



Software Engineering
COMP433

Group Project

Group Name: OutOfIndex
Phase 4

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Section: 1

Description of Classes (Project No.9 Flight Booking)

Flight: this class represents the flight which was offered by the system, it must have an id, price, duration date, and the maximum number of tickets.

Ticket: this class represents the ticket of a flight which the customer books and it must have an id.

Customer: this class represents the customer or the user of the system who searches for flights and books a ticket, the customer must have a credit card.

LoggedIn: This class represents the customer that has an account and is logged in to the system.

Manager: this class represents the manager or the admin of the system who can check for all financial records and manage employees/flights information, and add/edit/view job titles.

Employee: this class represents the employee who is employed and managed by the manager there are two “sub” classes of this class.

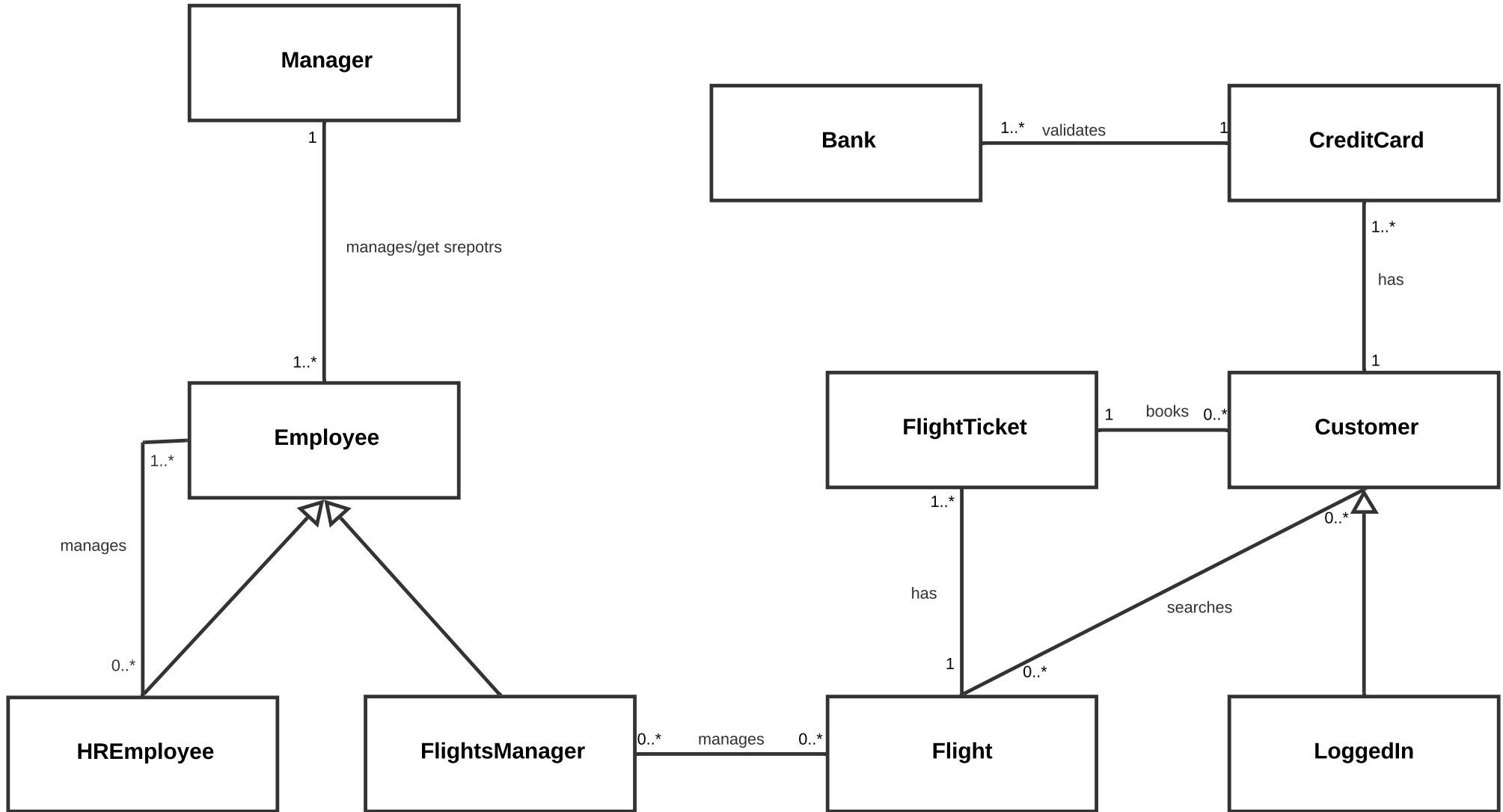
HREmployee: this class represents the employee who can view, add and edit employee’s information.

FlightsManager: this class represents the employee who can view, add and edit flight’s information.

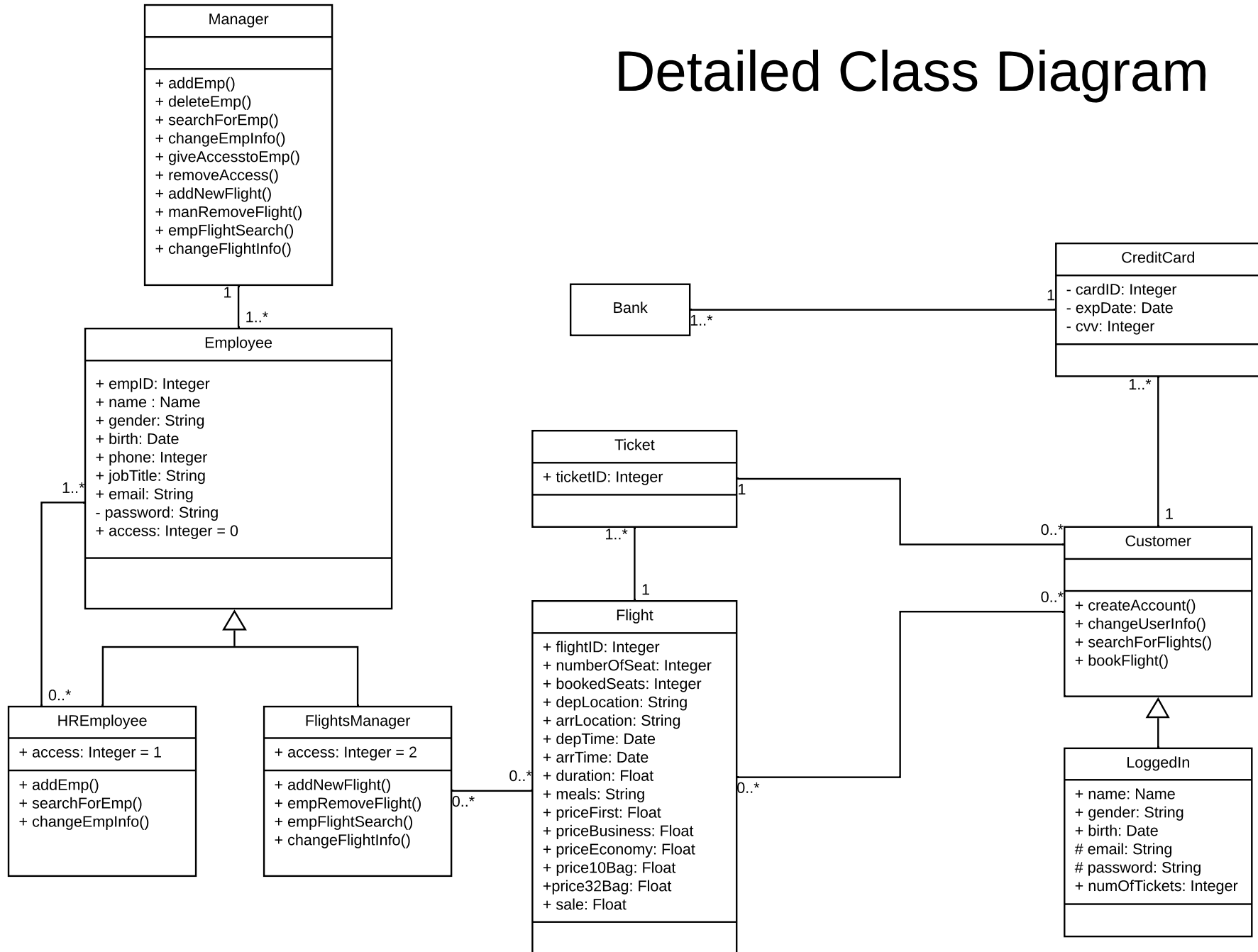
Bank: this class represents the bank “an external system” which validates customer’s credit card and complete payment transactions

CreditCard: this class represents the credit card which must be held by the customer and validated by the bank.

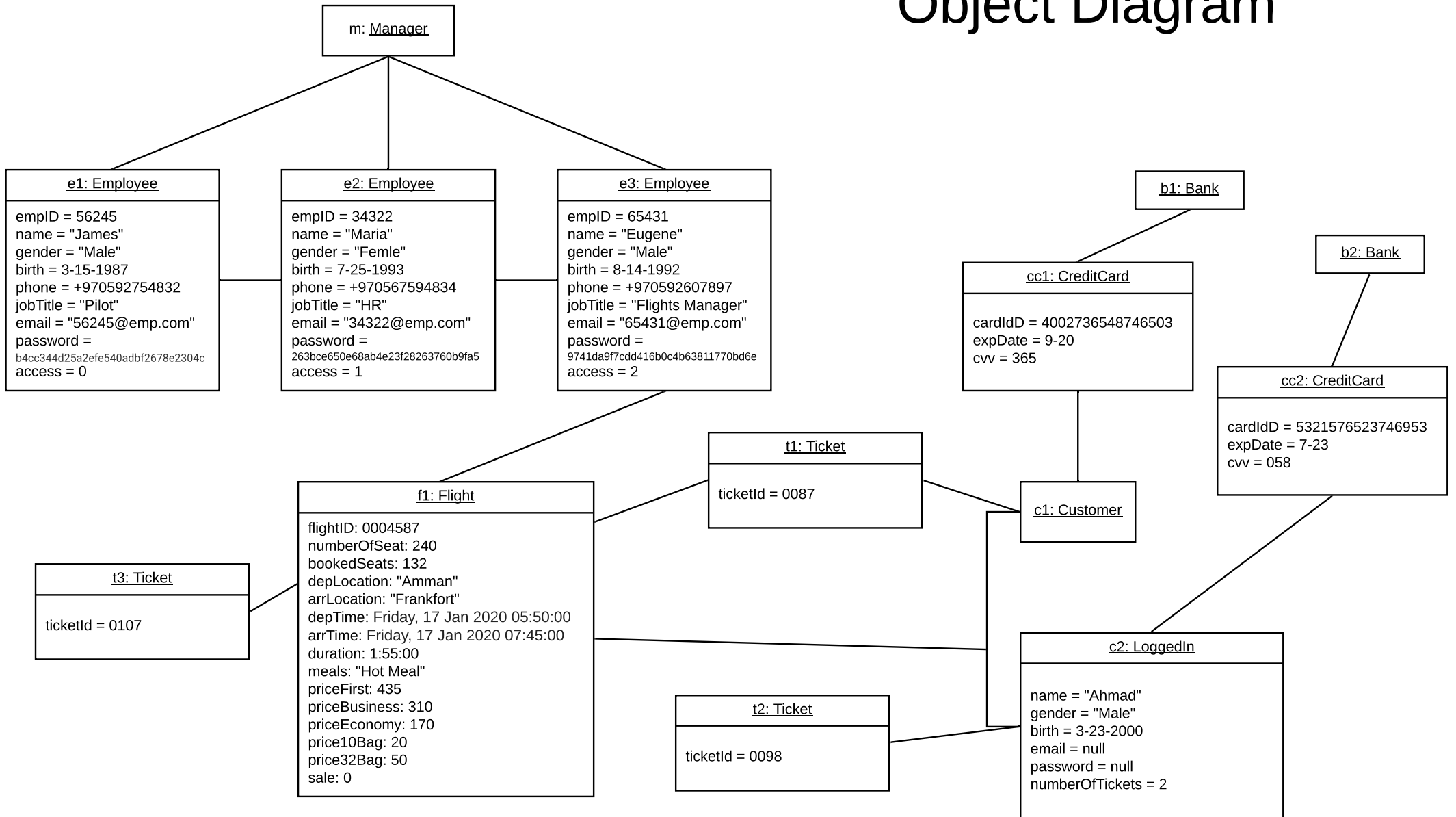
Analysis Class Diagram



Detailed Class Diagram

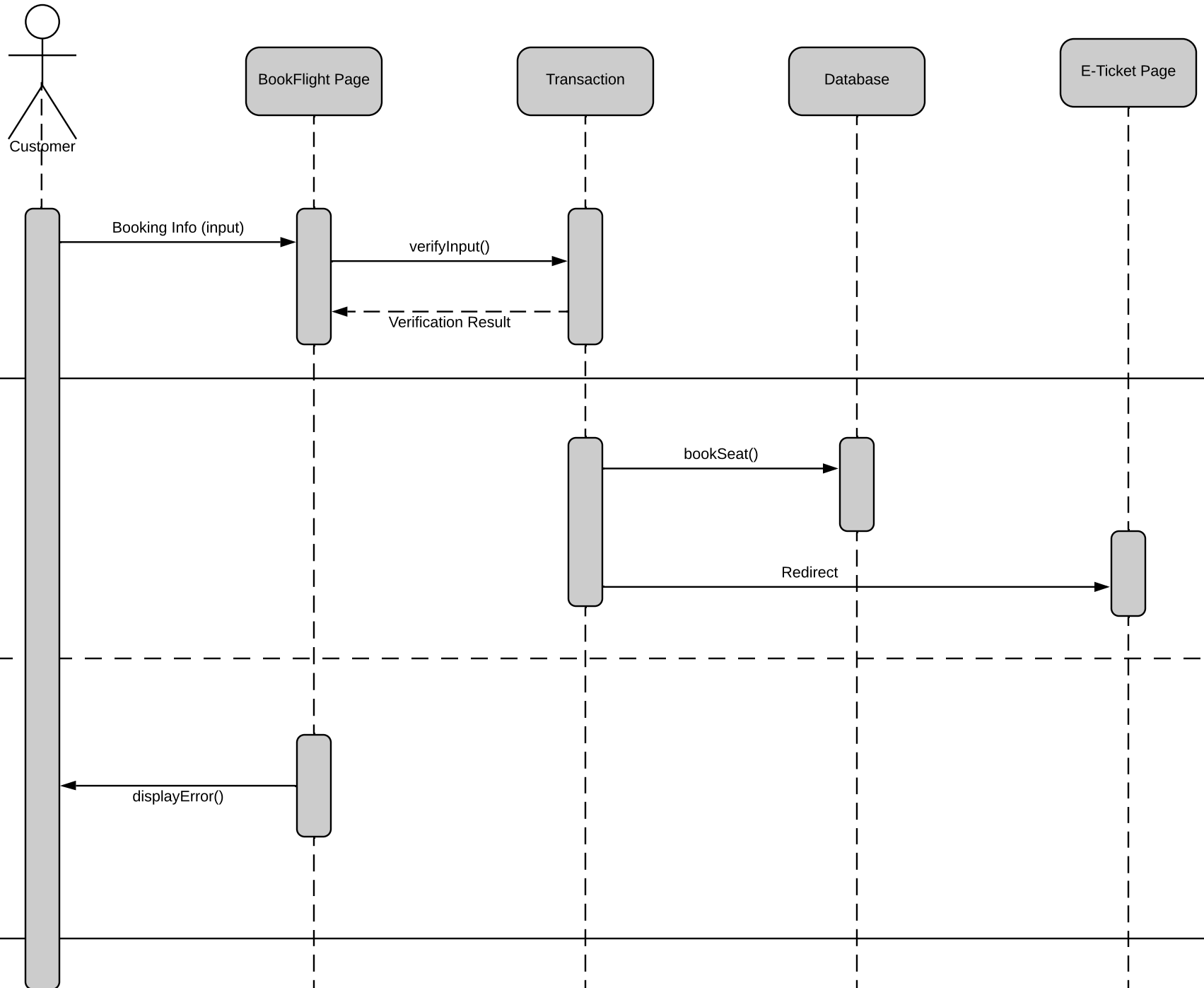


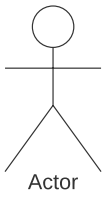
Object Diagram



Booking Sequence Diagram

Simon Asmar (1162643)



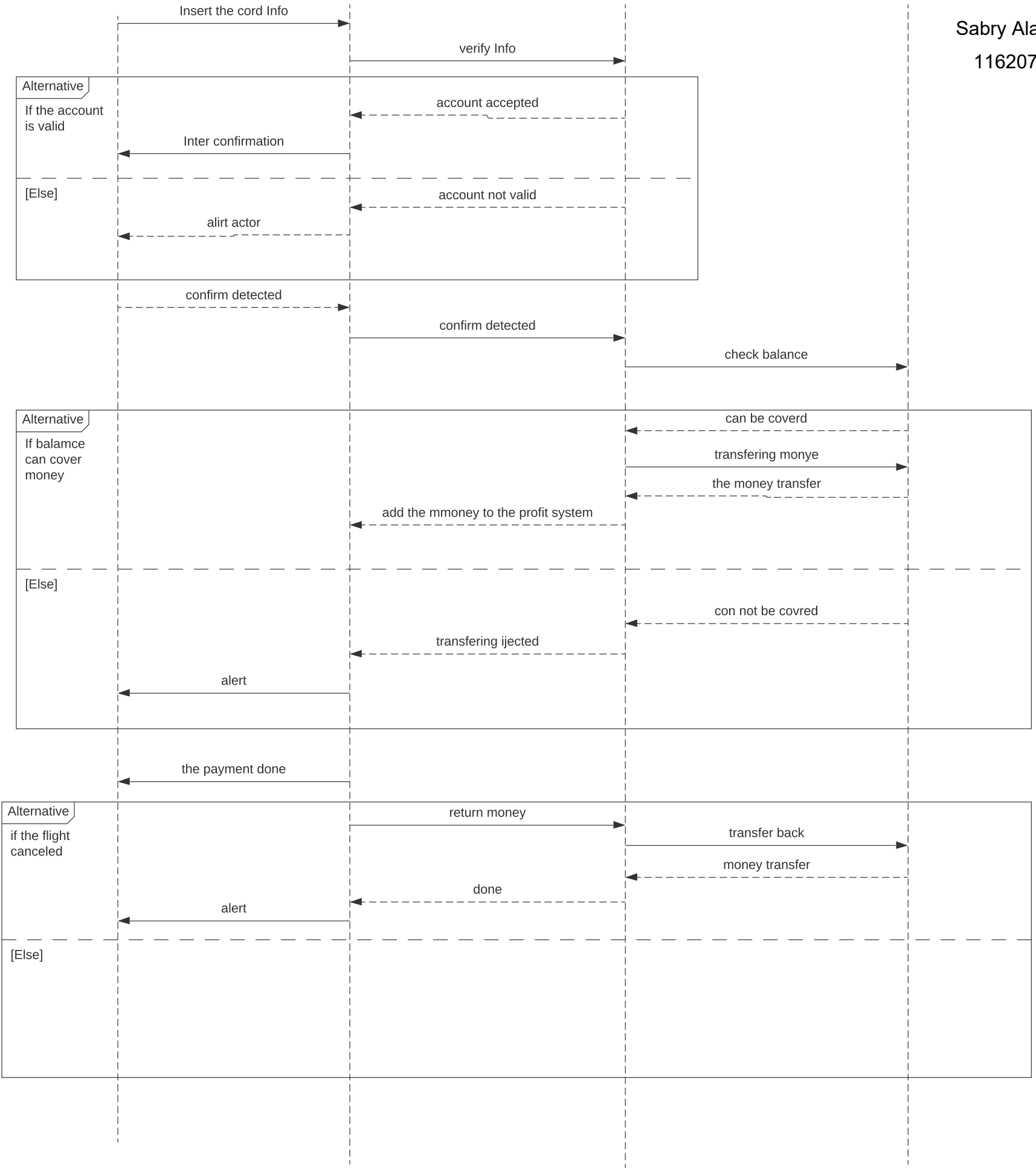


Paymant System

Company Server
-ex;paypal visacard ...-

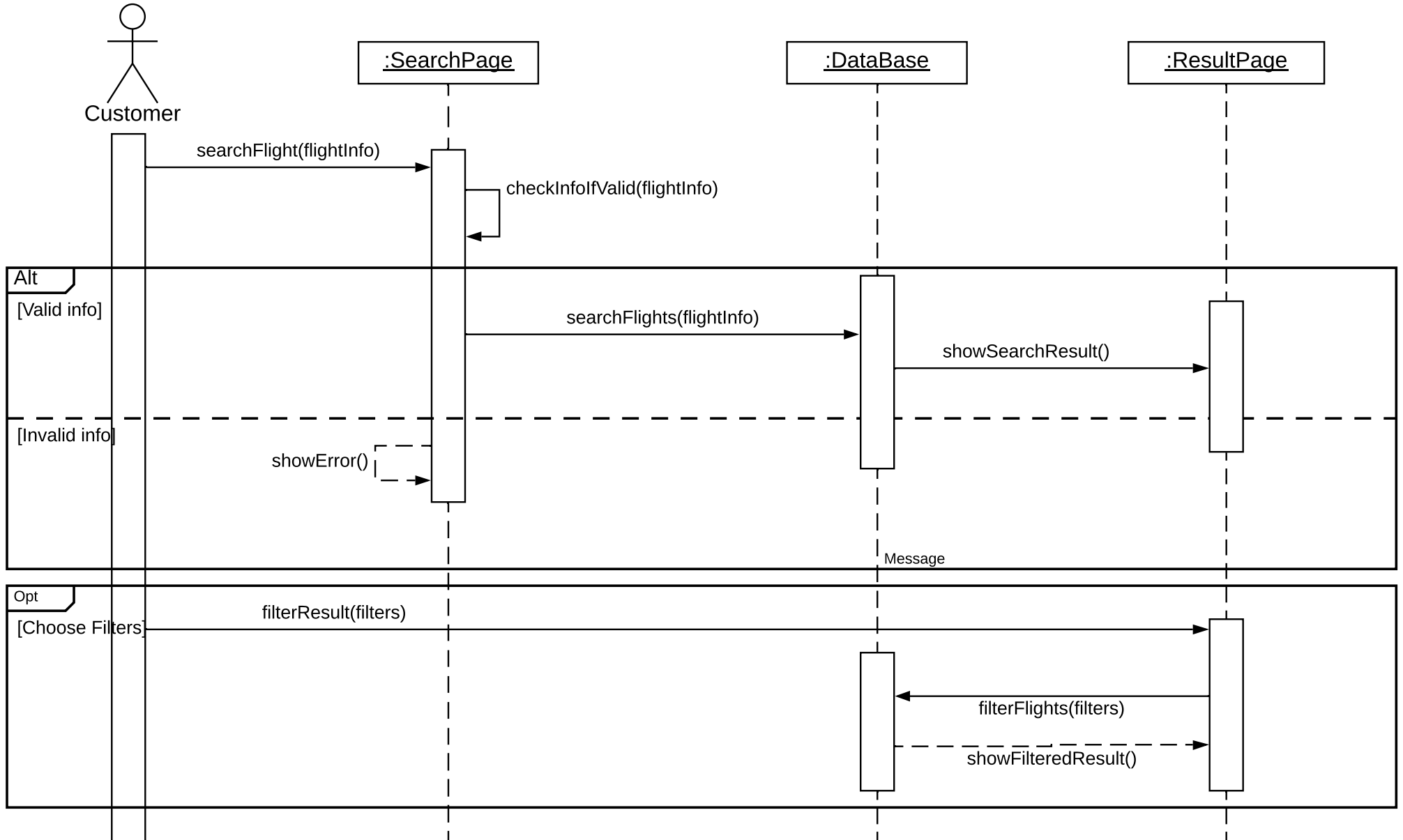
company account

Sabry Alawy
1162074

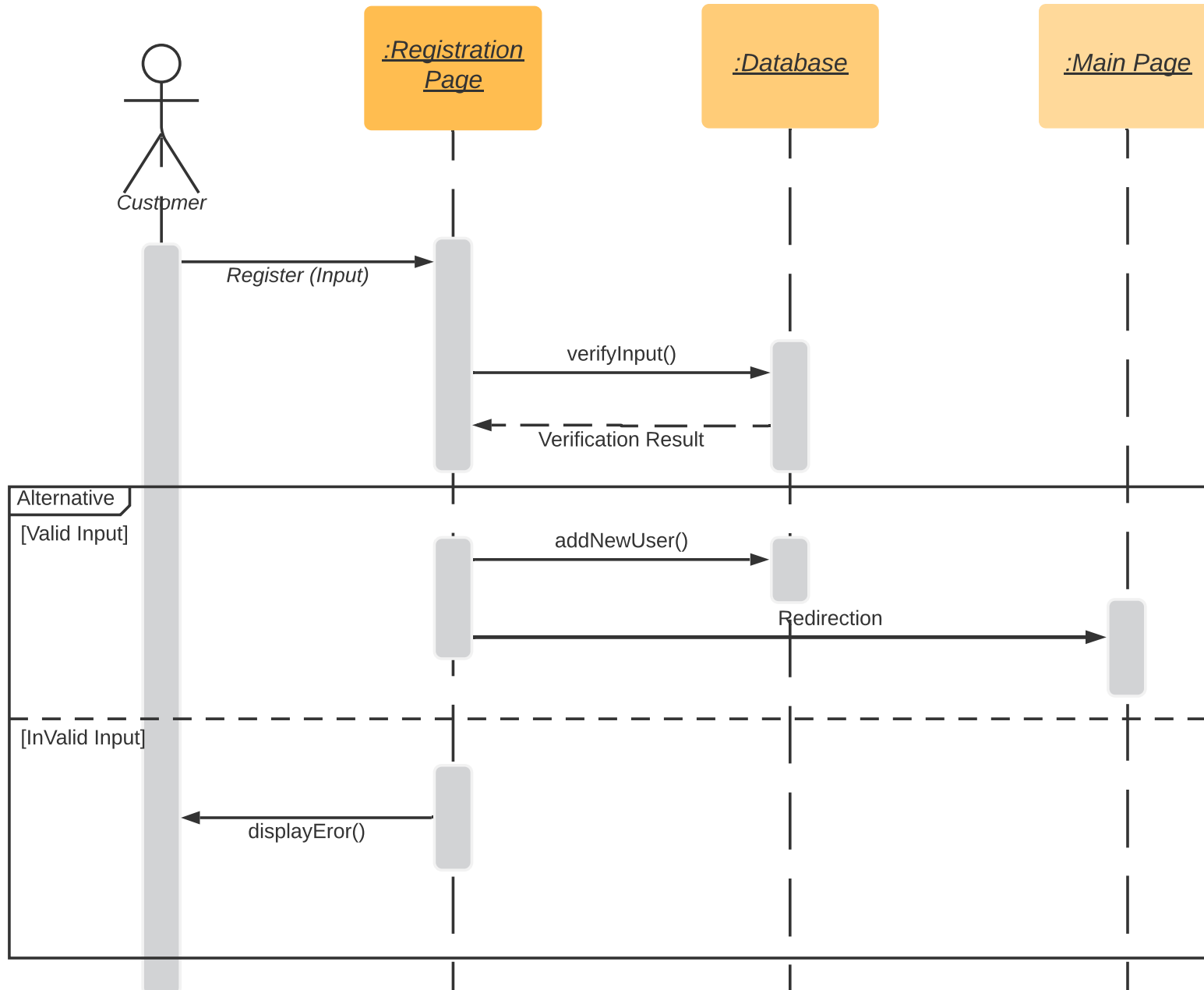


Search for Flights Sequence Diagram

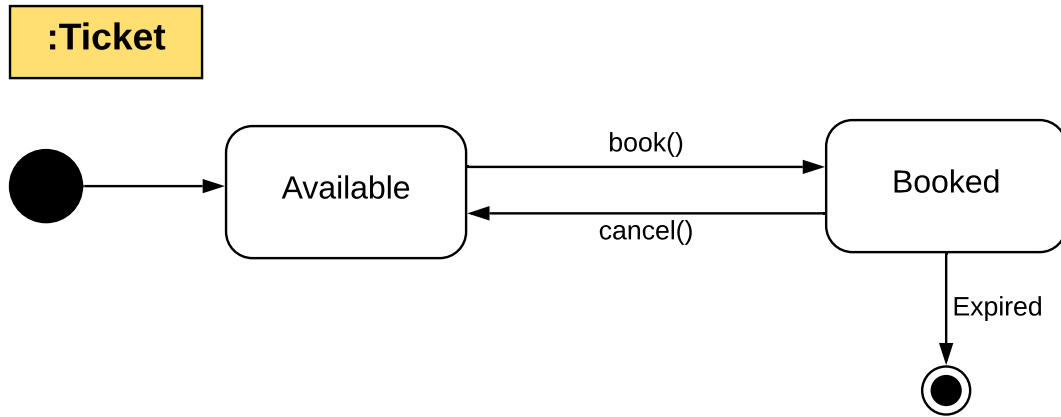
Laith Marzouka
1160827



Registration Sequence Diagram
Layth Abufarhah | December 19, 2019



State Diagram



Design Goals:

In our project, we shall consider 3 primary design goals:

Goal 1: High Cohesion

We shall try keeping the classes and methods that are related to each other in a single place so that they form a logically single, atomic component. As an example, we combined the search engine along with the booking and payment functionalities in one component since they are highly dependent.

Goal 2: Low Coupling

We shall try separating unrelated classes and methods as much as possible to make a single unit independent from others by minimizing the number of connections between two or more component. As an example, we separated the employee component into two individual components (HR, flight manager) since they work independently and irrelative to each other.

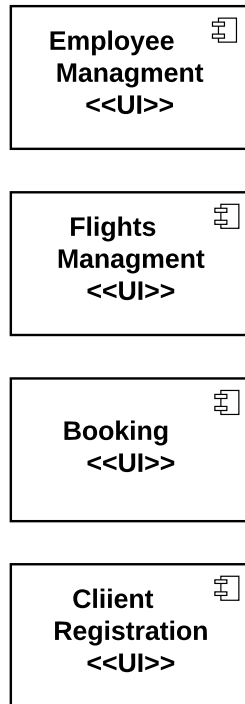
Goal 3: Robustness

Our project is critical to the customer's profit and any failure shall cost them money and question their reliability (data lost/manipulated ...etc). So, our system must be as failure-tolerant as possible to all situations of failure. The servers used will be of good quality, and a back-up web and database servers which are located in a different place shall be provided as well.

Architectural Design

The Design will be of three layers:

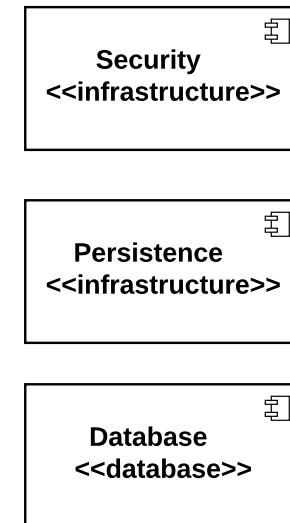
1) Application Layer



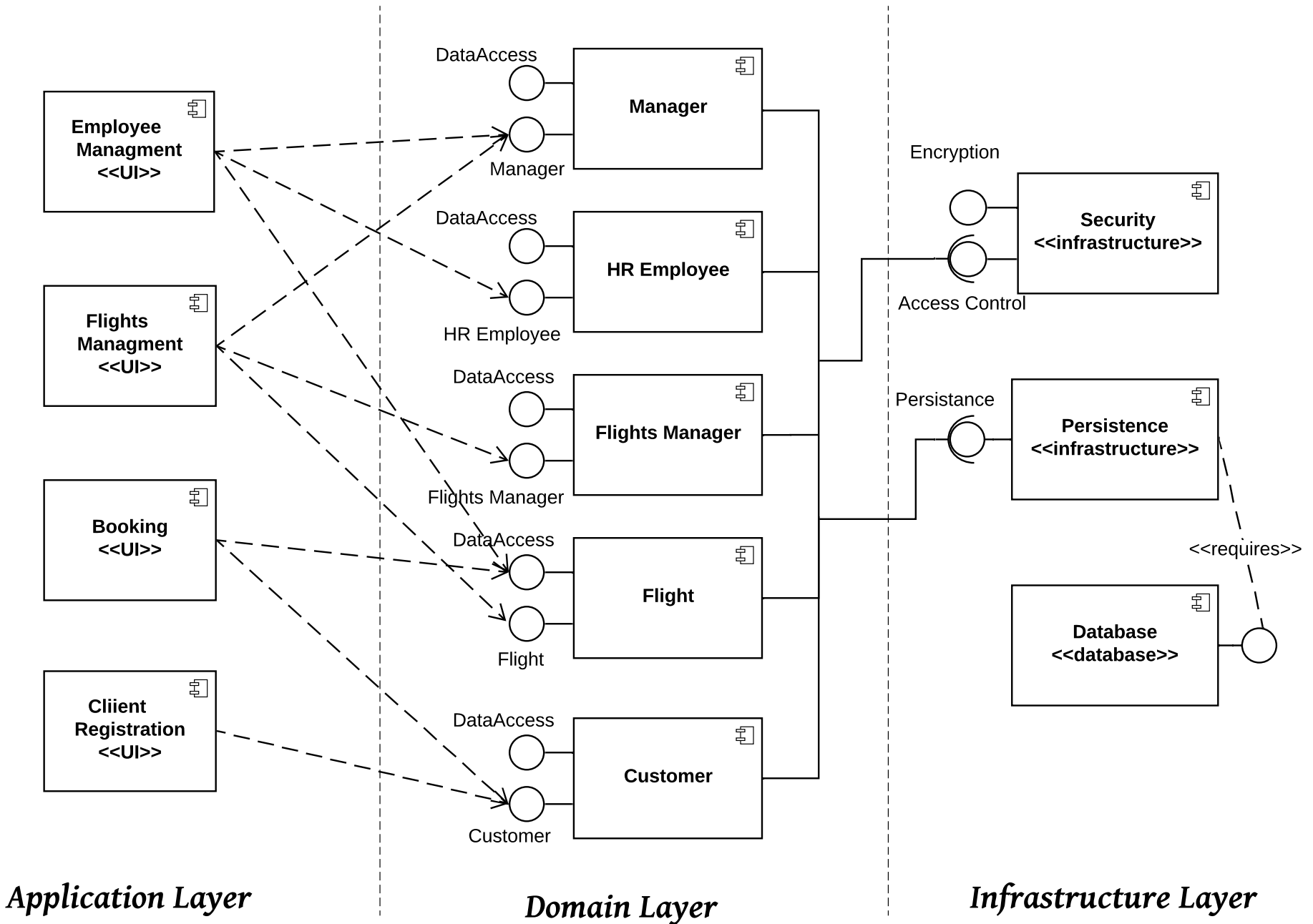
2) Domain Layer



3) Infrastructure Layer



Component Diagram



Deployment Diagram

