King Saud University College of Computer and Information Sciences Department of Information Technology

IT222: Database Principles

1st Semester 1443 H



Flyin

Phase # 4

Section #	NAME	ID				
View Name: Clien	View Name: Client view					
56391	Lama Alshaya	441201236				
56391	Aljawharah Alzamil	441201203				
View Name: Supe	View Name: Supervisor view					
56391	Nouf Alsadhan	441201104				
56391	Jumanah Aldawsari	441201034				

Supervised By: Abeer Aldrees.

Project Description:

In this project, we are going to construct a database for Flyin application, which is an app that provides exceptional and special services for traveling and tourism via internet.

Flyin offers services that facilitate booking for clients, such as booking many tickets in one reservation, the ability to view the in-flight entertainment and services provided by the airline also book and pay by multiple ways.

The purpose of Flyin database is to maintain the data that is used and generated to support the traveling procedure for passengers and to support sharing information between supervisors and passengers and decision making, the database has many functions such as (add , delete , edit) flight, to (add , delete , edit) a passenger, to (add , delete , edit) on crew, to (add , delete , edit) on tickets and to (edit) on payment.

Flyin Client view

Section #	NAME	ID
56391	Lama Alshaya	441201236
56391	Aljawharah Alzamil	441201203

View Description:

this database will help the clients to book any available flight on any airline company that they want, with variety prices, offers and packages, they also can review their personal profiles and they can know the flight details.

Data Requirements:

Flight:

A Flight is a trip which a passenger will book. The flight is identified by Flight_Id{PK} and has attributes such as Date, Airline_Name, Dep_Time, Arr_Time, Dep_Gate, Arr_Gate, Dep_Airport, Air_Airport and Available_Seats, Destination, Departure each flight has zero to many tickets.

Passenger:

Passenger is the one who makes a flight reservation using the application. The passenger is identified by PassengerId{PK} and has attributes such as First_Name, Last_Name, Email, Phone_NO and Passport_Info(Dob, National_Id, Passport_NO, Nationality), a passenger has zero to many tickets.

Payment:

Payment entity is responsible for payment details, The payment is identified by Payment_Id{PK}, Payement_Amount, Payement_Date, Payement_Method, a payment is confirmed when one to many tickets are booked.

reservationID is a relationship attribute occurs when there is a relation between ticket and payment.

Ticket:

A ticket allows the passenger to enter a flight, the ticket is identified by Ticket_Id{PK}, Seat_Id, Ticket_Type, a ticket belongs to one passenger.

Transaction Requirements:

Data Entry:

- 1. Enter your flight id.
- 2. Enter your username.

Data update/deletion:

- 1. Edit your seat.
- 2. Delete your flight.
- 3. Edit your phone number.

Data Queries:

- 1. Display all flight destined from Riyadh to Jeddah in 23-11-2021 to 25-11-2021.
- 2. Display a specific airline companies flights.
- 3. Display a seat id in a specific flight.
- 4. Display the prices of all flights that are distend from Makkah to Taif listed from the lowest price to the highest price.
- 5.Display my personal information.

Flyin

Supervisor view

Section #	NAME	ID
56391	Nouf Alsadhan	441201104
56391	Jumanah Aldawsari	441201034

View Description:

The database will provide the supervisor the ability to access and review all flights information(like date, departure gate, available seats..etc) and being authorized to update them, they also can access the passenger's profile which contains personal information, and the crew of a specific flight.

Data Requirements:

Flight:

A Flight is a trip which a passenger will book. The flight is identified by FlightId{PK} and has attributes such as Date, Airline_Name, Dep_Time, Arr_Time, Dep_Gate, Arr_Gate, Dep_Airport, Air_Airport and Available_Seats, Destination, Departure each flight has zero to many tickets.

Crew:

Crew is a group of employees who are responsible to work on a specific flight. The crew is identified by Staff_Id{PK} and has attributes such as First_Name, Last_Name, Email and Phone_NO, a crew belongs to zero to many flights.

Passenger:

Passenger is the one who makes a flight reservation using the application. The passenger is identified by PassengerId{PK} and has attributes such as First_Name, Last_Name, Email, Phone_NO and Passport_Info(Dob, National_Id, Passport_NO, Nationality), a passenger has zero to many tickets.

Transaction Requirements:

Data Entry:

1-Enter First_Name, Last_Name of a passenger.

2-Enter Email, Phone_NO of a crew member.

Data update/deletion:

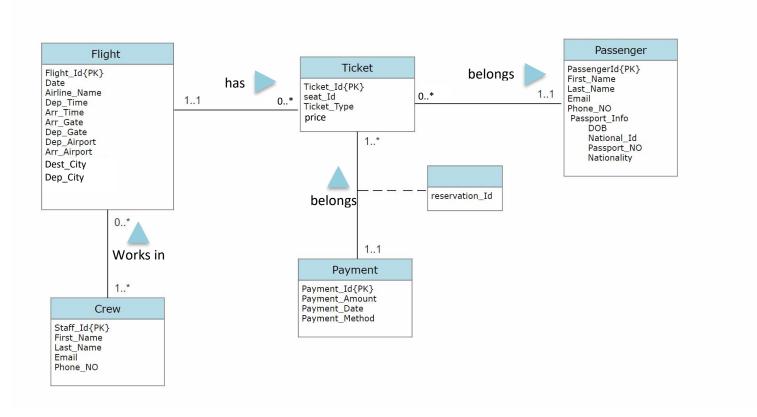
- 1-Update passenger's personal information.
- 2-Delete an upcoming Flight.
- 3-Update the Phone_NO of a crew member.

Data Queries:

- 1-Display all flights in October.
- 2-Display all crew members who worked in a specific flight last week
- 3-Display the First name and last name for a specific staff id
- 4- Display a specific passport information
- 5-Display the Dep_Gate for a specific flight

Flyin Global Section

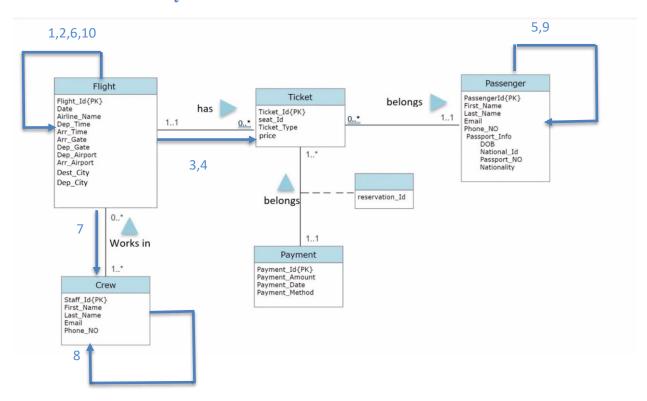
Global enhanced entity relationship diagram (EER):



Data Queries:

- 1. Display all flight destined from Riyadh to Jeddah in 23-11-2021 to 25-11-2021.
- 2. Display a specific airline company flights.
- 3. Display a seat id in a specific flight.
- 4. Display the prices of all flights that are distend from Khobar to Taif listed from the lowest price to the highest price.
- 5.Display specific passenger information.
- 6-Display all flights in October.
- 7-Display all crew members who worked in a specific flight last week
- 8-Display the First name and last name for a specific staff id
- 9- Display a specific passport information
- 10-Display the Dep_Gate for a specific flight.

Transaction Pathway:



Relational Schema:

 $Flight(\underline{Flight_Id}, Date, Airline_Name, Dep_Time, Arr_Time, Arr_Gate, Dep_Gate, Arr_Airport, Arr_Gate, Arr_Airport, Arr_Gate, Arr_Airport, Arr_Airpo$

Dep_Airport,Dest_City,Dep_City)

Crew(Staff_Id,First_Name,Last_Name,Email,Phone_No)

Works-in(Staff_Id,Flight_Id)

 $Ticket \underline{\ Ticket_Id}, Seat\underline{\ Id}, Ticket\underline{\ Type}, Price, \underline{Flight}\underline{\ Id}, Passen\underline{gerId}, Pa\underline{yment}\underline{\ Id}, reservation\underline{\ Id})$

Passenger(<u>PassengetId</u>,First_name,Last_name,Email,Phone_No,DOB,National_Id, Passport_No,Nationality)

Payment (<u>Payment_Id</u>, Payment_amount, Payment_Date, Payment_Method)

Data Dictionary showing description of all entities:

Entity Name	Description	Occurrence
Flight	A Flight is a trip which a passenger will book	Flight has zero to many tickets. Flight contains one to many crew.
Passenger	Passenger is the one who makes a flight reservation using the application	Passenger has zero to many tickets
Crew	Crew is a group of employees who are responsible to work on a specific flight	crew works in zero to many flights
Ticket	A ticket allows the passenger to enter a flight	Ticket belongs to one and only one passenger. A ticket is referenced to one and only one flight. Ticket is assigned to one and only on payment.
Payment	Payment entity is responsible for payment details	payment belongs to one-to-many tickets

Data Dictionary showing description of all relationships:

Entity Name	Multiplicity	Relationship	Entity Name	Multiplicity
Crew	1*	Works-in	Flight	0*
Flight	11	has	Ticket	0*
Payment	11	belongs	Ticket	1*
Ticket	0*	belongs	Passenger	11

Data Dictionary showing description of all attributes:

Entity Name	Attribute	Description	Data Type	Length	Nulls	Multi-Valued	Default Value	Range	PK
	Flight_Id	Unique identifier of the flight	Varchar	15	No	No	No	No	Yes
	Date	The date of the flight	Date	-	No	No	No	No	No
Flight	Airline_ Name	The company's name who provided the flight	Varchar	20	No	No	No	No	No
	Dep_Time	The time when the flight start take off	Time	-	No	No	No	No	No
	Arr_Time	The time when the flight start landing	Time	-	No	No	No	No	No

	Dep_Gate	The gate where the flight will take off from	Varchar	10	No	No	No	No	No
	Arr_Gate	The gate where the flight will land in	Varchar	10	No	No	No	No	No
	Dep_Airp ort	The airport where the flight will take off from	Varchar	25	No	No	No	No	No
	Arr_Airpo rt	The airport where the flight will land in	Varchar	25	No	No	No	No	No
	Dep_City	The city where the flight will take off from	Varchar	20	No	No	No	No	No
	Dest_Cit y	The city where the flight will land in	Varchar	20	No	No	No	No	No
	Ticket_I D	A unique identifier for each ticket	Varchar	8	No	No	No	No	Yes
	Seat_ID	A number of the chair that the passenger will set on	Varchar	3	No	No	No	No	No
Ticket	Ticket_ty pe	Is a class which a passenger can choose according to the services and price	Varchar	20	No	No	Econo my class	Econ omy class / busi ness class / first class	No
	price	Is the total fee for a single ticket including the base fare,	Decimal	7,2	No	No	No	No	No

		taxes, and VAT for a single ticket							
	Payment _ID	Is a unique identifier for the receipt	Varchar	10	No	No	No	No	Yes
	Payment _Amount	Is the total price for a single or multiple tickets	Decimal	8,2	No	No	No	No	No
Payment	Payment _Date	The date when the payment amount is paid	Date	-	No	No	No	No	No
1 ayıncın	Payment _Method	a method which a passenger can choose to pay through	Varchar	15	No	No	No	Visa / credi t card / appl e pay	No
	Passenge rId	The identifier for the Passenger	Varchar	15	No	No	No	No	yes
	First_Na me	The passenger's first name	Varchar	15	No	No	No	No	No
	Last_nam e	The passenger's last name	Varchar	15	No	No	No	No	No
	Email	The passenger's email	Varchar	30	No	No	No	No	No
	Phone_N O	The passenger's phone number	Varchar	14	No	No	No	No	No
Passeng er	Passport _Info	It is Composite attribute which indicates the passenger's passport information	-	-	-	-	-	-	-
	Dob	The passenger's date of birth	Date	-	No	No	No	No	No

	National _Id	The passenger's national Id	Varchar	10	No	No	No	No	No
	Passport _NO	The passenger's passport number	Varchar	15	No	No	No	No	No
	Nationali ty	The passenger's nationality	Varchar	20	No	No	No	No	No
	Staff_Id	A unique identifier for each staff on flight	Varchar	15	No	No	No	No	Yes
	First_Na me	The staff's first name	Varchar	15	No	No	No	No	No
Crew	Last_Na me	The staff's last name	Varchar	15	No	No	No	No	No
	Email	The staff's email	Varchar	30	No	No	No	No	No
	Phone_N umber	The staff's phone number	Varchar	14	No	No	No	No	No

DB tables creation commands:

CREATE TABLE Flight(Flight_Id varchar(15), Flight_Date Date Not Null, Airline_Name varchar(20) Not Null, Dep_Time Time Not Null, Arr_Time Time Not Null, Dep_Gate varchar(10) Not Null, Arr_Gate varchar(10) Not Null, Dep_Airport varchar(25) Not Null, Arr_Airport varchar(25) Not Null, Dep_City varchar(20) Not Null, Dest_City varchar(20) Not Null, Primary key(Flight_Id));

CREATE TABLE Payment(Payment_Id varchar(10) Not Null, Payment_Amount decimal(8,2) Not Null, Payment_Date Date Not Null, Payment_Method varchar(15) not null check(Payment_Method IN ('Visa','CreditCard','ApplePay')), PRIMARY KEY (Payment_Id));

CREATE TABLE Crew(Staff_Id varchar(15), First_Name varchar(15) Not Null, Last_Name varchar(15) Not Null, Email varchar(30) Not Null, Phone_Number varchar(14) Not Null, Primary key (Staff_Id));

CREATE TABLE Passenger (Passenger_Id Varchar(15), First_Name Varchar(15) Not Null, Last_Name Varchar(15) Not Null, Email Varchar(30) Not Null, Phone_NO Varchar(14) Not Null, Dob Date Not Null,

National_Id Varchar(10) Not Null, Passport_No Varchar(15) Not Null, Nationality Varchar(20) Not Null, Primary key (Passenger_Id));

CREATE TABLE Ticket(

Ticket_Id varchar(8),

Seat_Id varchar(3) Not Null,

Ticket_type varchar(20)

default 'Economy class' check(Ticket_type IN('Economy class', 'Business

class','First class')) not null,

Price decimal(7,2) Not Null,

Flight_Id varchar(15) Not Null,

Passenger_Id Varchar(15) Not Null,

Payment_Id varchar(10) Not Null,

resevation_Id varchar(10) Not Null,

Primary key(Ticket_Id),

Foreign key(Flight_Id) references Flight(Flight_Id),

Foreign key(Passenger_Id) references Passenger(Passenger_Id),

Foreign key(Payment_Id) references Payment(Payment_Id));

CREATE TABLE Works_in(

Staff_Id varchar(15),

Flight_Id varchar(15),

Primary key(Staff_Id,Flight_Id),

Foreign key(Staff_Id) references Crew(Staff_Id),

Foreign key(Flight_Id) references Flight(Flight_Id));

Data insertion commands:

INSERT INTO Flight VALUES('F01123', Date'2021-10-

14','Flynas',Time'12:00:00',Time'13:30:00','G06C','G34B','King Fahad airport','Altaif Airport','Khobar','Taif');

INSERT INTO Flight VALUES('F00143',DATE'2021-11-

24', 'SaudiArabianAirLine', Time'16:30:00', Time'18:00:00', 'G01B', 'G05A', 'King Khalid Airport', 'King Abdulaziz Airport', 'Riyadh', 'Jeddah');

INSERT INTO Passenger

VALUES('P5163789003', 'Saleh', 'Fahad', 's_fahad@gmail.com', '+966504157198', Date'1995-10-01', '1065027292', 'W588860', 'Saudi');

INSERT INTO Passenger

VALUES('P516773603','Fares','Saud','fares.saud@gmail.com','+966504665108',D ate'2001-09-11','1119271692','5911521687','Kuwaiti');

INSERT INTO Payment VALUES('P1008765',7805.50,Date'2021-10-10','Visa'); INSERT INTO Payment VALUES('P1004356',5328.25,Date'2021-11-01','CreditCard');

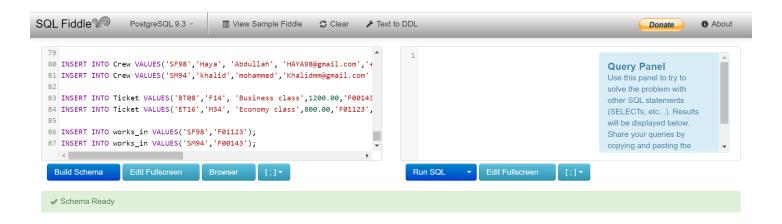
INSERT INTO Crew VALUES('SF98','Haya', 'Abdullah', 'HAYA98@gmail.com','+966546864876'); INSERT INTO Crew VALUES('SM94','khalid','mohammed','Khalidmm@gmail.com','+9665437865481');

INSERT INTO Ticket VALUES('BT08','F14', 'Business class',1200.00,'F00143','P516773603', 'P1004356','R2294'); INSERT INTO Ticket VALUES('ET16','M34', 'Economy class',800.00,'F01123','P5163789003', 'P1008765','R3359');

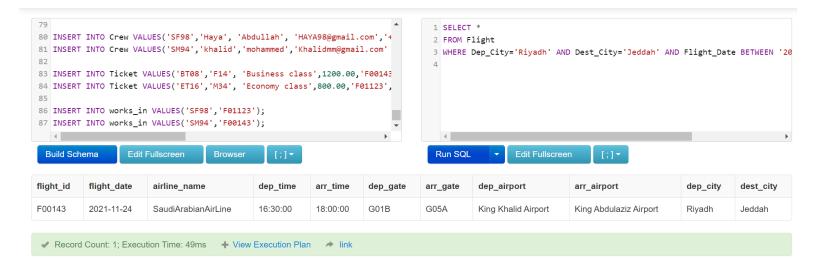
INSERT INTO works_in VALUES('SF98','F01123'); INSERT INTO works_in VALUES('SM94','F00143');

Data Queries commands and outputs:

Schema

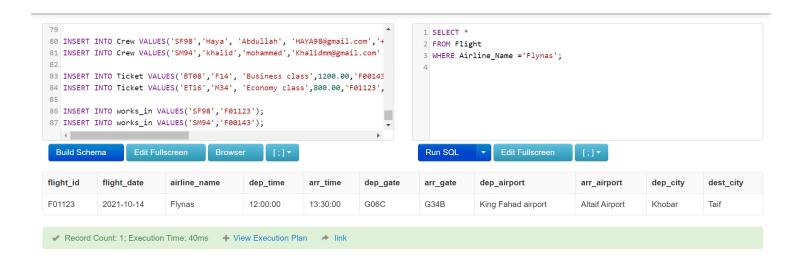


SELECT *
FROM Flight
WHERE Dep_City='Riyadh' AND Dest_City='Jeddah' AND Flight_Date
BETWEEN '2021-11-23' AND '2021-11-25';



Query 2

SELECT *
FROM Flight
WHERE Airline_Name ='Flynas';

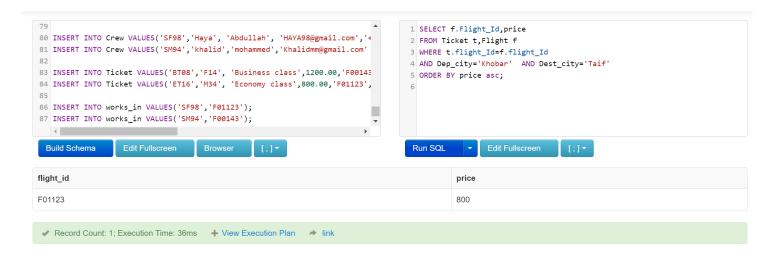


SELECT Seat_Id FROM Ticket WHERE flight_Id='F00143';

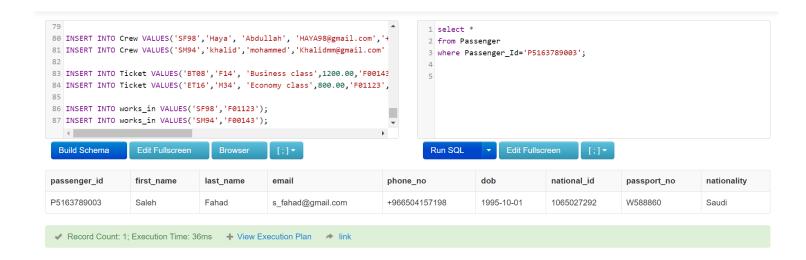
```
1 SELECT Seat_Id
80 INSERT INTO Crew VALUES('SF98', 'Haya', 'Abdullah', 'HAYA98@gmail.com','+
                                                                                     2 FROM Ticket
81 INSERT INTO Crew VALUES('SM94','khalid','mohammed','Khalidmm@gmail.com'
                                                                                      3 WHERE flight_Id='F00143';
82
83 INSERT INTO Ticket VALUES('BT08','F14', 'Business class',1200.00,'F00143
84 INSERT INTO Ticket VALUES('ET16','M34', 'Economy class',800.00,'F01123',
86 INSERT INTO works_in VALUES('SF98', 'F01123');
87 INSERT INTO works_in VALUES('SM94','F00143');
                                                                                                        Edit Fullscreen
                                                                                      Run SQL
 Build Schema
seat_id
F14
 ✓ Record Count: 1; Execution Time: 37ms + View Execution Plan
```

Query 4

SELECT f.Flight_Id,price FROM Ticket t,Flight f WHERE t.flight_Id=f.flight_Id AND Dep_city='Khobar' AND Dest_city='Taif' ORDER BY price asc;

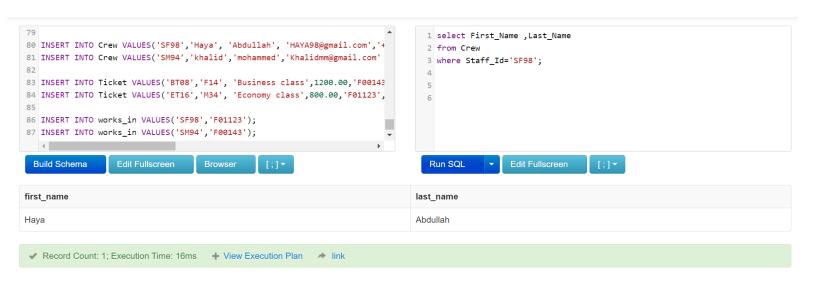


select * from Passenger where Passenger_Id='P5163789003';

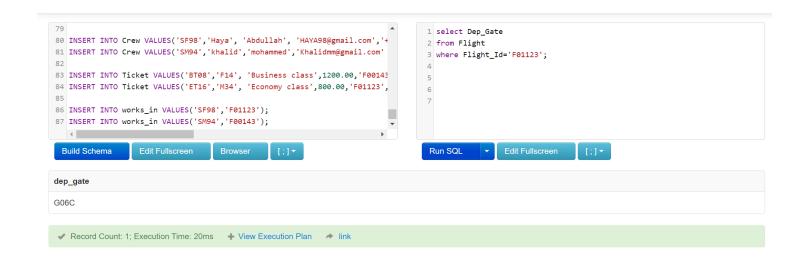


Query 8

select First_Name ,Last_Name from Crew where Staff Id='SF98';



select Dep_Gate from Flight where Flight_Id='F01123';



Work Distribution:

NAME	ID	Percentage	WORK
Lama Alshaya	441201236	25%	Client View and global section
Nouf Alsadhan	441201104	25%	Supervisor View and global section
Jumanah Aldawsari	441201034	25%	Supervisor View and global section
Aljawharah Alzamil	441201203	25%	Client View and global section