SQL PROJECT ON AIR BOOKING SYSTEM

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SHANGHAI AIRLINES

SQL

CREATE DATABASE

TOIDICODE.COM

DESCRIPTION

Main Tables

- Passengers: Stores information about passengers making bookings, including names, contact details, and passport numbers.
- Flights: Holds details about individual flights, including airlines, flight numbers, routes, dates, times, travel classes, pricing, and available seats.
- Bookings: Tracks each booking made, linking passengers to flights with details like booked date, seat number, fare paid, and booking status.

ER DIAGRAM:

Passengers:
- passenger_id (INT PRIMARY KEY)
- name (VARCHAR)
- email (VARCHAR)
- phone_number (VARCHAR)
- passport_number (VARCHAR)

Flights:
- flight_id (INT PRIMARY KEY)
- airline (VARCHAR)
- flight_number (VARCHAR)
- origin_airport (VARCHAR)
- destination_airport (VARCHAR)
- departure_date (DATE)
- departure_time (TIME)
- arrival_date (DATE)
- arrival_time (TIME)
- travel_class (VARCHAR)
- price (DECIMAL)
- available_seats (INT)

Bookings:booking_id (INT PRIMARY KEY)
passenger_id (INT FOREIGN KEY REFERENCES Passengers(passenger_id))
flight_id (INT FOREIGN KEY REFERENCES Flights(flight_id))
booked_date (DATE)
seat_number (VARCHAR)
fare_paid (DECIMAL)
booking_status

#####\ Creating The Database *****

```
CREATE DATABASE AIR_BOOKING_SYSTEM;

USE AIR_BOOKING_SYSTEM;
```

#####/ Creating The Passenger Table/*****

```
CREATE TABLE PASSENGER(PASSENGER_ID INT PRIMARY KEY,

NAME VARCHAR(40),

 EMAIL_ID VARCHAR(50),

 PHONE_NO VARCHAR(40),

 PASSPORT_NO VARCHAR(40));
```

#####\ CRETING THE FLIGHTS TABLE*****

```
CREATE TABLE FLIGHTS(FLIGHT_ID INT PRIMARY KEY,
AIRLINE VARCHAR(50),
FLIGHT_NUMBER VARCHAR(50),
ORIGIN_AIRPORT VARCHAR(50),
DESTINATION_AIRPORT VARCHAR(50),
DEPARTURE_DATE DATE,
DEPARTURE_TIME TIME,
ARRIVAL_DATE DATE
,ARRIVAL_TIME TIME,
TRAVEL_CLASS VARCHAR(40),
PRICE DECIMAL,
AVAILABLE_SEATS INT);
```

#####\ CREATING THE BOOKINGS TABLE*****

```
CREATE TABLE BOOKINGS(BOOKING_ID INT PRIMARY KEY,
PASSENGER_ID INT,
FLIGHT_ID INT,
BOOKED_DATE DATE,
SEAT_NUMBER VARCHAR(40),
FARE_PAID FLOAT,
BOOKING_STATUS VARCHAR(40),
FOREIGN KEY(PASSENGER_ID) REFERENCES PASSENGER(PASSENGER_ID),
FOREIGN KEY(FLIGHT_ID) REFERENCES FLIGHTS(FLIGHT_ID));
```

####\ INSERTING THE VALUES IN RESPECTIVE TABLE ****

```
INSERT INTO PASSENGER VALUES(1001,"SANDESH","SAN@101.OM",1203465486,"5516RZ8-HK8");
INSERT INTO PASSENGER VALUES(1002,"SACHIN","SAC@102.COM",2479422434,"2223ZVN9N4");
INSERT INTO PASSENGER VALUES(1003,"AKASH","AKA@103.COM",9513346789,"H017ZXLM91");
INSERT INTO PASSENGER VALUES(1004,"SAILESH","SAI@104.COM",348445441,"4743M10X41");
INSERT INTO PASSENGER VALUES(1005,"SHRIDHAR","SRI@105.COM",36515241,"66204M96M4");
INSERT INTO PASSENGER VALUES(1006,"AKESH","AKE@106.COM",488544546,"74414Y-HYZ6");
INSERT INTO PASSENGER VALUES(1007,"KAMINI","KAM@107.COM",38494654,"00494L26W9");
INSERT INTO PASSENGER VALUES(1008,"JAISH","JAI@108.COM",649546546,"H003MNT5X0");
INSERT INTO PASSENGER VALUES(1009,"KAMLESH","KAML@109.COM",415181610,"4802XZ63J6");
INSERT INTO PASSENGER VALUES(1010,"PANKAJ","PAN@110.COM",498459265,"J782XL5WR0");
INSERT INTO PASSENGER VALUES(1011,"AJAY","AJA@111.COM",984892532,"6765YJNRW5");
INSERT INTO PASSENGER VALUES(1012,"GANESH","GAN@112.COM",68492625,"F777ZZ3XV5");
INSERT INTO PASSENGER VALUES(1013,"JAGDISH","JAG@113.COM",64952101,"K956Y062L8");
INSERT INTO PASSENGER VALUES(1014,"KRISH","KRI@114.COM",254274954,"JDSDF5654");
INSERT INTO PASSENGER VALUES(1015,"SANDY","SAN@115.COM",558489225,"SJFB6256D");
INSERT INTO PASSENGER VALUES(1016,"NEERAJ","NEE@116.COM",329459625,"4FSDF64541");
INSERT INTO PASSENGER VALUES(1017,"GOPAL","GOPAL@117.COM",341955454,"474FSF331S1");
INSERT INTO PASSENGER VALUES(1018,"KRUTIKA","KRU@118.COM",6595652166,"47SD161164D");
INSERT INTO PASSENGER VALUES(1019,"BRIJESH","BRI@119.COM",34852512,"474VSD5164");
INSERT INTO PASSENGER VALUES(1020,"NILESH","NIL@120.COM",348262421,"4MT01H5T1");
```

#####\ INSERTING THE VALUES IN TABLE FLIGHT*****

```
INSERT INTO FLIGHTS VALUES(201,"AMERICAN AIRLINE",32165,"DALLAS/FORT WORTH INTERNATIONAL AIRPORT","DUBAI",'2024-01-19','12:20:00','24-01-20','01:25:00',"ECONOMY CLASS",25000,12);
INSERT INTO FLIGHTS VALUES(202,"DELTA AIR LINES",65123," ATLANTA INTERNATIONAL AIRPORT (ATL)","QATAR",'2024-01-23','12:20:00','24-01-24','01:25:00',"ECONOMY CLASS",23000,24);
INSERT INTO FLIGHTS VALUES(203,"UNITED AIRLINES",65562,"DENVER INTERNATIONAL AIRPORT","INDIA",'2024-01-25','12:20:00','24-01-26','01:25:00',"ECONOMY CLASS",23260,30);
INSERT INTO FLIGHTS VALUES(204,"LUFTHANSA",26556,"FRANKFURT AIRPORT (FRA)","GRMANY",'2024-01-24','12:20:00','24-01-25','01:25:00',"PREMIUM ECONOMY CLASS",32250,36);
INSERT INTO FLIGHTS VALUES(205,"BRITISH AIRWAYS",65453,"LONDON HEATHROW AIRPORT (LHR)","DUBAI",'2024-01-21','12:20:00','24-01-22','01:25:00',"PREMIUM ECONOMY CLASS",35462,32);
INSERT INTO FLIGHTS VALUES(206,"AIR FRANCE",32562,"CHARLES DE GAULLE AIRPORT (CDG)","FRANCE",'2024-01-26','12:20:00','24-01-27','01:25:00',"BUSINESS CLASS",25000,28);
INSERT INTO FLIGHTS VALUES(207,"EMIRATES",32657,"DUBAI INTERNATIONAL AIRPORT (DXB)","INDIA",'2024-01-28','12:20:00','24-01-29','01:25:00',"BUSINESS CLASS",25000,31);
INSERT INTO FLIGHTS VALUES(208,"QATAR AIRWAYS",32652,"HAMAD INTERNATIONAL AIRPORT (DOH)","DOHA",'2024-01-27','12:20:00','24-01-28','01:25:00',"LOW-COST CARRIER (LCC) CLASS",25000,29);
INSERT INTO FLIGHTS VALUES(209,"SINGAPORE AIRLINES",12655,"SINGAPORE CHANGI AIRPORT (SIN)","SINGAPORE",'2024-01-20','12:20:00','24-01-21','01:25:00',"PREMIUM CABIN",25000,16);
INSERT INTO FLIGHTS VALUES(210,"CATHAY PACIFIC",35555,"HONG KONG INTERNATIONAL AIRPORT (HKG)","NETHERLAND",'2024-01-17','12:20:00','24-01-18','01:25:00',"LOW-COST CARRIER (LCC) CLASS",27500,18);
```

```
INSERT INTO FLIGHTS VALUES(211,"QANTAS",425645,"AUSTRALIA","ABUDABI",'2024-01-15','12:20:00','24-01-16','01:25:00',"LOW-COST CARRIER (LCC) CLASS",35000,26);
INSERT INTO FLIGHTS VALUES(212,"KLM ROYAL DUTCH AIRLINES",33557,"NETHERLANDS","AMERICA",'2024-01-24','12:20:00','24-01-25','01:25:00',"ECONOMY CLASS",52000,12);
INSERT INTO FLIGHTS VALUES(213,"ANA (ALL NIPPON AIRWAYS)",32663,"JAPAN","HIMOSIMA",'2024-01-12','12:20:00','24-01-13','01:25:00',"BUSINESS CLASS",43000,54);
INSERT INTO FLIGHTS VALUES(214,"ETIHAD AIRWAYS",36361,"UNITED ARAB EMIRATES","INDIA",'2024-01-23','12:20:00','24-01-24','01:25:00',"PREMIUM CLASS",42000,21);
INSERT INTO FLIGHTS VALUES(215,"SWISS INTERNATIONAL AIR LINESC",22564,"SWITZERLAND","SWISS",'2024-01-22','12:20:00','24-01-23','01:25:00',"PREMIUM CLASS",65000,47);
INSERT INTO FLIGHTS VALUES(216,"SCANDINAVIAN AIRLINES (SAS)",32656,"DENMARK, NORWAY, SWEDEN","INDIA",'2024-01-29','12:20:00','24-01-30','01:25:00',"LOW-COST CARRIER (LCC) CLASS",75000,35);
INSERT INTO FLIGHTS VALUES(217,"LATAM AIRLINES ",79852,"CHILE","GERMANY",'2024-01-14','12:20:00','24-01-15','01:25:00',"LOW-COST CARRIER (LCC) CLASS",51000,45);
INSERT INTO FLIGHTS VALUES(218,"SOUTH AFRICAN AIRWAYS",55235,"SOUTH AFRICA","FRANCE",'2024-01-03','12:20:00','24-01-02','01:25:00',"FIRST CLASS",40000,31);
INSERT INTO FLIGHTS VALUES(219,"VIRGIN ATLANTIC",26432,"UNITED KINGDOM","LOSANGEL",'2024-01-02','12:20:00','24-01-03','01:25:00',"LOW-COST CARRIER (LCC) CLASS",37000,17);
INSERT INTO FLIGHTS VALUES(220,"LUFTHANSA ",65421,"GERMANY","FRANCE",'2024-01-05','12:20:00','24-01-06','01:25:00',"BUSINESS CLASS",46000,16);
```

#####\ INSERTING THE VALUES IN THE BOOKINGS *****

```
INSERT INTO BOOKINGS VALUES(2001,1001,201,"24-01-01","1ACB",25000,"CONFIRMED");
INSERT INTO BOOKINGS VALUES(2002,1002,202,"24-01-02","2BCD",24000,"CONFIRMED");
INSERT INTO BOOKINGS VALUES(2003,1003,203,"24-01-03","3DCG",32000,"WAILISTED");I
NSERT INTO BOOKINGS VALUES(2004,1004,204,"24-01-04","4FCD",65000,"CANCELLED");
INSERT INTO BOOKINGS VALUES(2005,1005,205,"24-01-05","5KFD",29000,"CONFIRMED");
INSERT INTO BOOKINGS VALUES(2006,1006,206,"24-01-06","6FGG",34000,"STANDBY");
INSERT INTO BOOKINGS VALUES(2007,1007,207,"24-01-07","7ESD",31000,"CANCELLED");
INSERT INTO BOOKINGS VALUES(2008,1008,208,"24-01-08","8HGF",43000,"WAITLISTED");
INSERT INTO BOOKINGS VALUES(2009,1009,209,"24-01-09","9ERT",65000,"CONFIRMED");
INSERT INTO BOOKINGS VALUES(2010,1010,210,"24-01-10","10JHG",49000,"CANCELLED");
INSERT INTO BOOKINGS VALUES(2011,1011,211,"24-01-11","11LKJ",37000,"STANDBY");
INSERT INTO BOOKINGS VALUES(2012,1012,212,"24-01-12","12JNM",43500,"CONFIRMED");
INSERT INTO BOOKINGS VALUES(2013,1013,213,"24-01-13","13LOK",51000,"CONFIRMED");I
NSERT INTO BOOKINGS VALUES(2014,1014,214,"24-01-14","14JHG",52000,"CONFIRMED");
INSERT INTO BOOKINGS VALUES(2015,1015,215,"24-01-15","15UYT",54000,"CONFIRMED");
INSERT INTO BOOKINGS VALUES(2016,1016,216,"24-01-16","16HFC",49000,"WAILISTED");I
NSERT INTO BOOKINGS VALUES(2017,1017,217,"24-01-17","17JHY",49500,"CANCELLED");
INSERT INTO BOOKINGS VALUES(2018,1018,218,"24-01-18","18ERD",48500,"CONFIRMED");
INSERT INTO BOOKINGS VALUES(2019,1019,219,"24-01-19","19FTR",49600,"CONFIRMED");
INSERT INTO BOOKINGS VALUES(2020,1020,220,"24-01-20","20ASD",62000,"CONFIRMED");
```

```
SELECT*FROM PASSENGER;
SELECT*FROM FLIGHTS;
SELECT*FROM BOOKINGS;
```

#####\ SUBQUERIES *****

- SELECT PASSPORT_NO FROM PASSENGER WHERE PASSENGER_ID = 1004;

	passport_no
▶	4743M10X41

select name,email_id,phone_no from passenger
where passenger_id = 1005;

	name	email_id	phone_no
▶	shridhar	sri@105.com	36515241

SELECT AIRLINE,DESTINATION_AIRPORT,TRAVEL_CLASS,PRICE,AVAILABLE_SEATS FROM FLIGHTS;

airline	destination_airport	travel_class	price	available_seats
american airline	dubai	economy class	25000	12
Delta Air Lines	qatar	economy class	23000	24
United Airlines	india	economy class	23260	30
Lufthansa	grmany	Premium Economy Class	32250	36
British Airways	dubai	Premium Economy Class	35462	32
Air France	france	Business Class	25000	28
Emirates	india	Business Class	25000	31

SELECT DEPARTURE_DATE,ARRIVAL_DATE FROM FLIGHTS WHERE AIRLINE = "BRITISH AIRWAYS";

departure_date	arrival_date
2024-01-21	2024-01-22

SELECT PASSENGER_ID,FLIGHT_ID FROM BOOKINGS WHERE FARE_PAID>=24000 AND BOOKING_STATUS = "CONFIRMED";

passenger_id	flight_id
1001	201
1002	202
1005	205
1009	209
1012	212
1013	213
1014	214

#####\ USE OF MATH FUNCTION AND GROUP BY CLAUSE*****

- SELECT FLIGHT_ID,AIRLINE,SUM(PRICE) FROM FLIGHTS GROUP BY FLIGHT_ID;

flight_id	airline	sum(price)
201	american airline	25000
202	Delta Air Lines	23000
203	United Airlines	23260
204	Lufthansa	32250
205	British Airways	35462
206	Air France	25000
207	Emirates	25000

SELECT BOOKING_ID,MIN(FARE_PAID) FROM BOOKINGS GROUP BY BOOKING_ID;

booking_id	min(fare_paid)
2001	25000
2002	24000
2003	32000
2004	65000
2005	29000
2006	34000
2007	31000

SELECT BOOKING_ID,MAX(FARE_PAID) FROM BOOKINGS GROUP BY BOOKING_ID;

booking_id	max(fare_paid)
2001	25000
2002	24000
2003	32000
2004	65000
2005	29000
2006	34000
2007	31000

SELECT SUM(PRICE),FLIGHT_NUMBER FROM FLIGHTS GROUP BY FLIGHT_NUMBER HAVING SUM(PRICE)>40000;

	sum(price)	flight_number
▶	52000	33557
	43000	32663
	42000	36361
	65000	22564
	75000	32656
	51000	79852
	46000	65421

#####\JOINS*****

- SELECT PASSENGER.NAME,PASSENGER.PASSPORT_NO,BOOKINGS.BOOKING_STATUS FROM PASSENGER INNER JOIN BOOKINGS ON PASSENGER.PASSENGER_ID = BOOKINGS.PASSENGER_ID;

name	passport_no	booking_status
sandesh	5516RZ8-HK8	confirmed
sachin	2223ZVN9N4	confirmed
akash	H017ZXLM91	wailisted
sailesh	4743M10X41	cancelled
shridhar	66204M96M4	confirmed
akesh	74414Y-HYZ6	standby
kamini	00494L26W9	cancelled

SELECT PASSENGER.EMAIL_ID,PASSENGER.PHONE_NO,BOOKINGS.FARE_PAID FROM PASSENGER LEFT JOIN BOOKINGS ON PASSENGER.PASSENGER_ID = BOOKINGS.PASSENGER_ID;

email_id	phone_no	fare_paid
san@101.om	1203465486	25000
sac@102.com	2479422434	24000
aka@103.com	9513346789	32000
sai@104.com	348445441	65000
sri@105.com	36515241	29000
ake@106.com	488544546	34000
kam@107.com	38494654	31000

SELECT PASSENGER.PASSENGER_ID,BOOKINGS.FLIGHT_ID,BOOKINGS.SEAT_NUMBER FROM PASSENGER RIGHT JOIN BOOKINGS ON PASSENGER.PASSENGER_ID = BOOKINGS.PASSENGER_ID;

	passenger_id	flight_id	seat_number
▶	1001	201	1acb
	1002	202	2bcd
	1003	203	3dcg
	1004	204	4fcd
	1005	205	5kfd
	1006	206	6fgg
	1007	207	7esd

SELECT FLIGHTS.AIRLINE,FLIGHTS.DESTINATION_AIRPORT,FLIGHTS .AVAILABLE_SEATS,BOOKINGS.BOOKING_STATUS FROM FLIGHTS CROSS JOIN BOOKINGS;

airline	destination_airport	available_seats	booking_status
Lufthansa	france	16	confirmed
Virgin Atlantic	losangel	17	confirmed
South African Airways	france	31	confirmed
LATAM Airlines	germany	45	confirmed
Scandinavian Airlines (SAS)	india	35	confirmed
Swiss International Air Linesc	swiss	47	confirmed
Etihad Airways	india	21	confirmed

CONCLUSION

IN CONCLUSION, THIS DOCUMENT PROVIDES A BLUEPRINT FOR DESIGNING A ROBUST AND EFFICIENT FLIGHT BOOKING SYSTEM DATABASE USING ESSENTIAL TABLES AND JOINS. WHILE OFFERING A STARTING POINT, IT ENCOURAGES CUSTOMIZATION AND EXPANSION BASED ON SPECIFIC NEEDS AND DESIRED FUNCTIONALITIES. BY ADAPTING AND EXTENDING THE PROVIDED FRAMEWORK, DEVELOPERS AND DATABASE ADMINISTRATORS CAN CREATE A BOOKING SYSTEM THAT CATERS TO THEIR UNIQUE REQUIREMENTS AND DELIVERS A SEAMLESS BOOKING EXPERIENCE FOR CUSTOMERS.

Thank you