



PES University, Bangalore
Department of Computer Science and Engineering

B.TECH (CSE)
VI SEMESTER
UE20EC301- Database Management Systems (Minors)

Mini-Project Report
On
Airlines Database Management System

SUBMITTED BY

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PROBLEM STATEMENT

Airport Management System is a large scale project which includes database of more than a single Airport. This airline management system contains the details about: Airplane_Type, Route, Flight, Airfare, Passengers, Employees, Transactions, Countries and Airport.

- Passenger Records:

- Unique ID, name, address, age, sex, and contacts for each passenger.
- Transaction tracking, including booking date and charge amount.
- Multiple transactions per passenger, each with a transaction ID and payment details.

- Employee Management:

- Employee information stored in the database: name, employee ID, address, age, email ID, and contact.
- Each employee has a unique ID.
- Continual employment of more employees to manage workload.

- Airfare Information:

- Unique fare for booking, modifying, or canceling reservations.
- Airfare assigned based on travel time.

- Country and Airport Details:

- Each country has multiple airports.
- Database contains passenger and employee details associated with respective airports.

- Airport and Airplane Information:

- Each airport has multiple airplanes from different airlines.
- Each airport has a unique airplane ID.
- Information includes passenger capacity and airplane weight.

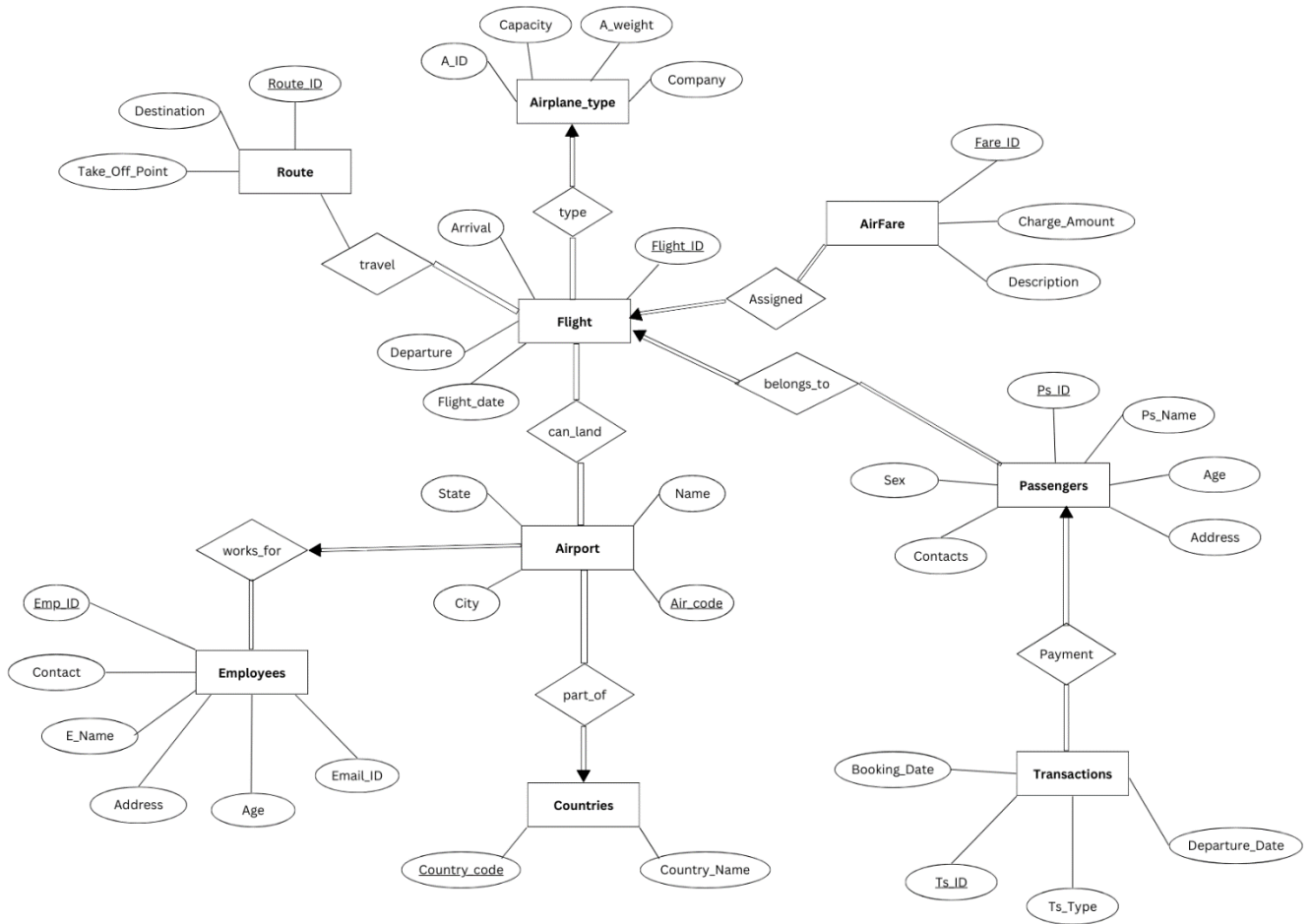
- Flight Routes:

- Flights assigned unique route IDs with distinct paths.
- Take-off and destination points provided for each flight.
- Multiple flights can travel on the same path simultaneously.

- Flight Management:

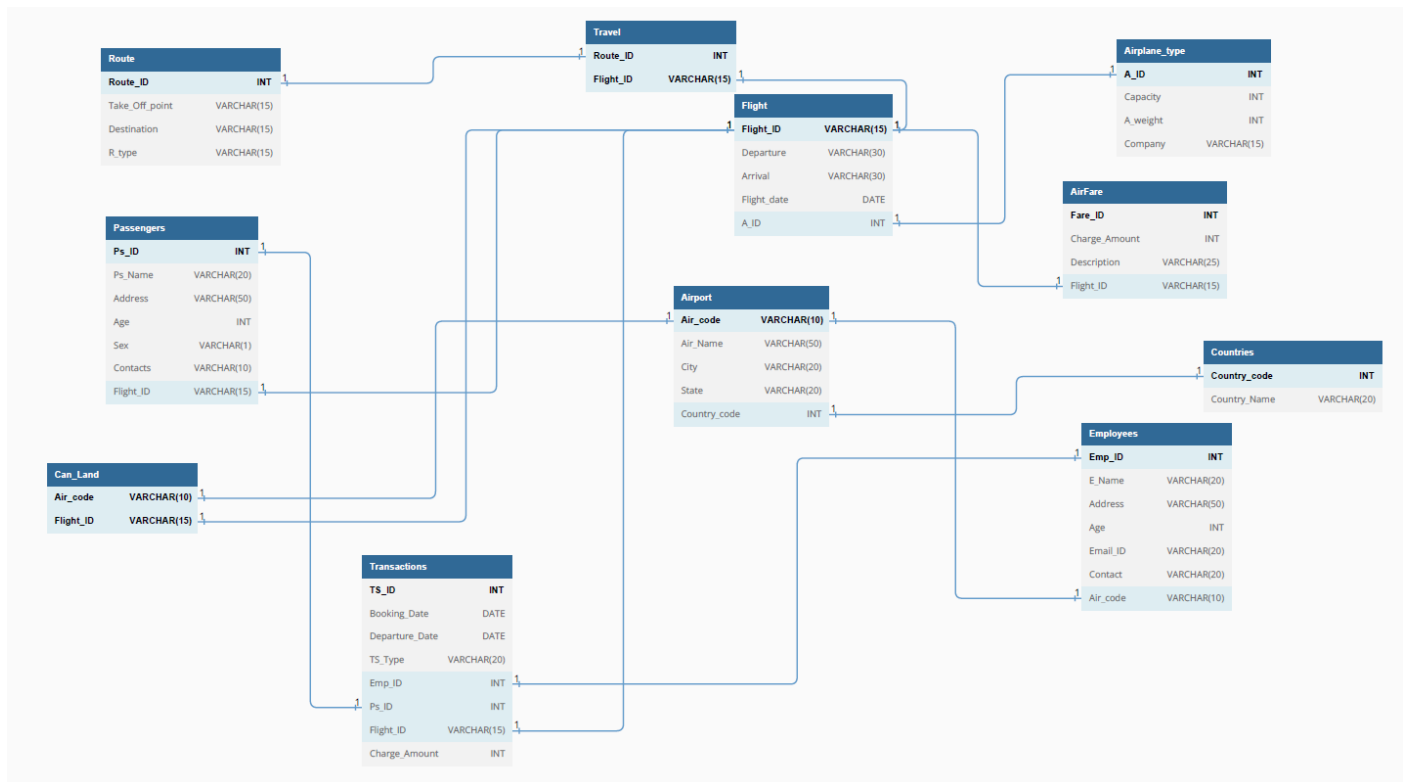
- Multiple flights can land at a particular airport.
- Passengers associated with specific flights.
- System displays available flights with timings, arrival and departure schedules for a given date.

ENTITY RELATION DIAGRAM



RELATION SCHEMA

- 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*)
- 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***)
- Travel (**Route_ID***, **Flight_ID***)



RESULTS

TABLES

1. 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

2. 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

3. 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

4. Can_land

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

5. Countries

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

6. 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

7. Flight

Flight_ID	Departure	Arrival	Flight_date	A_ID
AA4367	2021-03-25 12:05am	2021-03-25 02:15am	2021-03-25	768
AI2014	2021-01-12 08:45am	2021-01-12 10:25pm	2021-01-12	738
BA1689	2021-03-02 2:15am	2021-03-02 10:00pm	2021-03-02	745
CT7812	2021-04-04 2:15pm	2021-04-04 8:00pm	2021-04-04	821
EY1234	2021-02-10 05:00am	2021-02-10 10:30pm	2021-02-10	750
LH9876	2021-02-25 10:15am	2021-02-25 11:00pm	2021-02-25	790
PF4521	2020-12-25 5:00pm	2020-12-25 10:30pm	2020-12-25	785
QR2305	2020-12-26 12:05pm	2020-12-27 12:25pm	2020-12-26	777

8. 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

9. 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

10. 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

11. Travel

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

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. 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	Johny Paul
3246	John Dsouza

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

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

total_charge	TS_Type
4459	Credit Card
86768	Paytm

4. 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

5. 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

6. Find the average charge-amount of those Transaction_type 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

7. 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
213	Algeria	NULL	NULL	NULL	NULL
971	UAE	NULL	NULL	NULL	NULL

Graphical User Interface

Flight Details

	Flight_ID	Departure	Arrival	Flight_date	A_ID
0	AA4367	2021-03-25 12:05am	2021-03-25 02:15am	2021-03-25	768
1	AI2014	2021-01-12 08:45am	2021-01-12 10:25pm	2021-01-12	738
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7	QR2305	2020-12-26 12:05pm	2020-12-27 12:25pm	2020-12-26	777



Add a new Flight

Flight_ID

Departure

Arrival

Flight Date

A_ID

Add Flight

Update a Flight

Flight_ID

Departure

Arrival

Flight Date

A_ID

Update Flight

Delete a Flight

Flight_ID

Delete Flight

INDIVIDUAL CONTRIBUTION

NAME	CONTRIBUTION
Prajna G Acharya	<ul style="list-style-type: none">• 4 Tables - Airplane_type, Route, Flight, AirFare• Relation schema
Srinidhi B S	<ul style="list-style-type: none">• 4 Tables - Passengers, Countries, Travel , Employees• ER Diagram
P Aadith Sanjay	<ul style="list-style-type: none">• 3 Tables – Airport, Can_land, Transactions• Graphical User Interface