DBMS Mini Project

Airlines Database Management System

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Sem-4, F-section

Requirements of the system:

- The system is based on Airlines management. Airlines management system primarily deals with management of airport, airlines and passengers. The system provides broad overview of underlying operational factors that influence the airport management.
- The database system has the data of all commercial service airports.
- An airport is located in a city.
- All International airlines operating through various countries across the world have their offices located in all major cities and airports they cover. Hence, an airport may have many airline offices.
- Every airline is identified uniquely by an airline code. Airline code is a two-letter airline designator. Airline also has three-digit code which is printed on an air ticket. Airport also has its own code.
- Also we need to focus on all the essential details of Passengers, Employees, Flights, Tickets, and so on.

I have done all the coding and development of database for the project using Microsoft Server-2019 and SQL Server Management Studio(SSMS-v18.5)

In this report we will see about

- Entities used
- ER Diagram
- Relational Schema
- Functional Dependencies
- Normalization rules and schema after Normalization
- Lossless Join property
- Creating and Altering tables
- Tables with Check constraint , Referential Integrity constraints.
- Triggers

Entities used:

CITY

CNAME	STATE	COUNTRY	CITY_CODE

AIRPORT

AP_NAME	STATE	COUNTRY

AIRLINE

AIRLINEID	AL_NAME	THREE_DIGIT_CODE

FLIGHT

FLIGHT_CODE	SOURCE	DESTINATION	ARRIVAL	DEPARTURE	STATUS	DURATION	FLIGHT_TYPE	LAYOVER_TIME	NO_OF_STOPS

PASSENGER

PID	PASSPORTNO	FNAME	M	LNAME	ADDRESS	PHONE	AGE	SEX

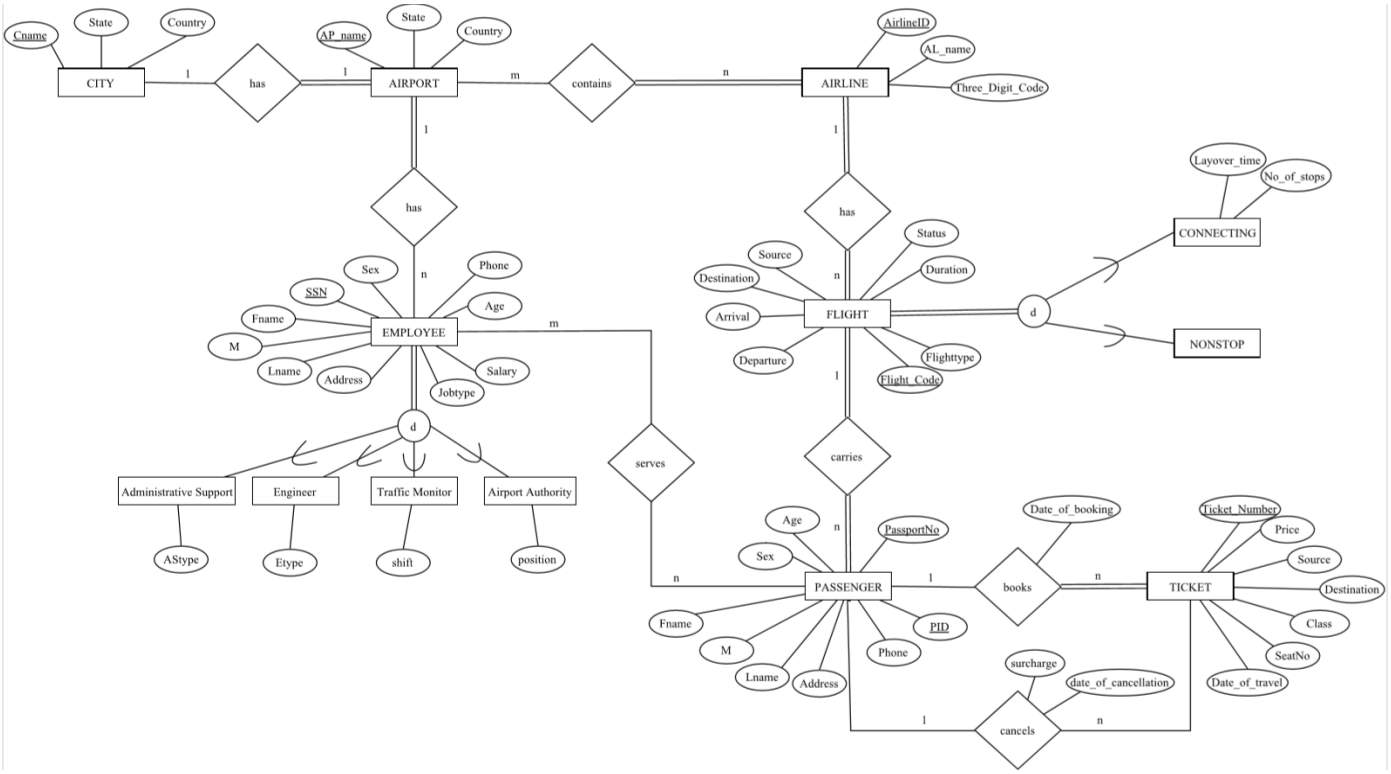
TICKET

TICKET_NUMBER	SOURCE	DESTINATION	DATE_OF_TRAVEL	SEAT_NO	CLASS	PRICE

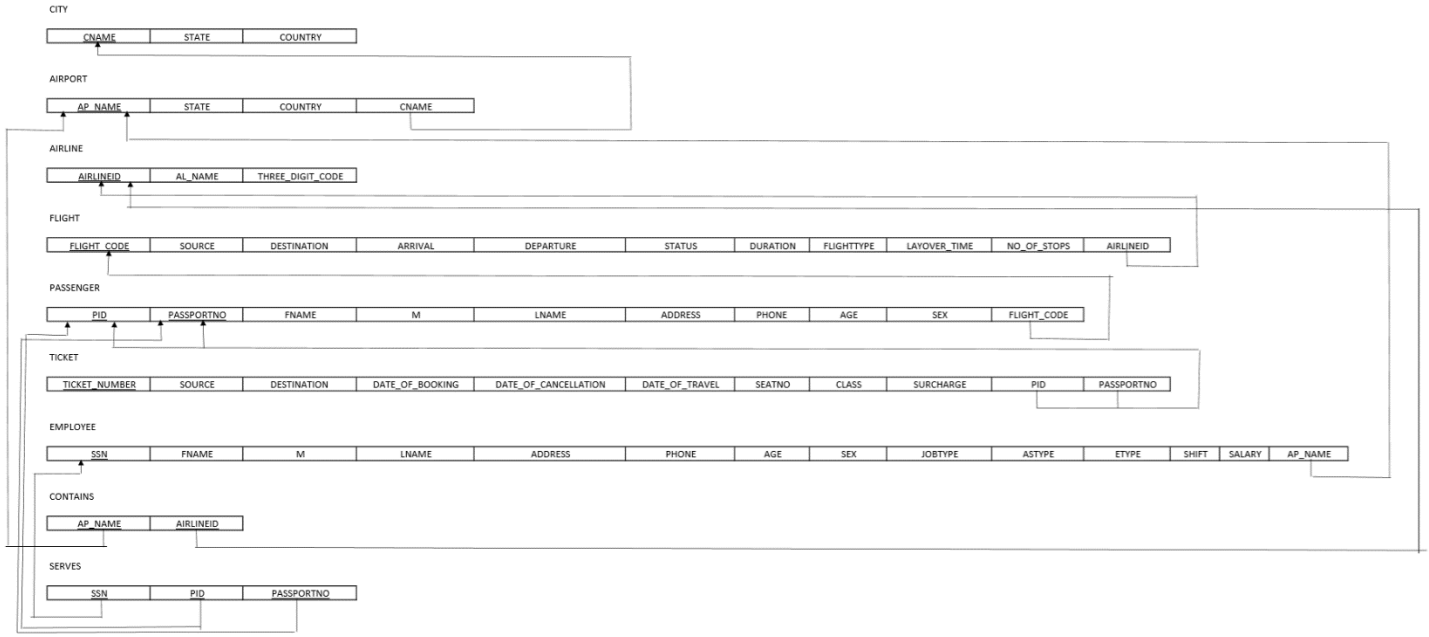
EMPLOYEE

SSN	FNAME	M	LNAME	ADDRESS	PHONE	AGE	SEX	JOBTYPE	SALARY

ER-Diagram:



Relational schema:



From the above two figures(ER diagram and Relational model) we can make decisions about the Entities and their Relations.

Entity 1	**Name of the Relationship**	**Entity 2**	**Cardinality**
City	Has	Airport	1:1
Airport	Contains	Airline	m:n
Airport	Has	Employee	1:n
Airline	Has	Flight	1:n
Flight	Carries	Passengers	1:n
Employee	Serves	Passengers	m:n
Passenger	Books	Ticket	1:n
Passenger	Cancels	Ticket	1:n

Functional Dependencies:

AP_NAME →{STATE,COUNTRY,CNAME}

AIRLINEID → {AL_NAME, THREE_DIGIT_CODE}

PASSPORTNO → { FNAME, M, LNAME, ADDRESS, PHONE, AGE, SEX }

PID → FLIGHT_CODE

{ DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS } → PRICE

DATE_OF_CANCELLATION → SURCHARGE

JOBTYPE → SALARY

SSN → { FNAME, M, LNAME, ADDRESS, PHONE, AGE, SEX, PHONE, ADDRESS }

Candidate Key is minimal set of attributes of a relation which can be used to identify a tuple uniquely. For Example, each tuple of PASSENGER given above can be uniquely identified by PASSPORTNO and it is minimal as well. So it will be Candidate key of the relation.
A candidate key may or may not be a Primary key.

So Based on Functional dependencies we can specify keys in the Relation.

AP_NAME determines every other columns in the table so it is a candidate key.

AIRLINEID is also a candidate key because it determines all other columns in the table.

{PASSPORTNO,PID} is a candidate key

Normalization:

Looking at the Above functional dependencies, we see that,

PASSPORTNO → { FNAME, M, LNAME, ADDRESS, PHONE, AGE, SEX }	Violates 2NF
PID → FLIGHT_CODE	Violates 2NF
{ DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS } → PRICE	Violates 3NF
DATE_OF_CANCELLATION → SURCHARGE	Violates 3NF
JOBTYPE → SALARY	Violates 3NF

Normalizing tables into 3NF:

CITY (CNAME, STATE, COUNTRY)

AIRPORT (AP_NAME, STATE, COUNTRY, CNAME)

AIRLINE (AIRLINEID, AL_NAME, THREE_DIGIT_CODE)

CONTAINS (AIRLINEID, AP_NAME)

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

PASSENGER1 (PID, PASSPORTNO)

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

PASSENGER3 (PID, FLIGHT_CODE)

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

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

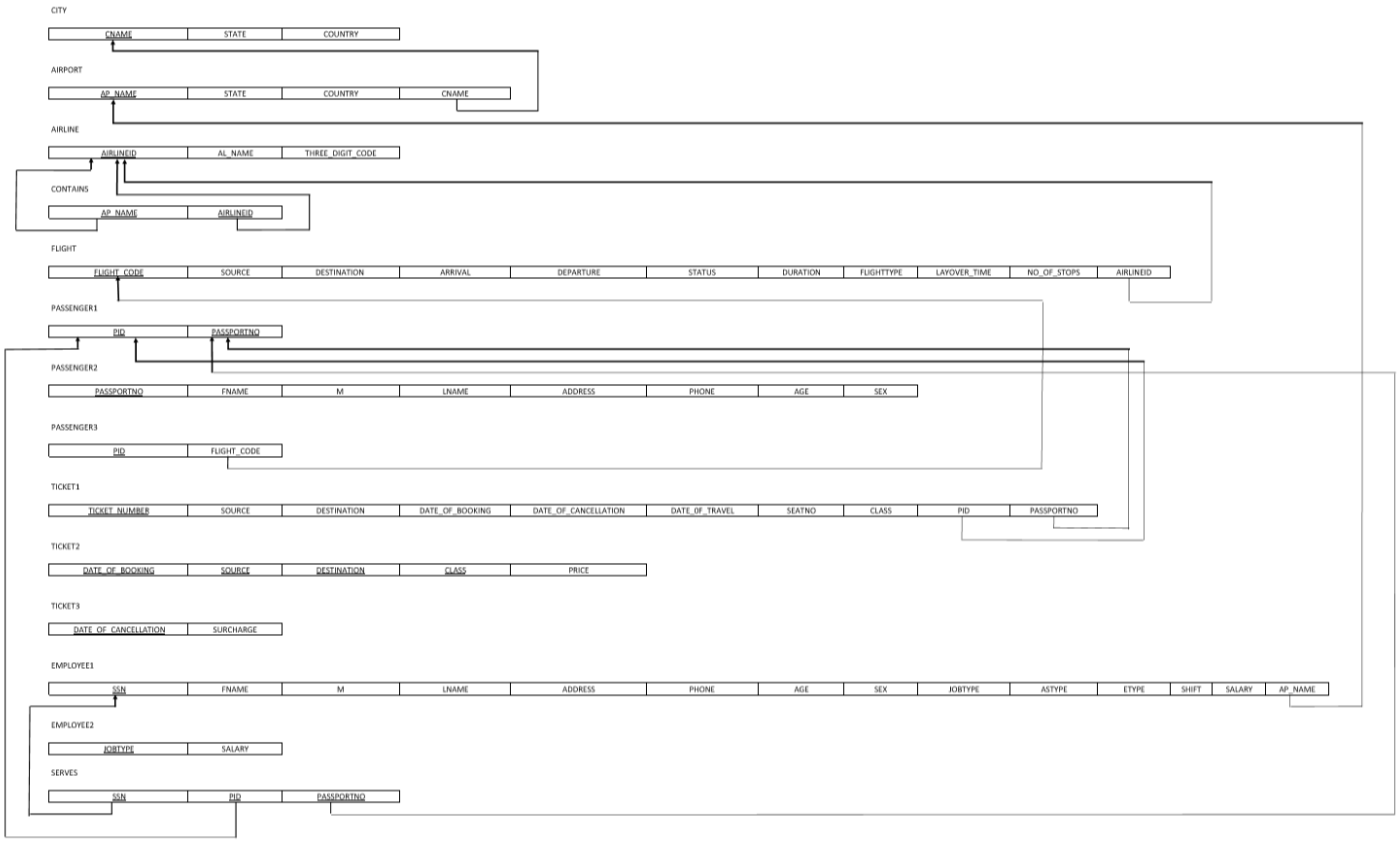
TICKET3 (DATE_OF_CANCELLATION, SURCHARGE)

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

EMPLOYEE2(JOBTYPE, SALARY)

SERVES (SSN, PID, PASSPORTNO)

Normalized Relational Schema:



Checking for LOSSLESSNESS:

For normalization I decomposed PASSENGER table into PASSENGER1, PASSENGER2, and PASSENGER3.

Here Union of all the attributes of these 3 tables is equal to attributes of PASSENGER.

Common attributes (PID,PASSPORTNO) are the keys in at least one of the three tables.

So this decomposition is Lossless. And also dependency preserving because the FD

PID → FLIGHT_CODE is preserved.

Creating tables using SQL:

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


-- Insering values of Table: CITY--
INSERT INTO CITY (CNAME, STATE, COUNTRY) VALUES('Louisville','Kentucky','United States');
INSERT INTO CITY (CNAME, STATE, COUNTRY) VALUES ('Chandigarh','Chandigarh','India');
INSERT INTO CITY (CNAME, STATE, COUNTRY) VALUES ('Fort Worth','Texas','United States');
INSERT INTO CITY (CNAME, STATE, COUNTRY) VALUES('Delhi','Delhi','India');
INSERT INTO CITY (CNAME, STATE, COUNTRY) VALUES('Mumbai','Maharashtra','India');
INSERT INTO CITY (CNAME, STATE, COUNTRY) VALUES('San Francisco', 'California', 'United States');
INSERT INTO CITY (CNAME, STATE, COUNTRY) VALUES('Frankfurt','Hesse','Germany');
INSERT INTO CITY (CNAME, STATE, COUNTRY) VALUES('Houston','Texas','United States');
INSERT INTO CITY (CNAME, STATE, COUNTRY) VALUES('New York City','New York','United States');
INSERT INTO CITY (CNAME, STATE, COUNTRY) VALUES('Tampa', 'Florida', 'United States');

select * from CITY
```

And the CITY table looks like:

Results | Messages

	CNAME	STATE	COUNTRY
1	Chandigarh	Chandigarh	India
2	Delhi	Delhi	India
3	Fort Worth	Texas	United States
4	Frankfurt	Hesse	Germany
5	Houston	Texas	United States
6	Louisville	Kentucky	United States
7	Mumbai	Maharashtra	India
8	New York City	New York	United States
9	San Francisco	California	United States
10	Tampa	Florida	United States

```sql
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);

--Insering values for Table: AIRPORT--

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

select * from AIRPORT
```

And the AIRPORT table looks like:

Results | Messages

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

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

-- Insering values for Table: AIRLINE --

INSERT INTO AIRLINE (AIRLINEID, AL_NAME, THREE_DIGIT_CODE) VALUES('AA','American Airlines','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('LH','Lufthansa', '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');
INSERT INTO AIRLINE (AIRLINEID, AL_NAME, THREE_DIGIT_CODE) VALUES('9W','Jet Airways','589');
INSERT INTO AIRLINE (AIRLINEID, AL_NAME, THREE_DIGIT_CODE) VALUES('EK','Emirates','176');
INSERT INTO AIRLINE (AIRLINEID, AL_NAME, THREE_DIGIT_CODE) VALUES('EY','Ethiad Airways','607');

select * from AIRLINE
```

And the AIRLINE table looks like:

Results | Messages

	AIRLINEID	AL_NAME	THREE_DIGIT_CODE
1	9W	Jet Airways	589
2	AA	American Airlines	001
3	AI	Air India Limited	098
4	BA	British Airways	125
5	EK	Emirates	176
6	EY	Ethiad Airways	607
7	LH	Lufthansa	220
8	QR	Qatar Airways	157

```sql
CREATE TABLE CONTAIN
(AIRLINEID VARCHAR(3) NOT NULL,
AP_NAME VARCHAR(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);
-- Insering values into Table: Contains--
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('AA','Louisville International Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('AA','John F. Kennedy International Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('AA','George Bush Intercontinental Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('AA','San Francisco International Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('AA','Tampa International Airport');

INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('AI','Chandigarh International Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('AI','Dallas/Fort Worth International Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('AI','Indira GandhiInternational Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('AI','Chhatrapati Shivaji International Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('AI','George Bush Intercontinental Airport');

INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('LH','Chhatrapati Shivaji International Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('LH','Frankfurt Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('LH','John F. Kennedy International Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('LH','San Francisco International Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('LH','Dallas/Fort Worth International Airport');

INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('BA','John F. Kennedy International Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('BA','Chhatrapati Shivaji International Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('BA','Chandigarh International Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('BA','Frankfurt Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('BA','San Francisco International Airport');

INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('QR','Chhatrapati Shivaji International Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('QR','Dallas/Fort Worth International Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('QR','John F. Kennedy International Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('QR','Tampa International Airport');
INSERT INTO CONTAIN (AIRLINEID, AP_NAME) VALUES('QR','Louisville International Airport');
```

CONTAIN table looks like:

Results Messages

	AIRLINEID	AP_NAME
1	AA	George Bush Intercontinental Airport
2	AA	John F. Kennedy International Airport
3	AA	Louisville International Airport
4	AA	San Francisco International Airport
5	AA	Tampa International Airport
6	AI	Chandigarh International Airport
7	AI	Chhatrapati Shivaji International Airport
8	AI	Dallas/Fort Worth International Airport
9	AI	George Bush Intercontinental Airport
10	AI	Indira GandhiInternational Airport
11	BA	Chandigarh International Airport
12	BA	Chhatrapati Shivaji International Airport
13	BA	Frankfurt Airport
14	BA	John F. Kennedy International Airport
15	BA	San Francisco International Airport
16	LH	Chhatrapati Shivaji International Airport
17	LH	Dallas/Fort Worth International Airport
18	LH	Frankfurt Airport
19	LH	John F. Kennedy International Airport
20	LH	San Francisco International Airport
21	QR	Chhatrapati Shivaji International Airport
22	QR	Dallas/Fort Worth International Airport
23	QR	John F. Kennedy International Airport
24	QR	Louisville International Airport
25	QR	Tampa International Airport

```sql
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(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');

INSERT INTO FLIGHT(FLIGHT_CODE, SOURCE, DESTINATION, ARRIVAL, DEPARTURE, STATUS, DURATION, FLIGHTTYPE, LAYOVER_TIME, NO_OF_STOPS, AIRLINEID)
VALUES('QR2305','BOM','DFW','13:00','13:55','Delayed','21hr','Non-stop',0,0,'QR');

INSERT INTO FLIGHT(FLIGHT_CODE, SOURCE, DESTINATION, ARRIVAL, DEPARTURE, STATUS, DURATION, FLIGHTTYPE, LAYOVER_TIME, NO_OF_STOPS, AIRLINEID)
VALUES('EY1234','JFK','TPA','19:20','20:05','On-time','16hrs','Connecting',5,2,'EY');

INSERT INTO FLIGHT(FLIGHT_CODE, SOURCE, DESTINATION, ARRIVAL, DEPARTURE, STATUS, DURATION, FLIGHTTYPE, LAYOVER_TIME, NO_OF_STOPS, AIRLINEID)
VALUES('LH9876','JFK','BOM','05:50','06:35','On-time','18hrs','Non-stop',0,0,'LH');

INSERT INTO FLIGHT(FLIGHT_CODE, SOURCE, DESTINATION, ARRIVAL, DEPARTURE, STATUS, DURATION, FLIGHTTYPE, LAYOVER_TIME, NO_OF_STOPS, AIRLINEID)
VALUES('BA1689','FRA','DEL','10:20','10:55','On-time','14hrs','Non-stop',0,0,'BA');

INSERT INTO FLIGHT(FLIGHT_CODE, SOURCE, DESTINATION, ARRIVAL, DEPARTURE, STATUS, DURATION, FLIGHTTYPE, LAYOVER_TIME, NO_OF_STOPS, AIRLINEID)
VALUES('AA4367','SFO','FRA','18:10','18:55','On-time','21hrs','Non-stop',0,0,'AA');

INSERT INTO FLIGHT(FLIGHT_CODE, SOURCE, DESTINATION, ARRIVAL, DEPARTURE, STATUS, DURATION, FLIGHTTYPE, LAYOVER_TIME, NO_OF_STOPS, AIRLINEID)
VALUES('QR1902','IXC','IAH','22:00','22:50','Delayed','28hrs','Non-stop',5,1,'QR');

INSERT INTO FLIGHT(FLIGHT_CODE, SOURCE, DESTINATION, ARRIVAL, DEPARTURE, STATUS, DURATION, FLIGHTTYPE, LAYOVER_TIME, NO_OF_STOPS, AIRLINEID)
VALUES('BA3056','BOM','DFW','02:15','02:55','On-time','29hrs','Connecting',3,1,'BA');

INSERT INTO FLIGHT(FLIGHT_CODE, SOURCE, DESTINATION, ARRIVAL, DEPARTURE, STATUS, DURATION, FLIGHTTYPE, LAYOVER_TIME, NO_OF_STOPS, AIRLINEID)
VALUES('EK3456','BOM','SFO','18:50','19:40','On-time','30hrs','Non-stop',0,0,'EK');

INSERT INTO FLIGHT(FLIGHT_CODE, SOURCE, DESTINATION, ARRIVAL, DEPARTURE, STATUS, DURATION, FLIGHTTYPE, LAYOVER_TIME, NO_OF_STOPS, AIRLINEID)
VALUES('9W2334','IAH','DEL','23:00','13:45','On-time','23hrs','Direct',0,0,'9W');
```

And the FLIGHT table looks like:

Results | Messages

	FLIGHT_CODE	SOURCE	DESTINATION	ARRIVAL	DEPARTURE	STATUS	DURATION	FLIGHTTYPE	LAYOVER_TIME	NO_OF_STOPS	AIRLINEID
1	9W2334	IAH	DEL	23:00	13:45	On-time	23hrs	Direct	0	0	9W
2	AA4367	SFO	FRA	18:10	18:55	On-time	21hrs	Non-stop	0	0	AA
3	AI2014	BOM	DFW	02:10	03:15	On-time	24hr	Connecting	3	1	AI
4	BA1689	FRA	DEL	10:20	10:55	On-time	14hrs	Non-stop	0	0	BA
5	BA3056	BOM	DFW	02:15	02:55	On-time	29hrs	Connecting	3	1	BA
6	EK3456	BOM	SFO	18:50	19:40	On-time	30hrs	Non-stop	0	0	EK
7	EY1234	JFK	TPA	19:20	20:05	On-time	16hrs	Connecting	5	2	EY
8	LH9876	JFK	BOM	05:50	06:35	On-time	18hrs	Non-stop	0	0	LH
9	QR1902	IXC	IAH	22:00	22:50	Delayed	28hrs	Non-stop	5	1	QR
10	QR2305	BOM	DFW	13:00	13:55	Delayed	21hr	Non-stop	0	0	QR

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

-- Insering values in table: PASSENGER1--
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');
INSERT INTO PASSENGER1(PID, PASSPORTNO) VALUES(6,'B8765430');
INSERT INTO PASSENGER1(PID, PASSPORTNO) VALUES(7,'J9801235');
INSERT INTO PASSENGER1(PID, PASSPORTNO) VALUES(8,'A1122334');
INSERT INTO PASSENGER1(PID, PASSPORTNO) VALUES(9,'Q1243567');
INSERT INTO PASSENGER1(PID, PASSPORTNO) VALUES(10,'S1243269');
INSERT INTO PASSENGER1(PID, PASSPORTNO) VALUES(11,'E3277889');
INSERT INTO PASSENGER1(PID, PASSPORTNO) VALUES(12,'K3212322');
INSERT INTO PASSENGER1(PID, PASSPORTNO) VALUES(13,'P3452390');
INSERT INTO PASSENGER1(PID, PASSPORTNO) VALUES(14,'W7543336');
INSERT INTO PASSENGER1(PID, PASSPORTNO) VALUES(15,'R8990566');

select * from PASSENGER1
```

And the PASSENGER1 table looks like:

Results | Messages

	PID	PASSPORTNO
1	1	A1234568
2	2	B9876541
3	3	C2345698
4	4	D1002004
5	5	X9324666
6	6	B8765430
7	7	J9801235
8	8	A1122334
9	9	Q1243567
10	10	S1243269
11	11	E3277889
12	12	K3212322
13	13	P3452390
14	14	W7543336
15	15	R8990566

PASSENGER2 table:

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

INSERT INTO PASSENGER2(PASSPORTNO,FNAME,M,LNAME,ADDRESS,PHONE,AGE,SEX)
VALUES('B9876541','ANKITA','V','AHIR','3456 VIKAS APTS, APT 102,DOMBIVLI, INDIA',8080367280,26,'F');

INSERT INTO PASSENGER2(PASSPORTNO,FNAME,M,LNAME,ADDRESS,PHONE,AGE,SEX)
VALUES('C2345698','KHYATI','A','MISHRA','7820 MCCALLUM COURTS, APT 234, AKRON, OH',8082267280,30,'F');

INSERT INTO PASSENGER2(PASSPORTNO,FNAME,M,LNAME,ADDRESS,PHONE,AGE,SEX)
VALUES('D1002004','ANKITA','S','PATIL','7720 MCCALLUM BLVD, APT 1082, DALLAS, TX',9080367266,23,'F');

INSERT INTO PASSENGER2(PASSPORTNO,FNAME,M,LNAME,ADDRESS,PHONE,AGE,SEX)
VALUES('X9324666','TEJASHREE','B','PANDIT','9082 ESTAES OF RICHARDSON, RICHARDSON, TX',9004360125,28,'F');

INSERT INTO PASSENGER2(PASSPORTNO,FNAME,M,LNAME,ADDRESS,PHONE,AGE,SEX)
VALUES('B8765430','LAKSHMI','P','SHARMA','1110 FIR HILLS, APT 903, AKRON, OH',7666190505,30,'F');

INSERT INTO PASSENGER2(PASSPORTNO,FNAME,M,LNAME,ADDRESS,PHONE,AGE,SEX)
VALUES('J9801235','AKHILESH','D','JOSHI','345 CHATHAM COURTS, APT 678, MUMBAI, INDIA',9080369290,29,'M');

INSERT INTO PASSENGER2(PASSPORTNO,FNAME,M,LNAME,ADDRESS,PHONE,AGE,SEX)
VALUES('A1122334','MANAN','S','LAKHANI','5589 CHTHAM REFLECTIONS, APT 349 HOUSTON, TX',9004335126,25,'F');

INSERT INTO PASSENGER2(PASSPORTNO,FNAME,M,LNAME,ADDRESS,PHONE,AGE,SEX)
VALUES('Q1243567','KARAN','M','MOTANI','4444 FRANKFORD VILLA, APT 77, GUILDERLAND, NY',9727626643,22,'M');

INSERT INTO PASSENGER2(PASSPORTNO,FNAME,M,LNAME,ADDRESS,PHONE,AGE,SEX)
VALUES('S1243269','ROM','A','SOLANKI','7720 MCCALLUM BLVD, APT 2087, DALLAS, TX',9004568903,60,'M');

INSERT INTO PASSENGER2(PASSPORTNO,FNAME,M,LNAME,ADDRESS,PHONE,AGE,SEX)
VALUES('E3277889','John','A','GATES','1234 BAKER APTS, APT 59, HESSE, GERMANY',9724569986,10,'M');

INSERT INTO PASSENGER2(PASSPORTNO,FNAME,M,LNAME,ADDRESS,PHONE,AGE,SEX)
VALUES('K3212322','SARA','B','GOMES','6785 SPLITSVILLA, APT 34, MIAMI, FL',9024569226,15,'F');

INSERT INTO PASSENGER2(PASSPORTNO,FNAME,M,LNAME,ADDRESS,PHONE,AGE,SEX)
VALUES('P3452390','ALIA','V','BHAT','548 MARKET PLACE, SAN Francisco, CA',9734567800,10,'F');

INSERT INTO PASSENGER2(PASSPORTNO,FNAME,M,LNAME,ADDRESS,PHONE,AGE,SEX)
VALUES('W7543336','JOHN','P','SMITH','6666 ROCK HILL, APT 2902, TAMPA, FL',4624569986,55,'M');

INSERT INTO PASSENGER2(PASSPORTNO,FNAME,M,LNAME,ADDRESS,PHONE,AGE,SEX)
VALUES('R8990566','RIA','T','GUPTA','3355 PALENCIA, APT 2065, MUMBAI, INDIA',4724512343,10,'M');
```

Results | Messages

	PASSPORTNO	FNAME	M	LNAME	ADDRESS	PHONE	AGE	SEX
1	A1122334	MANAN	S	LAKHANI	5589 CHTHAM REFLECTIONS, APT 349 HOUSTON, TX	9004335126	25	F
2	A1234568	ALEN	M	SMITH	2230 NORTHSIDE, APT 11, ALBANY, NY	8080367290	30	M
3	B8765430	LAKSHMI	P	SHARMA	1110 FIR HILLS, APT 903, AKRON, OH	7666190505	30	F
4	B9876541	ANKITA	V	AHIR	3456 VIKAS APTS, APT 102,DOMBIVLI, INDIA	8080367280	26	F
5	C2345698	KHYATI	A	MISHRA	7820 MCCALLUM COURTS, APT 234, AKRON, OH	8082267280	30	F
6	D1002004	ANKITA	S	PATIL	7720 MCCALLUM BLVD, APT 1082, DALLAS, TX	9080367266	23	F
7	E3277889	John	A	GATES	1234 BAKER APTS, APT 59, HESSE, GERMANY	9724569986	10	M
8	J9801235	AKHILESH	D	JOSHI	345 CHATHAM COURTS, APT 678, MUMBAI, INDIA	9080369290	29	M
9	K3212322	SARA	B	GOMES	6785 SPLITSVILLA, APT 34, MIAMI, FL	9024569226	15	F
10	P3452390	ALIA	V	BHAT	548 MARKET PLACE, SAN Francisco, CA	9734567800	10	F
11	Q1243567	KARAN	M	MOTANI	4444 FRANKFORD VILLA, APT 77, GUILDERLAND, NY	9727626643	22	M
12	R8990566	RIA	T	GUPTA	3355 PALENCIA, APT 2065, MUMBAI, INDIA	4724512343	10	M
13	S1243269	ROM	A	SOLANKI	7720 MCCALLUM BLVD, APT 2087, DALLAS, TX	9004568903	60	M
14	W7543336	JOHN	P	SMITH	6666 ROCK HILL, APT 2902, TAMPA, FL	4624569986	55	M
15	X9324666	TEJASHREE	B	PANDIT	9082 ESTAES OF RICHARDSON, RICHARDSON, TX	9004360125	28	F

```sql
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);

-- INSERTING VALUES INTO TABLE: PASSENGER3--

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');
INSERT INTO PASSENGER3(PID, FLIGHT_CODE) VALUES(6,'BA3056');
INSERT INTO PASSENGER3(PID, FLIGHT_CODE) VALUES(7,'9W2334');
INSERT INTO PASSENGER3(PID, FLIGHT_CODE) VALUES(8,'AA4367');
INSERT INTO PASSENGER3(PID, FLIGHT_CODE) VALUES(9,'QR1902');
INSERT INTO PASSENGER3(PID, FLIGHT_CODE) VALUES(10,'EK3456');
INSERT INTO PASSENGER3(PID, FLIGHT_CODE) VALUES(11,'BA1689');
INSERT INTO PASSENGER3(PID, FLIGHT_CODE) VALUES(12,'QR1902');
INSERT INTO PASSENGER3(PID, FLIGHT_CODE) VALUES(13,'AI2014');
INSERT INTO PASSENGER3(PID, FLIGHT_CODE) VALUES(14,'BA1689');
INSERT INTO PASSENGER3(PID, FLIGHT_CODE) VALUES(15,'QR2305');

select * from PASSENGER3;
```

And the PASSENGER3 table looks like:

Results | Messages

	PID	FLIGHT_CODE
1	1	AI2014
2	2	LH9876
3	3	9W2334
4	4	QR1902
5	5	EY1234
6	6	BA3056
7	7	9W2334
8	8	AA4367
9	9	QR1902
10	10	EK3456
11	11	BA1689
12	12	QR1902
13	13	AI2014
14	14	BA1689
15	15	QR2305

```
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(SSN, FNAME, M, LNAME, ADDRESS, PHONE, AGE, SEX, JOBTYPE, ASTYPE, ETYPE, SHIFT, POSITION, AP_NAME)
VALUES(123456789,'LINDA','M','GOODMAN','731 Fondren, Houston, TX',4356789345, 35, 'F','ADMINISTRATIVE SUPPORT','RECEPTIONIST','','','','Louisville International Airport');

INSERT INTO EMPLOYEE1(SSN, FNAME, M, LNAME, ADDRESS, PHONE, AGE, SEX, JOBTYPE, ASTYPE, ETYPE, SHIFT, POSITION, AP_NAME)
VALUES(333445555,'JOHNY','N','PAUL','638 Voss, Houston, TX',9834561995, 40, 'M','ADMINISTRATIVE SUPPORT','SECRETARY','','','','Louisville International Airport');

INSERT INTO EMPLOYEE1(SSN, FNAME, M, LNAME, ADDRESS, PHONE, AGE, SEX, JOBTYPE, ASTYPE, ETYPE, SHIFT, POSITION, AP_NAME)
VALUES(999887777,'JAMES','P','BOND','3321 Castle, Spring, TX',9834666995, 50, 'M','ENGINEER','','RADIO ENGINEER','','','Louisville International Airport');


INSERT INTO EMPLOYEE1(SSN, FNAME, M, LNAME, ADDRESS, PHONE, AGE, SEX, JOBTYPE, ASTYPE, ETYPE, SHIFT, POSITION, AP_NAME)
VALUES(987654321,'SHERLOCK','A','HOLMES','123 TOP HILL, SAN Francisco,CA',8089654321, 47, 'M','TRAFFIC MONITOR','','','DAY','','San Francisco International Airport');

INSERT INTO EMPLOYEE1(SSN, FNAME, M, LNAME, ADDRESS, PHONE, AGE, SEX, JOBTYPE, ASTYPE, ETYPE, SHIFT, POSITION, AP_NAME)
VALUES(666884444,'SHELDON','A','COOPER','345 CHERRY PARK, HESSE,GERMANY',1254678903, 55, 'M','TRAFFIC MONITOR','','NIGHT','','','Frankfurt Airport');


INSERT INTO EMPLOYEE1(SSN, FNAME, M, LNAME, ADDRESS, PHONE, AGE, SEX, JOBTYPE, ASTYPE, ETYPE, SHIFT, POSITION, AP_NAME)
VALUES(453453453,'RAJ','B','SHARMA','345 FLOYDS, MUMBAI,INDIA',4326789031, 35, 'M','AIRPORT AUTHORITY','','','','MANAGER','Chhatrapati Shivaji International Airport');


INSERT INTO EMPLOYEE1(SSN, FNAME, M, LNAME, ADDRESS, PHONE, AGE, SEX, JOBTYPE, ASTYPE, ETYPE, SHIFT, POSITION, AP_NAME)
VALUES(987987987,'NIKITA','C','PAUL','110 SYNERGY PARK, DALLAS,TX',5678904325, 33, 'F','ENGINEER','','AIRPORT CIVIL ENGINEER','','','Dallas/Fort Worth International Airport');


INSERT INTO EMPLOYEE1(SSN, FNAME, M, LNAME, ADDRESS, PHONE, AGE, SEX, JOBTYPE, ASTYPE, ETYPE, SHIFT, POSITION, AP_NAME)
VALUES(888665555,'SHUBHAM','R','GUPTA','567 CHANDANI CHOWK, DELHI, INDIA',8566778890, 39, 'M','ADMINISTRATIVE SUPPORT','DATA ENTRY WORKER','','','','Indira GandhiInternational Airport');

INSERT INTO EMPLOYEE1(SSN, FNAME, M, LNAME, ADDRESS, PHONE, AGE, SEX, JOBTYPE, ASTYPE, ETYPE, SHIFT, POSITION, AP_NAME)
VALUES(125478909,'PRATIK','T','GOMES','334 VITRUVIAN PARK, ALBANY, NY',4444678903, 56, 'M','TRAFFIC MONITOR','','DAY','','','John F. Kennedy International Airport');

INSERT INTO EMPLOYEE1(SSN, FNAME, M, LNAME, ADDRESS, PHONE, AGE, SEX, JOBTYPE, ASTYPE, ETYPE, SHIFT, POSITION, AP_NAME)
VALUES(324567897,'ADIT','P','DESAI','987 SOMNATH, CHANDIGARH, INDIA',2244658909, 36, 'M','TRAFFIC MONITOR','','DAY','','','Chandigarh International Airport');

select * from EMPLOYEE1
```

Results | Messages

	SSN	FNAME	M	LNAME	ADDRESS	PHONE	AGE	SEX	JOBTYPE	ASTYPE	ETYPE	SHIFT	POSITION	AP_NAME
1	123456789	LINDA	M	GOODMAN	731 Fondren, Houston, TX	4356789345	35	F	ADMINISTRATIVE SUPPORT	RECEPTIONIST				Louisville International Airport
2	125478909	PRATIK	T	GOMES	334 VITRUVIAN PARK, ALBANY, NY	4444678903	56	M	TRAFFIC MONITOR		DAY			John F. Kennedy International Airport
3	324567897	ADIT	P	DESAI	987 SOMNATH, CHANDIGARH, INDIA	2244658909	36	M	TRAFFIC MONITOR		DAY			Chandigarh International Airport
4	333445555	JOHNY	N	PAUL	638 Voss, Houston, TX	9834561995	40	M	ADMINISTRATIVE SUPPORT	SECRETARY				Louisville International Airport
5	453453453	RAJ	B	SHARMA	345 FLOYDS, MUMBAI,INDIA	4326789031	35	M	AIRPORT AUTHORITY				MANAGER	Chhatrapati Shivaji International Airport
6	666884444	SHELDON	A	COOPER	345 CHERRY PARK, HESSE,GERMANY	1254678903	55	M	TRAFFIC MONITOR		NIGHT			Frankfurt Airport
7	888665555	SHUBHAM	R	GUPTA	567 CHANDANI CHOWK, DELHI, INDIA	8566778890	39	M	ADMINISTRATIVE SUPPORT	DATA ENTRY WORKER				Indira GandhiInternational Airport
8	987654321	SHERLOCK	A	HOLMES	123 TOP HILL, SAN Francisco,CA	8089654321	47	M	TRAFFIC MONITOR			DAY		San Francisco International Airport
9	987987987	NIKITA	C	PAUL	110 SYNERGY PARK, DALLAS,TX	5678904325	33	F	ENGINEER		AIRPORT CIVIL ENGINEER			Dallas/Fort Worth International Airport
10	999887777	JAMES	P	BOND	3321 Castle, Spring, TX	9834666995	50	M	ENGINEER		RADIO ENGINEER			Louisville International Airport

EMPLOYEE1 and EMPLOYEE2 table

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

--INSERTING VALUES INTO TABLE: EMPLOYEE2--
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
```

Results | Messages

	JOBTYPE	SALARY
1	ADMINISTRATIVE SUPPORT	50000
2	AIRPORT AUTHORITY	90000
3	ENGINEER	70000
4	TRAFFIC MONITOR	80000

```sql
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);

-- INSERTING VALUES INTO TABLE: SERVES--
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');
INSERT INTO SERVES(SSN, PID, PASSPORTNO) VALUES(333445555,10,'S1243269');
INSERT INTO SERVES(SSN, PID, PASSPORTNO) VALUES(333445555,12,'K3212322');
INSERT INTO SERVES(SSN, PID, PASSPORTNO) VALUES(888665555,12,'K3212322');
INSERT INTO SERVES(SSN, PID, PASSPORTNO) VALUES(123456789,7,'J9801235');
INSERT INTO SERVES(SSN, PID, PASSPORTNO) VALUES(888665555,7,'J9801235');

select * from SERVES
```

SERVES table:

Results | Messages

	SSN	PID	PASSPORTNO
1	123456789	1	A1234568
2	123456789	7	J9801235
3	123456789	9	Q1243567
4	123456789	15	R8990566
5	333445555	10	S1243269
6	333445555	12	K3212322
7	888665555	4	D1002004
8	888665555	7	J9801235
9	888665555	12	K3212322
10	888665555	13	P3452390

```
CREATE TABLE TICKET1
(TICKET_NUMBER BIGINT NOT NULL,
SOURCE VARCHAR(3),DESTINATION VARCHAR(3),
DATE_OF_BOOKING DATE,DATE_OF_TRAVEL DATE,SEATNO VARCHAR(5),
CLASS VARCHAR(15),DATE_OF_CANCELLATION DATE,
PID INT,PASSPORTNO VARCHAR(10),
FOREIGN KEY(PID, PASSPORTNO) REFERENCES PASSENGER1(PID, PASSPORTNO) ON DELETE CASCADE);

--INSERTING INTO TABLE: TICKET1--
INSERT INTO TICKET1(TICKET_NUMBER, SOURCE, DESTINATION, DATE_OF_BOOKING, DATE_OF_CANCELLATION, DATE_OF_TRAVEL, SEATNO, CLASS, PID, PASSPORTNO)
VALUES(0011234111122,'BOM','DFW','11-MAY-16','','15-DEC-16','32A','ECONOMY',1,'A1234568');

INSERT INTO TICKET1(TICKET_NUMBER, SOURCE, DESTINATION, DATE_OF_BOOKING, DATE_OF_CANCELLATION, DATE_OF_TRAVEL, SEATNO, CLASS, PID, PASSPORTNO)
VALUES(0984567222299,'JFK','BOM','11-JUN-16','10-DEC-16','20-DEC-16','45D','ECONOMY',2,'B9876541');

INSERT INTO TICKET1(TICKET_NUMBER, SOURCE, DESTINATION, DATE_OF_BOOKING, DATE_OF_CANCELLATION, DATE_OF_TRAVEL, SEATNO, CLASS, PID, PASSPORTNO)
VALUES(1768901333273,'IAH','DEL','21-AUG-16','','25-DEC-16','1A','BUSINESS',3,'C2345698');

INSERT INTO TICKET1(TICKET_NUMBER, SOURCE, DESTINATION, DATE_OF_BOOKING, DATE_OF_CANCELLATION, DATE_OF_TRAVEL, SEATNO, CLASS, PID, PASSPORTNO)
VALUES(5890987441464,'IXC','IAH','10-AUG-16','','12-JAN-17','20C','FIRST-CLASS',4,'D1002004');

INSERT INTO TICKET1(TICKET_NUMBER, SOURCE, DESTINATION, DATE_OF_BOOKING, DATE_OF_CANCELLATION, DATE_OF_TRAVEL, SEATNO, CLASS, PID, PASSPORTNO)
VALUES(1577654664266,'JFK','TPA','13-JUN-16','','10-DEC-16','54E','ECONOMY',5,'X9324666');

INSERT INTO TICKET1(TICKET_NUMBER, SOURCE, DESTINATION, DATE_OF_BOOKING, DATE_OF_CANCELLATION, DATE_OF_TRAVEL, SEATNO, CLASS, PID, PASSPORTNO)
VALUES(2206543545545,'BOM','DFW','11-NOV-16','','12-FEB-17','43B','ECONOMY',6,'B8765430');

INSERT INTO TICKET1(TICKET_NUMBER, SOURCE, DESTINATION, DATE_OF_BOOKING, DATE_OF_CANCELLATION, DATE_OF_TRAVEL, SEATNO, CLASS, PID, PASSPORTNO)
VALUES(7064321779737,'IAH','DEL','15-NOV-16','','25-DEC-16','27B','FIRST-CLASS',7,'J9801235');

INSERT INTO TICKET1(TICKET_NUMBER, SOURCE, DESTINATION, DATE_OF_BOOKING, DATE_OF_CANCELLATION, DATE_OF_TRAVEL, SEATNO, CLASS, PID, PASSPORTNO)
VALUES(1571357215116,'SFO','FRA','15-OCT-16','','18-DEC-16','34E','ECONOMY',8,'A1122334');

INSERT INTO TICKET1(TICKET_NUMBER, SOURCE, DESTINATION, DATE_OF_BOOKING, DATE_OF_CANCELLATION, DATE_OF_TRAVEL, SEATNO, CLASS, PID, PASSPORTNO)
VALUES(1570864987655,'IXC','IAH','12-NOV-16','','30-DEC-16','54C','ECONOMY',9,'Q1243567');

INSERT INTO TICKET1(TICKET_NUMBER, SOURCE, DESTINATION, DATE_OF_BOOKING, DATE_OF_CANCELLATION, DATE_OF_TRAVEL, SEATNO, CLASS, PID, PASSPORTNO)
VALUES(1579283997799,'BOM','SFO','22-JAN-16','','15-DEC-16','38A','ECONOMY',10,'S1243269');

INSERT INTO TICKET1(TICKET_NUMBER, SOURCE, DESTINATION, DATE_OF_BOOKING, DATE_OF_CANCELLATION, DATE_OF_TRAVEL, SEATNO, CLASS, PID, PASSPORTNO)
VALUES(1255701876107,'FRA','DEL','19-OCT-16','','31-DEC-16','57F','ECONOMY',11,'E3277889');

INSERT INTO TICKET1(TICKET_NUMBER, SOURCE, DESTINATION, DATE_OF_BOOKING, DATE_OF_CANCELLATION, DATE_OF_TRAVEL, SEATNO, CLASS, PID, PASSPORTNO)
VALUES(1251334499699,'IXC','IAH','20-NOV-16','','12-JAN-17','45D','ECONOMY',12,'K3212322');

INSERT INTO TICKET1(TICKET_NUMBER, SOURCE, DESTINATION, DATE_OF_BOOKING, DATE_OF_CANCELLATION, DATE_OF_TRAVEL, SEATNO, CLASS, PID, PASSPORTNO)
VALUES(1258776199490,'BOM','DFW','13-MAY-16','25-MAY-16','15-DEC-16','37C','ECONOMY',13,'P3452390');

INSERT INTO TICKET1(TICKET_NUMBER, SOURCE, DESTINATION, DATE_OF_BOOKING, DATE_OF_CANCELLATION, DATE_OF_TRAVEL, SEATNO, CLASS, PID, PASSPORTNO)
VALUES(5891155114477,'FRA','DEL','26-JUN-16','','23-DEC-16','55C','ECONOMY',14,'W7543336');

INSERT INTO TICKET1(TICKET_NUMBER, SOURCE, DESTINATION, DATE_OF_BOOKING, DATE_OF_CANCELLATION, DATE_OF_TRAVEL, SEATNO, CLASS, PID, PASSPORTNO)
VALUES(5893069766787,'BOM','DFW','11-AUG-16','','22-DEC-16','33F','ECONOMY',15,'R8990566');
```

TICKET1 table:

Results | Messages

	TICKET_NUMBER	SOURCE	DESTINATION	DATE_OF_BOOKING	DATE_OF_TRAVEL	SEATNO	CLASS	DATE_OF_CANCELLATION	PID	PASSPORTNO
1	11234111122	BOM	DFW	2016-05-11	2016-12-15	32A	ECONOMY	1900-01-01	1	A1234568
2	984567222299	JFK	BOM	2016-06-11	2016-12-20	45D	ECONOMY	2016-12-10	2	B9876541
3	1768901333273	IAH	DEL	2016-08-21	2016-12-25	1A	BUSINESS	1900-01-01	3	C2345698
4	5890987441464	IXC	IAH	2016-08-10	2017-01-12	20C	FIRST-CLASS	1900-01-01	4	D1002004
5	1577654664266	JFK	TPA	2016-06-13	2016-12-10	54E	ECONOMY	1900-01-01	5	X9324666
6	2206543545545	BOM	DFW	2016-11-11	2017-02-12	43B	ECONOMY	1900-01-01	6	B8765430
7	7064321779737	IAH	DEL	2016-11-15	2016-12-25	27B	FIRST-CLASS	1900-01-01	7	J9801235
8	1571357215116	SFO	FRA	2016-10-15	2016-12-18	34E	ECONOMY	1900-01-01	8	A1122334
9	1570864987655	IXC	IAH	2016-11-12	2016-12-30	54C	ECONOMY	1900-01-01	9	Q1243567
10	1579283997799	BOM	SFO	2016-01-22	2016-12-15	38A	ECONOMY	1900-01-01	10	S1243269
11	1255701876107	FRA	DEL	2016-10-19	2016-12-31	57F	ECONOMY	1900-01-01	11	E3277889
12	1251334499699	IXC	IAH	2016-11-20	2017-01-12	45D	ECONOMY	1900-01-01	12	K3212322
13	1258776199490	BOM	DFW	2016-05-13	2016-12-15	37C	ECONOMY	2016-05-25	13	P3452390
14	5891155114477	FRA	DEL	2016-06-26	2016-12-23	55C	ECONOMY	1900-01-01	14	W7543336
15	5893069766787	BOM	DFW	2016-08-11	2016-12-22	33F	ECONOMY	1900-01-01	15	R8990566

```sql
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));

-- INSERTING VALUES INTO TICKET2--
INSERT INTO TICKET2(DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS, PRICE)
VALUES('11-MAY-16','BOM','DFW','ECONOMY',95000);

INSERT INTO TICKET2(DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS, PRICE)
VALUES('11-JUN-16','JFK','BOM','ECONOMY',100000);

INSERT INTO TICKET2(DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS, PRICE)
VALUES('21-AUG-16','IAH','DEL','BUSINESS',200000);

INSERT INTO TICKET2(DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS, PRICE)
VALUES('10-AUG-16','IXC','IAH','FIRST-CLASS',150000);

INSERT INTO TICKET2(DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS, PRICE)
VALUES('13-JUN-16','JFK','TPA','ECONOMY',98000);

INSERT INTO TICKET2(DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS, PRICE)
VALUES('11-NOV-16','BOM','DFW','ECONOMY',125000);

INSERT INTO TICKET2(DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS, PRICE)
VALUES('15-NOV-16','IAH','DEL','FIRST-CLASS',195000);

INSERT INTO TICKET2(DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS, PRICE)
VALUES('15-OCT-16','SFO','FRA','ECONOMY',170000);

INSERT INTO TICKET2(DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS, PRICE)
VALUES('12-NOV-16','IXC','IAH','ECONOMY',140000);

INSERT INTO TICKET2(DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS, PRICE)
VALUES('22-JAN-16','BOM','SFO','ECONOMY',45000);

INSERT INTO TICKET2(DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS, PRICE)
VALUES('19-OCT-16','FRA','DEL','ECONOMY',100000);

INSERT INTO TICKET2(DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS, PRICE)
VALUES('20-NOV-16','IXC','IAH','ECONOMY',120000);

INSERT INTO TICKET2(DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS, PRICE)
VALUES('13-MAY-16','BOM','DFW','ECONOMY',65000);

INSERT INTO TICKET2(DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS, PRICE)
VALUES('26-JUN-16','FRA','DEL','ECONOMY',80000);

INSERT INTO TICKET2(DATE_OF_BOOKING, SOURCE, DESTINATION, CLASS, PRICE)
VALUES('11-AUG-16','BOM','DFW','ECONOMY',98000);
```

TICKET2 table:

Results | Messages

	DATE_OF_BOOKING	SOURCE	DESTINATION	CLASS	PRICE
1	2016-01-22	BOM	SFO	ECONOMY	45000
2	2016-05-11	BOM	DFW	ECONOMY	95000
3	2016-05-13	BOM	DFW	ECONOMY	65000
4	2016-06-11	JFK	BOM	ECONOMY	100000
5	2016-06-13	JFK	TPA	ECONOMY	98000
6	2016-06-26	FRA	DEL	ECONOMY	80000
7	2016-08-10	IXC	IAH	FIRST-CLASS	150000
8	2016-08-11	BOM	DFW	ECONOMY	98000
9	2016-08-21	IAH	DEL	BUSINESS	200000
10	2016-10-15	SFO	FRA	ECONOMY	170000
11	2016-10-19	FRA	DEL	ECONOMY	100000
12	2016-11-11	BOM	DFW	ECONOMY	125000
13	2016-11-12	IXC	IAH	ECONOMY	140000
14	2016-11-15	IAH	DEL	FIRST-CLASS	195000
15	2016-11-20	IXC	IAH	ECONOMY	120000

```
CREATE TABLE TICKET3
(DATE_OF_CANCELLATION DATE NOT NULL,
SURCHARGE INT,
PRIMARY KEY(DATE_OF_CANCELLATION));

-- 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);

select * from TICKET3
```

TICKET3 table :

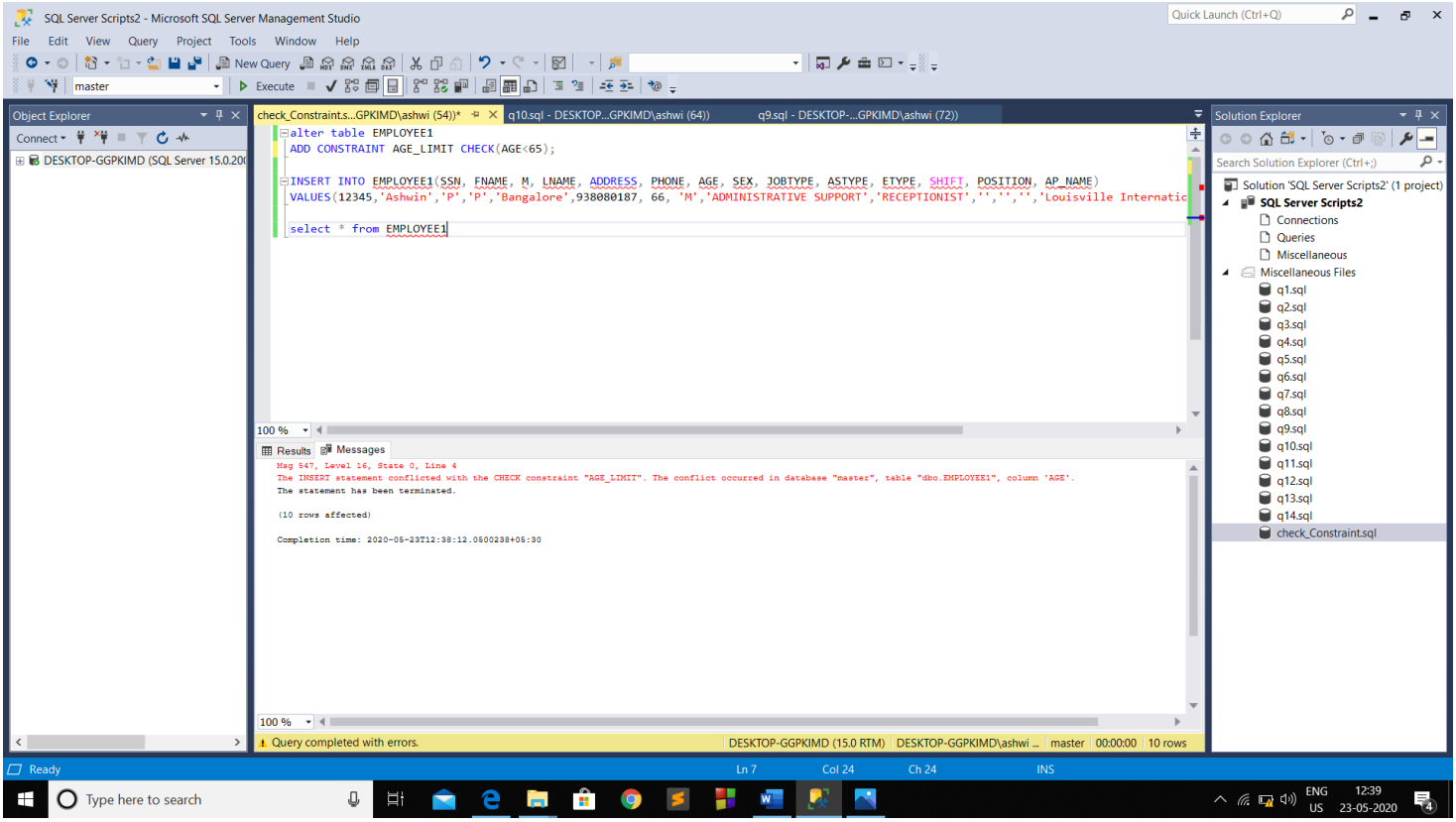
Results Messages

	DATE_OF_CANCELLATION	SURCHARGE
1	2016-05-25	25000
2	2016-12-10	75000

Adding CHECK Constraints:

Here I added the constraint AGE_LIMIT to EMPLOYEE1 table such that, AGE<65.

So now if values to be inserted has AGE>65 it won't be inserted.



TRIGGERS:

```
-- CREATING TABLE TICKET_PRICE_HISTORY--

CREATE TABLE TICKET_PRICE_HISTORY
(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));
```

Above created table will be empty initially. We create a Trigger TRIGG1 for Price update on table TICKET2

```
-- CREATE A TRIGGER TICKET_PRICE_HISTORY --
CREATE TRIGGER TRIGG1
ON TICKET2
FOR UPDATE
AS
BEGIN

declare @dobooking date;
declare @source VARCHAR(3);
declare @destination VARCHAR(3);
declare @class VARCHAR(15);
declare @price INT;

select @dobooking=DATE_OF_BOOKING FROM deleted;
select @source=SOURCE FROM deleted;
select @destination=DESTINATION FROM deleted;
select @class=CLASS FROM deleted;
select @price=PRICE FROM deleted;

INSERT INTO TICKET_PRICE_HISTORY
VALUES(@dobooking,@source,@destination,@class,@price);

END
```

Now we update Price on TICKET2 table,

```
--LET'S UPDATE A PRICE OR FARE OF AN AIR TICKET

UPDATE TICKET2
SET PRICE=250000
WHERE DATE_OF_BOOKING ='11-NOV-16'
AND SOURCE='BOM'
AND DESTINATION='DFW'

UPDATE TICKET2
SET PRICE=55000
WHERE DATE_OF_BOOKING ='22-JAN-16'
AND SOURCE='BOM'
AND DESTINATION='SFO'
```

And now whenever an update is made on TICKET2, TRIGG1 fires and does its job. So previous values of TICKET2 gets stored in TICKET_PRICE_HISTORY.

TICKET_PRICE_HISTORY before updating,

Results | Messages

DATE_OF_BOOKING	SOURCE	DESTINATION	CLASS	PRICE

After updating:

We can see previous price values,

Results | Messages

	DATE_OF_BOOKING	SOURCE	DESTINATION	CLASS	PRICE
1	2016-01-22	BOM	SFO	ECONOMY	45000
2	2016-11-11	BOM	DFW	ECONOMY	125000