Department of Computer Science and Engineering

University of Dhaka

Project Report

CSE2211 - Database Management Systems-I
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Project Title

Flight Management Database

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Introduction

Flight management database is a database of huge information of Flight, passengers, pilot , staff etc. It is easy to get any information , if authority have a database on flight management. From this concept i want to create a database on flight management. It contains flight schedule, tickets price, airport information, airplane information, staff detailed. Anyone can book seat, know tickets price, total seats of a flight easily by using this database.

Descriptions

In Flight Management Database, it store the information of a flight in details and it is mostly use in airline system. Main purpose of my database is that people can find flight schedule, price of ticket of a flight, booking for a flight, flight's destination etc.

The main features of my database are:

- Information of flight's destination, total tickets of a flight, price for ticket, flight date, schedule.

- All information of pilots and air-host.

- It's store to passengers' information.

- Airport and airplane's information also store in this database.

Constraints:

- Passenger id, flight id, airplane id, airport id, staff id, can't be null and should be unique.

- Name of passenger, airplane, airport and staff can't be null.

- Salary of staff must be a positive number.
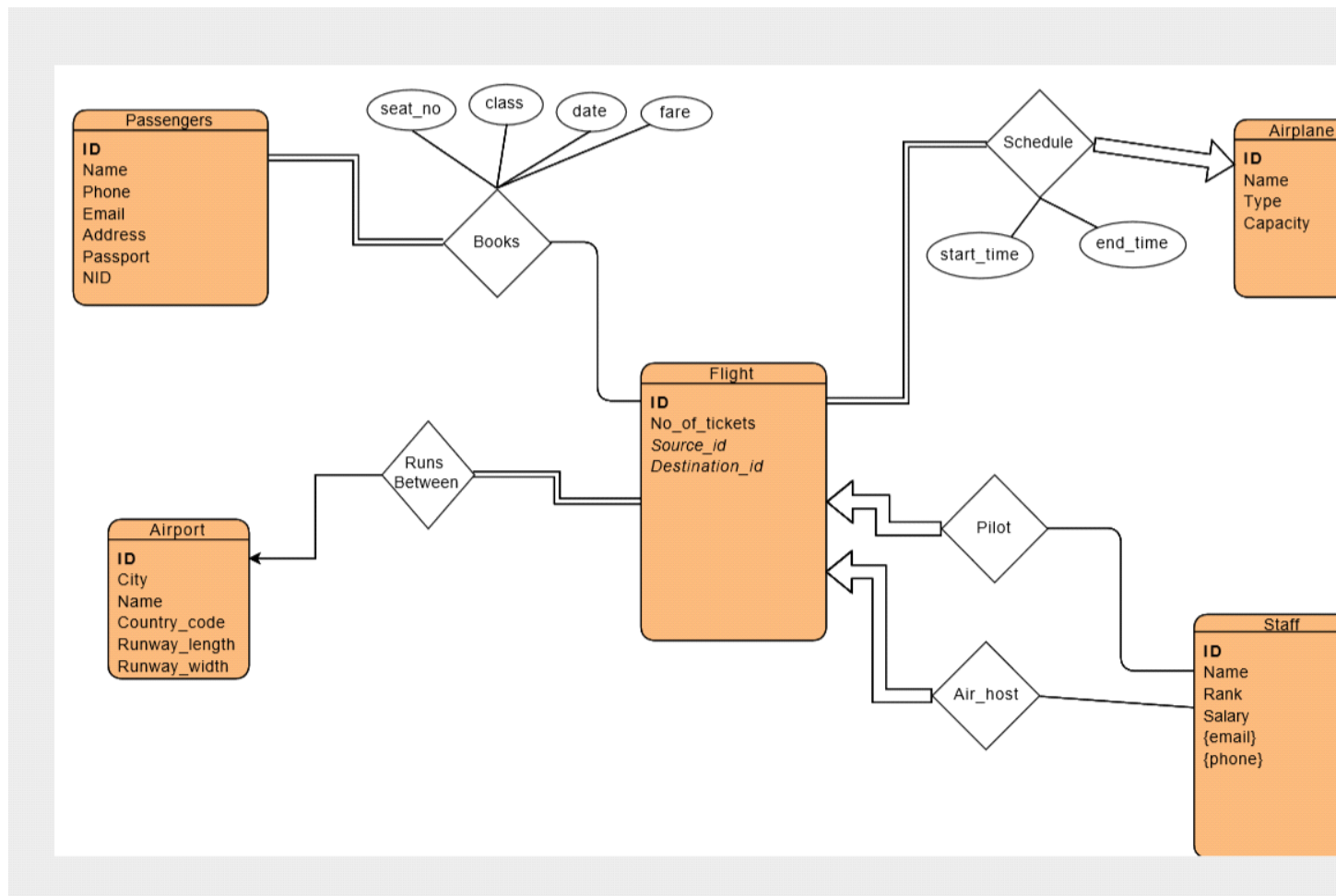
Design Diagrams

Fig: ERD

I have assumed that all the airport and airplane names are different. A passenger can book more than one flight's tickets at the same time. Every flight runs between two airports and that two airports should be different.
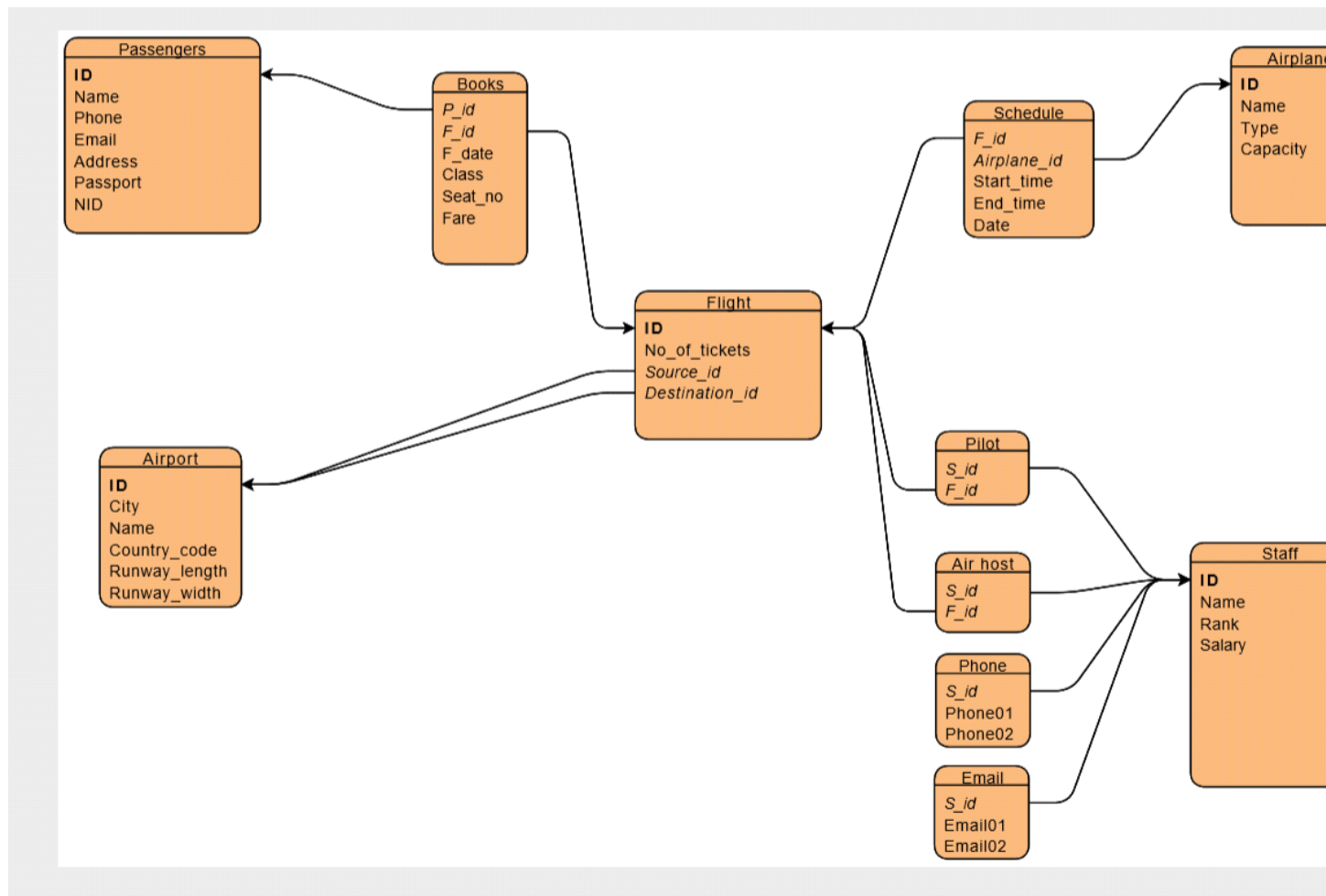
Fig: Schema

In this Schema, all the relations are converted to tables. For the multi-value of phone and email I have to add two tables 'Phone' and 'Email'. I also add 'Schedule' table for all flight's schedule and 'Books' table for passengers' booking information for the flight.

Environment of Implementation

Oracle is one of the most popular and most usage database development platform. Oracle has very rich feature and it's highly reliable. It's packed with features and minimizes the need for third party software. I choose oracle 11g because it is easy to learn and implement than mysql. Very user friendly environment on oracle. After-all I felt very comfortable to use oracle.

Application of the Database

Application query: Find the airplane name with it's capacity which capacity is maximum?

select name, capacity

from airplane

where capacity=(

select max(capacity)

from airplane);

NAME	CAPACITY
A380-800	853

Application query: Find the phone numbers of staff who are Air-host?

select name,phone01,phone02

from staff , phone

where id = s_id and rank='air-host';

NAME	PHONE01	PHONE02
Anna	1778853641	1778853642
Anu	1778853645	1778853646
Zenin	1778853643	1778853644
Safa	1778853647	1778853648

Application query: Find the total, average,maximum and minimum salary of staffs?

select sum(salary) as Total_salary, avg(salary) as Avg_salary, max(salary) as Max_salary, min(salary) as Min_salary

from staff ;

TOTAL_SALARY	AVG_SALARY	MAX_SALARY	MIN_SALARY
805000	100625	175000	30000

Application query: Find total passengers in a flight?

select f_id,count(distinct p_id)

from books natural join flight

group by f_id;

F_ID	COUNT(DISTINCTP_ID)
F002	1
F005	1
F004	1
F001	1
F003	1

Application query: Find minmum and maximum fare of ticket among the flights?

select min(fare),max(fare)

from books

MIN(FARE)	MAX(FARE)
5000	30000

Application query: find the name of pilot and airplane , which pilot driven the airplane?

select f.id,s.name,a.name

from (((flight f join pilot p on f.id=p.F_id) join staff s on s_id = s.id) join schedule on f.id = schedule.f_id) join airplane a on a.id = schedule.airplane_id;

ID	NAME	NAME
F005	Zashim	Airbus A320neo
F002	Jack	Boeing 777-300
F003	Safwaan	Boeing 737-800
F004	Sumon	Bombardier Q400

Application query: find the name of pilot who driven the flight?

select f.id,s.name

from (flight f join pilot p on f.id=p.F_id) join staff s on s_id = s.id;

ID	NAME
F005	Zashim
F002	Jack
F003	Safwaan
F004	Sumon

Application query: find number of staffs whose salary is bigger than 100000.

select count(id)

from staff

where salary >100000;

COUNT(ID)

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Application query:Schedule time of all flight?

select f.id as flight_no,Start_time, end_time,s_date

from flight f join schedule s on f.id= s.f_id

FLIGHT_NO	START_TIME	END_TIME	S_DATE
F001	00:00:00	01:00:00	11/11/2018
F002	00:00:00	01:00:00	11/12/2018
F005	15:00:00	16:00:00	11/15/2018
F003	13:00:00	14:00:00	11/13/2018
F004	14:00:00	15:00:00	11/14/2018

Application query: Number of tickets of flights.

select id,no_of_tickets

from flight;

ID	NO_OF_TICKETS
F001	120
F002	150
F003	250
F004	62

F005   130

Application query:how many airport in a city?

select city, count(city)

from airport

group by city;

CITY	COUNT(CITY)
Kathmandu	1
Dhaka	1
Kolkata	1
NEW YORK	1
Chittagang	1

Application query: Find out which airplane is using by a flight?

select F_id, name

from Schedule natural join airplane

where airplane_id = id;

F_ID	NAME
F001	A380-800
F002	Boeing 777-300
F003	Boeing 737-800

F004   Bombardier Q400

F005   Airbus A320neo

Application query: Find out a flight depart from which airport

select f.id, a.name,a.city

from flight f join airport a on f.source=a.id

ID	NAME	CITY
F001	Shahjalal International Airport	Dhaka
F002	Shahjalal International Airport	Dhaka
F003	Shah Amanat International Airport	Chittagang
F005	Netaji Subhash Chandra Bose International Airport	Kolkata
F004	John F. Kennedy International Airport	NEW YORK

Application query: find out destination of all flights?

select f.id,a.city,a.name

from airport a join flight f on a.id=f.destination

ID	CITY	NAME
F004	Dhaka	Shahjalal International Airport
F005	Dhaka	Shahjalal International Airport

F001 Chittagang   Shah Amanat International Airport

F003 Kathmandu   Tribhuvan International Airport

F002 NEW YORK   John F. Kennedy International Airport

Conclusions and Discussions

Possibilities:

1. More flight can be added in the flight table.

2.More airport and airplane can be added so that people can book ticket maximum possible areas.

Limitations:

1. All types of attributes are not included in the database to make the project simple.

2. Only important functions and triggers are included in the database.

3. All possible constrains are not checked.

Discussion:

I want to create this project with a huge amount of data. But I failed to add more data to complete the project. For this I only add 5 flights, 5 airport, 5 airplane, 5 passengers.Firstly, I faced some problem to create ERD of database and convert from ERD to Schema. For Staffs overtime facilities are not included. And for the staffs the salary catagory are not created. For flights the type list of seat are also not included. Database can be improved in the above cases are considered.