**FRONT SHEET**

|  |  |  |  |
| --- | --- | --- | --- |
| **Subject:** Airline Reservation System | | | |
| **Coursework title:** Database Systems | | | |
| **Course Teacher:** Ma’am Tayyaba Farhat | | | |
| Team Members:   1. Zunaira Javaid (BSEM-F19-090) (Leader) 2. Vaneesa (BSEM-F20-104) 3. Noman (BSEM-F20-120) | | | |
| Submission Date: 9/12/2022. | | | |
| Number of words used: 1478 (please insert number of words**)**  **Format**  The coursework should be typed in 12-point font, lines spaced at 1½ or double spacing.  Standard cover sheet should be attached. In addition, a title page and **Marking Scheme for the coursework** (which is given towards the end of this coursework) should be attached. | | | |
| By submitting this coursework, I certify this to be my own work. I understand that if this is untrue I will have committed an assessment offence e.g. plagiarism within the College regulations and that disciplinary proceedings may be brought against me. | | | |
| Student’s signature: | * Zunaira Javaid (090) * Vaneesa (104) * Noman (120) | Date: | 9/12/2020 |

**This form must be used as the front sheet of your coursework**

Database Project

**Course:** Database Systems

Project on Database Applications

**Prepared for: Ma’am Tayyaba Farhat**

**Date: /12/2020**

**Prepared by:**

1. Zunaira Javaid (090) (Leader)
2. Vaneesa(104)
3. Noman (120)

**Section:** BSSE-4A

“This assignment is my own work. The sources of all quotations, both direct and indirect, have been fully cited; All material used in the preparation of this assignment has been acknowledged. This assignment has not been submitted for assessment in any other paper.”

Signed by:

|  |  |  |
| --- | --- | --- |
|  |  |  |

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## Introduction

The **Arline Reservation System** is a system which is especially design for the passengers who can’t come to airline offices for bookings. This system provides our customer an ease to book their tickets at their own place. This system provides different features for our passengers like availability of seats and tickets, ticket prices of different airlines and different packages of airline tickets etc. We can say that Airline Reservation System is a system where you can do any kind of airline booking within minutes.

## Arline Reservation System Case Study

The **Airline Reservation System** covered all the features such as flight scheduling, departure and arrival time of a plane, seat reservations and airline packages. This system extensively covered all the things which passengers seen many times in booking their airline tickets.

After the complete analysis of airline reservation system, we come to know about the necessary entities and attributes which are as following:

* **Entity:** Details\_of\_Airline.

**Attributes:** id\_of\_airline (pk), name\_of\_airline, total\_no\_of\_seats, from\_location, to\_location, departure\_time, arrival\_time, flight\_duration.

* **Entity:** Det\_Airline\_Flight.

**Attribues:**id\_of\_airline(fk), flight\_id(fk), cpk(id\_of\_airline,flight\_id)

* **Entity:** Flight.

**Attributes:** flight\_id (pk), departure\_date, price\_of\_ticket, available\_economy\_seats, available\_vip\_seats.

* **Entity:** Flight\_and\_Ticket.

**Attributes** flight\_id(fk), ticket\_id(fk), cpk(flight\_id,ticket\_id)

* **Entity:** Ticket\_Booking\_Info.

**Attributes:** ticket\_id (pk), status\_of\_ticekt.

* **Entitiy:**Passenger\_and\_Ticket.

**Attributes:** flight\_id(fk), passenger\_id(fk), cpk(flight\_id,passenger\_id)

* **Entity:** Passenger\_Info.

**Attributes:** passenger\_id (pk), first\_name, middle\_name, last\_name, age, gender, phone\_no, cnic\_no, email\_id,passenger\_type, nationality, religion.

* **Entity:** Payment\_Details.

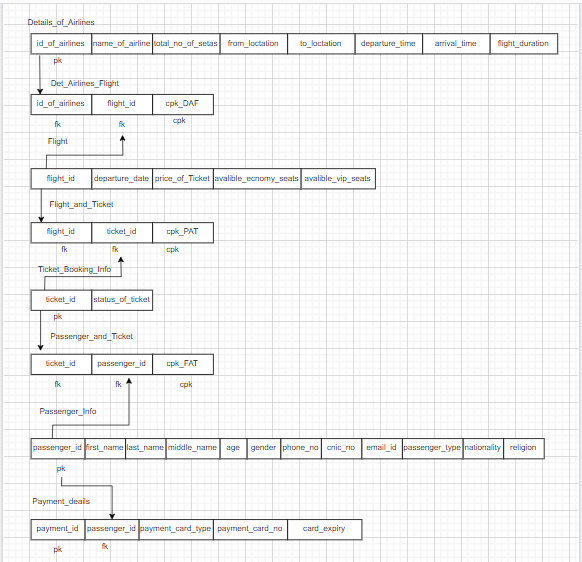
**Attributes:** passenger\_id (fk), payment\_card\_type, payment\_card\_no, card\_expiry.

## The Entity Relationship Diagram



## Schema Map

## Table Plans



**Details\_Of\_Airline:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Column Name** | **Data type** | **Length** | **Nulls** | **Key Type** | **References** | | **Other Constraints?** |
| **FK Table** | **FK Column** |
| id\_of\_airline | int |  |  | primary |  |  | Identity(1,1) |
| name\_of\_airline | nvarchar | 30 | not null |  |  |  |  |
| total\_no\_of\_seats | int |  | not null |  |  |  |  |
| from\_location | nvarchar | 50 | not null |  |  |  |  |
| to\_location | nvarchar | 50 | not null |  |  |  |  |
| departure\_time | time |  | not null |  |  |  |  |
| arrival\_time | time |  | not null |  |  |  |  |
| flight\_duration | nvarchar | 20 | not null |  |  |  |  |

**Flight**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Column Name** | **Data type** | **Length** | **Nulls** | **Key Type** | **References** | | **Other Constraints?** |
| **FK Table** | **FK Column** |
| flight\_id | int |  |  | Primary key |  |  | identity (1,1) |
| departure\_date | date |  | not null |  |  |  |  |
| price\_of\_ticket | money |  | not null |  |  |  | default |
| available\_economy\_seats | int |  | not null |  |  |  |  |
| available\_vip\_seats | int |  | not null |  |  |  |  |

**Det\_Airline\_Flight**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Column Name** | **Data type** | **Length** | **Nulls** | **Key Type** | **References** | | **Other Constraints?** |
| **FK Table** | **FK Column** |
| id\_of\_airline | int |  |  | Foreign  key | Details\_Of\_Airline | id\_of\_airline |  |
| flight\_id | int |  |  | Foreign  key | Flight | flight\_id |  |
| cpk\_DAF |  |  |  | composite primary key |  |  | composite key of id\_of\_airline and flight\_id |

**Ticket\_Booking\_Info**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Column Name** | **Data type** | **Length** | **Nulls** | **Key Type** | **References** | | **Other Constraints?** |
| **FK Table** | **FK Column** |
| ticket\_id | int |  |  | Primary  key |  |  | identity (1,1) |
| status\_of\_ticket | nvarchar | 50 | not null |  |  |  |  |

**Flight\_And\_Ticket**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Column Name** | **Data type** | **Length** | **Nulls** | **Key Type** | **References** | | **Other Constraints?** |
| **FK Table** | **FK Column** |
| flight\_id | int |  |  | Foreign  key | Flight | flight\_id |  |
| ticket\_id | int |  |  | Foreign  key | Ticket\_Booking\_Info | ticket\_id |  |
| cpk\_FAT |  |  |  | composite primary key |  |  | composite key of flight\_id and ticket\_id |

**T15\_Passenger\_Info**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Column Name** | **Data type** | **Length** | **Nulls** | **Key Type** | **References** | | **Other Constraints?** |
| **FK Table** | **FK Column** |
| passenger\_id | int |  |  | primary |  |  | identity (1,1) |
| first\_name | nvarchar | 50 | not null |  |  |  |  |
| middle\_name | nvarchar | 50 | null |  |  |  |  |
| last\_name | nvarchar | 50 | not null |  |  |  |  |
| age | int |  | not null |  |  |  |  |
| gender | nvarchar | 20 |  |  |  |  |  |
| phone\_no | nvarchar | 12 | not null | unique |  |  | check |
| cnic\_no | nvarchar | 15 | not null | unique |  |  | check |
| email\_id | nvarchar | 100 | not null | unique |  |  | Check |
| passenger\_type | nvarchar | 50 | not null |  |  |  |  |
| nationality | nvarchar | 50 | not null |  |  |  |  |
| religion | nvarchar | 40 | not null |  |  |  |  |

**T15\_Passenger\_And\_Ticket**

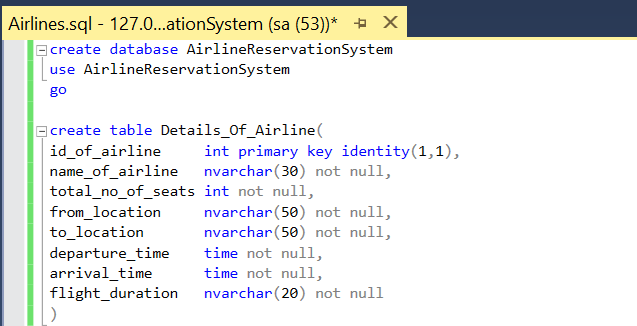
|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Column Name** | **Data type** | **Length** | **Nulls** | **Key Type** | **References** | | **Other Constraints?** |
| **FK Table** | **FK Column** |
| passenger\_id | int |  |  | Foreign  key | Passenger\_Info | passenger\_id |  |
| ticket\_id | int |  |  | Foreign  key | Ticket\_Booking\_Info | ticket\_id |  |
| cpk\_PAT |  |  |  | composite primary key |  |  | composite key of passenger\_id and ticket\_id |

**T15\_Payment\_Details**

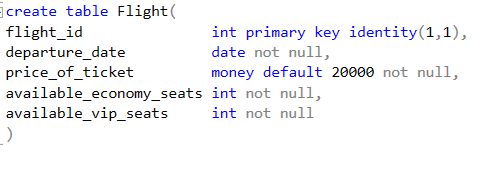
|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Column Name** | **Data type** | **Length** | **Nulls** | **Key Type** | **References** | | **Other Constraints?** |
| **FK Table** | **FK Column** |
| payment\_id | int |  |  |  |  |  |  |
| passenger\_id | int |  |  | Foreign  key | Passenger\_Info | passenger\_id |  |
| payment\_card\_type | nvarchar | 30 | not null |  |  |  |  |
| payment\_card\_no | nvarchar | 30 | not null |  |  |  |  |
| card\_expiry | date |  | not null |  |  |  |  |

## SQL (DDL)

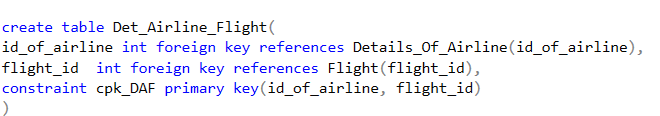
**Details\_Of\_Airline:**

****

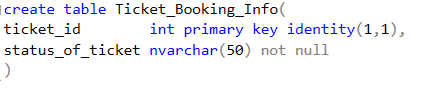
**Flight**

****

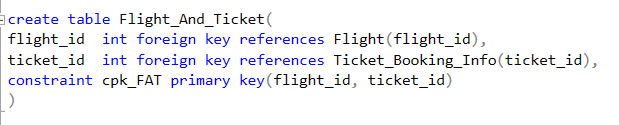
**Det\_Airline\_Flight**

****

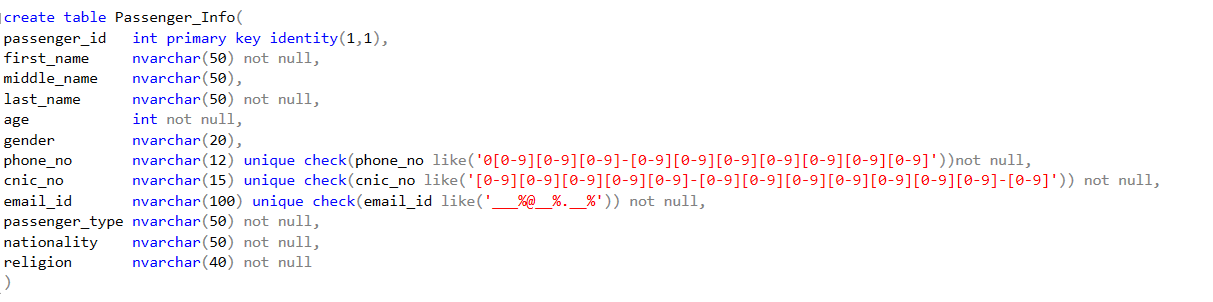
**Ticket\_Booking\_Info**

****

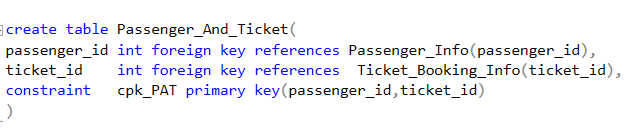
**Flight\_And\_Ticket**

****

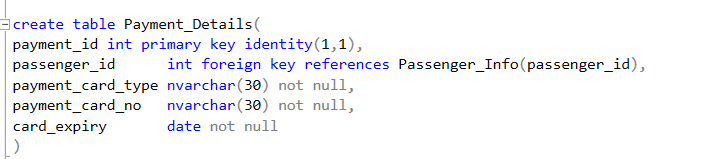
**Passenger\_Info**

****

**Passenger\_And\_Ticket**

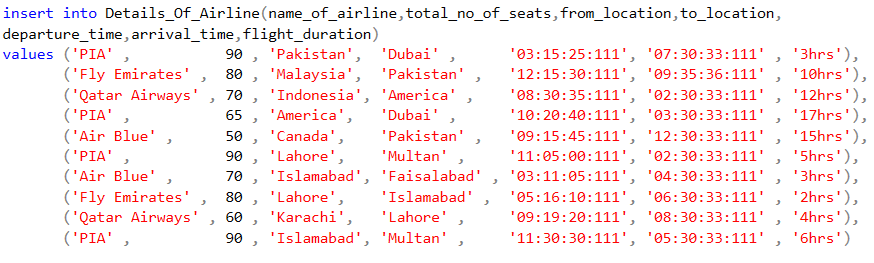
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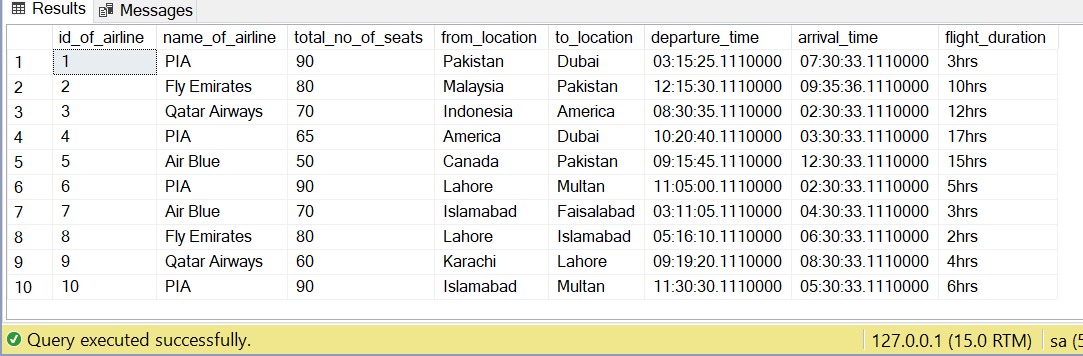
**Payment\_Details**

****

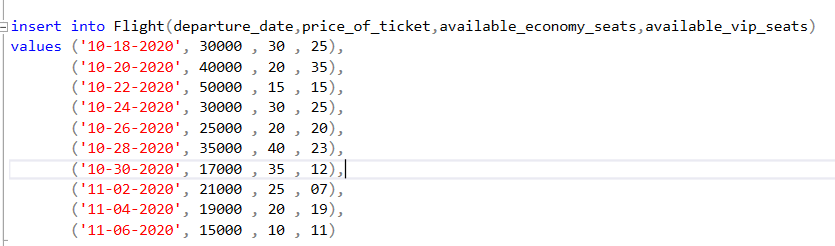
## SQL (DML)

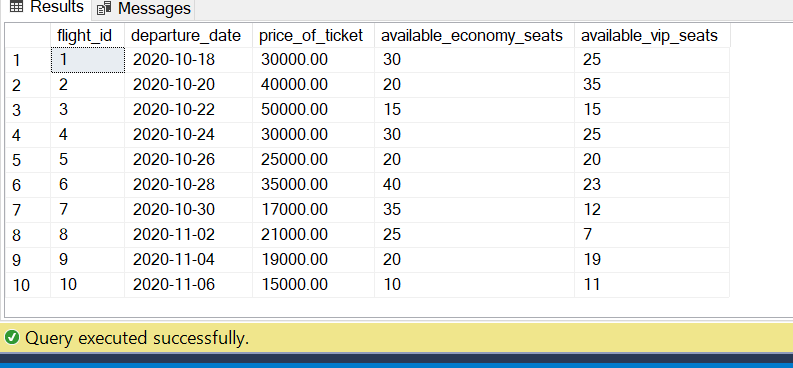
**Details\_Of\_Airline:**

****

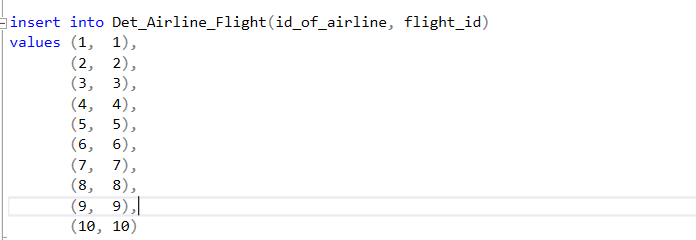
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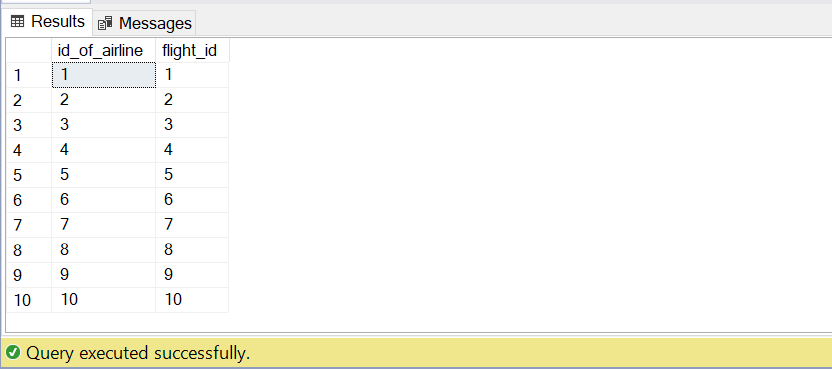
**Flight**

****

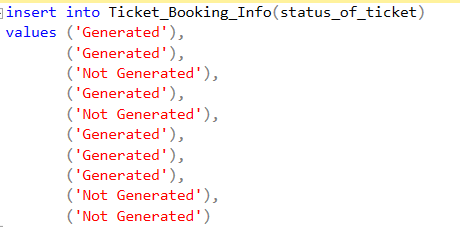
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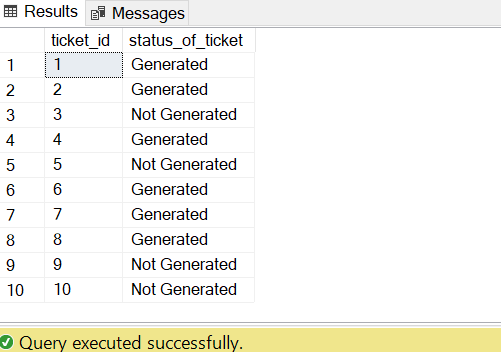
**Det\_Airline\_Flight**

****

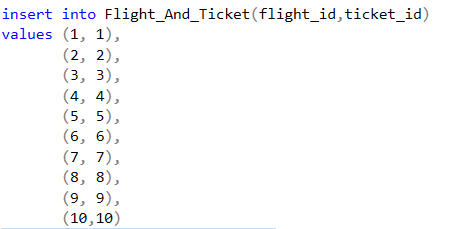
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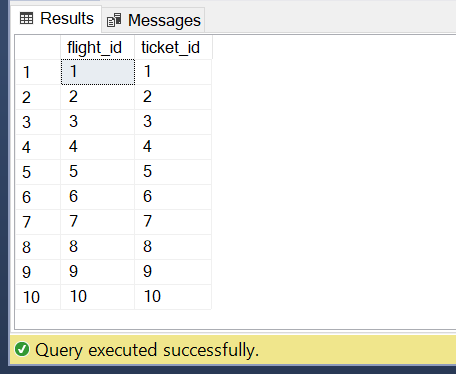
**Ticket\_Booking\_Info**

****

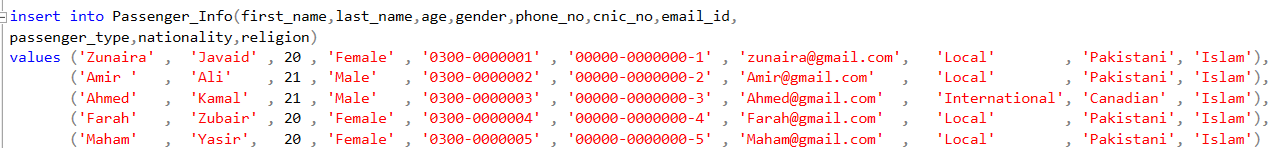
****

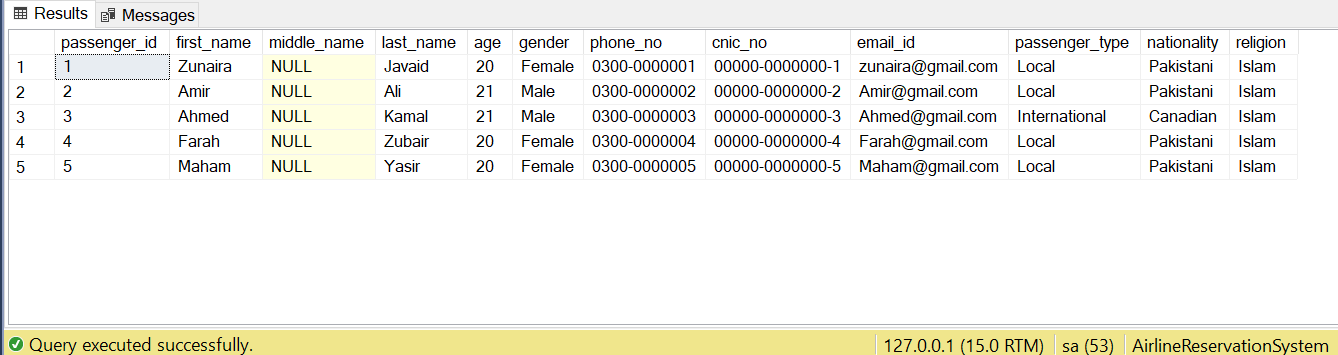
**Flight\_And\_Ticket**

****

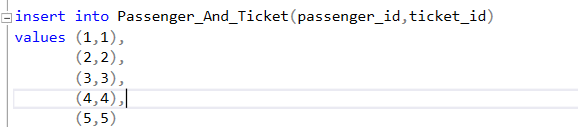
****

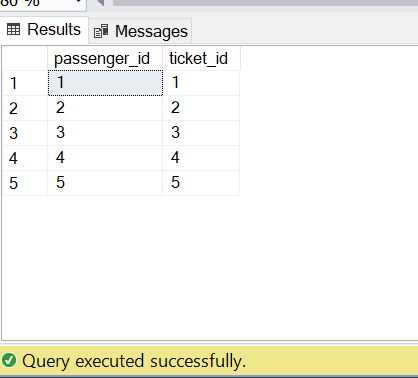
**Passenger\_Info**

****

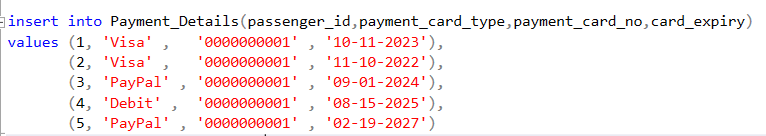
****

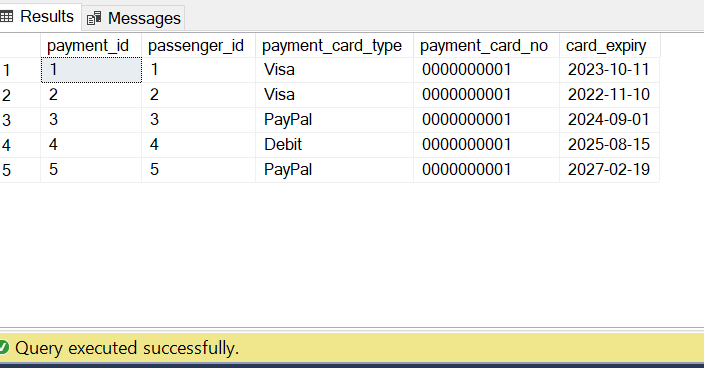
**Passenger\_And\_Ticket**

****

****

**Payment\_Details**



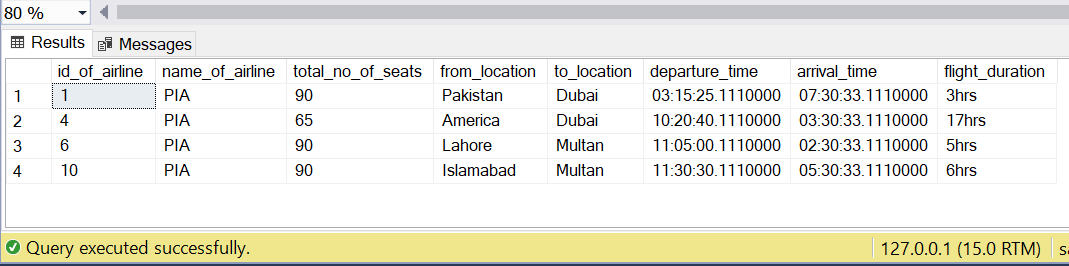


## SQL Query

1. Showing id\_of\_airline, name\_of\_airline ,total\_no\_of\_seats, from\_location, to\_location, departure\_time ,arrival\_time,flight\_duration of table Details\_Of\_Airline where name\_of\_airline equal to “PIA”.

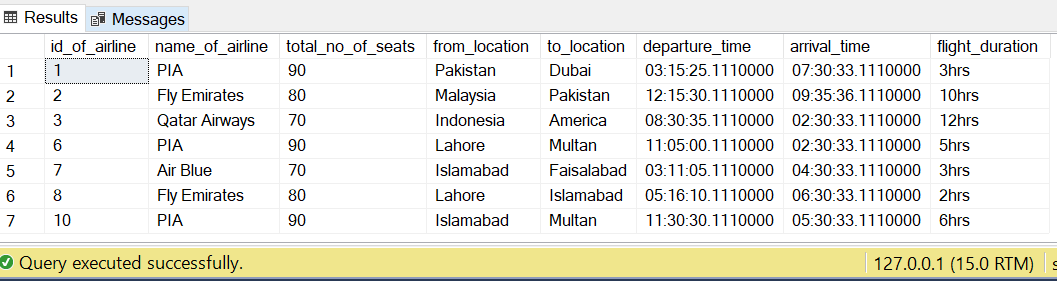
select id\_of\_airline, name\_of\_airline ,total\_no\_of\_seats, from\_location, to\_location, departure\_time ,arrival\_time,flight\_duration from

Details\_Of\_Airline where name\_of\_airline='PIA'



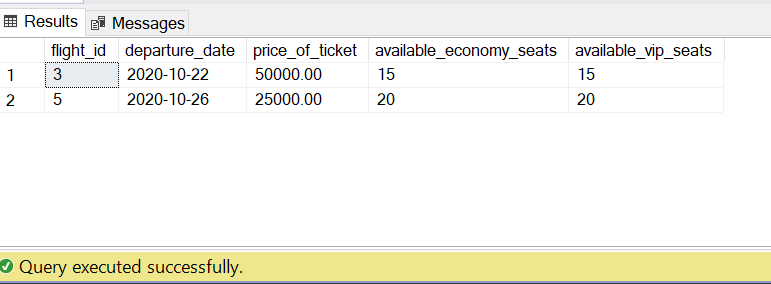
1. Showing id\_of\_airline, name\_of\_airline ,total\_no\_of\_seats, from\_location, to\_location, departure\_time ,arrival\_time,flight\_duration from table Details\_Of\_Airline where total\_no\_of\_seats is greater than equal to 70.

select id\_of\_airline, name\_of\_airline ,total\_no\_of\_seats, from\_location, to\_location, departure\_time ,arrival\_time,flight\_duration from Details\_Of\_Airline where total\_no\_of\_seats>=70



1. Showing flight\_id, departure\_date, price\_of\_ticket,available\_economy\_seats,available\_vip\_seats from table Flight where available\_vip\_seats greater than equal to 10 and available\_economy\_seats are equal to available\_vip\_seats.

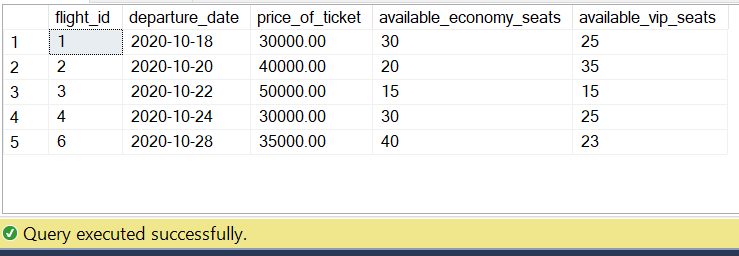
select flight\_id, departure\_date, price\_of\_ticket,available\_economy\_seats,available\_vip\_seats from Flight where available\_vip\_seats >=10 and available\_economy\_seats=available\_vip\_seats



1. Showing flight\_id, departure\_date, price\_of\_ticket,available\_economy\_seats,available\_vip\_seats from table Flight where price\_of\_ticket greater than 25000.

select flight\_id, departure\_date, price\_of\_ticket,available\_economy\_seats,available\_vip\_seats from Flight

where price\_of\_ticket>25000

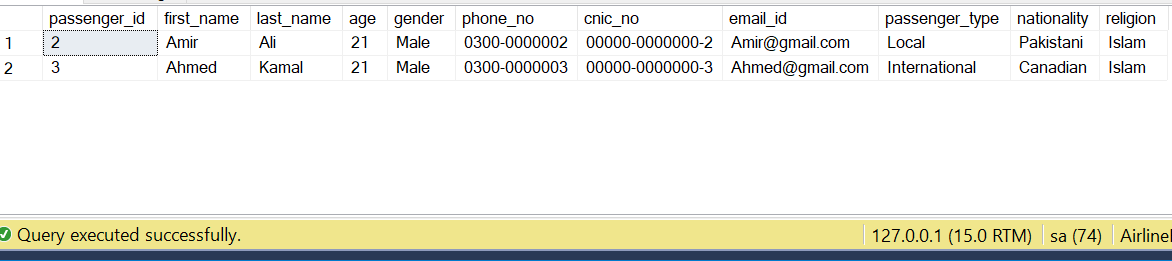


1. Showing passenger\_id, first\_name,last\_name,age,gender,phone\_no,cnic\_no,email\_id,

passenger\_type, nationality, religion from table Passenger\_Info where gender is equal to “Male” and age=21.

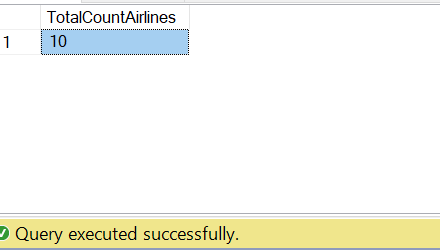
select passenger\_id, first\_name, last\_name,age,gender,phone\_no,cnic\_no,email\_id,passenger\_type,

nationality,religion from Passenger\_Info where gender='Male' and age=21



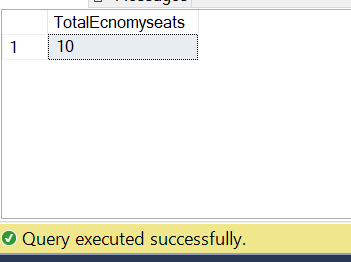
1. Showing total number of airlines from table Details\_Of\_Airline

Select count(\*) as TotalCountAirlines from Details\_Of\_Airline



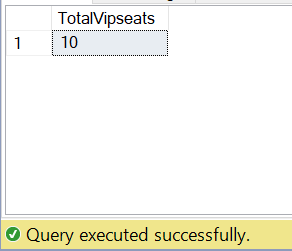
1. Showing total number of economy seats from table Flight

Select count(available\_economy\_seats) as TotalEcnomyseats from Flight



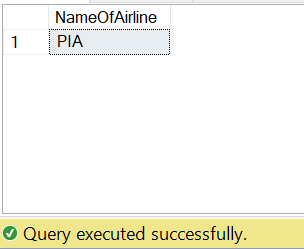
1. Showing total number of vip seats from table Flight

* Select count(available\_vip\_seats) as TotalVipseats from Flight



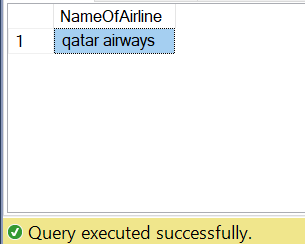
1. Showing name of airline in upper case from table Details\_Of\_Airline where id =1.

Select upper(ltrim(name\_of\_airline)) as NameOfAirline from Details\_Of\_Airline where id\_of\_airline =1



1. Showing name of airline in lower case from table Details\_Of\_Airline where id =3.

Select lower(ltrim(name\_of\_airline)) as NameOfAirline from Details\_Of\_Airline where id\_of\_airline =3



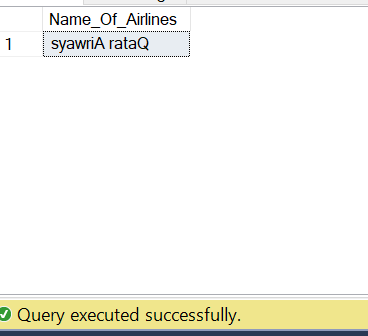
1. Concatenate airline id and name of airline from table Details\_Of\_Airline.

Select concat(id\_of\_airline,' ',name\_of\_airline) as ID\_Name\_Of\_Airlines from Details\_Of\_Airline



1. Showing name of airline from table Details\_Of\_Airline. Where id =3

Select reverse(name\_of\_airline) as Name\_Of\_Airlines from Details\_Of\_Airline where id\_of\_airline = 3



1. Display passenger first name and last name in format with only first letter from first name in capital, space and then Last name with first letter in caps( i.e display Zunaira javaid in Z Javaid).

create function Name\_of\_passenger(@f nvarchar(200),@l nvarchar(200))

returns nvarchar(max)

as

begin

declare @y nvarchar(max)

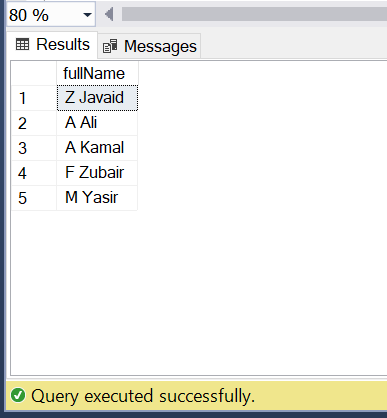
set @y=UPPER(SUBSTRING(ltrim(@f),1,1))+' '+UPPER(SUBSTRING(ltrim(@l),1,1))+SUBSTRING(ltrim(@l),2,len(ltrim(@l)))

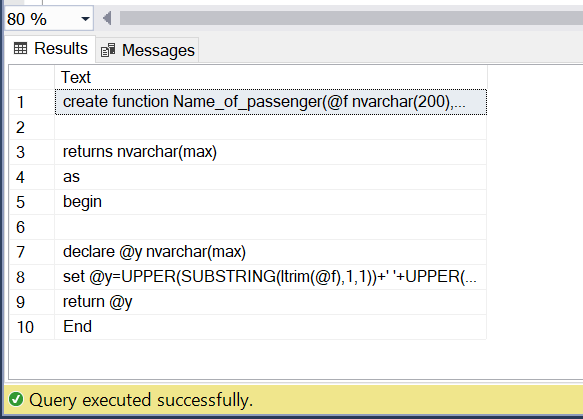
return @y

End

select dbo.Name\_of\_passenger(first\_name,last\_name) as fullName from Passenger\_Info

sp\_helptext Name\_of\_passenger





1. Write a query to increment price of ticket if ticket is generated ticket then 10000 incr,then not

genetaed ticket no increment in price.

* Select status\_of\_ticket,price\_of\_ticket as increment\_without\_price\_of\_ticket,

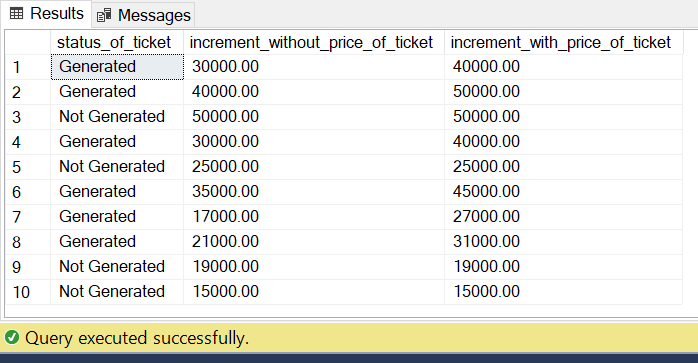
case

when (status\_of\_ticket like 'Generated')

then (price\_of\_ticket +10000)

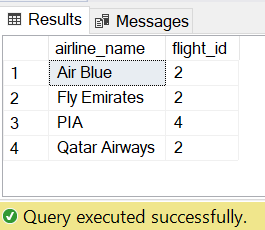
else price\_of\_ticket

End as increment\_with\_price\_of\_ticket from Ticket\_Booking\_Info tb join Flight f on tb.ticket\_id = f.flight\_id



1. Write a query to display total number of flights for each airline.

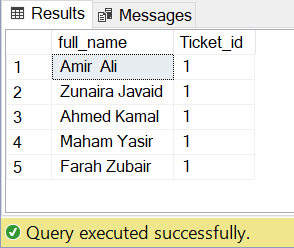
* Select name\_of\_airline as airline\_name,count(flight\_id) as flight\_id from Details\_Of\_Airline a join Det\_Airline\_Flight af on a.id\_of\_airline= af.id\_of\_airline group by name\_of\_airline



1. Write a query to passenger name and display total number of tickets of passenger.

* Select concat(first\_name,' ',last\_name) as full\_name,count(ticket\_id) as Ticket\_id from Passenger\_Info p join Passenger\_And\_Ticket pt

on p.passenger\_id = pt.passenger\_id group by first\_name,last\_name



1. Write a query to create view showing id\_of\_airline, name\_of\_airline ,total\_no\_of\_seats, from\_location, to\_location, departure\_time ,arrival\_time,flight\_duration of table Details\_Of\_Airline where name\_of\_airline equal to “PIA”.

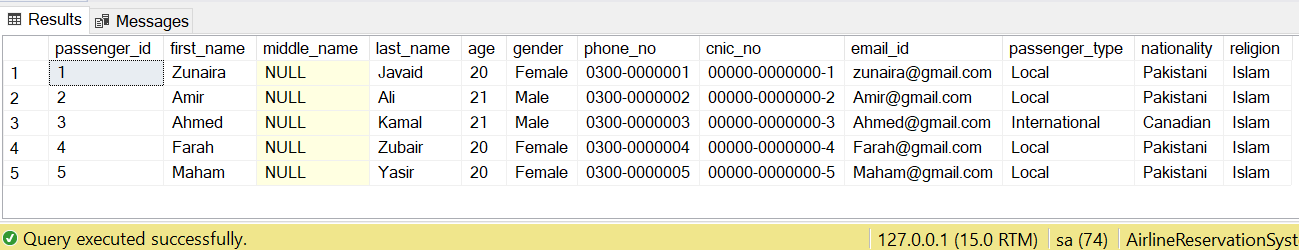
* Create view DeatailsAirline

as

select id\_of\_airline, name\_of\_airline ,total\_no\_of\_seats, from\_location, to\_location, departure\_time ,arrival\_time,flight\_duration from

Details\_Of\_Airline where name\_of\_airline='PIA'

Select \*from Passenger\_Info



## Conclusion

In the end to conclude, we can say it is a single platform where a user can check, book, compare and availability of seats in our system. We provide the least rates and on the booking panel we also show and let the user compare the prices with other airlines of our level of efficiency. We’re providing online payment methods, accepting every international bank cards. In our system we allow the users to locate and check on their flight through our tracking Id number.

## List of tasks assigned:

* **Task 1:** Gathering Requirements
* **Task 2:** Introduction & Business Case
* **Task 3:** ERD & Relational Model
* **Task 4:** Schema Map
* **Task 5:** Table Plans
* **Task 6:** DDL Commands
* **Task7:** DML Commands
* **Task8:**SQL Quires

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