PROJECT REPORT

DATABASE MANAGEMENT SYSTEM

Topic: Airport Management System

Group-1

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AIRPORT MANAGEMENT SYSTEM

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AIRPORT MANAGEMENT SYSTEM

Abstract:

The airport database management system consists of different airports present in different cities. Airport has many airlines consists information like airline_id, airline_name and code for each airline.

Assuming each city has one airport. Each airport has many employees working in it. We store employee details like name, address, job, phone, age etc. Airline has many flights and these flights can be non-stop or connecting. We keep track of flights, arrival and departure times etc. Each flight carries many passengers. Passengers need to book the tickets. So we store personal details of passengers like passenger_id, name, phone, age, passport_no, along with the status of tickets like booking and cancellation of tickets.

Introduction:

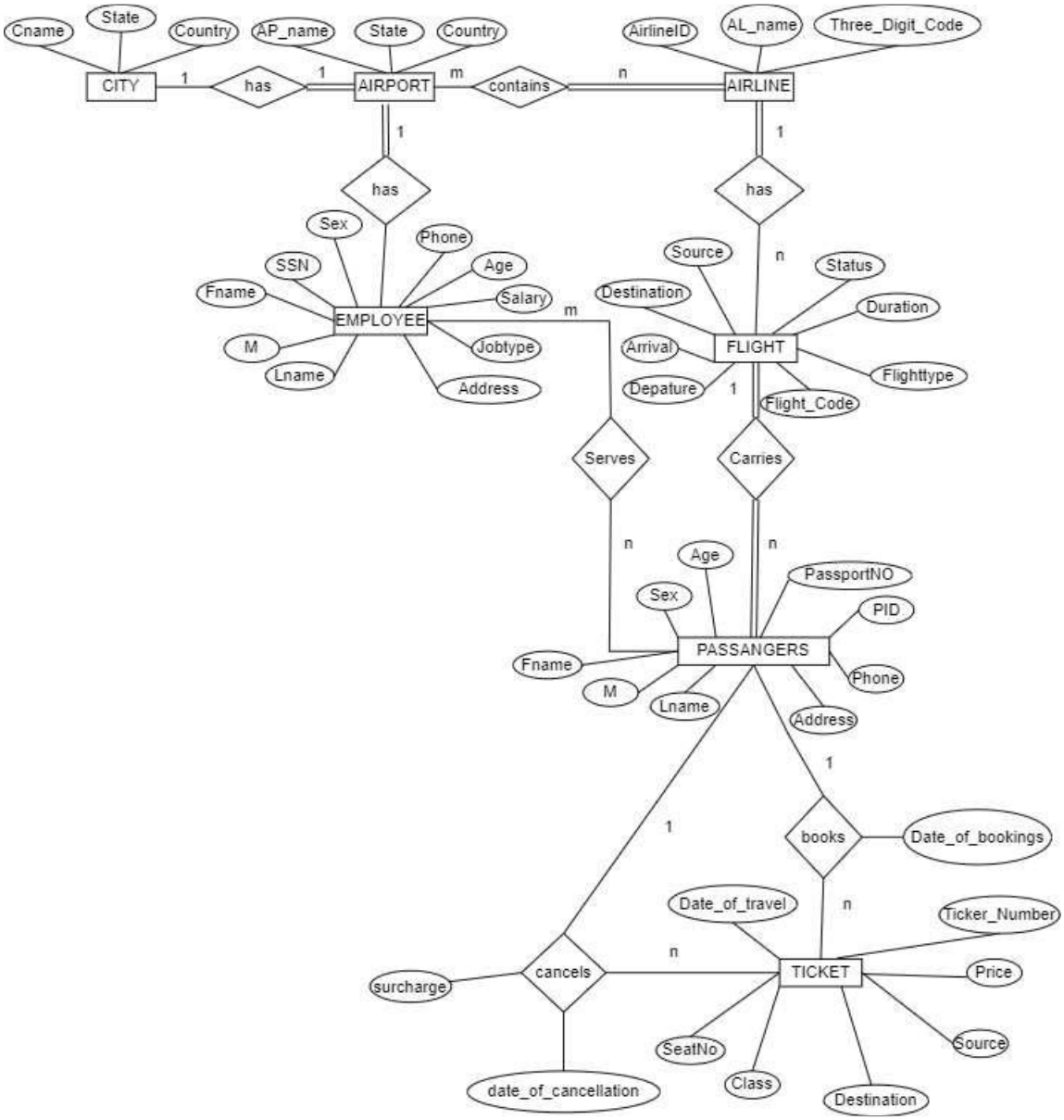
This airport database management system consists developing of entities and their respective attributes. After forming initial entities and attributes we design the relationship among the entities means how each entity is related to other. We find the cardinality of entities. After computing each of the components we design suitable ER or EER diagram that contains each functionalities mentioned above.

Scheduling of flights, information about passengers and different services provided by airplanes with respect to different airlines are covered in this project.

Objective:

The main objective of the project is to learn and implement a real-time application on database for airport database management system. The project, concentrates on bookings, tracking the flights . This Database will be a great solution for many functionalities in Airport.

ER Diagram:


Cname
State
Country
CITY
1
has
1
AP_name
State
Country
AIRPORT
m
contains
n
AirlineID
AL_name
Three_Digit_Code
AIRLINE
1
has
1
has
Sex
Phone
SSN
Age
Fname
Salary
EMPLOYEE
m
M
Jobtype
Lname
Address
Source
n
Status
Destination
Duration
Arrival
FLIGHT
Flighttype
Depature
1
Flight_Code
Serves
Carries
n
n
Age
PassportNO
Sex
PID
PASSANGERS
Fname
Phone
M
Lname
Address
1
1
books
Date_of_bookings
Date_of_travel
n
Ticker_Number
n
surcharge
cancels
TICKET
Price
SeatNo
Source
Class
Destination
date_of_cancellation

Information of Entities:

There are seven entities present in our ER diagram with attributes connected to them.

City:

Attributes: Cname , State, Country

Assuming each city has only one airport. City name, state and country details are stores under entity named city. In these attributes Cname is a primary key which helps to identify city uniquely.

Airport:

Attributes: AP_name , State, Country

Airport name, state and country details are stores under entity “Airport”. In these attributes AP_name is a primary key which helps to identify Airport uniquely.

Employee:

Attributes: Fname, Lname, M, SSN, Sex, Address, Phone, Age, Salary, Jobtype.

An airport can have many employees and each employee belong to only one airport. Employees details like name in the form of First name , Last name and personal details like phone, age, sex, salary, jobtype, address, SSN will be stored. SSN is the primary key used to identify the employee uniquely.

Airline:

Attributes: AirlineID , AL_name, Code

An airport contains many airlines and information like airline id, airline name and code of airline will be stored. Among these attributes airline id acts as a primary key.

Flight:

Attributes: Source, Destination, Arrival, Departure, Status, Duration, Flighttype, Flight_code.

An airline contains many flights. To keep track of all flights, we store the arrival, departure timings, source and destination, Flight type and flight code, status for each flight. Among these attributes, Flight_code acts as primary key.

Passenger:

Attributes: Fname, Lname, address, M, sex, age, passport_no, PID, phone

Each flight carries many passengers. We store personal details of the passengers such as name as first name, last name, address, sex, age, M, phone, PID and passportNo in case of international journey. In these passportNo and PID are primary keys used to identify the passenger uniquely.

Ticket:

Attributes: Ticket_Number, price, source, destination, class, seatNo, Date_of_Travel

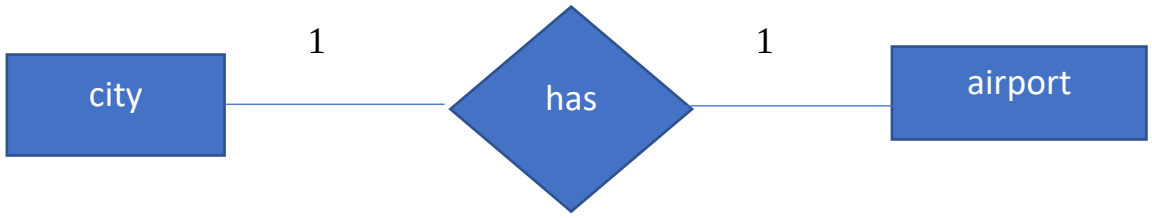
Each passenger knows the information of ticket. A passenger can either book or cancel the ticket. From this entity, a passenger able to know Ticket_Number, Price, Source, destination, class, seatNo, Date_of_Travel. Ticket_Number is the primary key which helps to identify Ticket uniquely.

Relationship among entities:

1.City and Airport:

Relation used: has

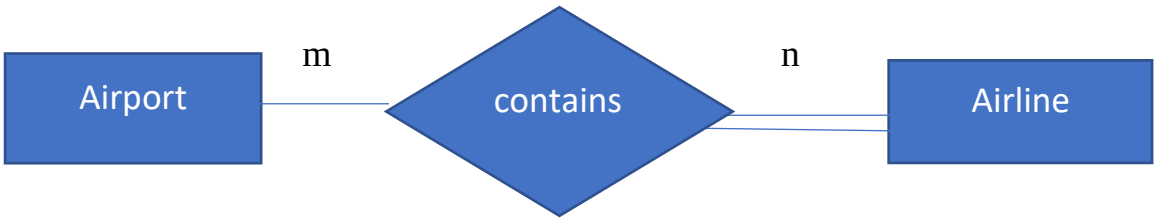
Assuming each city has one airport and an airport belongs to one city. It follows one-to-one relationship. This represents partial participation of both city and airport in a relation ‘has’.



2.Airport and Airline:

Relation used: contains

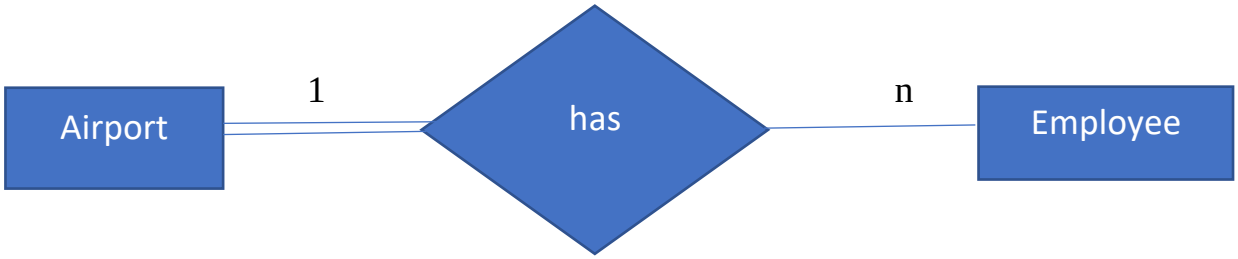
Each airport contains many airlines and a single airline can be present in many airports. So it follows many-to-many relation. This represents total participation of airline and partial participation of airport in a relation contains.



3.Airport and Employee:

Relation used: has

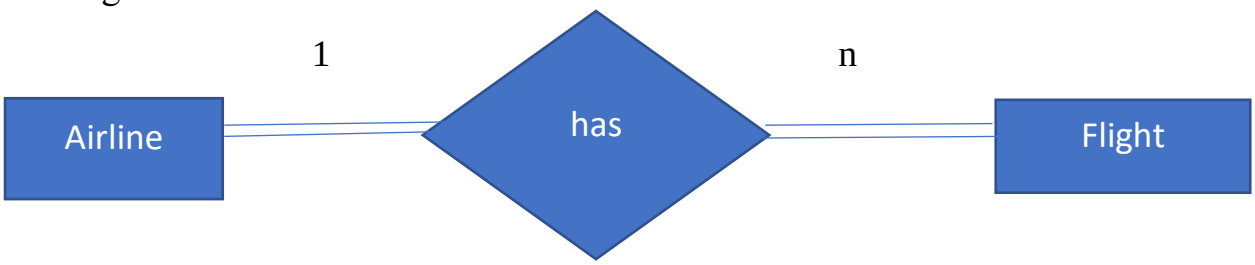
Each airport has many employees working in it and one employee must belong to only one airport. It follows one-to-many relation. This represents total participation of airport and partial participation of employee in a relation ‘has’.



4.Airline and Flight:

Relation used: has

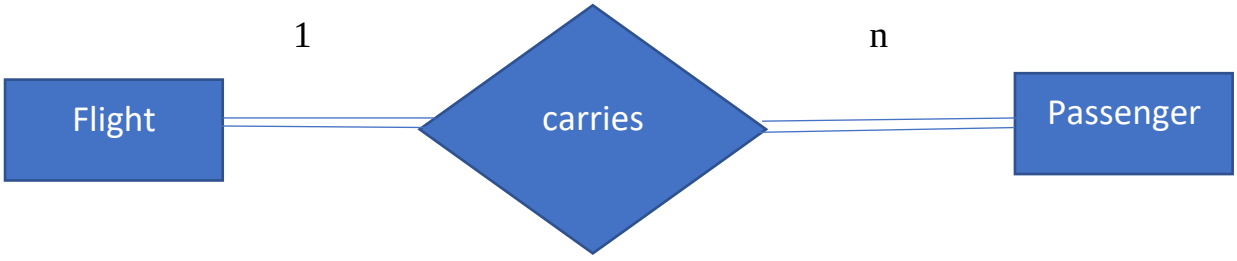
Each airline has many flights but a flight should belong to only one airline. It follows one-to-many relation. This represents total participation of both airline and flight in a relation ‘has’.



5. Flight and Passenger:

Relation used: carries

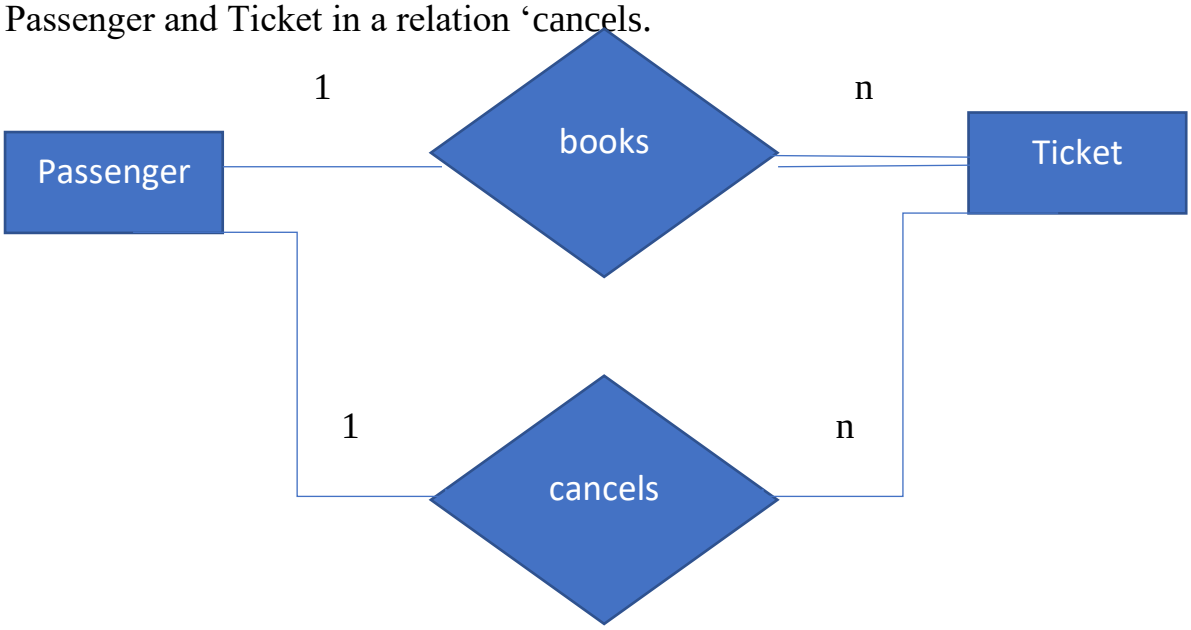
Each flight carries many passengers and each passenger belongs to only one flight. It follows one-to-many relation**.** This represents total participation of both Flight and Passenger in a relation ‘carries’.



6. Passenger and Ticket:

Relation used: books,cancels

Each passenger can either book or cancels the ticket. Passenger can book or cancel many tickets but a single ticket belongs to only one passenger. It follows one-to-many relation. This represents total participation of Ticket and partial participation of 'Passenger' in a relation 'books', and partial participation of both Passenger and Ticket in a relation 'cancels.



Functional dependencies:

	Functional dependencies	**Normal forms**
PASSPORTNO->FNAME,M,LNAME, ADDRESS, PHONE, AGE, SEX	Partial dependency	Violates 2NF
PID -> FLIGHT_CODE	Partial dependency	Violates 2NF
DATE_OF_BOOKING,SOURCE, DESTINATION, CLASS -> PRICE	Transitive dependency	Violates 3NF
DATE_OF_CANCELLATION -> SURCHARGE	Transitive dependency	Violates 3NF
JOBTYPE -> SALARY	Transitive dependency	Violates 3NF

NORMALISATION:

Some of the tables having partial dependency and come tables have transitive dependency. Due to these functional dependencies, we may not get accurate result. To reduce data redundancy, we follow's normalisation:

2NF: to remove partial dependency

3NF: to remove transitive dependency

All the tables converted into **3NF**, to reduce transitive dependency. The tables become:

TABLES AFTER NORMALISATION:

CITY (CNAME, STATE, COUNTRY)

CNAME	STATE	COUNTRY
Chandigarh	Chandigarh	India
Delhi	Delhi	India
hyderabad	telangana	India
Mumbai	Maharashtra	India
vijayawada	Andhra	india

AIRPORT (AP_NAME, STATE, COUNTRY, CNAME)

AP_NAME	STATE	COUNTRY	CNAME
Chandigarh International Airport	Chandigarh	India	Chandigarh
Chhatrapati Shivaji International Airport	Maharashtra	India	Mumbai
Indira GandhiInternational Airport	Delhi	India	Delhi
rajiv gandhi International Airport	telangana	india	hyderabad
vijayawada International Airport	Andhra	india	vijayawada

AIRLINE (AIRLINEID, AL_NAME, THREE_DIGIT_CODE)

AIRLINEID	AL_NAME	THREE_DIGIT_CODE
AI	Air India Limited	098
BA	British Airways	125
IN	Indigo	220
QR	Qatar Airways	157
SJ	spice jet	001

FLIGHT (FLIGHT_CODE, SOURCE, DESTINATION, ARRIVAL, DEPARTURE, STATUS, DURATION, FLIGHTTYPE, LAYOVER_TIME, NO_OF_STOPS, AIRLINEID)

FLIGHT_CODE	SOURCE	DESTINATION	ARRIVAL	DEPARTURE	STATUS	DURATION	FLIGHTTYPE	LAYOVER_TIME	NO_OF_STOPS	AIRLINEID
AI2014	BOM	DFW	02:10	03:15	On-time	24hr	Connecting	3	1	AI
BA1689	FRA	DEL	10:20	10:55	On-time	14hrs	Non-stop	0	0	BA
EY1234	JFK	TPA	19:20	20:05	On-time	16hrs	Connecting	5	2	EY
LH9876	JFK	BOM	05:50	06:35	On-time	18hrs	Non-stop	0	0	LH
QR2305	BOM	DFW	13:00	13:55	Delayed	21hr	Non-stop	0	0	QR

PASSENGER1 (PID, PASSPORTNO)

PID	PASSPORTNO
1	A1234568
2	B9876541
3	C2345698
4	D1002004
5	X9324666

PASSENGER2(PASSPORTNO, FNAME, M, LNAME, ADDRESS, PHONE, AGE, SEX)

PASSPORTNO	FNAME	M	LNAME	ADDRESS	PHONE	AGE	SEX
A1234568	ALIA	M	SEN	2230 NORTHSIDE, APT 11, ALBANY, NY	8080367290	30	M
B9876541	ANKITA	V	AHIR	3456 VIKAS APTS, APT 102,DOMBIVLI, INDIA	8080367280	26	F
C2345698	KHYATI	A	MISHRA	7820 MCCALLUM COURTS, APT 234, AKRON, OH	8082267280	30	F
D1002004	ANKITA	S	PATIL	7720 MCCALLUM BLVD, APT 1082, DALLAS, TX	9080367266	23	F
X9324666	TEJASHREE	B	PANDIT	9082 ESTAES OF RICHARDSON, RICHARDSON,...	9004360125	28	F

PASSENGER3 (PID, FLIGHT_CODE)

PID	FLIGHT_CODE
3	9W2334
1	AI2014
5	EY1234
2	LH9876
4	QR1902

EMPLOYEE1 (SSN, FNAME, M, LNAME, ADDRESS, PHONE, AGE, SEX, JOBTYPE, ASTYPE, ETYPE, SHIFT, POSITION, AP_NAME)

SSN	FNAME	M	LNAME	ADDRESS	PHONE	AGE	SEX	JOBTYPE	ASTYPE	ETYPE	SHIFT
123456789	LINDA	M	GOODMAN	731 Fondren, Houston, TX	4356789345	35	F	ADMINISTRATIVE SUPPORT	RECEPTIONIST		
333445555	JOHNY	N	PAUL	638 Voss, Houston, TX	9834561995	40	M	ADMINISTRATIVE SUPPORT	SECRETARY		
666884444	SHELDON	A	COOPER	345 CHERRY PARK, HESSE,GERMANY	1254678903	55	M	TRAFFIC MONITOR		NIGHT	
987654321	SHERLOCK	A	HOLMES	123 TOP HILL, SAN Francisco,CA	8089654321	47	M	TRAFFIC MONITOR			DAY
999887777	JAMES	P	BOND	3321 Castle, Spring, TX	9834666995	50	M	ENGINEER		RADIO ENGINEER	

SHIFT	POSITION	AP_NAME
		vijayawada International Airport
		delhi International Airport
		chennai Airport
DAY		hyderabad International Airport
		chandigarh International Airport

EMPLOYEE2(JOBTYPE, SALARY)

	JOBTYPE	SALARY
▶	ADMINISTRATIVE SUPPORT	50000
	AIRPORT AUTHORITY	90000
	ENGINEER	70000
	TRAFFIC MONITOR	80000

SERVES (SSN, PID, PASSPORTNO)

	SSN	PID	PASSPORTNO
▶	123456789	1	A1234568
	888665555	4	D1002004
	123456789	9	Q1243567
	888665555	13	P3452390
	123456789	15	R8990566

TICKET1(TICKET_NUMBER,SOURCE,DESTINATION,DATE_OF_BOOKING,DATE_OF_TRAVEL,SEATNO,CLASS,DATE_OF_CANCELLATION,PID,PASSPORTNO)

TICKET_NUMBER	SOURCE	DESTINATION	DATE_OF_BOOKING	DATE_OF_TRAVEL	SEATNO	CLASS	DATE_OF_CANCELLATION	PID
122	BOM	DEL	21-06-16	21-07-16	32	BUSINESS	2021-07-16	1
299	CHA	BOM	21-05-17	21-06-16	45	ECONOMY	2021-07-17	2
273	HYD	DEL	21-10-16	21-10-17	12	BUSINESS	2021-11-16	3
464	DEL	VJY	21-08-18	21-09-05	16	FIRST-CLASS	2021-10-16	4
266	CHE	VJY	21-12-14	21-12-16	54	ECONOMY	2021-12-18	5

DATE_OF_CANCELLATION	PID	PASSPORTNO
2021-07-16	1	A1234568
2021-07-17	2	B9876541
2021-11-16	3	C2345698
2021-10-16	4	D1002004
2021-12-18	5	X9324666

TICKET2 (DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS, PRICE)

	DATE_OF_BOOKING	SOURCE	DESTINATION	CLASS	PRICE
▶	2021-05-23	BOM	DFW	ECONOMY	95000
	2021-06-15	JFK	BOM	ECONOMY	100000
	2021-06-17	JFK	TPA	ECONOMY	98000
	2021-07-16	IAH	DEL	BUSINESS	200000
	2021-07-16	IXC	IAH	FIRST-CLASS	150000

TICKET3 (DATE_OF_CANCELLATION, SURCHARGE)

	DATE_OF_CANCELLATION	SURCHARGE
▶	2021-06-19	25000
	2021-12-18	75000

SQL QUERIES:

```
create database airport;
use airport;
CREATE TABLE CITY (CNAME VARCHAR(15) NOT NULL,
                   STATE VARCHAR(15),
                   COUNTRY VARCHAR(30),
                   PRIMARY KEY(CNAME));
INSERT INTO CITY (CNAME, STATE, COUNTRY)
VALUES('hyderabad','telangana','India');
INSERT INTO CITY (CNAME, STATE, COUNTRY) VALUES
('Chandigarh','Chandigarh','India');
INSERT INTO CITY (CNAME, STATE, COUNTRY) VALUES
('vijayawada','Andhra','india');
INSERT INTO CITY (CNAME, STATE, COUNTRY) VALUES('Delhi','Delhi','India');
INSERT INTO CITY (CNAME, STATE, COUNTRY)
VALUES('Mumbai','Maharashtra','India');

SELECT * FROM CITY;

CREATE TABLE AIRPORT(AP_NAME VARCHAR(100) NOT NULL,
                   STATE VARCHAR(15),
                   COUNTRY VARCHAR(30),
                   CNAME VARCHAR(15),
                   PRIMARY KEY(AP_NAME),
                   FOREIGN KEY(CNAME) REFERENCES CITY(CNAME) ON DELETE
CASCADE);

INSERT INTO AIRPORT (AP_NAME, STATE, COUNTRY, CNAME) VALUES('rajiv gandhi
International Airport','telangana','india','hyderabad');
INSERT INTO AIRPORT (AP_NAME, STATE, COUNTRY, CNAME) VALUES('Chandigarh
International Airport','Chandigarh','India','Chandigarh');
INSERT INTO AIRPORT (AP_NAME, STATE, COUNTRY, CNAME) VALUES('vijayawada
International Airport','Andhra','india','vijayawada');
INSERT INTO AIRPORT (AP_NAME, STATE, COUNTRY, CNAME) VALUES('Indira
GandhiInternational Airport','Delhi','India','Delhi');
INSERT INTO AIRPORT (AP_NAME, STATE, COUNTRY, CNAME) VALUES('Chhatrapati
Shivaji International Airport','Maharashtra','India','Mumbai');
SELECT * FROM AIRPORT;
```

```
CREATE TABLE AIRLINE(AIRLINEID VARCHAR(3) NOT NULL,
                    AL_NAME VARCHAR(50),
                    THREE_DIGIT_CODE VARCHAR(3),
                    PRIMARY KEY(AIRLINEID));

INSERT INTO AIRLINE (AIRLINEID, AL_NAME, THREE_DIGIT_CODE) VALUES('SJ','spice
jet','001');
INSERT INTO AIRLINE (AIRLINEID, AL_NAME, THREE_DIGIT_CODE) VALUES('AI','Air
India Limited','098');
INSERT INTO AIRLINE (AIRLINEID, AL_NAME, THREE_DIGIT_CODE)
VALUES('IN','Indigo', '220');
INSERT INTO AIRLINE (AIRLINEID, AL_NAME, THREE_DIGIT_CODE)
VALUES('BA','British Airways','125');
INSERT INTO AIRLINE (AIRLINEID, AL_NAME, THREE_DIGIT_CODE) VALUES('QR','Qatar
Airways','157');

CREATE TABLE FLIGHT
(FLIGHT_CODE VARCHAR(10) NOT NULL,
SOURCE VARCHAR(3),
DESTINATION VARCHAR(3),
ARRIVAL VARCHAR(10),
DEPARTURE VARCHAR(10),
STATUS VARCHAR(10),
DURATION VARCHAR(30),
FLIGHTTYPE VARCHAR(10),
LAYOVER_TIME VARCHAR(30),
NO_OF_STOPS INT,
AIRLINEID VARCHAR(3),
PRIMARY KEY(FLIGHT_CODE),
FOREIGN KEY(AIRLINEID) REFERENCES AIRLINE(AIRLINEID) ON DELETE CASCADE);

INSERT INTO FLIGHT VALUES('AI2014','BOM','DFW','02:10','03:15','On-
time','24hr','Connecting',3,1,'AI');
INSERT INTO FLIGHT
VALUES('QR2305','BOM','DFW','13:00','13:55','Delayed','21hr','Non-
stop',0,0,'QR');
INSERT INTO FLIGHT VALUES('EY1234','JFK','TPA','19:20','20:05','On-
time','16hrs','Connecting',5,2,'EY');
INSERT INTO FLIGHT VALUES('LH9876','JFK','BOM','05:50','06:35','On-
time','18hrs','Non-stop',0,0,'LH');
INSERT INTO FLIGHT VALUES('BA1689','FRA','DEL','10:20','10:55','On-
time','14hrs','Non-stop',0,0,'BA');
SELECT * FROM FLIGHT;
SET FOREIGN_KEY_CHECKS=0;
CREATE TABLE PASSENGER1
(PID INT NOT NULL,
PASSPORTNO VARCHAR(10) NOT NULL,
PRIMARY KEY(PID, PASSPORTNO));
```

```
INSERT INTO PASSENGER1(PID, PASSPORTNO) VALUES(1,'A1234568');
INSERT INTO PASSENGER1(PID, PASSPORTNO) VALUES(2,'B9876541');
INSERT INTO PASSENGER1(PID, PASSPORTNO) VALUES(3,'C2345698');
INSERT INTO PASSENGER1(PID, PASSPORTNO) VALUES(4,'D1002004');
INSERT INTO PASSENGER1(PID, PASSPORTNO) VALUES(5,'X9324666');
SELECT * FROM PASSENGER1;

CREATE TABLE PASSENGER2
(PASSPORTNO VARCHAR(10) NOT NULL,
FNAME VARCHAR(20),
M VARCHAR(1),
LNAME VARCHAR(20),
ADDRESS VARCHAR(100),
PHONE LONG,
AGE INT,
SEX VARCHAR(1),
PRIMARY KEY(PASSPORTNO));

INSERT INTO PASSENGER2 VALUES('A1234568','ALIA','M','SEN','2230 NORTHSIDE, APT
11, ALBANY, NY',8080367290,30,'M');
INSERT INTO PASSENGER2 VALUES('B9876541','ANKITA','V','AHIR','3456 VIKAS APTS,
APT 102,DOMBIVLI, INDIA',8080367280,26,'F');
INSERT INTO PASSENGER2 VALUES('C2345698','KHYATI','A','MISHRA','7820 MCCALLUM
COURTS, APT 234, AKRON, OH',8082267280,30,'F');
INSERT INTO PASSENGER2 VALUES('D1002004','ANKITA','S','PATIL','7720 MCCALLUM
BLVD, APT 1082, DALLAS, TX',9080367266,23,'F');
INSERT INTO PASSENGER2 VALUES('X9324666','TEJASHREE','B','PANDIT','9082 ESTAES
OF RICHARDSON, RICHARDSON, TX',9004360125,28,'F');
SELECT * FROM PASSENGER2;

CREATE TABLE TICKET1
(TICKET_NUMBER BIGINT,
SOURCE VARCHAR(3),
DESTINATION VARCHAR(3),
DATE_OF_BOOKING varchar(20),
DATE_OF_TRAVEL varchar(20),
SEATNO INT,
CLASS VARCHAR(15),
DATE_OF_CANCELLATION DATE,
PID INT,
PASSPORTNO VARCHAR(10),
FOREIGN KEY(PID, PASSPORTNO) REFERENCES PASSENGER1(PID, PASSPORTNO) ON DELETE
CASCADE);

INSERT INTO TICKET1 VALUES(122,'BOM','DEL','21-06-16','21-07-
16',32,'BUSINESS','2021-07-16',1,'A1234568');
INSERT INTO TICKET1 VALUES(299,'CHA','BOM','21-05-17','21-06-16',
,45,'ECONOMY','2021-07-17',2,'B9876541');
```

```
INSERT INTO TICKET1 VALUES(273,'HYD','DEL','21-10-16','21-10-
17',12,'BUSINESS','2021-11-16',3,'C2345698');
INSERT INTO TICKET1 VALUES(464,'DEL','VJY','21-08-18','21-09-05',16,'FIRST-
CLASS','2021-10-16',4,'D1002004');
INSERT INTO TICKET1 VALUES(266,'CHE','VJY','21-12-14','21-12-
16',54,'ECONOMY','2021-12-18',5,'X9324666');
SELECT * FROM TICKET1;

CREATE TABLE PASSENGER3
(PID INT NOT NULL,
FLIGHT_CODE VARCHAR(10),
PRIMARY KEY(PID),
FOREIGN KEY(FLIGHT_CODE) REFERENCES FLIGHT(FLIGHT_CODE) ON DELETE CASCADE);

INSERT INTO PASSENGER3(PID, FLIGHT_CODE) VALUES(1,'AI2014');
INSERT INTO PASSENGER3(PID, FLIGHT_CODE) VALUES(2,'LH9876');
INSERT INTO PASSENGER3(PID, FLIGHT_CODE) VALUES(3,'9W2334');
INSERT INTO PASSENGER3(PID, FLIGHT_CODE) VALUES(4,'QR1902');
INSERT INTO PASSENGER3(PID, FLIGHT_CODE) VALUES(5,'EY1234');
SELECT * FROM PASSENGER3;

CREATE TABLE EMPLOYEE1
(SSN INT NOT NULL,
FNAME VARCHAR(20),
M VARCHAR(1),
LNAME VARCHAR(20),
ADDRESS VARCHAR(100),
PHONE BIGINT,
AGE INT,
SEX VARCHAR(1),
JOBTYPE VARCHAR(30),
ASTYPE VARCHAR(30),
ETYPE VARCHAR(30),
SHIFT VARCHAR(20),
POSITION VARCHAR(30),
AP_NAME VARCHAR(100),
PRIMARY KEY(SSN),
FOREIGN KEY(AP_NAME) REFERENCES AIRPORT(AP_NAME) ON DELETE CASCADE);

INSERT INTO EMPLOYEE1 VALUES(123456789,'LINDA','M','GOODMAN','731 Fondren,
Houston, TX',4356789345, 35, 'F','ADMINISTRATIVE
SUPPORT','RECEPTIONIST','','','','vijayawada International Airport');
INSERT INTO EMPLOYEE1 VALUES(333445555,'JOHNY','N','PAUL','638 Voss, Houston,
TX',9834561995, 40, 'M','ADMINISTRATIVE SUPPORT','SECRETARY','','','','delhi
International Airport');
INSERT INTO EMPLOYEE1 VALUES(999887777,'JAMES','P','BOND','3321 Castle,
Spring, TX',9834666995, 50, 'M','ENGINEER','','RADIO
ENGINEER','','','chandigarh International Airport');
```

```
INSERT INTO EMPLOYEE1 VALUES(987654321,'SHERLOCK','A','HOLMES','123 TOP HILL,
SAN Francisco,CA',8089654321, 47, 'M','TRAFFIC
MONITOR','','','DAY','','hyderabad International Airport');
INSERT INTO EMPLOYEE1 VALUES(666884444,'SHELDON','A','COOPER','345 CHERRY
PARK, HESSE,GERMANY',1254678903, 55, 'M','TRAFFIC
MONITOR','','NIGHT','','','chennai Airport');
SELECT * FROM EMPLOYEE1;

CREATE TABLE EMPLOYEE2
(JOBTYPE VARCHAR(30) NOT NULL,
SALARY INT,
PRIMARY KEY(JOBTYPE));

INSERT INTO EMPLOYEE2(JOBTYPE, SALARY)VALUES('ADMINISTRATIVE SUPPORT',50000);
INSERT INTO EMPLOYEE2(JOBTYPE, SALARY)VALUES('ENGINEER',70000);
INSERT INTO EMPLOYEE2(JOBTYPE, SALARY)VALUES('TRAFFIC MONITOR',80000);
INSERT INTO EMPLOYEE2(JOBTYPE, SALARY)VALUES('AIRPORT AUTHORITY',90000);
SELECT * FROM EMPLOYEE2;

CREATE TABLE SERVES
(SSN INT NOT NULL,
PID INT NOT NULL,
PASSPORTNO VARCHAR(10) NOT NULL,
PRIMARY KEY(SSN, PID, PASSPORTNO),
FOREIGN KEY(SSN) REFERENCES EMPLOYEE1(SSN) ON DELETE CASCADE,
FOREIGN KEY(PID, PASSPORTNO) REFERENCES PASSENGER1(PID, PASSPORTNO) ON DELETE
CASCADE);

INSERT INTO SERVES(SSN, PID, PASSPORTNO) VALUES(123456789,1,'A1234568');
INSERT INTO SERVES(SSN, PID, PASSPORTNO) VALUES(123456789,15,'R8990566');
INSERT INTO SERVES(SSN, PID, PASSPORTNO) VALUES(123456789,9,'Q1243567');
INSERT INTO SERVES(SSN, PID, PASSPORTNO) VALUES(888665555,4,'D1002004');
INSERT INTO SERVES(SSN, PID, PASSPORTNO) VALUES(888665555,13,'P3452390');
SELECT * FROM SERVES;
CREATE TABLE TICKET2
(DATE_OF_BOOKING DATE NOT NULL,
SOURCE VARCHAR(3) NOT NULL,
DESTINATION VARCHAR(3) NOT NULL,
CLASS VARCHAR(15) NOT NULL,
PRICE INT,
PRIMARY KEY(DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS));

INSERT INTO TICKET2 VALUES('21-05-23','BOM','DFW','ECONOMY',95000);
INSERT INTO TICKET2 VALUES('21-06-15','JFK','BOM','ECONOMY',100000);
INSERT INTO TICKET2 VALUES('21-07-16','IAH','DEL','BUSINESS',200000);
INSERT INTO TICKET2 VALUES('21-07-16','IXC','IAH','FIRST-CLASS',150000);
INSERT INTO TICKET2 VALUES('21-06-17','JFK','TPA','ECONOMY',98000);
SELECT * FROM TICKET2;
```

```
CREATE TABLE TICKET3
(DATE_OF_CANCELLATION DATE NOT NULL,
SURCHARGE INT,
PRIMARY KEY(DATE_OF_CANCELLATION));
INSERT INTO TICKET3(DATE_OF_CANCELLATION, SURCHARGE) VALUES('21-12-18',75000);
INSERT INTO TICKET3(DATE_OF_CANCELLATION, SURCHARGE) VALUES('21-06-19',25000);
```

CONCLUSION:

This database helps us to store the data related to the airport management system which consists of every information related to airlines, airport, employees working in the airport, flight details like timings of arrival, departure, information related to tickets like status, booking and cancellation of tickets. We also mentioned the relations between entities along with the cardinality. These information helps the airport management system to retrieve the data whenever they want. Since it contains large data, we may come across data redundancy. So, after applying normalisation, we remove partial and transitive dependency for the data we considered. Now the database is in 3NF.