Dr. AMBEDKAR INSTITUTE OF TECHNOLOGY

Near Jnana Bharathi Campus, Bengalooru-560 056.

(An Autonomous Institution, Aided by Government of Karnataka)

Aided By Govt. of Karnataka

Project Report

On

" Airport Management System "

Submitted By

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Under the Guidance

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Department of Computer Science & Engineering

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CERTIFICATE

This is to certify that the project entitled "**Airport Management System**" submitted in the partial fulfillment of the requirement of the 5th semester DBA laboratory curriculum during the year 2020 is a result of Bonafede work carried out by

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Signature of the guides:

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Assoc Prof , Dept of CSE	**Asst. Prof , Dept of CSE**
Dr. AIT	**Dr. AIT**

1. Internal Examiner _____
2. External Examiner _____

Dr. Siddaraju

Dean (academic)& H.O.D

Department of CSE, Dr. AIT

ACKNOWLEDGEMENT

The satisfaction that accompanies to this project would be incomplete without the mention of the people who made it possible, without whose constant guidance and encouragement would have made our efforts go in vain.

We consider ourselves privileged to express our gratitude and respect towards all those who guided us through the project, "**Airport Management System**".

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As a token of gratitude, we would like to acknowledge our sincere gratefulness to the internal guide **Mrs. Veena Potdar , Assoc. Prof, Dept. of CSE, Dr.A.I.T.** and **Mrs.Vinutha.H ,asst prof, Dept of CSE,D.R.A.I.T for** his/her unlimited support and encouragement provided throughout the process.

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Mohammed Saqlain

Dhruva. L

Vivek D

ABSTRACT

The objective of this project is to design and implement airport management with user interface using oracle. It includes details of passenger with fields such as name , address, phone number and unique id of passenger details which will be stored in database for verification. Reservation details helps in reserving seats for the passenger with other details such as date, flight number. If the user needs to cancel the reservation he can do cancellation by providing details to the administrator. Flight details have to be maintained including flight number, code, source and destination etc. Hence, depending on airline, source, destination, journey date and most importantly class, which passenger chooses fare price of an air ticket is determined. Every employee is identified by SSN. Every employee has an information such as name, address, phone, age, sex, ssalary. Airport management system front end is developed using html , php,css and back end is done using oracle by xampp (apache) server.

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CHAPTER -1

INTRODUCTION

Airport Management System is the mini-project we have chosen. This project is mainly designed to provide a service, which is to transport a passenger between two cities at an agreed price. We have designed with utmost care taking into consideration of all the possibilities. The website is too simple to use and user-friendly. Many options are provided to reduce our passenger work. Cancelling of flights is made easy for airport management it is very essential in order to maintain all details regarding the fields such as flight, passenger and other details if required. The requirements are discussed in detail below

Functional Requirements:

Requirement analysis is a software engineering technique that is composed of the various tasks that determine the needs or conditions that are to be met for a new or altered product, taking into consideration the possible conflicting requirements of the various users. Functional requirements are those requirements that are used to illustrate the internal working nature of the system, the description of the system, and explanation of each subsystem. It consists of what task the system should perform, the processes involved, which data should the system holds and the interfaces with the user.

The functional requirements identified are:

a. passenger registration: The system should allow new passenger to be registered.

b. editing or cancelling the tickets from the database.

c. viewing the employee in the database and also provide an option to edit and delete.

d. updating the status of flights if new flight is added and viewing the content

e. User login option

Non-Functional Requirements:

It describes aspects of the system that are concerned with how the system provides the functional requirements. They are:

- **Security:** The subsystem should provide a high level of security and integrity of the data held by the system, only authorized personnel of the company can gain access to the company's secured page on the system; and only users with valid password and username can login to view user's page.

- **Performance and Response time:** The system should have high performance rate when executing user's input and should be able to provide feedback or response within a short time span usually 50 seconds for highly complicated task and 20 to 25 seconds for less complicated task.

- **Error handling:** Error should be considerably minimized and an appropriate error message that guides the user to recover from an error should be provided. Validation of user's input is highly essential. Also the standard time taken to recover from an error should be 15 to 20 seconds.

- **Availability:** This system should be available during the working hours of the office.

- **Ease of use:** Considered the level of knowledge possessed by the users of this system, a simple but quality user interface should be developed to make it easy to understand and required less train

CHAPTER 2

REQUIREMENT SPECIFICATION

The hardware and software components of a computer system that are required to install and use software efficiently are specified below. The minimum system requirements need to be meet for program to run at all times on the system.

2.1 HARDWARE SPECIFICATIONS

The hardware used for development of the project are:

- Processor : AMD Ryzen 5 (2.6 GHZ)
- RAM : 8 GB DDR4 RAM
- Monitor : 15.6'' LED
- Storage : 512 GB Solid State Drive
- Keyboard : STANDARD

2.2 SOFTWARE SPECIFICATION

The software used for development of the project are:

- Operating System : Windows10
- Back end Software : oracle
- Front end Software : Any browser (Google chrome)

CHAPTER 3

DESCRIPTION

A database is a structured collection of data. Data refers to the characteristics of people, things and events. A database management system or DBMS gives the user access to the data and helps them to transform the data into information, such database management system includes dBase, paradox, IMS, SQL Server and MySQL. these systems allows system to create update extract information from the database. This project has been designed with MySQL as back end.

3.1 : SQL

SQL is a special purpose programming language designed for managing data held in relational database management system RDBMS or for stream processing in a relational data stream management system RDSMS. Originally based upon relational algebra and tuple relational calculus. SQL consist of data definition language, data manipulation language, data control language. The scope of SQL includes data insert query update and delete, schema creation and modification and data access control. SQL stores each data item in its own field. In SQL the fields relating to a particular person things or event are bundled together to form a single complete unit of data called record. No two fields in a record can have same field name.

3.2 : Xampp

XAMPP is one of the widely used cross-platform web servers, which helps developers to create and test their programs on a local webserver. It was developed by the **Apache Friends**, and its native source code can be revised or modified by the audience. It consists of **Apache HTTP Server, MariaDB, and interpreter** for the different programming languages like PHP and Perl. It is available in 11 languages and supported by different platforms such as the IA-32 package of Windows & x64 package of macOS and Linux.

XAMPP is an abbreviation where X stands for Cross-Platform, A stands for Apache, M stands for MYSQL, and the Ps stand for PHP and Perl, respectively. It is an open-source

package of web solutions that includes Apache distribution for many servers and command-line executables along with modules such as Apache server, MariaDB, PHP, and Perl.

3.3 : ER DIAGRAM

An entity-relationship model (ER model) is a data model for describing the data or information aspects of a business domain or its process requirements, in an abstract way that lends itself to ultimately being implemented in a database such as a relational database. The main components of ER models are entities and the relationships that can exist among them. Entity relationship modelling was developed by Peter Chin and published in 1976 paper. The ER diagram is drawn to have a better understanding of the whole scenario, it is used to conceptualize the phenomena, actions and interactions between various entities and to arrive at the specific requirements in comprehensive manner. An Entity Relationship model is a result of using a systematic process to describe and define a subject area of business data . The data is represented as components that are linked with each other by relationships that express the dependencies and requirements between them, Entities may have various properties that characterize them. Diagrams created to represent these entities, attributes and relationships graphically are called Entity Relationship Diagram. An ER model is typically implemented as database. In the case of relational database, which stores data in tables every row of each table represents one instance of entity. Some data fields in these tables point to indexes in other tables; Such pointers are the physical implementation of the relationship. The 3 schema approach to software engineering uses 3 levels of ER models that may be developed. An entity may be defined as a thing capable of an independent existence that can be uniquely identified. Entities can be thought of as nouns. EX: a computer, an employee, a song, a mathematical theorem.

A relationship captures how entities are related to one another. Relationships can be thought of as verbs, linking two or more nouns. Examples: An owners relationship between an artist and a song, a proves relationship between a mathematician and a conjecture. Entities and relationships can both have attributes. Examples: an employee entity might have a Social Security Number (SSN) attribute; the proved relationship may have a date attribute.

3.4 RELATIONAL SCHEMA

A relation schema is a named relation defined by a set of attributes. The term relation schema refers to a heading paired with a set of constraints defined in terms of that heading. A relation can thus be seen as an instantiation of a relation schema if it has the heading of

that schema and it satisfies the applicable constraints. Schema diagram for placement management is shown in figure.

Entities

CITY

CNAME	STATE	COUNTRY

AIPORT

AP_NAME	STATE	COUNTRY

AIRLINE

AIRLINEID	AL_NAME	THREE_DIGIT_CODE

FLIGHT

FLIGHT_CODE	SOURCE	DESTINATION	ARRIVAL	DEPARTURE	STATUS	DURATION	FLIGHTTYPI
LAYOVER_TIME	NO_OF_STOPS						

PASSENGER

PID	PASSPORTNO	FNAME	M	LNAME	ADDRESS	PHONE	AGE	SEX

TICKET

TICKET_NUMBER	SOURCE	DESTINATION	DATE_OF_TRAVEL	SEATNO	CLASS	PRICE

EMPLOYEE

SSN	FNAME	M	LNAME	ADDRESS	PHONE	AGE	SEX	JOBTYPE	SALARY

ENTITY RELATION(ER) DIAGRAM

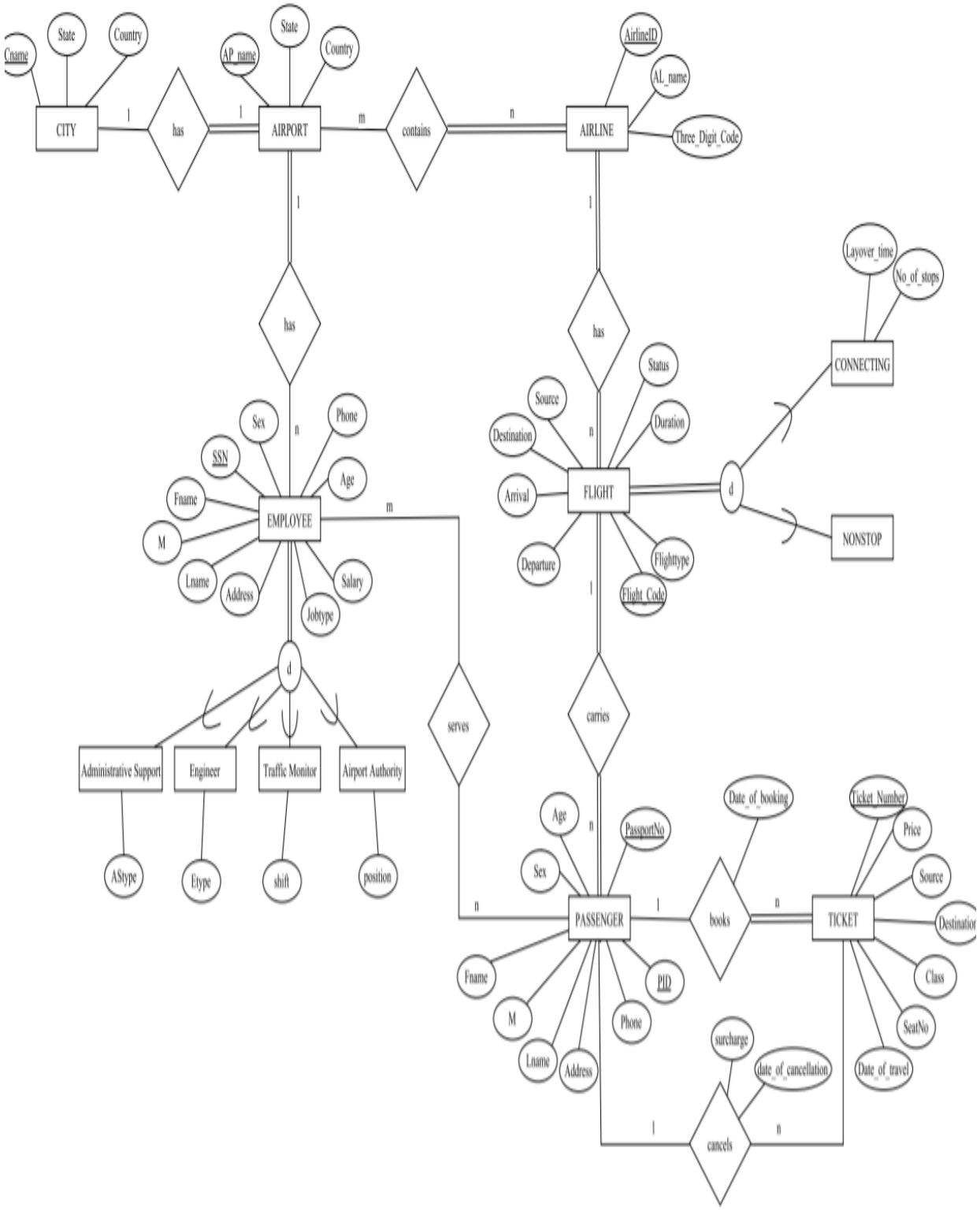
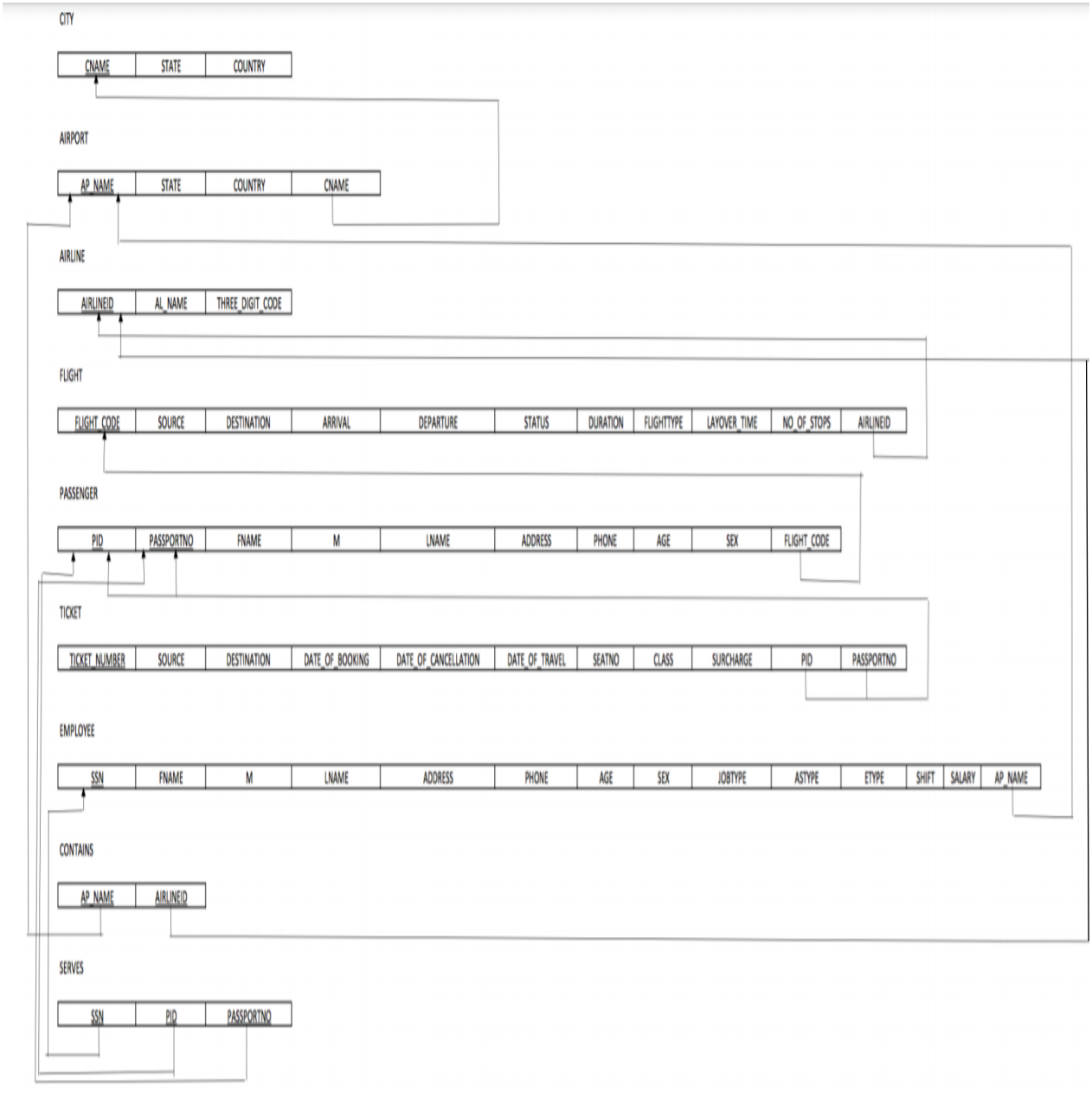


Figure 1: Airport Management System ER Diagram

SCHEMA DIAGRAM



CHAPTER 4

DESIGN AND IMPLEMENTATION

4.1 DATABASE

DATABASE DESIGN: Databases are the storehouses of data used in the software systems. The data is stored in tables inside the database. Several tables are created for the manipulation of the data for the system. Two essential settings for a database are

- **Primary key** - the field that is unique for all the record occurrences.
- **Foreign key** - the field used to set relation between tables.

Normalization is a technique to avoid redundancy in the tables.

4.2 SYSTEM TOOLS

The various system tools that have been used in developing back end of the project are being discussed in this chapter.

4.2.1 Back end

The back end is implemented using Xampp phpMyadmin which is used to design the databases.

SQL STATEMENTS

Create Table Commands

A. city

```
CREATE TABLE CITY (
CNAME VARCHAR2(15) NOT NULL,
STATE VARCHAR2(15),
COUNTRY VARCHAR(30),
 PRIMARY KEY(CNAME));
```

B. Airport

```
CREATE TABLE AIRPORT (
AP_NAME VARCHAR2(100) NOT NULL,
STATE VARCHAR2(15),
COUNTRY VARCHAR(30),
CNAME VARCHAR2(15),
 PRIMARY KEY(AP_NAME),
 FOREIGN KEY(CNAME) REFERENCES CITY(CNAME) ON DELETE CASCADE);
```

C. Airline

```
CREATE TABLE AIRLINE (
AIRLINEID VARCHAR(3) NOT NULL,
 AL_NAME VARCHAR2(50),
THREE_DIGIT_CODE VARCHAR(3),
 PRIMARY KEY(AIRLINEID));
```

D. contains

```
CREATE TABLE CONTAINS (
AIRLINEID VARCHAR(3) NOT NULL,
AP_NAME VARCHAR2(100) NOT NULL,
PRIMARY KEY(AIRLINEID, AP_NAME),
```

FOREIGN KEY(AIRLINEID) REFERENCES AIRLINE(AIRLINEID) ON DELETE CASCADE, FOREIGN KEY(AP_NAME) REFERENCES AIRPORT(AP_NAME) ON DELETE CASCADE);

E. Flight

```
CREATE TABLE FLIGHT (
FLIGHT_CODE VARCHAR(10) NOT NULL,
SOURCE VARCHAR(3),
DESTINATION VARCHAR(3),
ARRIVAL VARCHAR2(10),
DEPARTURE VARCHAR2(10),
STATUS VARCHAR(10),
DURATION VARCHAR2(30),
FLIGHTTYPE VARCHAR(10),
LAYOVER_TIME VARCHAR2(30),
NO_OF_STOPS INT,
AIRLINEID VARCHAR(3),
PRIMARY KEY(FLIGHT_CODE),
FOREIGN KEY(AIRLINEID) REFERENCES AIRLINE(AIRLINEID) ON DELETE CASCADE);
```

f. Passenger1

```
CREATE TABLE PASSENGER1 (
PID INT NOT NULL,
PASSPORTNO VARCHAR(10) NOT NULL,
PRIMARY KEY(PID, PASSPORTNO));
```

G. Passenger 2

```
CREATE TABLE PASSENGER2 (
```

PASSPORTNO VARCHAR(10) NOT NULL,

FNAME VARCHAR2(20), M VARCHAR(1),

LNAME VARCHAR2(20),

ADDRESS VARCHAR2(100),

PHONE INT,

AGE INT,

SEX VARCHAR(1),

PRIMARY KEY(PASSPORTNO));

H. Passenger 3

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);

I.Employee1

CREATE TABLE EMPLOYEE1 (

SSN INT NOT NULL,

FNAME VARCHAR2(20),

M VARCHAR(1),

LNAME VARCHAR2(20),

ADDRESS VARCHAR2(100),

PHONE INT,

AGE INT,

SEX VARCHAR(1),

JOBTYPE VARCHAR2(30),

ASTYPE VARCHAR2(30),

ETYPE VARCHAR2(30),

SHIFT VARCHAR2(20),

POSITION VARCHAR2(30),

AP_NAME VARCHAR2(100),

PRIMARY KEY(SSN),

FOREIGN KEY(AP_NAME) REFERENCES AIRPORT(AP_NAME) ON DELETE CASCADE);

J. Employee2

CREATE TABLE EMPLOYEE2 (

JOBTYPE VARCHAR2(30) NOT NULL,

SALARY INT,

PRIMARY KEY(JOBTYPE));

K. Serves

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);

L.TICKET1

CREATE TABLE TICKET1 (

TICKET_NUMBER VARCHAR(13) NOT NULL,

SOURCE VARCHAR(3),

DESTINATION VARCHAR(3),

DATE_OF_BOOKING DATE,

DATE_OF_TRAVEL DATE,

SEATNO VARCHAR(5),

CLASS VARCHAR2(15),

DATE_OF_CANCELLATION DATE,

PID INT,

PASSPORTNO VARCHAR(10),

FOREIGN KEY(PID, PASSPORTNO) REFERENCES PASSENGER1(PID, PASSPORTNO) ON DELETE CASCADE);

M.Ticket2

CREATE TABLE TICKET2 (

DATE_OF_BOOKING DATE NOT NULL,

SOURCE VARCHAR(3) NOT NULL,

DESTINATION VARCHAR(3) NOT NULL,

CLASS VARCHAR2(15) NOT NULL,

PRICE INT,

PRIMARY KEY(DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS));

N.Ticket 3

CREATE TABLE TICKET3 (

DATE_OF_CANCELLATION DATE NOT NULL,

SURCHARGE INT,

PRIMARY KEY(DATE_OF_CANCELLATION));

INSERTING VALUES INTO TABLES

-- Inserting values of Table: CITY—

```
INSERT INTO CITY (CNAME, STATE, COUNTRY) VALUES
                                    ('Louisville','Kentucky','United States');
                                    ('Chandigarh','Chandigarh','India');
                                    ('Fort Worth','Texas','United States');
                                    ('Delhi','Delhi','India');
                                    ('Mumbai','Maharashtra','India');
                                    ('Frankfurt','Hesse','Germany');
                                    ('Houston','Texas','United States');
                                    ('New York City','New York','United
states);
                                    ('Tampa', 'Florida', 'United States');
```

--Inserting values for Table: AIRPORT—

```
INSERT INTO AIRPORT (AP_NAME, STATE, COUNTRY, CNAME) VALUES
('Louisville International Airport','Kentucky','United States','Louisville');
('Chandigarh International Airport','Chandigarh','India','Chandigarh');
('Dallas/Fort Worth International Airport','Texas','United States','Fort Worth');
('Indira GandhiInternational Airport','Delhi','India','Delhi');
('Chhatrapati Shivaji International Airport','Maharashtra','India','Mumbai');
('San Francisco International Airport','California', 'United States','San Francisco');
('Frankfurt Airport','Hesse','Germany','Frankfurt');
('George Bush Intercontinental Airport','Texas','United States','Houston');
('John F. Kennedy International Airport','New York','United States','New York City');
```

('Tampa International Airport','Florida', 'United States','Tampa');

-- Inserting values toTable: AIRLINE—

INSERT INTO AIRLINE (AIRLINEID, AL_NAME, THREE_DIGIT_CODE) VALUES

('AA','American Airlines','001');

('AI','Air India Limited','098');

('LH','Lufthansa', '220');

('BA','British Airways','125');

('QR','Qatar Airways','157');

('9W','Jet Airways','589');

('EK','Emirates','176');

('EY','Ethiad Airways','607');

-- Inserting values into Table: CONTAINS—

INSERT INTO CONTAINS (AIRLINEID, AP_NAME) VALUES

('AA','Louisville International Airport');

('AA','John F. Kennedy International Airport');

('AA','George Bush Intercontinental Airport');

('AA','San Francisco International Airport');

('AA','Tampa International Airport');

('AI','Dallas/Fort Worth International Airport');

('AI','Indira GandhiInternational Airport');

('AI','Chhatrapati Shivaji International Airport');

('AI','George Bush Intercontinental Airport');

('LH','Chhatrapati Shivaji International Airport');

('LH','Frankfurt Airport');

('LH','John F. Kennedy International Airport');

('LH','San Francisco International Airport');

('LH','Dallas/Fort Worth International Airport');

('BA','John F. Kennedy International Airport');

('BA','Chhatrapati Shivaji International Airport');

('BA','Chandigarh International Airport');

('BA','Frankfurt Airport');

('BA','San Francisco International Airport');

('QR','Chhatrapati Shivaji International Airport');

('QR','Dallas/Fort Worth International Airport');

('QR','John F. Kennedy International Airport');

('QR','Tampa International Airport');

('QR','Louisville International Airport');

-- Inserting values into Table: FLIGHT—

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

('AI2014','BOM','DFW','02:10','03:15','On-time','24hr','Connecting',3,1,'AI');

('QR2305','BOM','DFW','13:00','13:55','Delayed','21hr','Non-stop',0,0,'QR');

('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');

('BA1689','FRA','DEL','10:20','10:55','On-time','14hrs','Non-stop',0,0,'BA');

('AA4367','SFO','FRA','18:10','18:55','On-time','21hrs','Non-stop',0,0,'AA');

('QR1902','IXC','IAH','22:00','22:50','Delayed','28hrs','Non-stop',5,1,'QR');
('BA3056','BOM','DFW','02:15','02:55','On-time','29hrs','Connecting',3,1,'BA');

('EK3456','BOM','SFO','18:50','19:40','On-time','30hrs','Non-stop',0,0,'EK');

('9W2334','IAH','DEL','23:00','13:45','On-time','23hrs','Direct',0,0,'9W');

-- Inserting values in table: PASSENGER1—

INSERT INTO PASSENGER1(PID, PASSPORTNO) VALUES

(1,'A1234568');

(2,'B9876541');

(3,'C2345698');

(4,'D1002004');

(5,'X9324666');

(6,'B8765430');

(7,'J9801235');

(8,'A1122334');

(9,'Q1243567');

(10,'S1243269');

(11,'E3277889');

(12,'K3212322');

(13,'P3452390');

(14,'W7543336');

(15,'R8990566');

--Inserting VALUES IN TABLE: PASSENGER2—

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

('A1234568','ALEN','M','SMITH','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, TX',9004360125,28,'F');

('B8765430','LAKSHMI','P','SHARMA','1110 FIR HILLS, APT 903, AKRON, OH',7666190505,30,'F');

('J9801235','AKHILESH','D','JOSHI','345 CHATHAM COURTS, APT 678, MUMBAI, INDIA',9080369290,29,'M');

('A1122334','MANAN','S','LAKHANI','5589 CHTHAM REFLECTIONS, APT 349 HOUSTON, TX',9004335126,25,'F');

('Q1243567','KARAN','M','MOTANI','4444 FRANKFORD VILLA, APT 77, GUILDERLAND, NY',9727626643,22,'M');

('S1243269','ROM','A','SOLANKI','7720 MCCALLUM BLVD, APT 2087, DALLAS, TX',9004568903,60,'M');

('E3277889','John','A','GATES','1234 BAKER APTS, APT 59, HESSE, GERMANY',9724569986,10,'M');

('K3212322','SARA','B','GOMES','6785 SPLITSVILLA, APT 34, MIAMI, FL',9024569226,15,'F');

('P3452390','ALIA','V','BHAT','548 MARKET PLACE, SAN Francisco, CA',9734567800,10,'F');

('W7543336','JOHN','P','SMITH','6666 ROCK HILL, APT 2902, TAMPA, FL',4624569986,55,'M');

('R8990566','RIA','T','GUPTA','3355 PALENCIA, APT 2065, MUMBAI, INDIA',4724512343,10,'M');

-- Inserting values into Table: PASSENGER3—

INSERT INTO PASSENGER3(PID, FLIGHT_CODE) VALUES

(1,'AI2014');

(2,'LH9876');

(3,'9W2334');

(4,'QR1902');

(5,'EY1234');

(6,'BA3056');

(7,'9W2334');

(8,'AA4367');

(9,'QR1902');

(10,'EK3456');

(11,'BA1689');

(12,'QR1902');

(13,'AI2014');

(14,'BA1689');

(15,'QR2305');

-- Implementing Business Rule Using Check Constraint-- AGE OF AN EMPLOYEE WORKING FOR AN AIRPORT SHOULD NOT BE GREATER THAN 65-- ALTER TABLE EMPLOYEE1 ADD CONSTRAINT AGE_LIMIT CHECK(AGE < 65); -- Example Of Violation Of Check Constraint—

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

(123456799,'RAM','M','SHARMA','731 HILL TOWN, ARLINGTON, TX',4356789365, 66, 'M','ADMINISTRATIVE SUPPORT','RECEPTIONIST',',',',','Louisville International Airport');

(123456789,'LINDA','M','GOODMAN','731 Fondren, Houston, TX',4356789345, 35, 'F','ADMINISTRATIVE SUPPORT','RECEPTIONIST',',',',','Louisville International Airport');

(333445555,'JOHNY','N','PAUL','638 Voss, Houston, TX',9834561995, 40, 'M','ADMINISTRATIVE SUPPORT','SECRETARY',',',',','Louisville International Airport');

(999887777,'JAMES','P','BOND','3321 Castle, Spring, TX',9834666995, 50, 'M','ENGINEER',','RADIO ENGINEER',',',','Louisville International Airport');

(987654321,'SHERLOCK','A','HOLMES','123 TOP HILL, SAN Francisco,CA',8089654321, 47, 'M','TRAFFIC MONITOR',',',','DAY',',','San Francisco International Airport');

(666884444,'SHELDON','A','COOPER','345 CHERRY PARK, HESSE,GERMANY',1254678903, 55, 'M','TRAFFIC MONITOR',',','NIGHT',',',','Frankfurt Airport');

(453453453,'RAJ','B','SHARMA','345 FLOYDS, MUMBAI,INDIA',4326789031, 35, 'M','AIRPORT AUTHORITY',',',',','MANAGER','Chhatrapati Shivaji International Airport');

(987987987,'NIKITA','C','PAUL','110 SYNERGY PARK, DALLAS,TX',5678904325, 33, 'F','ENGINEER',','AIRPORT CIVIL ENGINEER',',',','Dallas/Fort Worth International Airport');

(888665555,'SHUBHAM','R','GUPTA','567 CHANDANI CHOWK, DELHI, INDIA',8566778890, 39, 'M','ADMINISTRATIVE SUPPORT','DATA ENTRY WORKER',',',',','Indira GandhiInternational Airport');

(125478909,'PRATIK','T','GOMES','334 VITRUVIAN PARK, ALBANY, NY',4444678903, 56, 'M','TRAFFIC MONITOR',',','DAY',',',','John F. Kennedy International Airport');

(324567897,'ADIT','P','DESAI','987 SOMNATH, CHANDIGARH, INDIA',2244658909, 36, 'M','TRAFFIC MONITOR',',','DAY',',',','Chandigarh International Airport');

--INSERTING VALUES INTO TABLE: EMPLOYEE2 –

INSERT INTO EMPLOYEE2(JOBTYPE, SALARY)VALUES

('ADMINISTRATIVE SUPPORT',50000);

('ENGINEER',70000);

('TRAFFIC MONITOR',80000); INSERT

('AIRPORT AUTHORITY',90000);

-- INSERTING VALUES INTO TABLE: SERVES –

INSERT INTO SERVES(SSN, PID, PASSPORTNO) VALUES

(123456789,1,'A1234568');

(123456789,15,'R8990566');

(123456789,9,'Q1243567');

(888665555,4,'D1002004');

(888665555,13,'P3452390');

(333445555,10,'S1243269');

(333445555,12,'K3212322');

(888665555,12,'K3212322');

(123456789,7,'J9801235');

(888665555,7,'J9801235');

-- Inserting values into Table: TICKET1--

-- Adding CHECK constraint on an attribute TICKET_NUMBER -- ALTER TABLE TICKET1 ADD CONSTRAINT TICKET_NO_LENGTH CHECK(LENGTH(TICKET_NUMBER)=13); -- Checking Violation Of A Constraint—

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

(00112341111221,'BOM','DFW','11-MAY-16','','15-DEC-16','32A','ECONOMY',1,'A1234568');

(0011234111122,'BOM','DFW','11-MAY-16','','15-DEC-16','32A','ECONOMY',1,'A1234568');

(0984567222299,'JFK','BOM','11-JUN-16','10-DEC-16','20DEC16','45D','ECONOMY',2,'B9876541');

(1768901333273,'IAH','DEL','21-AUG-16','','25-DEC-16','1A','BUSINESS',3,'C2345698');

(5890987441464,'IXC','IAH','10-AUG-16','','12-JAN-17','20C','FIRST-CLASS',4,'D1002004');

(1577654664266,'JFK','TPA','13-JUN-16','','10-DEC-16','54E','ECONOMY',5,'X9324666');

(2206543545545,'BOM','DFW','11-NOV-16','','12-FEB-17','43B','ECONOMY',6,'B8765430');

(7064321779737,'IAH','DEL','15-NOV-16','','25-DEC-16','27B','FIRST-CLASS',7,'J9801235');

(1571357215116,'SFO','FRA','15-OCT-16','','18-DEC-16','34E','ECONOMY',8,'A1122334');

(1570864987655,'IXC','IAH','12-NOV-16','','30-DEC-16','54C','ECONOMY',9,'Q1243567');

(1579283997799,'BOM','SFO','22-JAN-16','','15-DEC-16','38A','ECONOMY',10,'S1243269');

(1255701876107,'FRA','DEL','19-OCT-16','','31-DEC-16','57F','ECONOMY',11,'E3277889'); 22

(1251334499699,'IXC','IAH','20-NOV-16','','12-JAN-17','45D','ECONOMY',12,'K3212322');

(1258776199490,'BOM','DFW','13-MAY-16','25-MAY-16','15-DEC-16','37C','ECONOMY',13,'P3452390');

(5891155114477,'FRA','DEL','26-JUN-16','','23-DEC-16','55C','ECONOMY',14,'W7543336');

(5893069766787,'BOM','DFW','11-AUG-16','','22-DEC-16','33F','ECONOMY',15,'R8990566');

-- Inserting Values into: TICKET2 –

INSERT INTO TICKET2(DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS, PRICE) VALUES

('11-MAY-16','BOM','DFW','ECONOMY',95000);

('11-JUN-16','JFK','BOM','ECONOMY',100000);

('21-AUG-16','IAH','DEL','BUSINESS',200000);

('10-AUG-16','IXC','IAH','FIRST-CLASS',150000);

('13-JUN-16','JFK','TPA','ECONOMY',98000);

('11-NOV-16','BOM','DFW','ECONOMY',125000);

('15-NOV-16','IAH','DEL','FIRST-CLASS',195000);

('15-OCT-16','SFO','FRA','ECONOMY',170000);

('12-NOV-16','IXC','IAH','ECONOMY',140000);

('22-JAN-16','BOM','SFO','ECONOMY',45000);

('19-OCT-16','FRA','DEL','ECONOMY',100000);

('20-NOV-16','IXC','IAH','ECONOMY',120000);

('13-MAY-16','BOM','DFW','ECONOMY',65000);

('26-JUN-16','FRA','DEL','ECONOMY',80000);

('11-AUG-16','BOM','DFW','ECONOMY',98000);

-- INSERTING VALUES INTO TABLE: TICKET3 –

INSERT INTO TICKET3(DATE_OF_CANCELLATION, SURCHARGE) VALUES('10-DEC-16',75000);

INSERT INTO TICKET3(DATE_OF_CANCELLATION, SURCHARGE) VALUES('25-MAY-16',25000);

QUERIES

SELECT * FROM EMPLOYEE1

SSN	FNAME	M	LNAME	ADDRESS	PHONE	AGE	SEX	JOBTYPE	ASTYPE	ETYPE	SHIFT	POSITION	AP_NAME
123	arjun		I	byadarhalli magadi road	9880249159	23	M	TRAFFIC MONITOR			day		Chandigarh International Airport
13455666	dhruva		lokesh	bangalore	1234567890	43	M	ENGINEER			day		Indira GandhiInternational Airport
65826792	Nitin	V	Pitre	K5/6	9767480909	47	M	TRAFFIC MONITOR			Night	Manager	George Bush Intercontinental Airport
125478909	PRATIK	T	GOMES	334 VITRUVIAN PARK, ALBANY, NY	4444678903	56	M	TRAFFIC MONITOR		DAY			John F. Kennedy International Airport
324567897	ADIT	P	DESAI	987 SOMNATH, CHANDIGARH, INDIA	2244658909	36	M	TRAFFIC MONITOR		DAY			Chandigarh International Airport
333445555	JOHNY	N	PAUL	638 Voss, Houston, TX	9834561995	40	M	ADMINISTRATIVE SUPPORT	SECRETARY				Louisville International Airport
453453453	RAJ	B	SHARMA	345 FLOYDS, MUMBAI,INDIA	4326789031	35	M	AIRPORT AUTHORITY				MANAGER	Chhatrapati Shivaji International Airport
987654321	SHERLOCK	A	HOLMES	123 TOP HILL, SAN Francisco,CA	8089654321	47	M	TRAFFIC MONITOR			DAY		San Francisco International Airport
987987987	NIKITA	C	PAUL	110 SYNERGY PARK, DALLAS,TX	5678904325	33	F	ENGINEER		AIRPORT CIVIL ENGINEER			Dallas/Fort Worth International Airport

SELECT * FROM FLIGHT

FLIGHT_CODE	SOURCE	DESTINATION	ARRIVAL	DEPARTURE	STATUS	DURATION	FLIGHTTYPE	LAYOVER_TIME	NO_OF_STOPS	AIRLINEID
123DS2	BOM	BOM	9am	1pm	On-Time		Non-stop	0	0	9W
AH789	BOM	IXC	23:00	20:00	On-Time	3hrs	Non-stop	0	0	AA
AS787	IAH	IXC	8:00	6:00	On-Time	2hrs	Non-stop	0	0	BA
GH666	IAH	FRA	8:00	5:00	On-Time	3hrs	Non-stop	0	0	LH
JH888	JFK	SFO	8:00	7:00	On-Time	1hr	Non-stop	0	0	AI
PI000	JFK	IXC	00:00	7:00	On-Time	7hrs	Non-stop	0	0	9W
PO899	BOM	SFO	7:00	1:00	On-Time	13hrs	Non-stop	0	0	EY
QW767	JFK	FRA	9:00	6:00	On-Time	3hrs	Non-stop	0	0	9W
UJ675	BOM	FRA	9:00	3:00	On-Time	6hrs	Non-stop	0	0	AA
WE897	IAH	SFO	3:00	1:00	On-Time	2hrs	Non-stop	0	0	9W

SELECT*FROM TICKET1

TICKET_NUMBER	SOURCE	DESTINATION	DATE_OF_BOOKING	DATE_OF_TRAVEL	CLASS	DATE_OF_CANCELLATION	PID	PASSPORTNO
11234111122	BOM	DFW	2016-05-11	2016-12-15	ECONOMY	NULL	1	A1234568
984567222299	JFK	BOM	2016-06-11	2016-12-20	ECONOMY	2016-12-10	2	B9876541
1768901333273	IAH	DEL	2016-08-21	2016-12-25	BUSINESS	NULL	3	C2345698
5890987441464	IXC	IAH	2016-08-10	2017-01-12	FIRST-CLASS	NULL	4	D1002004
1577654664266	JFK	TPA	2016-06-13	2016-12-10	ECONOMY	NULL	5	X9324666
2206543545545	BOM	DFW	2016-11-11	2016-02-12	ECONOMY	NULL	6	B8765430
7064321779737	IAH	DEL	2016-11-15	2016-12-25	FIRST-CLASS	NULL	7	J9801235
1571357215116	SFO	FRA	2016-10-15	2016-12-18	ECONOMY	NULL	8	A1122334
1570864987655	IXC	IAH	2016-11-12	2016-12-30	ECONOMY	NULL	9	Q1243567
1579283997799	BOM	SFO	2016-01-22	2016-12-15	ECONOMY	NULL	10	S1243269
1255701876107	FRA	DEL	2016-10-19	2016-12-31	ECONOMY	NULL	11	E3277889
1251334499699	IXC	IAH	2016-11-20	2017-01-12	ECONOMY	NULL	12	K3212322
1258776199490	BOM	DFW	2016-05-13	2016-12-15	ECONOMY	2016-05-25	13	P3452390
5891155114477	FRA	DEL	2016-06-26	2016-12-23	ECONOMY	NULL	14	W7543336
5893069766787	BOM	DFW	2016-08-11	2016-12-22	ECONOMY	NULL	15	R8990566
1330130482	BOM	SFO	2020-10-12	2020-10-14	ECONOMY	NULL	1	A1234568
1036719316	BOM	IXC	2021-01-11	2021-01-13	ECONOMY	2021-01-11	44	A1234568
1468110093	BOM	IXC	2021-01-12	2021-01-13	ECONOMY	2021-01-11	45	R1234567
779913605	BOM	FRA	2021-01-11	2021-01-13	BUSINESS	2021-01-11	46	Q2345678

SELECT*FROM EMPLOYEE1

SSN	FNAME	M	LNAME	ADDRESS	PHONE	AGE	SEX	JOBTYPE	ASTYPE	ETYPE	SHIFT	POSITION	AP_NAME
123	arjun		I	byadarhalli magadi road	9880249159	23	M	TRAFFIC MONITOR			day		Chandigarh International Airport
13455666	dhruva		lokesh	bangalore	1234567890	43	M	ENGINEER			day		Indira Gandhiinternational Airport
65826792	Nitin	V	Pitre	K5/6	9767480909	47	M	TRAFFIC MONITOR			Night	Manager	George Bush Intercontinental Airport
125478909	PRATIK	T	GOMES	334 VITRUVIAN PARK, ALBANY, NY	4444678903	56	M	TRAFFIC MONITOR		DAY			John F. Kennedy International Airport
324567897	ADIT	P	DESAI	987 SOMNATH, CHANDIGARH, INDIA	2244658909	36	M	TRAFFIC MONITOR		DAY			Chandigarh International Airport
333445555	JOHNY	N	PAUL	638 Voss, Houston, TX	9834561995	40	M	ADMINISTRATIVE SUPPORT	SECRETARY				Louisville International Airport
453453453	RAJ	B	SHARMA	345 FLOYDS, MUMBAI,INDIA	4326789031	35	M	AIRPORT AUTHORITY				MANAGER	Chhatrapati Shivaji International Airport
987654321	SHERLOCK	A	HOLMES	123 TOP HILL, SAN Francisco,CA	8989654321	47	M	TRAFFIC MONITOR			DAY		San Francisco International Airport
987987987	NIKITA	C	PAUL	110 SYNERGY PARK, DALLAS,TX	5678904325	33	F	ENGINEER		AIRPORT CIVIL ENGINEER			Dallas/Fort Worth International Airport

SELECT* FROM PASSENGER 2

PASSPORTNO	FNAME	M	LNAME	ADDRESS	PHONE	AGE	SEX
A1234568	ALEN	M	SMITH	2230 NORTHSIDE, APT 11, ALBANY, NY	8080367290	30	M
1	roopa	s	v	bangalore	1234567890	12	F
A1122334	MANAN	S	LAKHANI	5589 CHTHAM REFLECTIONS, APT 349 HOUSTON, TX	9004335126	25	F
A1234568	ALEN	M	SMITH	2230 NORTHSIDE, APT 11, ALBANY, NY	8080367290	30	M
B8765430	LAKSHMI	P	SHARMA	1110 FIR HILLS, APT 903, AKRON, OH	7666190505	30	F
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
E3277889	John	A	GATES	1234 BAKER APTS, APT 59, HESSE, GERMANY	9724569986	10	M
J9801235	AKHILESH	D	JOSHI	345 CHATHAM COURTS, APT 678, MUMBAI, INDIA	9080369290	29	M
K3212322	SARA	B	GOMES	6785 SPLITSVILLA, APT 34, MIAMI, FL	9024569226	15	F
P3452390	ALIA	V	BHAT	548 MARKET PLACE, SAN Francisco, CA	9734567800	10	F
Q1243567	KARAN	M	MOTANI	4444 FRANKFORD VILLA, APT 77, GUILDERLAND, NY	9727626643	22	M
Q2345678	dhruva		I	byadarhalli magadi road	9880249159	43	M
R8990566	RIA	T	GUPTA	3355 PALENCIA, APT 2065, MUMBAI, INDIA	4724512343	10	M
S1243269	ROM	A	SOLANKI	7720 MCCALLUM BLVD, APT 2087, DALLAS, TX	9004568903	60	M
W7543336	JOHN	P	SMITH	6666 ROCK HILL, APT 2902, TAMPA, FL	4624569986	55	M
X9324666	TEJASHREE	B	PANDIT	9082 ESTAES OF RICHARDSON, RICHARDSON, TX	9004360125	28	F

SELECT* FROM AIRPORT

AP_NAME	STATE	COUNTRY	CNAME
Chandigarh International Airport	Chandigarh	India	Chandigarh
Chhatrapati Shivaji International Airport	Maharashtra	India	Mumbai
Dallas/Fort Worth International Airport	Texas	United States	Fort Worth
Frankfurt Airport	Hesse	Germany	Frankfurt
George Bush Intercontinental Airport	Texas	United States	Houston
Indira GandhiInternational Airport	Delhi	India	Delhi
John F. Kennedy International Airport	New York	United States	New York City
Louisville International Airport	Kentucky	United States	Louisville
San Francisco International Airport	California	United States	San Francisco
Tampa International Airport	Florida	United States	Tampa

-- 1) who are all the passengers who flew from BOM?

```
SELECT FNAME
FROM PASSENGER2 P2
WHERE P2.PASSPORTNO = (SELECT P.PASSPORTNO
FROM TICKET1 T, PASSENGER1 P
WHERE T.PASSPORTNO = P.PASSPORTNO AND T.SOURCE = 'BOM');
```

-- 2) FIND ALL THE NON-STOP FLIGHTS OF THE AIRLINE AIR-INDIA

```
SELECT F.FLIGHT_CODE
FROM FLIGHT F, AIRLINE A
WHERE A.AIRLINEID = F.AIRLINEID AND F.FLIGHTTYPE = 'Non-stop';
```

-- 3) FIND THE PASSENGER IDS OF PASSENGERS WHO BOOKED BUSINESS CLASS TICKETS

```
SELECT FNAME
FROM PASSENGER2 P2
WHERE P2.PASSPORTNO = (SELECT P.PASSPORTNO
FROM TICKET1 T, PASSENGER1 P
WHERE T.PASSPORTNO = P.PASSPORTNO AND T.CLASS = 'BUSINESS');
```

-- 4) FIND THE EMPLOYEE NAME WHO WORKS AT Chandighar international airport

```
SELECT FNAME, M, LNAME
FROM EMPLOYEE1 E1
WHERE E1.AP_NAME = 'Chandigarh International Airport';
```

-- 5) FIND THE NAME AND PASSENGERS ADDRESS WHO FLEW TO DFW

```
SELECT FNAME, ADDRESS
FROM PASSENGER2 P2
WHERE P2.PASSPORTNO = (SELECT P.PASSPORTNO
FROM TICKET1 T, PASSENGER1 P
```

```
WHERE T.PASSPORTNO = P.PASSPORTNO AND T.DESTINATION = 'DFW');
```

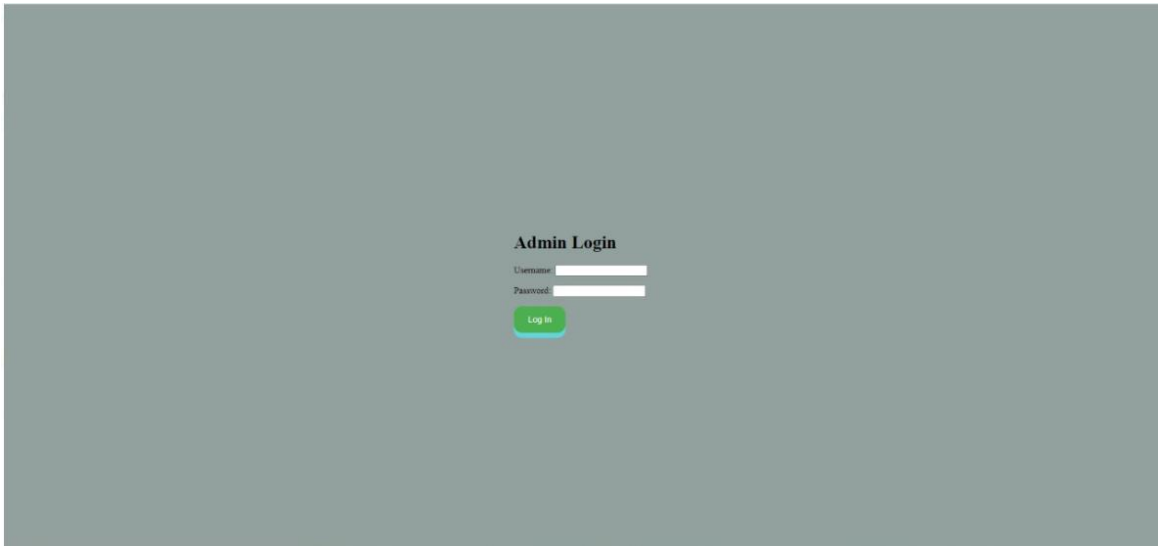

```
-- 6) FIND THE PASSENGER ID WHO TRAVELLED IN QATAR AIRWAYS


SELECT PID

FROM PASSENGER3 P3

WHERE P3.FLIGHT_CODE = 'QR1902';
```

CHAPTER 5

SNAPSHOTS

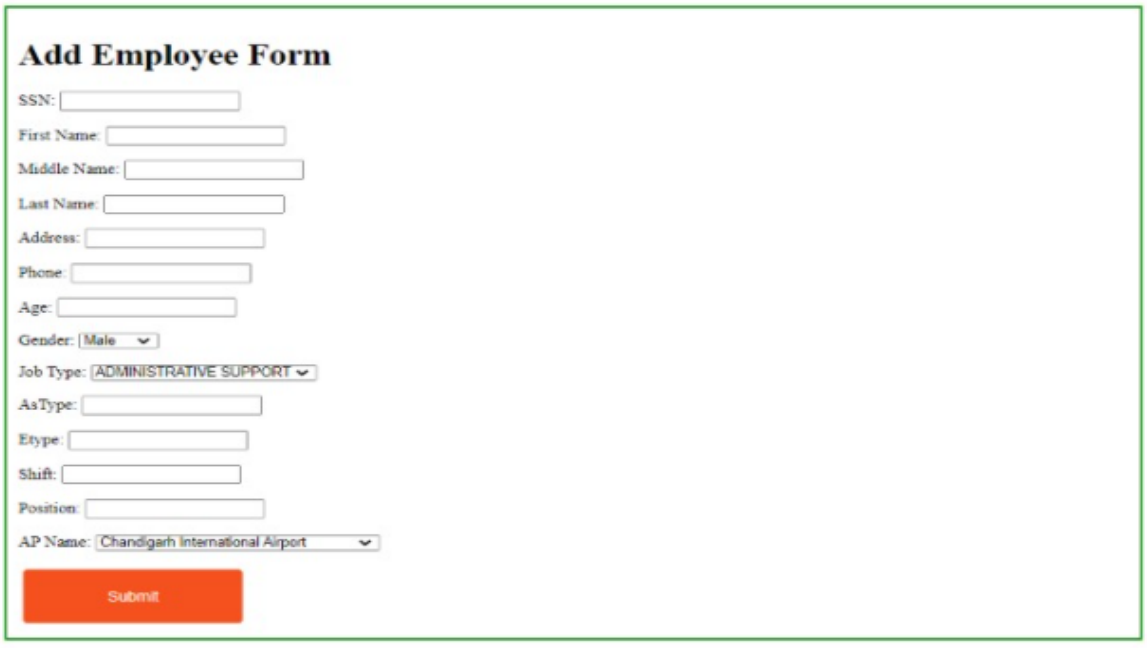
The following will be the snapshots of the Front-end part.

1. LOGIN Page

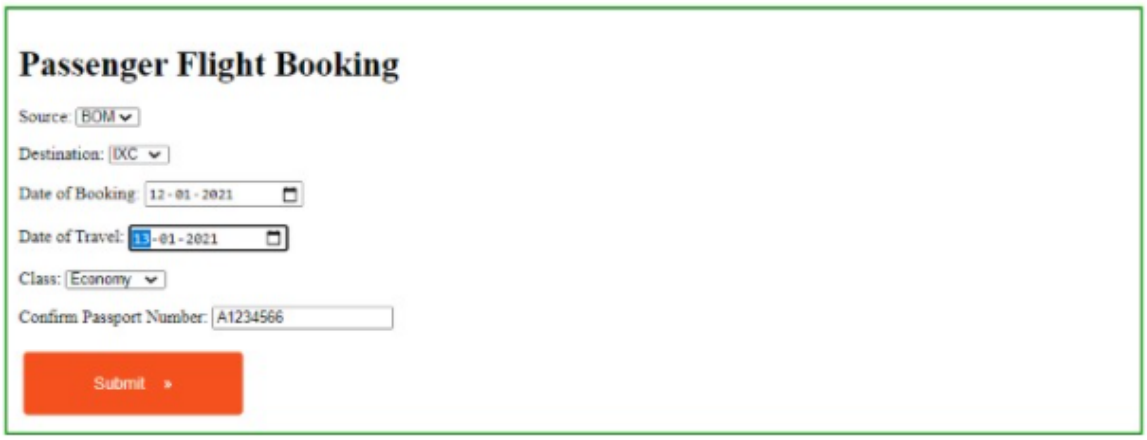


2. HOME PAGE

ADD EMPLOYEE FORM



PASSENGER FLIGHT BOOKING



CONCLUSION

The project entitled Airport Management System has been successfully completed.The system has been developed with much care and free of errors and at the same time it is efficient and less time consuming.

During the course of this project, we learnt a lot of the work and best practices that go into creating a database, the rules to construct a good ER diagram, How to come up with relational schema mapping from the ER diagram, deriving the functional dependencies and how to normalize the relational schema. We learnt on how to design a system from Database perspective and how to efficiently store and manipulate data.

BIBLIOGRAPHY

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1. Fundamental of Database Systems by Elmasri and Navathe, 7th Edition, Addison-Wesley, 2015 ISBN-10: 0133970779, ISBN-13: 978-0133970777

2. Database Management Systems by Raghu Ramakrishnan and Johannes Gehrke 3rd Edition, McGraw-Hill, 2006.

3. An Introduction to Database Systems by C.J. Date, A. Kannan, S. Swamynathan, 8th Edition, Pearson Education, 2013.

4. Data Base system Concepts by Silberschatz, Korth and Sudharshan, 5th edition McGraw Hill, 2011.

URL:

1. https://www.w3schools.com/sql/default.asp

2. https://www.w3schools.com/php/default.asp

3. https://youtu.be/kBdlM6hNDAE