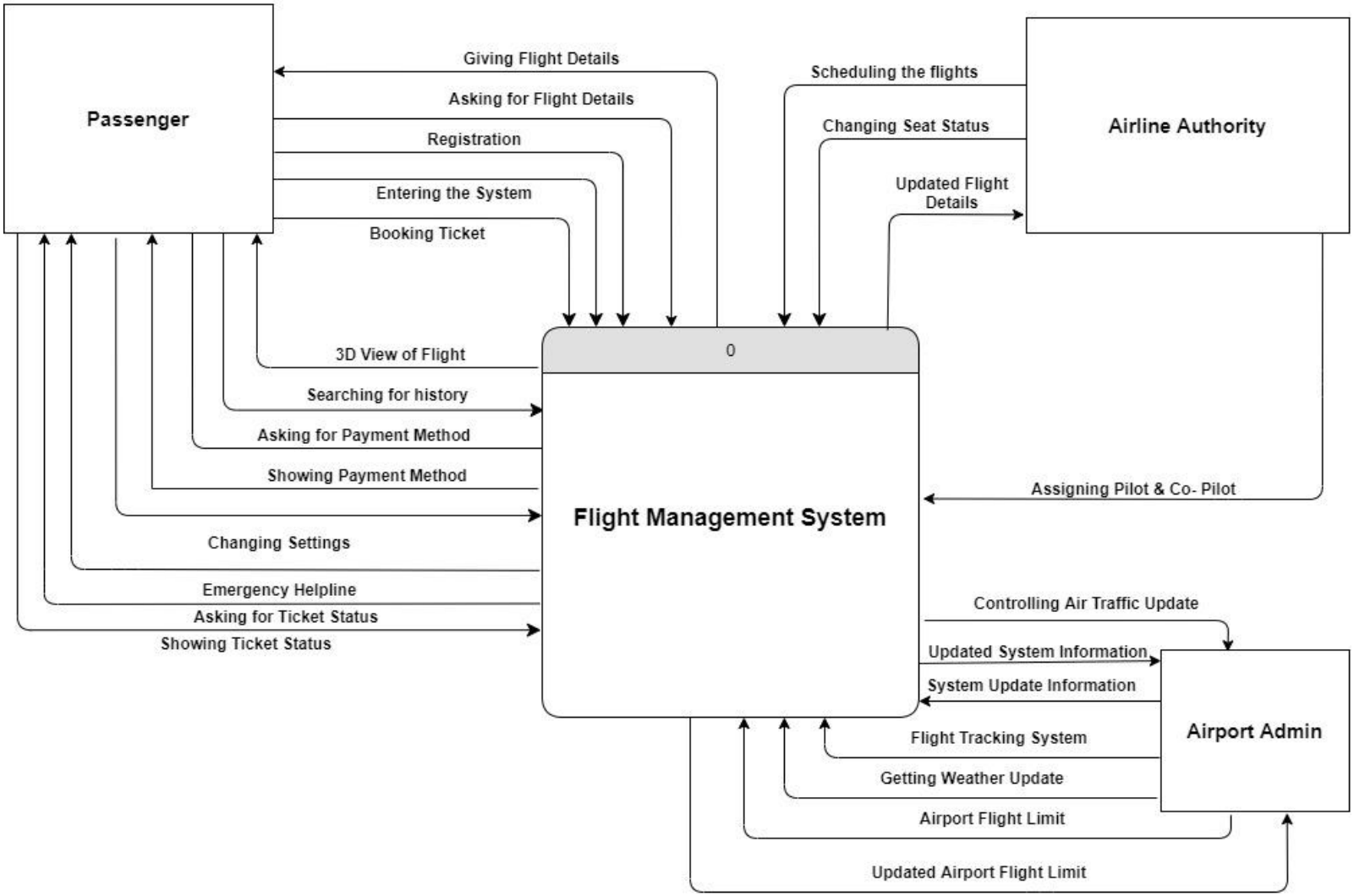

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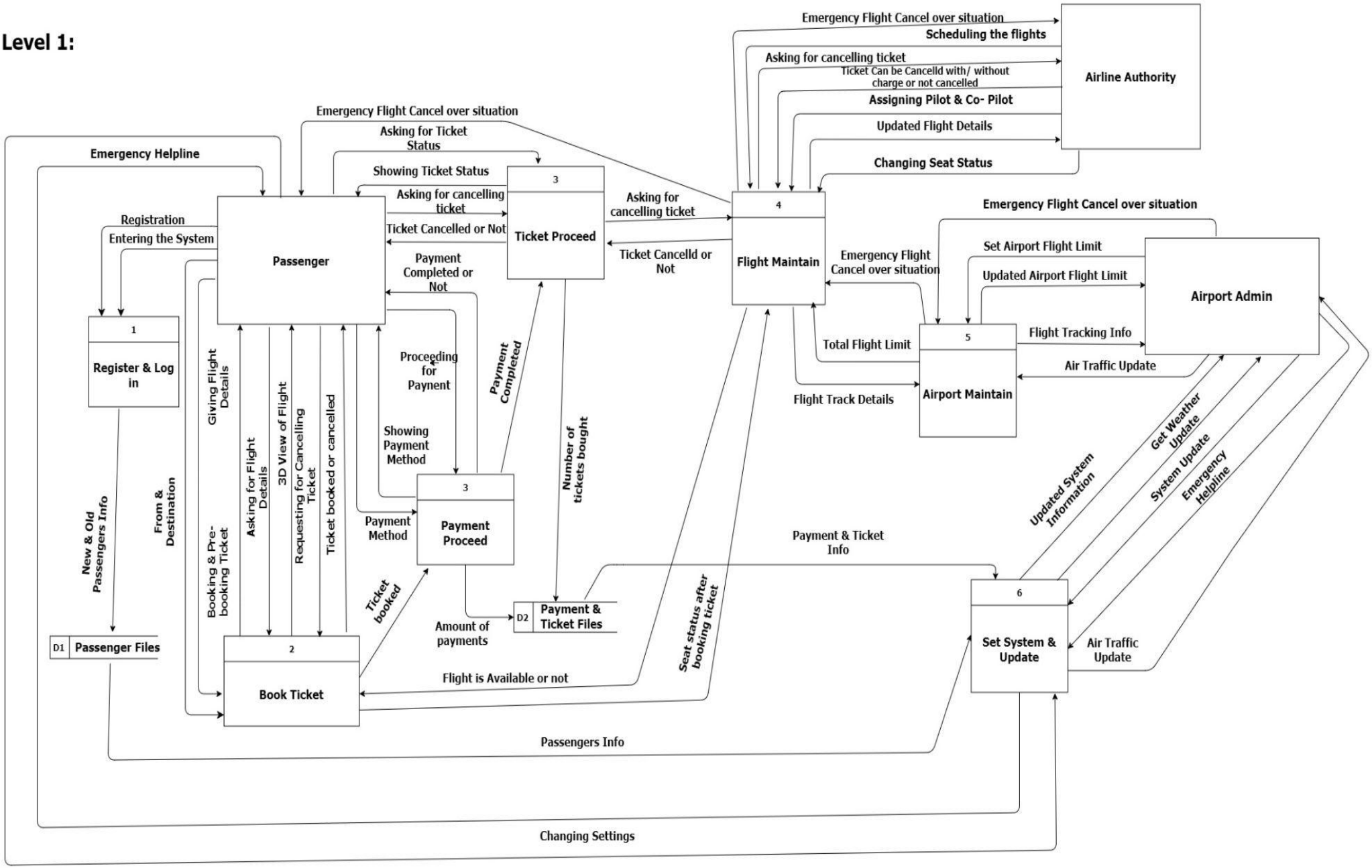
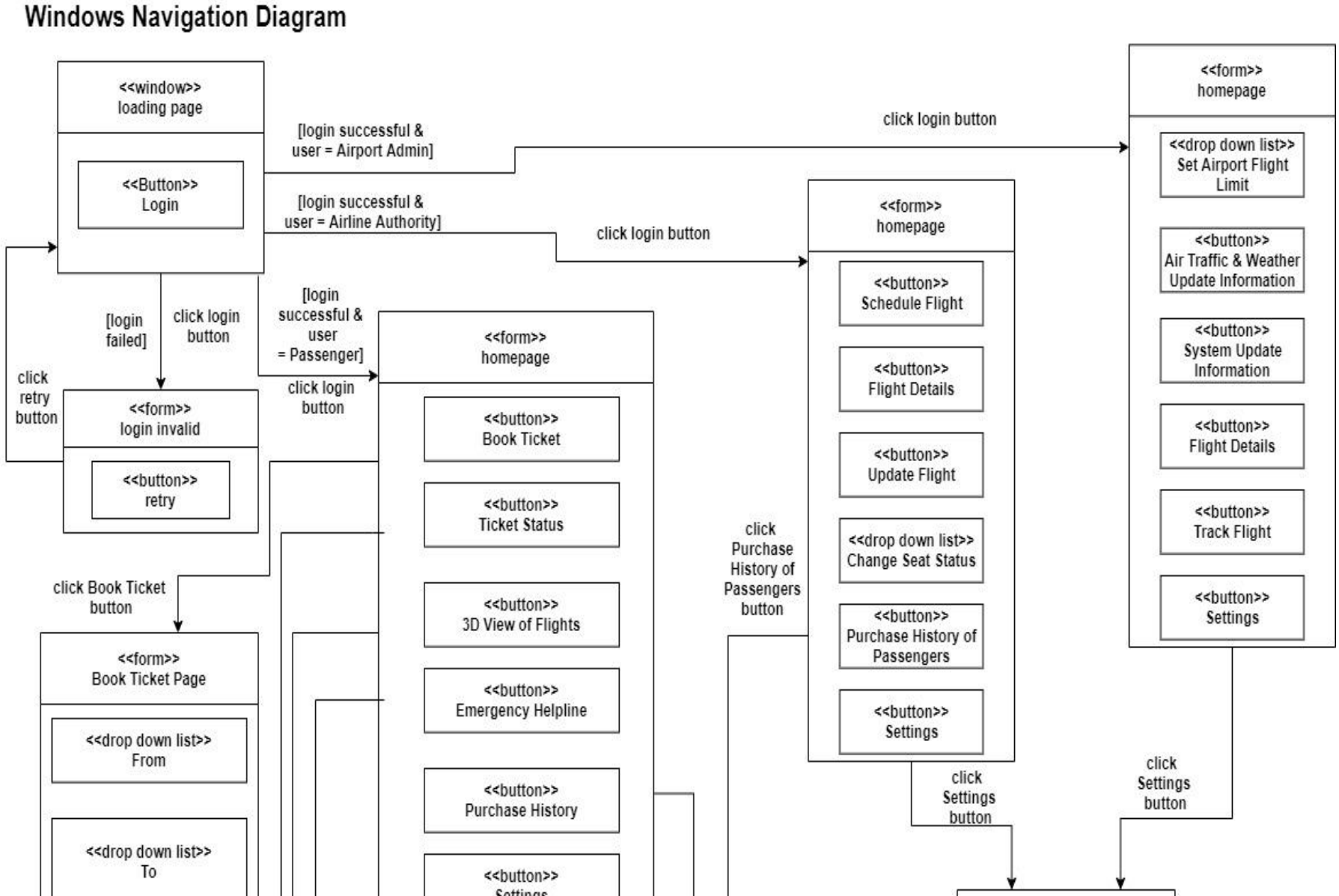
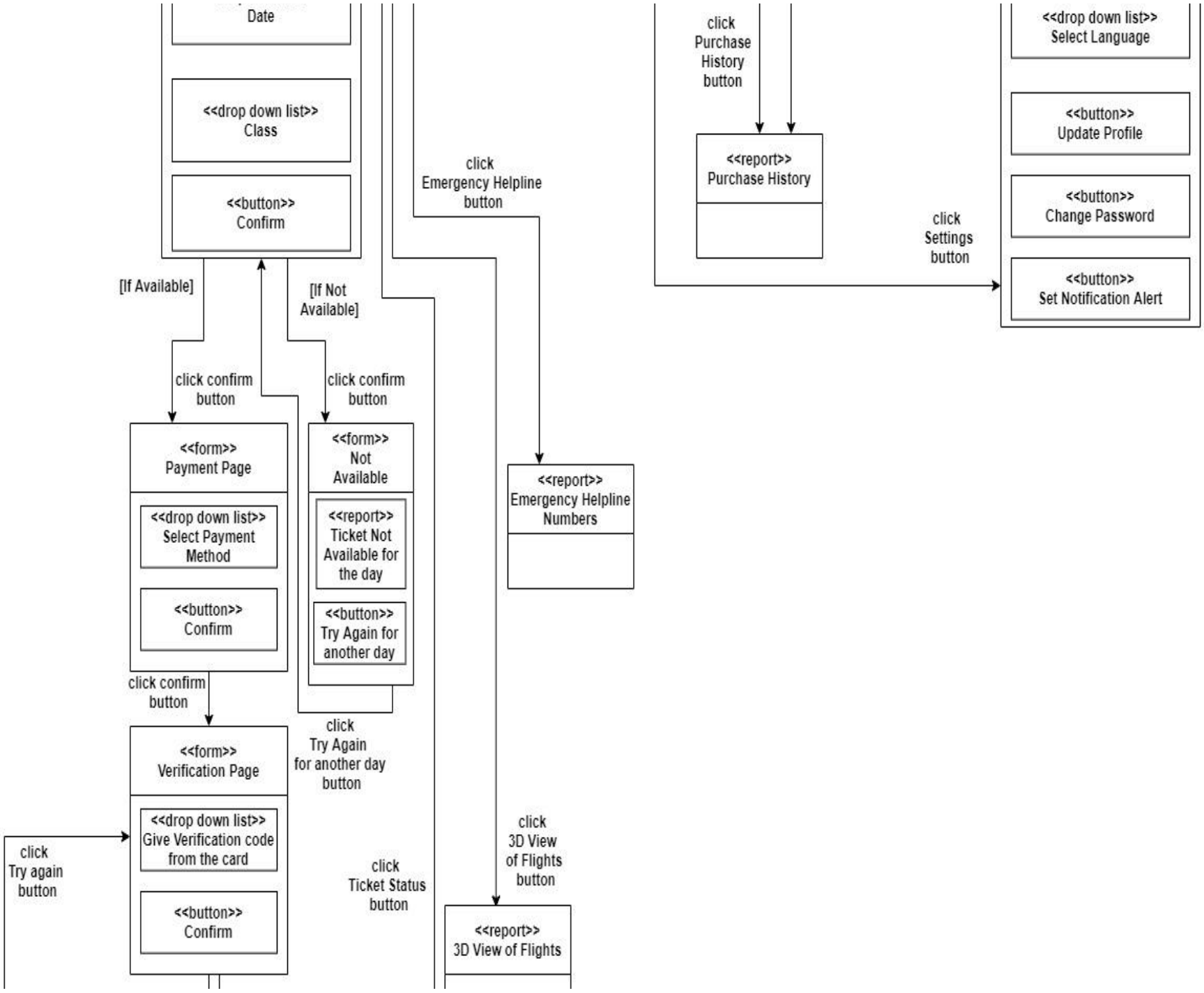

Airline Authority
Emergency Flight Cancel over situation
Scheduling the flights
Asking for cancelling ticket
Ticket Can be Cancelld with/ without charge or not cancelled
Assigning Pilot & Co- Pilot
Updated Flight Details
Changing Seat Status
Emergency Flight Cancel over situation
Asking for Ticket Status
Emergency Helpline
Showing Ticket Status
3
Asking for cancelling ticket
Ticket Cancelled or Not
Ticket Proceed
Asking for cancelling ticket
4
Flight Maintain
Ticket Cancelld or Not
Emergency Flight Cancel over situation
Registration
Entering the System
Passenger
Payment Completed or Not
Set Airport Flight Limit
Updated Airport Flight Limit
Airport Admin
Emergency Flight Cancel over situation
1
Register & Log in
Giving Flight Details
Asking for Flight Details
3D View of Flight
Requesting for Cancelling Ticket
Ticket booked or cancelled
Proceeding for Paynent
Payment Completed
Number of tickets bought
Total Flight Limit
5
Airport Maintain
Flight Tracking Info
Air Traffic Update
Flight Track Details
Showing Payment Method
Get Weather Update
System Update
Emergency Helpline
Updated System Information
New & Old Passengers Info
From & Destination
Booking & Pre-booking Ticket
3
Payment Proceed
Payment Method
Payment & Ticket Info
Ticket booked
Amount of payments
D2
Payment & Ticket Files
Seat status after booking ticket
6
Set System & Update
Air Traffic Update
D1
Passenger Files
2
Book Ticket
Flight is Available or not
Passengers Info
Changing Settings

Windows Navigation Diagram

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Try Again for
another day
click confirm
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Try Again
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Change Password
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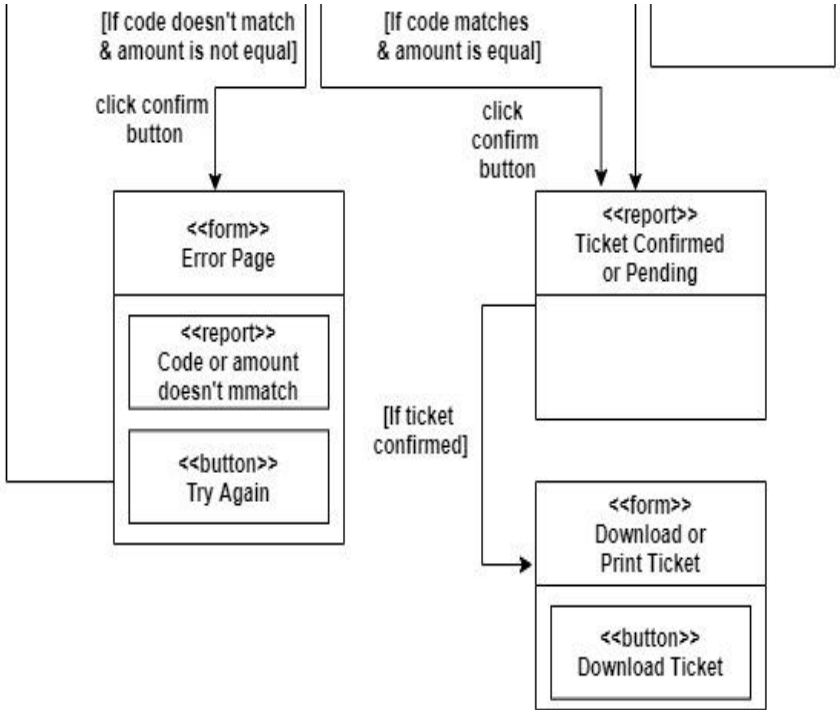
Set Notification Alert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Download Ticket