

**DR.KEDAR NATH MODI INSTITUTE OF
ENGINEERING AND TECHNOLOGY**



PROJECT PROPOSAL

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TITLE OF THE PROJECT

AIRLINE MANAGEMENT SYSTEM



INTRODUCTION

The Airline Management System is a software application designed to simplify and automate the operations of an airline. In the modern aviation industry, managing flight schedules, passenger information, bookings, staff, and payments manually is time-consuming and prone to errors. To overcome these challenges, this project provides a digital solution that ensures accuracy, efficiency, and smooth functioning of airline activities.

This system allows administrators to manage flights, airplanes, and staff, while passengers can easily search for flights, book tickets, and view their booking details. The system also supports essential features such as ticket cancellation, seat availability checking, and secure data storage. By using Java for application development and MySQL as the backend database, the project ensures reliability, scalability, and robust performance.

Overall, the Airline Management System helps streamline airline operations, reduces paperwork, improves customer experience, and maintains all airline-related records in an organized manner. It is a practical and efficient solution for real-world airline management needs.

PROBLEM STATEMENT

What are today's Problem Statement ?

Airlines deal with large volumes of data: flights, passengers, bookings, and staff. Managing these manually leads to issues such as data duplication, delays, lost records, and poor customer service. There is a need for a digital system that can handle these operations efficiently in real-time.

OBJECTIVE

- :-To automate airline operations and reduce manual workload***
- :-To manage flights, passengers, tickets, and staff in a single system.***
- :-To provide an easy interface for booking and canceling tickets.***
- :-To maintain accurate and secure databases.***
- :-To generate reports for decisionmaking.***
- :-To improve customer satisfaction through faster services***

PROJECT CATEGORY

❖ **Database Management System:-** As the project involves creating tables , managing records, queries and connectivity with Java + SQL.

❖ **Application Software:-** The most used technologies used here are:

- SQL(Structured Query Language),
- JDBC(Java Database connectivity)
- JAVA
- OOP(Object Oriented Programming as the project uses modules and DAO,ETC

ANALYSIS

MODULES AND DESCRIPTION:-

❑ AUTHENTICATION MODULE:-

- Handles login functionality for Admin and User .It consists of Admin login, User login and Password protection

❑ FLIGHT MANAGEMENT MODULE:-

- Handles all operations related to flights such as Add/ Update existing flight details/ Remove a flight/ View all flight/Search flight by source and destination.

❑ PASSENGER MANAGEMENT MODULE:

- This manages passenger information. Add Passenger Detail(name , age, gender, contact)/Modify/View/Retrieve passenger by ID.

❏ **BOOKING MANAGEMENT MODULE:-**

- Handles the complete flight ticket booking lifecycle. Search available flight/Book ticket/Generate Booking Id/Update Available seats /Provide Booking confirmation.

❏ **SEARCH MODULE:-**

- Provides an interface for users to search for flights based on parameters. Search by destination and origin/Search by date/Display capacity.

❏ **PAYMENT MODULE:-**

- Handles online payments for booking. Payment gateway/Billing and Invoice Generation.

❏ **CANCELLATION MODULE:-**

- Allows Passenger or admin to cancel existing booking. Retrieve Booking Details/Cancel Ticket/Update available seats /Mark booking as CANCELLED

DATABASE DESIGN:-

• **TABLE : FLIGHT**

| FIELD | DATA TYPE | DESCRIPTION |
|------------------|-----------------|---------------------|
| Flight id | INT PRIMARY KEY | Unique id |
| Flight name | VARCHAR(50) | Flight name |
| Origin | VARCHAR(50) | Departure City |
| Destination | VARCHAR(50) | Arrival City |
| Arrival Time | DATETIME | Arrival Date & Time |
| Destination Time | DATETIME | Dest Date & Time |
| Capacity | INT | Availability |
| Fare | DECIMAL(10,2) | Ticket Price |

➤ **TABLE :-PASSENGER**

| FIELD | DATA TYPE | DESCRIPTION |
|--------------|-----------------|----------------|
| Passenger id | INT PRIMARY KEY | Unique id |
| Name | VARCHAR(50) | Passenger name |
| Phone | VARCHAR(50) | Phone number |
| Email | VARCHAR(100) | Email Address |

➤ **TABLE :- PAYMENT**

| FIELD | DATATYPE | DESCRIPTION |
|----------------|-----------------|--------------------------|
| Payment ID | INT PRIMARY KEY | Unique Payment No. |
| Booking ID | INT | Booking Reference |
| Amount | DECIMAL(10,2) | Paid Amount |
| Payment Date | DATETIME | Date Of Payment |
| Payment Method | VARCHAR(20) | Payment Method(UPI/CARD) |

➤ **TABLE :- CANCELLATION**

| FIELD | DATATYPE | DESCRIPTION |
|---------------------|-----------------|----------------------|
| Cancellation ID | INT PRIMARY KEY | Cancellation No. |
| Booking ID | INT | Booking Ref. |
| Cancellation Time | DATETIME | Time Of cancellation |
| Refund Amount | DOUBLE(10,2) | Refunded Amount |
| Cancellation Status | VARCHAR(50) | Cancelled |

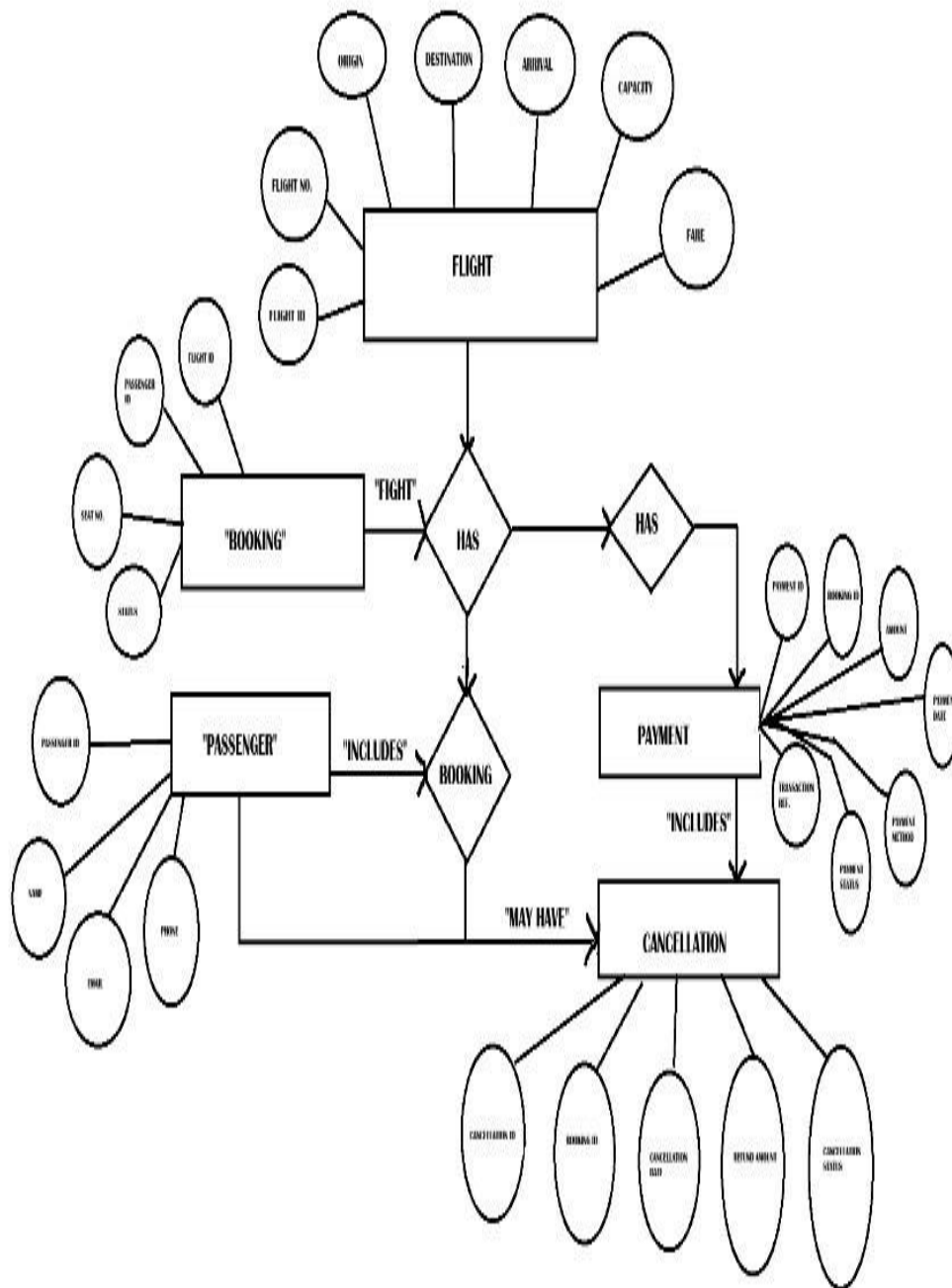
➤ **TABLE :- BOOKING**

| FIELDS | DATA TYPE | DESCRIPTION |
|--------------|-----------------|-------------------------|
| Booking ID | INT PRIMARY KEY | Unique Booking No. |
| Passenger ID | INT | Passenger Who Booked |
| Flight ID | INT | Flight Selected |
| Seat NO. | VARCHAR(50) | Specifies Allotted Seat |
| Status | VARCHAR(20) | Booked/Cancelled |

➤ **TABLE :- USER**

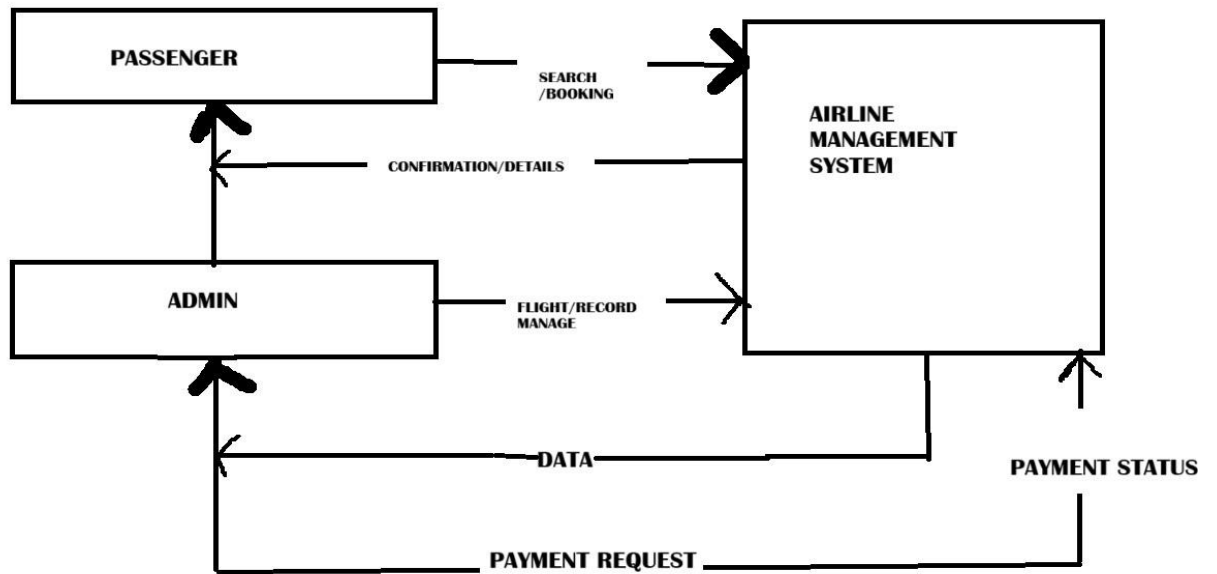
| FIELD | DATATYPE | DESCRIPTION |
|-----------|-----------------|----------------|
| User ID | INT PRIMARY KEY | Unique ID |
| User Name | VARCHAR(50) | Login Username |
| Password | VARCHAR(100) | Login Password |
| Role | VARCHAR(20) | Admin/User |

ENTITY RELATIONSHIP **DIAGRAM**

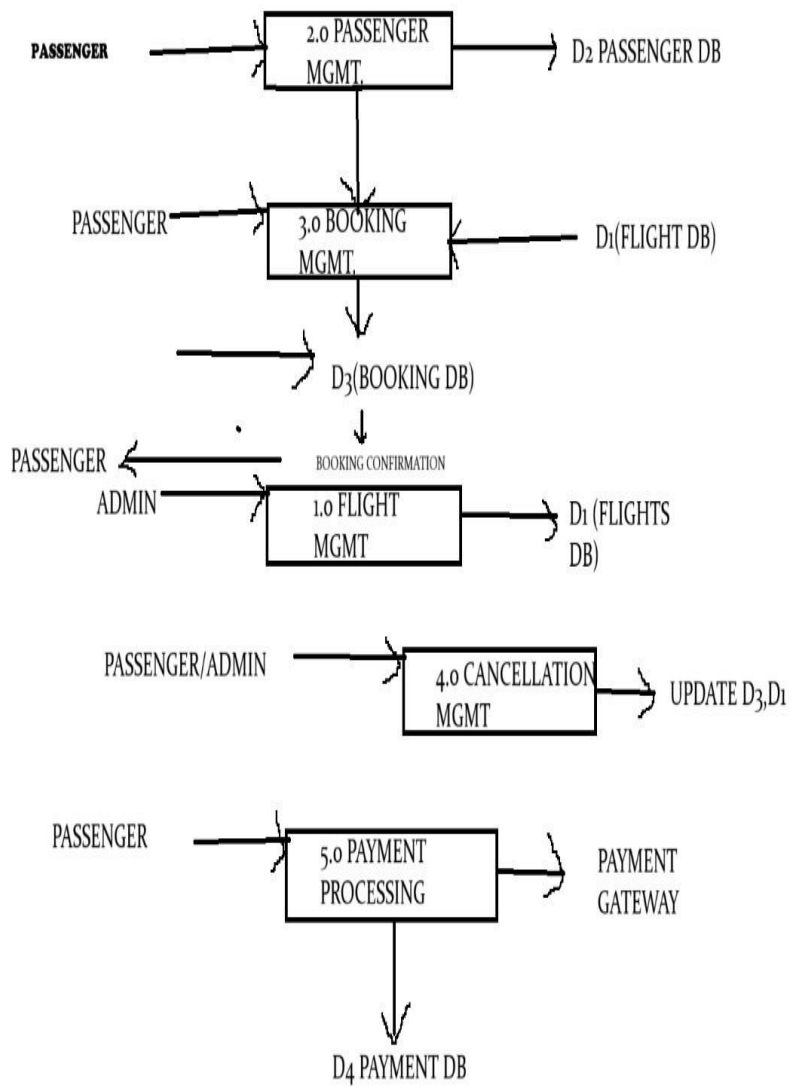


DATA FLOW DIAGRAM

▪ ZERO LEVEL DFD

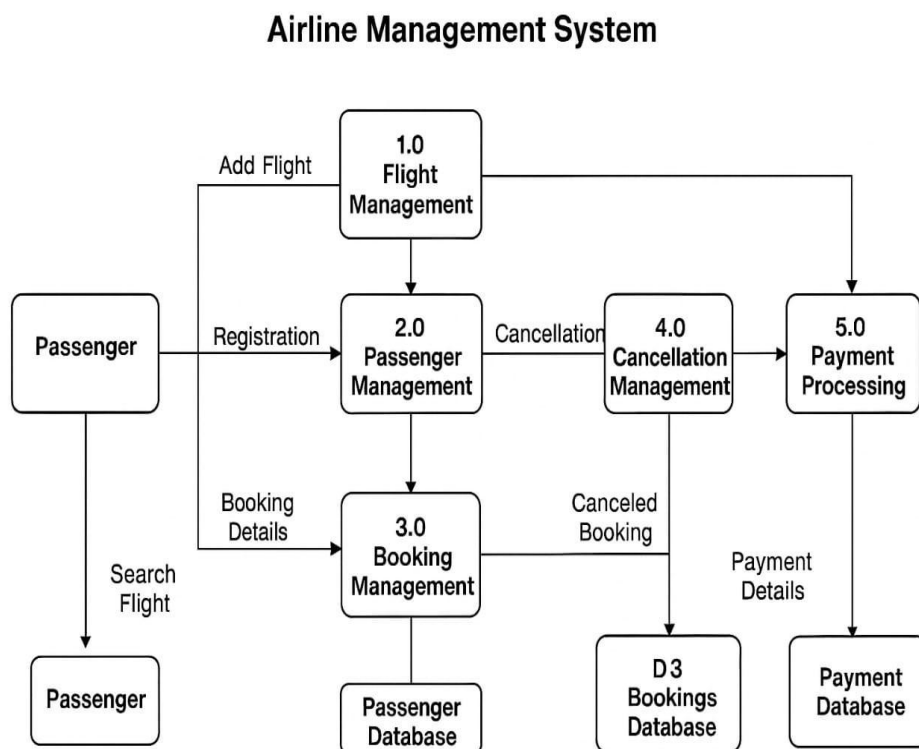


■ ONE LEVEL DFD



COMPLETE STRUCTURE

PROCESS LOGICAL DIAGRAM



PLATFORM USED

Software Requirements:

- Operating System: Windows
- Programming Language: Java
- Tools: Maven Database: MySQL 8+IDE: IntelliJ / Eclipse
- Driver :(MySQL Connector-J)
- Libraries :JDBC

Hardware Requirements:

- Processor: Intel i5
- RAM: 16 GB
- Hard Disk: 364 MB free space

FUTURE SCOPE

- ❖ **Integrate secure payment gateways (UPI, cards, net banking).**
- ❖ **Enable realtime flight status and tracking.**
- ❖ **Provide mobile checkIn and digital boarding passes.**
- ❖ **Include seat selection with a graphical seat map.**
- ❖ **Implement AIbased dynamic ticket pricing.**
- ❖ **Add detailed analytics and reporting tools.**
- ❖ **Deploy system on cloud for scalability and remote access**
- ❖ Add online ticket booking web or mobile app

BIBLIOGRAPHY

- Korth, Silberschatz & Sudarshan, Database System Concepts, McGraw-Hill Education.
- Oracle & MySQL Official Documentation – JDBC Connectivity, SQL Queries, and Database Design.
- Tutorials Point – Articles on Java Programming, JDBC, and Database Connectivity.
- Geeks for Geeks – Tutorials on Java OOP Concepts, SQL, ER Diagrams, and JDBC.
- Research papers and online references related to Airline Reservation Systems and Management Systems.
- Herbert Schildt, Java: The Complete Reference, McGraw-Hill Education, 11th Edition.