CMPE 232 – Section 01/02/04

Database Systems

Group 14

Flight Booking System Database

Project Design Report

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# Introduction

In this report, we focus on the fundamental aspect of the flight reservation system project: database design. Our goal is to establish a structured and efficient data architecture to support flight bookings. Through Entity Relationship Diagrams and Relational Models, we aim to optimize data management and enhance the overall user experience within the database.

The database serves as the backbone of the Flight Booking System, ensuring secure data storage and the seamless operation of airline reservations. This report delves into the specifics of our database design, emphasizing the crucial role of structured data management in the success of the broader Flight Booking System.

# Project Overview

Our project aims to revolutionize air travel reservation processes by implementing a strong database structure. The main objective is to create a highly efficient and user-centric platform that simplifies traveler flight booking experience and empowers airlines to manage reservations seamlessly. The system is composed of a well-organized database of six basic tables, including **Flight**, **Passenger**, **Airport**, **Ticket**, **Payment**, and **Airline**.

The flight table forms the basis and contains details such as flight numbers and schedules. Passenger tables focus on passenger information, airport tables organize geographical data and ticket tables link passengers to specific flights. Financial transactions are tracked in the payment table, while the airline table provides an overview of the participating carriers. Together, these tables create a network structure that streamlines passenger flight reservations and allows airlines to manage schedules and reservations efficiently.

Overall, the project's primary goal is to simplify the booking process for travelers by offering complete tools for airlines to successfully manage bookings. We strive to improve the entire airline experience by offering safe and well-organized databases containing a wealth of information about flights, passengers, tickets, payments, and airline details. This database-driven system enables passengers to simply search for flights, make bookings, and finalize payments, while airlines can efficiently manage their schedules and reservations.

# Entity Relationship Diagram

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# Class DiagramA black screen with white text Description automatically generated

# Mock-up

We aim to implement a website for our project and the user interface of our project is designed with the primary aim of providing users an intuitive and efficient experience. Although the actual UI has not yet been implemented, our vision is to provide users with a seamless journey from flight search to booking completion. With a modern and responsive design, users will be welcomed to a main menu with options such as "Home", "Search Flights", "My Bookings", and "Contact Support". We will use React.js to implement the frontend of the website and ensure a dynamic and interactive user experience.

In the “Search Flights” section, users can easily enter their departure and arrival preferences, departure date and number of passengers and click "Search" to get a list of matching flights. This list shows the flights that will be available in the database, including flight numbers, departure and arrival times, airline information and prices. The booking process is simple, and users can enter their personal information, select seats, and complete the payment (Fake Payments). For our backend, we have opted for Java with Spring Boot, leveraging its capabilities to seamlessly connect to our MySQL database using JDBC (Java Database Connectivity), ensuring a robust and responsive system. While in concept mode, the user interface promises a convenient and pleasant booking experience for travelers.

A screenshot of a website

Description automatically generatedHere is an inspirational sample that would be matching our UI:

(The Photo is being taken from <https://dribbble.com/shots/14805075-Flight-booking>)