



AIRLINES DATABASE MANAGEMENT SYSTEM

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Description

- Database management system helps making data more efficient and effective. This system stores, organises and manages a large amount of information within a single software application.
- Our Project on airline database system holds flight details, flight schedule, passenger details, ticket records, etc.
- We have used SQL as an language for applying queries. (Queries for insertion, deletion, updating, etc.)
- Benefits –
 - ✓ Control redundancy in data storage and in development of effort.
 - ✓ It Provides a structured approach to managing risks.
 - ✓ It Reduces risk by streamlining continuous improvement to operations.
 - ✓ Improve maintenance through data independence also backup and recovery services.

Entity Sets & Attributes

- Airplane_type(A_ID, Capacity, A_weight, Company)
- Route (Route_ID, Destination, Take_Off_point, R_type)
- Flight (Flight_ID, Departure, Arrival, Flight_date,)
- AirFare (Fare_ID, Charge_Amount, Description)
- Passengers (Ps_ID, Name, Address, Age, Sex, Contacts)
- Employees (Emp_ID, Name, Address ,Age, Email_ID, Contacts)
- Transactions(TS_ID, Booking_Date,
Departure_Date, Type, Emp_ID*, Ps_ID*, Flight_ID*, Charge_Amount*)
- Countries(Country_code, Country_Name)
- Airport(Air_Code, Air_Name, City, State)

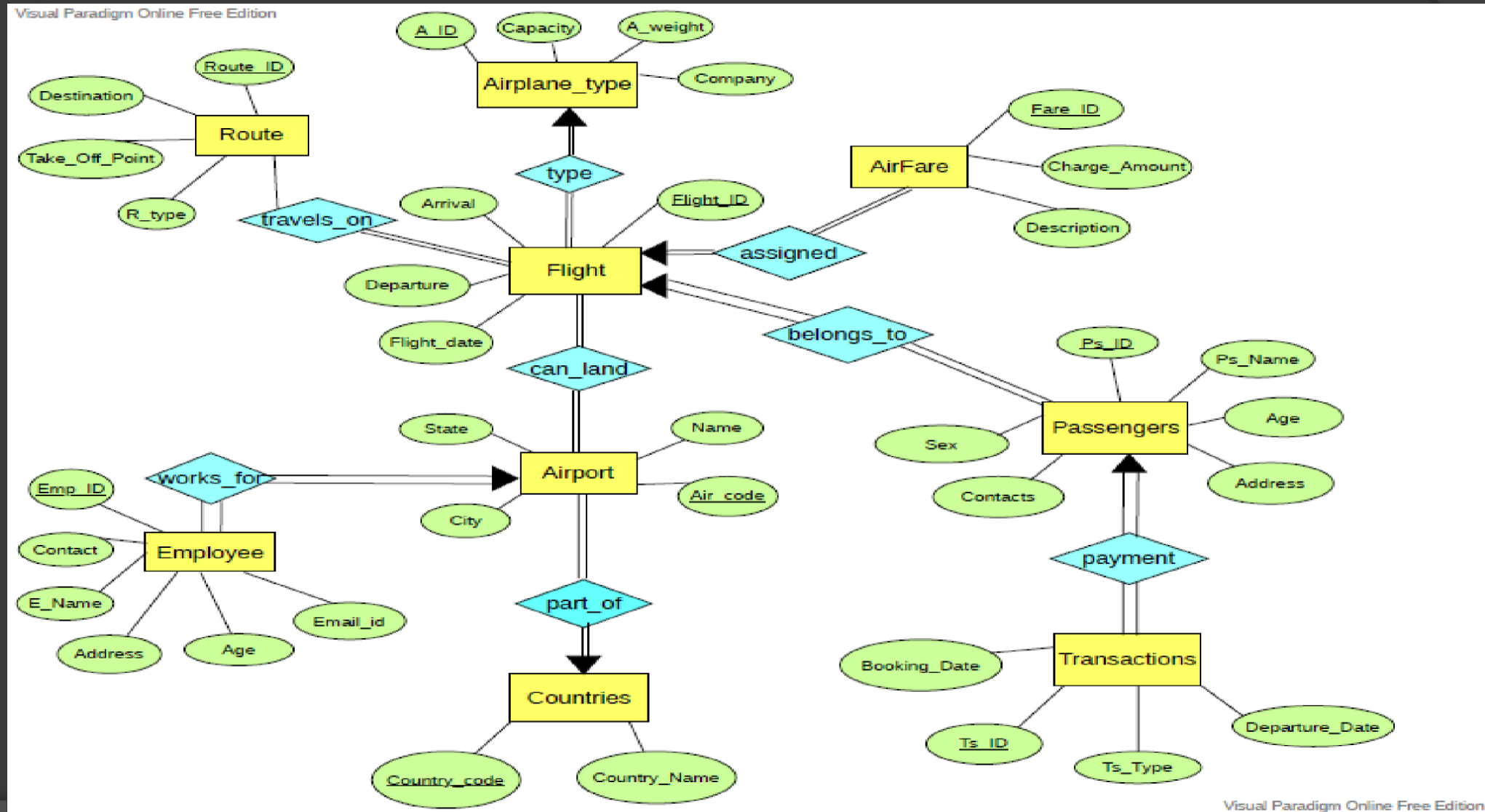
RELATIONSHIPS, CARDINALITY AND PARTICIPATION

- ❖ **Type** : (1:M) Airplane_type with Flight ,
Both total
- ❖ **Payment** : (1:M) Passengers with Transactions,
Both total
- ❖ **Can land** : (M:N) Flight with Airport,
Both total
- ❖ **Travels on** : (M:N) Flight with Route
Flight: total Route: partial

RELATIONSHIPS, CARDINALITY AND PARTICIPATION

- ❖ **Assigned** : (N:1) Air-Fare with Flight,
Both Total
- ❖ **Part of** : (N:1) Airport with Countries,
Both Total
- ❖ **Works_for** : (N:1) Employee with Airport,
Both Total
- ❖ **belongs_to** : (N:1) Passenger with Flight,
Both Total

ENTITY RELATIONSHIP DIAGRAM



RELATIONAL MODEL

- Airplane_type (A_ID, Capacity, A_weight, Company)
- Route (Route_ID, Destination, Take_Off_point, R_type)
- Flight (Flight_ID, Departure, Arrival, Flight_date, A_ID*)
- AirFare (Fare_ID, Charge_Amount, Description, Flight_ID*)
- Passengers (Ps_ID, Name, Address, Age, Sex, Contacts, Flight_ID*)

RELATIONAL MODEL

- Employees (Emp_ID, Name, Address ,Age, Email_ID, Contacts, Air_Code*)
- Transactions (TS_ID, Booking_Date, Departure_Date, Type, Emp_ID*, Ps_ID*, Flight_ID*, Charge_Amount*)
- Countries (Country_code, Country_Name)
- Airport (Air_Code, Air_Name, City, State, Country_code*)
- Can_Land (Air_Code*, Flight_ID*)
- Travels_on (Route_ID*, Flight_ID*)

Table Create

```
CREATE TABLE Airplane_type(  
    A_ID INT,  
    Capacity INT,  
    A_weight INT,  
    Company VARCHAR(15),  
    PRIMARY KEY(A_ID)  
);  
CREATE TABLE Route(  
    Route_ID INT,  
    Take_Off_point VARCHAR(15),  
    Destination VARCHAR(15),  
    R_type VARCHAR(15),  
    PRIMARY KEY(Route_ID)  
);  
CREATE TABLE Flight(  
    Flight_ID VARCHAR(15),  
    Departure VARCHAR(30),  
    Arrival VARCHAR(30),  
    Flight_date DATE,  
    A_ID INT,  
    PRIMARY KEY(Flight_ID),  
    FOREIGN KEY (A_ID) REFERENCES Airplane_type(A_ID)  
);
```

```
CREATE TABLE AirFare(  
    Fare_ID INT,  
    Charge_Amount INT,  
    Description VARCHAR(25),  
    Flight_ID VARCHAR(15),  
    PRIMARY KEY(Fare_ID),  
    FOREIGN KEY (Flight_ID) REFERENCES Flight(Flight_ID)  
);
```

```
CREATE TABLE Passengers(  
    Ps_ID INT,  
    Ps_Name VARCHAR(20),  
    Address VARCHAR(50),  
    Age INT,  
    Sex VARCHAR(1),  
    Contacts VARCHAR(10),  
    Flight_ID VARCHAR(15),  
    PRIMARY KEY(Ps_ID),  
    FOREIGN KEY (Flight_ID) REFERENCES Flight(Flight_ID)  
);
```

```
CREATE TABLE Countries(  
    Country_code INT,  
    Country_Name VARCHAR(20),  
    PRIMARY KEY(Country_code)  
);
```

```
CREATE TABLE Airport(  
    Air_code VARCHAR(10),  
    Air_Name VARCHAR(50),  
    City VARCHAR(20),  
    State VARCHAR(20),  
    Country_code INT,  
    PRIMARY KEY(Air_code),  
    FOREIGN KEY (Country_code) REFERENCES Countries(Country_code)  
);
```

```
CREATE TABLE Employees(  
    Emp_ID INT,  
    E_Name VARCHAR(20),  
    Address VARCHAR(50),  
    Age INT,  
    Email_ID VARCHAR(20),  
    Contact VARCHAR(20),  
    Air_code VARCHAR(10),  
    PRIMARY KEY(Emp_ID),  
    FOREIGN KEY (Air_code) REFERENCES Airport(Air_code)  
);
```

```
CREATE TABLE Can_Land(  
    Air_code VARCHAR(10),  
    Flight_ID VARCHAR(15),  
    PRIMARY KEY(Air_code,Flight_ID),  
    FOREIGN KEY(Air_code) REFERENCES Airport(Air_code),  
    FOREIGN KEY(Flight_ID) REFERENCES Flight(Flight_ID)  
);
```

```
CREATE TABLE Transactions(  
    TS_ID INT,  
    Booking_Date DATE,  
    Departure_Date DATE,  
    TS_Type VARCHAR(20),  
    Emp_ID INT,  
    Ps_ID INT,  
    Flight_ID VARCHAR(15),  
    Charge_Amount INT,  
    PRIMARY KEY(TS_ID),  
    FOREIGN KEY (Emp_ID) REFERENCES Employees(Emp_ID) ,  
    FOREIGN KEY (Ps_ID) REFERENCES Passengers(Ps_ID),  
    FOREIGN KEY (Flight_ID) REFERENCES Flight(Flight_ID),  
    FOREIGN KEY (Charge_Amount) REFERENCES AirFare(Fare_ID)  
);
```

```
CREATE TABLE Travels_on(  
    Route_ID INT,  
    Flight_ID VARCHAR(15),  
    PRIMARY KEY(Route_ID,Flight_ID),  
    FOREIGN KEY(Route_ID) REFERENCES Route(Route_ID),  
    FOREIGN KEY(Flight_ID) REFERENCES Flight(Flight_ID)  
);
```

Insert Data

```
INSERT INTO Airplane_type VALUES (738,853,394,'Indigo');  
INSERT INTO Airplane_type VALUES (777,800,380,'Vistara');  
INSERT INTO Airplane_type VALUES (750,790,364,'AirIndia');  
INSERT INTO Airplane_type VALUES (790,850,390,'SpiceJet');  
INSERT INTO Airplane_type VALUES (745,770,405,'GoAir');  
INSERT INTO Airplane_type VALUES (768,867,387,'AirAsia');  
INSERT INTO Airplane_type VALUES (821,790,355,'TruJet');  
INSERT INTO Airplane_type VALUES (785,835,410,'Alliance Air');
```

```
SELECT * FROM Airplane_type;
```

A_ID	Capacity	A_weight	Company
738	853	394	Indigo
745	770	405	GoAir
750	790	364	AirIndia
768	867	387	AirAsia
777	800	380	Vistara
785	835	410	Alliance Air
790	850	390	SpiceJet
821	790	355	TruJet

```

INSERT INTO Route VALUES(168806,'London','Delhi','Direct');
INSERT INTO Route VALUES(157306,'NewJersey','Mumbai','2Hr Break');
INSERT INTO Route VALUES(178916,'Washington','Jodhpur','3Hr Break');
INSERT INTO Route VALUES(324567,'Chennai','Denmark','Direct');
INSERT INTO Route VALUES(452368,'Chandigard','NewYork','3Hr Break');
INSERT INTO Route VALUES(894521,'Daman','Delhi','Direct');
INSERT INTO Route VALUES(578425,'Beijing','Punjab','Direct');
INSERT INTO Route VALUES(421523,'Hyderabad','Jammu & Kashmir','Direct');

```

```

SELECT * FROM Route;

```

Route_ID	Take_Off_point	Destination	R_type
157306	NewJersey	Mumbai	2Hr Break
168806	London	Delhi	Direct
178916	Washington	Jodhpur	3Hr Break
324567	Chennai	Denmark	Direct
421523	Hyderabad	Jammu & Kashmir	Direct
452368	Chandigard	NewYork	3Hr Break
578425	Beijing	Punjab	Direct
894521	Daman	Delhi	Direct

```
INSERT INTO Flight VALUES('AI2014','2021-01-12 08:45am','2021-01-12 10:25pm','2021-01-12',738);
INSERT INTO Flight VALUES('QR2305','2020-12-26 12:05pm','2020-12-27 12:25pm','2020-12-26',777);
INSERT INTO Flight VALUES('EY1234','2021-02-10 05:00am','2021-02-10 10:30pm','2021-02-10',750);
INSERT INTO Flight VALUES('LH9876','2021-02-25 10:15am','2021-02-25 11:00pm','2021-02-25',790);
INSERT INTO Flight VALUES('BA1689','2021-03-02 2:15am','2021-03-02 10:00pm','2021-03-02',745);
INSERT INTO Flight VALUES('AA4367','2021-03-25 12:05am','2021-03-25 02:15am','2021-03-25',768);
INSERT INTO Flight VALUES('CT7812','2021-04-04 2:15pm','2021-04-04 8:00pm','2021-04-04',821);
INSERT INTO Flight VALUES('PF4521','2020-12-25 5:00pm','2020-12-25 10:30pm','2020-12-25',785);
```

```
SELECT * FROM Flight;
```

```
INSERT INTO AirFare VALUES(1,27341,'Standard Single','AI2014');
INSERT INTO AirFare VALUES(4,34837,'Standard Return','QR2305');
INSERT INTO AirFare VALUES(2,42176,'Key Fare Single','EY1234');
INSERT INTO AirFare VALUES(3,27373,'Business Return','LH9876');
INSERT INTO AirFare VALUES(6,44592,'Advanced Purchase','BA1689');
INSERT INTO AirFare VALUES(5,8777,'Superpex Return','AA4367');
INSERT INTO AirFare VALUES(7,9578,'Standard Return','CT7812');
INSERT INTO AirFare VALUES(8,4459,'Superpex Return','PF4521');
```

```
SELECT * FROM AirFare;
```

Fare_ID	Charge_Amount	Description	Flight_ID
1	27341	Standard Single	AI2014
2	42176	Key Fare Single	EY1234
3	27373	Business Return	LH9876
4	34837	Standard Return	QR2305
5	8777	Superpex Return	AA4367
6	44592	Advanced Purchase	BA1689
7	9578	Standard Return	CT7812
8	4459	Superpex Return	PF4521


```

INSERT INTO Passengers VALUES(1,'Steve Smith','2230 Northside,Apt 11,London',30,'M','8080367290','AI2014');
INSERT INTO Passengers VALUES(2,'Ankita Ahir','3456 Vikas Apts,Apt 102,New Jersey',26,'F','8080367280','QR2305');
INSERT INTO Passengers VALUES(4,'Akhilesh Joshi','345 Chatam courts,Apt 678,Chennai',29,'M','9080369290','EY1234');
INSERT INTO Passengers VALUES(3,'Khyati Mishra','7820 Mccallum courts,Apt 234,Washington',30,'F','8082267280','LH9876');
INSERT INTO Passengers VALUES(5,'Rom Solanki','1234 Baker Apts,Apt 208,Chandigard',60,'M','9004568903','EY1234');

INSERT INTO Passengers VALUES(6,'Lakshmi Sharma','1110 Fir hills,Apt 90,Daman',30,'F','7666190505','AA4367');
INSERT INTO Passengers VALUES(8,'Manan Lakhani','7720 Mccallum Blvd,Apt 77,Beijing',45,'M','8124579635','CT7812');
INSERT INTO Passengers VALUES(7,'Ria Gupta','B-402,Aditya Apt,Hyderabad',34,'F','9819414036','EY1234');

```

```
SELECT * FROM Passengers;
```

Ps_ID	Ps_Name	Address	Age	Sex	Contacts	Flight_ID
1	Steve Smith	2230 Northside,Apt 11,London	30	M	8080367290	AI2014
2	Ankita Ahir	3456 Vikas Apts,Apt 102,New Jersey	26	F	8080367280	QR2305
3	Khyati Mishra	7820 Mccallum courts,Apt 234,Washington	30	F	8082267280	LH9876
4	Akhilesh Joshi	345 Chatam courts,Apt 678,Chennai	29	M	9080369290	EY1234
5	Rom Solanki	1234 Baker Apts,Apt 208,Chandigard	60	M	9004568903	EY1234
6	Lakshmi Sharma	1110 Fir hills,Apt 90,Daman	30	F	7666190505	AA4367
7	Ria Gupta	B-402,Aditya Apt,Hyderabad	34	F	9819414036	EY1234
8	Manan Lakhani	7720 Mccallum Blvd,Apt 77,Beijing	45	M	8124579635	CT7812

```
INSERT INTO Countries VALUES (+44,'England');  
INSERT INTO Countries VALUES (+1,'USA');  
INSERT INTO Countries VALUES (+91,'India');  
INSERT INTO Countries VALUES (+45,'Kingdom of Denmark');  
INSERT INTO Countries VALUES (+64,'New Zealand');  
INSERT INTO Countries VALUES (+971,'UAE');  
INSERT INTO Countries VALUES (+213,'Algeria');  
INSERT INTO Countries VALUES (+55,'Brazil');
```

```
SELECT * FROM Countries;
```

Country_code	Country_Name
1	USA
44	England
45	Kingdom of Denmark
55	Brazil
64	New Zealand
91	India
213	Algeria
971	UAE

```

INSERT INTO Airport VALUES('DEL','Indira Gandhi International Airport','Delhi','UP',+91);
INSERT INTO Airport VALUES('BOM','Chhatrapati Shivaji Maharaj International Airport','Mumbai','Maharashtra',+91);
INSERT INTO Airport VALUES('LCY','London City Airport','Newham','London',+44);
INSERT INTO Airport VALUES('EWR','Newark Liberty International Airport','Newark','New Jersey',+1);
INSERT INTO Airport VALUES('JFK','John F.Kennedy International Airport','New York City','New York',+1);
INSERT INTO Airport VALUES('CPH','Copenhagen Airport','Copenhagen','Denmark',+45);
INSERT INTO Airport VALUES('AIP','Adampur Airport','Jalandhar','Punjab',+91);
INSERT INTO Airport VALUES('IXJ','Satwari Airport','Jammu','Jammu & Kashmir',+91);

```

```

SELECT * FROM Airport;

```

Air_code	Air_Name	City	State	Country_code
AIP	Adampur Airport	Jalandhar	Punjab	91
BOM	Chhatrapati Shivaji Maharaj International Airport	Mumbai	Maharashtra	91
CPH	Copenhagen Airport	Copenhagen	Denmark	45
DEL	Indira Gandhi International Airport	Delhi	UP	91
EWR	Newark Liberty International Airport	Newark	New Jersey	1
IXJ	Satwari Airport	Jammu	Jammu & Kashmir	91
JFK	John F.Kennedy International Airport	New York City	New York	1
LCY	London City Airport	Newham	London	44

```
INSERT INTO Employees VALUES(1234,'Rekha Tiwary','202-Meeta Apt,Yogi Nagar,Mumbai',30,'rekha1234@gmail.com','+918530324018','DEL');
```

```
INSERT INTO Employees VALUES(3246,'John Dsouza','302-Fountain Apt,ElizaBeth Street,Newham',26,'john2346@gmail.com','+447911123456','BOM');
```

```
INSERT INTO Employees VALUES(9321,'Sanjay Rathod','62-Patwa Apt,Pradeep Nagar,Delhi',36,'sanjay78@gmail.com','+917504681201','LCY');
```

```
INSERT INTO Employees VALUES(8512,'Hafsa Iqmar','1023-Prajwal Apt,Newark',41,'hafsa964@gmail.com','6465554468','EWR');
```

```
INSERT INTO Employees VALUES(7512,'Akshay Sharma','Akshay Villa,Queens Street,Copenhagen',20,'akshay27@gmail.com','+45886443210','JFK');
```

```
INSERT INTO Employees VALUES(5123,'Lara Jen','28-Mark road,Victoria street,New York City',31,'jenlara4@gmail.com','+448000751234','CPH');
```

```
INSERT INTO Employees VALUES(2458,'Johny Paul','45-Balaji Apt,Ajit Nagar,Jalandar',32,'johnypaul8@gmail.com','+919785425154','AIP');
```

```
INSERT INTO Employees VALUES(4521,'Nidhi Maroliya','6-Matruchaya Apt,Park Road,Jammu',31,'nidhi785@gmail.com','+918211954901','IXJ');
```

```
SELECT * FROM Employees;
```

Emp_ID	E_Name	Address	Age	Email_ID	Contact	Air_code
1234	Rekha Tiwary	202-Meeta Apt,Yogi Nagar,Mumbai	30	rekha1234@gmail.com	+918530324018	DEL
2458	Johny Paul	45-Balaji Apt,Ajit Nagar,Jalandar	32	johnypaul8@gmail.com	+919785425154	AIP
3246	John Dsouza	302-Fountain Apt,ElizaBeth Street,Newham	26	john2346@gmail.com	+447911123456	BOM
4521	Nidhi Maroliya	6-Matruchaya Apt,Park Road,Jammu	31	nidhi785@gmail.com	+918211954901	IXJ
5123	Lara Jen	28-Mark road,Victoria street,New York City	31	jenlara4@gmail.com	+448000751234	CPH
7512	Akshay Sharma	Akshay Villa,Queens Street,Copenhagen	20	akshay27@gmail.com	+45886443210	JFK
8512	Hafsa Iqmar	1023-Prajwal Apt,Newark	41	hafsa964@gmail.com	6465554468	EWR
9321	Sanjay Rathod	62-Patwa Apt,Pradeep Nagar,Delhi	36	sanjay78@gmail.com	+917504681201	LCY

Air_code	Flight_ID
CPH	AA4367
DEL	AI2014
JFK	BA1689
AIP	CT7812
LCY	EY1234
EWR	LH9876
IXJ	PF4521
BOM	QR2305

```

INSERT INTO Can_Land VALUES('DEL','AI2014');
INSERT INTO Can_Land VALUES('BOM','QR2305');
INSERT INTO Can_Land VALUES('LCY','EY1234');
INSERT INTO Can_Land VALUES('EWR','LH9876');
INSERT INTO Can_Land VALUES('JFK','BA1689');
INSERT INTO Can_Land VALUES('CPH','AA4367');
INSERT INTO Can_Land VALUES('AIP','CT7812');
INSERT INTO Can_Land VALUES('IXJ','PF4521');

```

```

SELECT * FROM Can_Land;

```

```

INSERT INTO Transactions VALUES(12345678,'2021-02-21','2021-02-22','Google Pay',1234,1,'AI2014',27341);
INSERT INTO Transactions VALUES(45612789,'2021-01-12','2021-01-14','Credit Card',3246,2,'QR2305',34837);
INSERT INTO Transactions VALUES(56987123,'2020-12-05','2020-12-02','Paytm',9321,4,'EY1234',42176);
INSERT INTO Transactions VALUES(45321879,'2021-03-15','2021-03-16','PhonePe',8512,3,'LH9876',27373);
INSERT INTO Transactions VALUES(75145863,'2021-04-22','2021-04-25','Paytm',7512,5,'EY1234',44592);
INSERT INTO Transactions VALUES(17892455,'2021-02-05','2021-02-08','Paytm',5123,6,'AA4367',8777);
INSERT INTO Transactions VALUES(24517852,'2021-03-06','2021-03-08','PhonePe',2458,8,'CT7812',9578);
INSERT INTO Transactions VALUES(32548525,'2021-01-20','2021-01-25','Credit Card',4521,7,'EY1234',4459);

```

```

SELECT * FROM Transactions;

```

TS_ID	Booking_Date	Departure_Date	TS_Type	Emp_ID	Ps_ID	Flight_ID	Charge_Amount
12345678	2021-02-21	2021-02-22	Google Pay	1234	1	AI2014	27341
17892455	2021-02-05	2021-02-08	Paytm	5123	6	AA4367	8777
24517852	2021-03-06	2021-03-08	PhonePe	2458	8	CT7812	9578
32548525	2021-01-20	2021-01-25	Credit Card	4521	7	EY1234	4459
45321879	2021-03-15	2021-03-16	PhonePe	8512	3	LH9876	27373
45612789	2021-01-12	2021-01-14	Credit Card	3246	2	QR2305	34837
56987123	2020-12-05	2020-12-02	Paytm	9321	4	EY1234	42176
75145863	2021-04-22	2021-04-25	Paytm	7512	5	EY1234	44592

```
INSERT INTO Travels_on VALUES(168806,'AI2014');
INSERT INTO Travels_on VALUES(157306,'QR2305');
INSERT INTO Travels_on VALUES(178916,'EY1234');
INSERT INTO Travels_on VALUES(324567,'LH9876');
INSERT INTO Travels_on VALUES(452368,'BA1689');
INSERT INTO Travels_on VALUES(894521,'AA4367');
INSERT INTO Travels_on VALUES(578425,'CT7812');
INSERT INTO Travels_on VALUES(421523,'PF4521');
```

```
SELECT * FROM Travels_on;
```

Route_ID	Flight_ID
894521	AA4367
168806	AI2014
452368	BA1689
578425	CT7812
178916	EY1234
324567	LH9876
421523	PF4521
157306	QR2305

SQL QUERIES

1. Display the flight-id and Passenger name travelling by Indigo Company.

```
SELECT F.Flight_ID, P.Ps_Name  
FROM Airplane_type as A, Flight as F, Passengers as P  
WHERE A.A_ID = F.A_ID AND  
      F.Flight_ID = P.Flight_ID AND  
      A.Company = 'Indigo';
```

Flight_ID	Ps_Name
AI2014	Steve Smith

2. Display the route information for all flights.

```
SELECT A.Company, R.Take_Off_point, R.Destination
FROM Airplane_type as A, Flight as F ,Travels_on as T, Route as R
WHERE F.Flight_ID = T.Flight_ID
      AND A.A_ID = F.A_ID
      AND T.Route_ID = R.Route_ID;
```

Company	Take_Off_point	Destination
Indigo	London	Delhi
GoAir	Chandigard	NewYork
AirIndia	Washington	Jodhpur
AirAsia	Daman	Delhi
Vistara	NewJersey	Mumbai
Alliance Air	Hyderabad	Jammu & Kashmir
SpiceJet	Chennai	Denmark
TruJet	Beijing	Punjab

3. Find the Employee-id of all employees whose name includes the substring John.

```
SELECT Emp_ID, E_Name  
FROM Employees  
WHERE E_Name LIKE '%John%';
```

Emp_ID	E_Name
2458	Johnny Paul
3246	John Dsouza

4. Find the sum of transaction charge amount travelled by flight-id = EY1234 for each transaction type.

total_charge	TS_Type
4459	Credit Card
86768	Paytm

```
SELECT SUM(Charge_Amount) as total_charge, TS_Type  
FROM Transactions  
WHERE Flight_ID = 'EY1234'  
GROUP BY TS_Type;
```

5.List in alphabetical order the names of all passengers travelling by flight-id EY1234.

```
SELECT P.*  
FROM Passengers as P, Flight as F  
WHERE P.Flight_ID = F.Flight_ID AND  
      F.Flight_ID = 'EY1234'  
ORDER BY Ps_Name;
```

Ps_ID	Ps_Name	Address	Age	Sex	Contacts	Flight_ID
4	Akhilesh Joshi	345 Chatam courts,Apt 678,Chennai	29	M	9080369290	EY1234
7	Ria Gupta	B-402,Aditya Apt,Hyderabad	34	F	9819414036	EY1234
5	Rom Solanki	1234 Baker Apts,Apt 208,Chandigard	60	M	9004568903	EY1234

6. Display the company-name whose flight will be landed in mumbai airport.

```
SELECT Company, A_ID
FROM Airplane_type
WHERE A_ID in (SELECT A_ID
                FROM Flight
                WHERE Flight_ID in (SELECT Flight_ID
                                    FROM Can_Land
                                    WHERE Air_code in (SELECT Air_code
                                                        FROM Airport
                                                        WHERE City = 'Mumbai'))));
```

Company	A_ID
Vistara	777

7. Find the Transaction-type whose transaction amount is greater than Google Pay transaction-type.

```
SELECT Charge_Amount, TS_Type
FROM Transactions
WHERE Charge_Amount > some (SELECT Charge_Amount
                             FROM Transactions
                             WHERE TS_Type = 'Google Pay');
```

Charge_Amount	TS_Type
27373	PhonePe
34837	Credit Card
42176	Paytm
44592	Paytm

8. Find all country name with more than one airport.

```
SELECT Country_Name, count(*) as Airport_count
FROM Airport as A,Countries as C
WHERE A.Country_code = C.Country_code
GROUP BY C.Country_name
HAVING count(*) > 1;
```

Country_Name	Airport_count
India	4
USA	2

9. Find the largest charge-amount of any transaction-type.

```
SELECT max(total_bal) as largest_transaction
FROM (SELECT TS_Type, sum(Charge_Amount) as total_bal
      FROM Transactions
      GROUP BY TS_Type) as result;
```

largest_transaction
95545

10. Find the Fare-id of those with Charge-amount between 20000 and 35000.

```
SELECT Fare_ID, Charge_Amount
FROM AirFare
WHERE Charge_Amount BETWEEN 20000 AND 35000 ;
```

Fare_ID	≡	Charge_Amount
1		27341
3		27373
4		34837

11. Find the average charge-amount of those transactiontype whose average charge amount is greater than 20,000.

```
SELECT TS_Type, avg_bal
FROM (SELECT TS_Type, avg(Charge_Amount) as avg_bal
      FROM Transactions
      GROUP BY TS_Type) as result
WHERE avg_bal > 20000;
```

TS_Type	avg_bal
Google Pay	27341.0000
Paytm	31848.3333

12. Increase the charge-amount by 5% whose class is Superpex Return.

```
UPDATE AirFare
SET Charge_Amount = Charge_Amount * 1.05
WHERE Description = 'Superpex Return';
```

Fare_ID	Charge_Amount	Description	Flight_ID
1	27341	Standard Single	AI2014
2	42176	Key Fare Single	EY1234
3	27373	Business Return	LH9876
4	34837	Standard Return	QR2305
5	8777	Superpex Return	AA4367
6	44592	Advanced Purchase	BA1689
7	9578	Standard Return	CT7812
8	4459	Superpex Return	PF4521

Initial AirFare Table

AirFare Table after 5% increase

Fare_ID	Charge_Amount	Description	Flight_ID
1	27341	Standard Single	AI2014
2	42176	Key Fare Single	EY1234
3	27373	Business Return	LH9876
4	34837	Standard Return	QR2305
5	9216	Superpex Return	AA4367
6	44592	Advanced Purchase	BA1689
7	9578	Standard Return	CT7812
8	4682	Superpex Return	PF4521

13. Display the country-name that does not have an airport.

```
SELECT Country_code, Country_Name  
FROM Countries  
WHERE Country_code NOT IN (SELECT Country_code  
                           FROM Airport);
```

Country_code	Country_Name
55	Brazil
64	New Zealand
213	Algeria
971	UAE

14. Display All the counties that may have or may not have the Airport.

```
SELECT *  
FROM Countries NATURAL LEFT OUTER JOIN Airport;
```

Country_code	Country_Name	Air_code	Air_Name	City	State
1	USA	EWB	Newark Liberty International Airport	Newark	New Jersey
1	USA	JFK	John F.Kennedy International Airport	New York City	New York
44	England	LCY	London City Airport	Newham	London
45	Kingdom of Denmark	CPH	Copenhagen Airport	Copenhagen	Denmark
55	Brazil	NULL	NULL	NULL	NULL
64	New Zealand	NULL	NULL	NULL	NULL
91	India	AIP	Adampur Airport	Jalandhar	Punjab
91	India	BOM	Chhatrapati Shivaji Maharaj International Airport	Mumbai	Maharashtra
91	India	DEL	Indira Gandhi International Airport	Delhi	UP
91	India	IXJ	Satwari Airport	Jammu	Jammu & Kashmir