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 decision-making.

:-To improve customer satisfaction through faster services

TABLE :-PASSENGER

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 fight/Book ticket/ Generate Booking Id/Update Available seats /Provide Booking confirmation.

- ***SEARCH MODULE:-***

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

- ***PAYMENT MODULE:-***

  - Handles online payments for booking. Payment gateway/Biling ad 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 Flight name	INT PRIMARY KEY VARCHAR(50)	Unique id Flight name
Origin	VARCHAR(50)	Departure City
Destination Arrival Time	VARCHAR(50) DATETIME	Arrival City Arrival Date &Time
Destination Time	DATETIME	Dest Date & Time
Capacity Fare	INT DECIAML(10,2)	Availability 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 :- 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 Usename
Password Role	VARCHAR(100) VARCHAR(20)	Login Password Admin/User

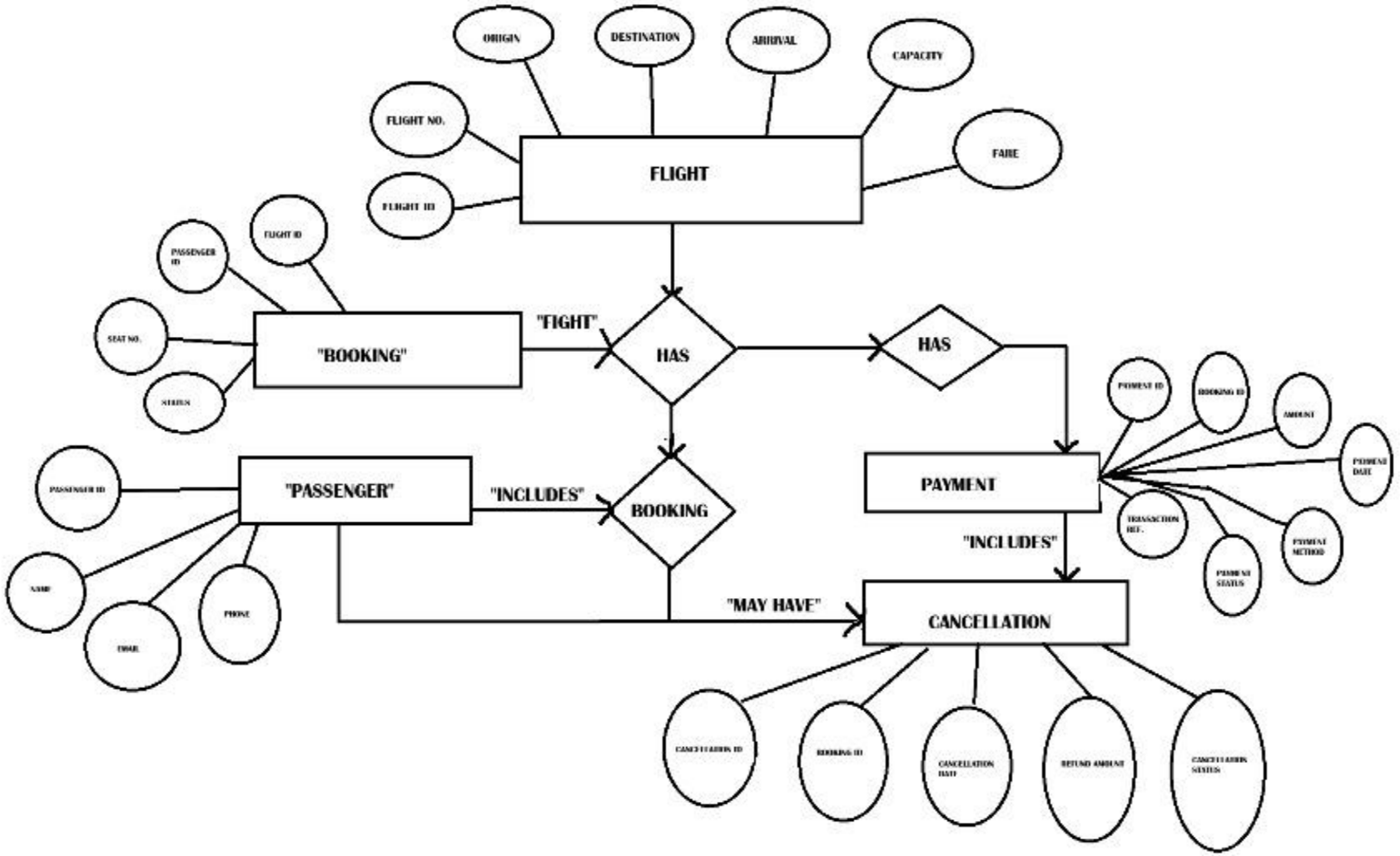
➢ TABLE :- PAYMENT

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

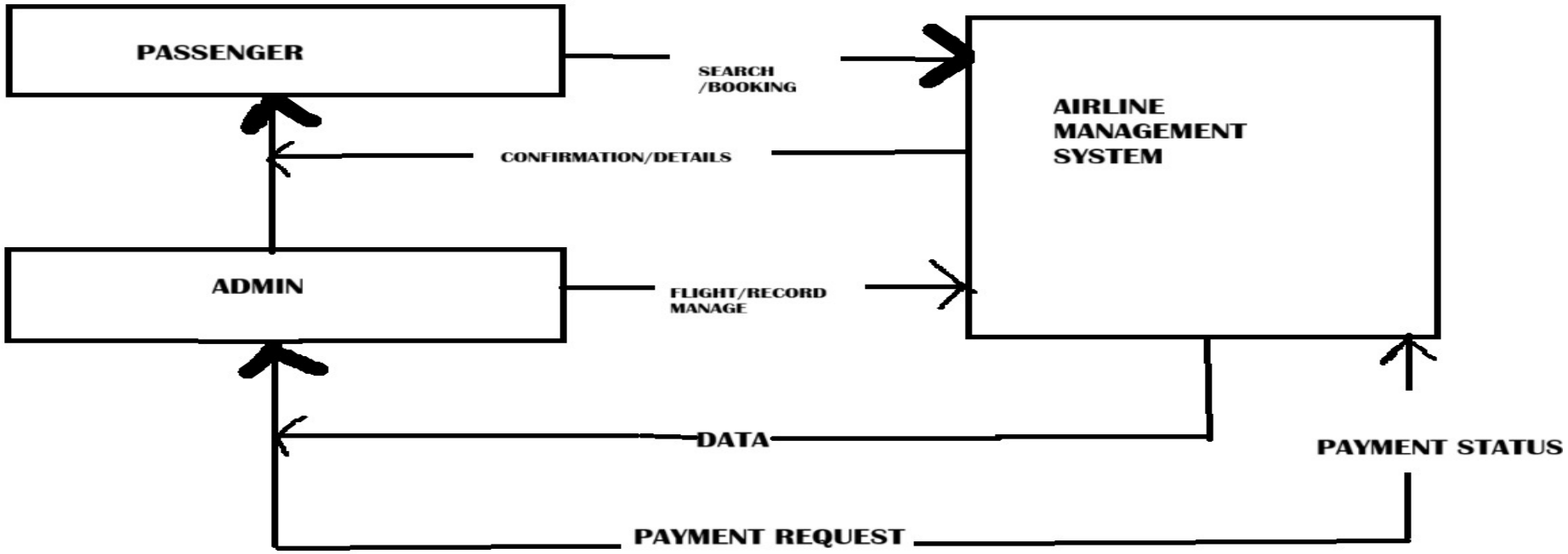
FIELD	DATATYPE	DESCRIPTION
Cancellation ID	INT PRIMARY KEY	Cancellation No.
Booking ID	INT	Booking Ref.
Cancellation Time	DATETIME	Time Of cancellation
Refund Amount	DOUBLE(10,2)	Refunded Amount
Cancellation Status	VARCHAR(50)	Cancelled

ENTITY RELATIONSHIP DIAGRAM

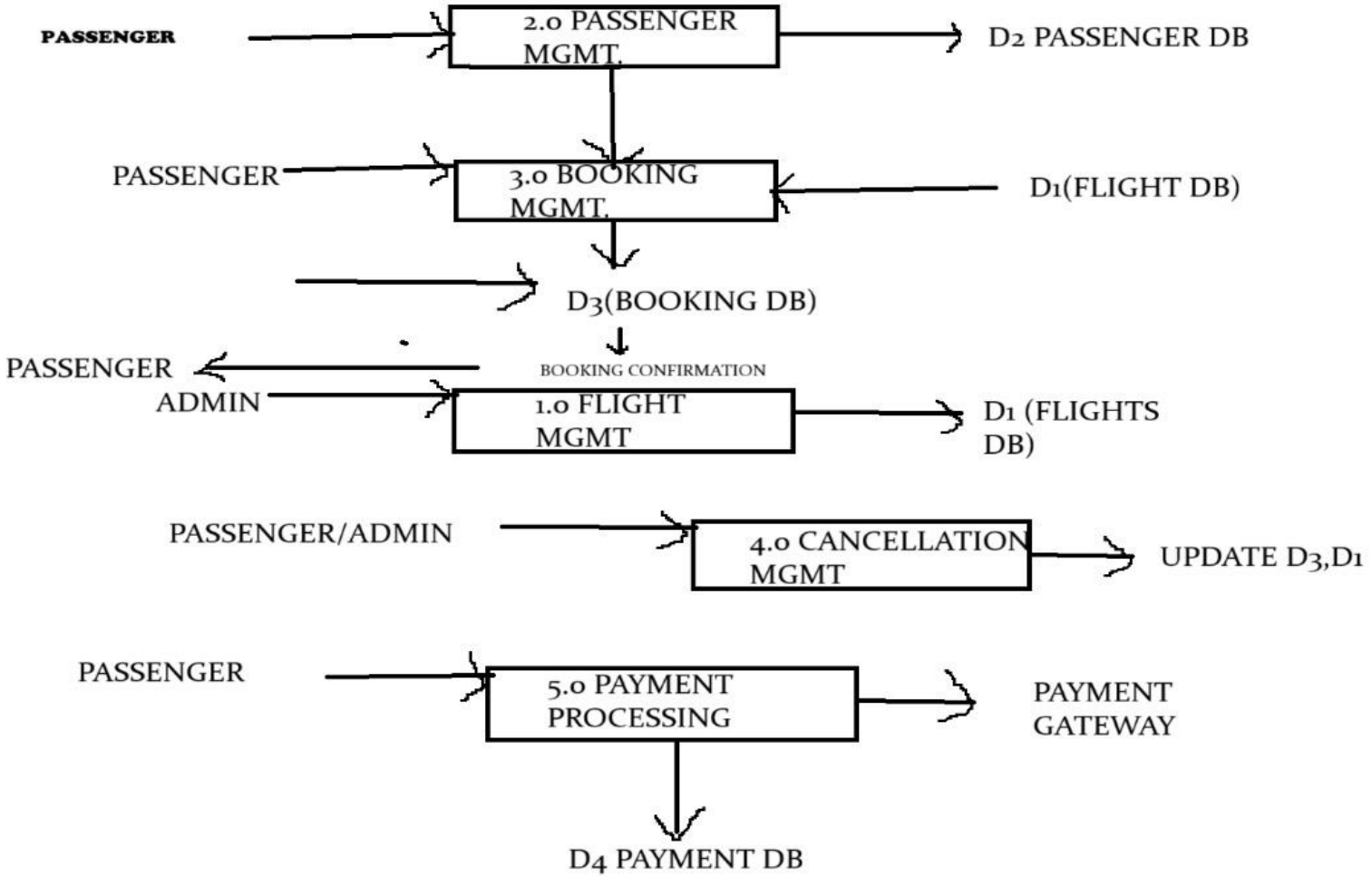


DATA FLOW DIAGRAM

- *ZERO LEVEL DFD*

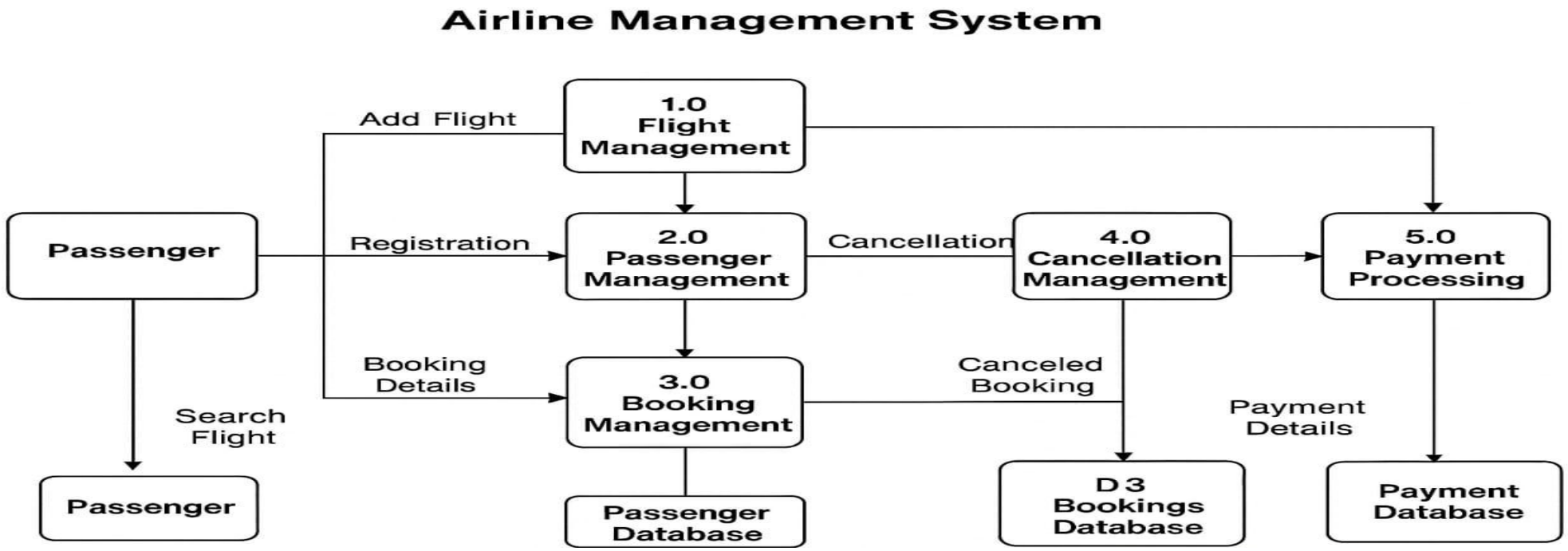


- ***ONE LEVEL DFD***



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

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

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THANK YOU!!