



湖北工业大学
HUBEI UNIVERSITY OF TECHNOLOGY

DBMS

Course Design Report

Design Topic Online Airplane Reservation System

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1. Objective and significance of the project

The web based “airline reservation system” project is an attempt to stimulate the basic concepts of airline reservation system. The system enables the customer to do the things such as search for airline flights for two travel cities on a specified date, choose a flight based on the details, reservation of flight and cancellation of reservation.

The system allows the airline passenger to search for flights that are available between the two travel cities, namely the “Departure city” and “Arrival city” for a particular departure and arrival dates. The system displays all the flight’s details such as flight no, name, price and duration of journey etc.

After search the system display list of available flights and allows customer to choose a particular flight. Then the system checks for the availability of seats on the flight. If the seats are available then the system allows the passenger to book a seat. Otherwise it asks the user to choose another flight.

To book a flight the system asks the customer to enter his details such as name, address, city, state, credit card number and contact number. Then it checks the validity of card and book the flight and update the airline database and user database. The system also allows the customer to cancel his/her reservation, if any problem occurs.

2. System Operation Environment Description

Develop an Internet airline reservation system in two different ways.

Both systems shall be client server systems. The first is to apply all the business logic in the thin client and server. Then, the system should be refactored into a system with thick clients, in which as much business logic as possible is executed by the clients. When a customer opens the client page, there should be a way to select the city of departure and destination and the date of travel. You can also choose an airline. The system should be able to find and Book itineraries by merging flights from different airlines. Each airline has its own database. When merging flights, the time required for connecting airports should be considered, i.e. connection time. When booking all flights of the same airline, the price will be discounted according to the airline's own discount (%).

3. System Requirements Analysis

The system shall have the following use cases:

1. find the best (price or time) itinerary between a and B, including the following use cases:

- *Choose the city of departure,*
- *Select the destination city,*
- *Select the date,*
- *Choose to sort by price or by travel time,*
- *Choose the number of people. Only consider flights with enough seats.*

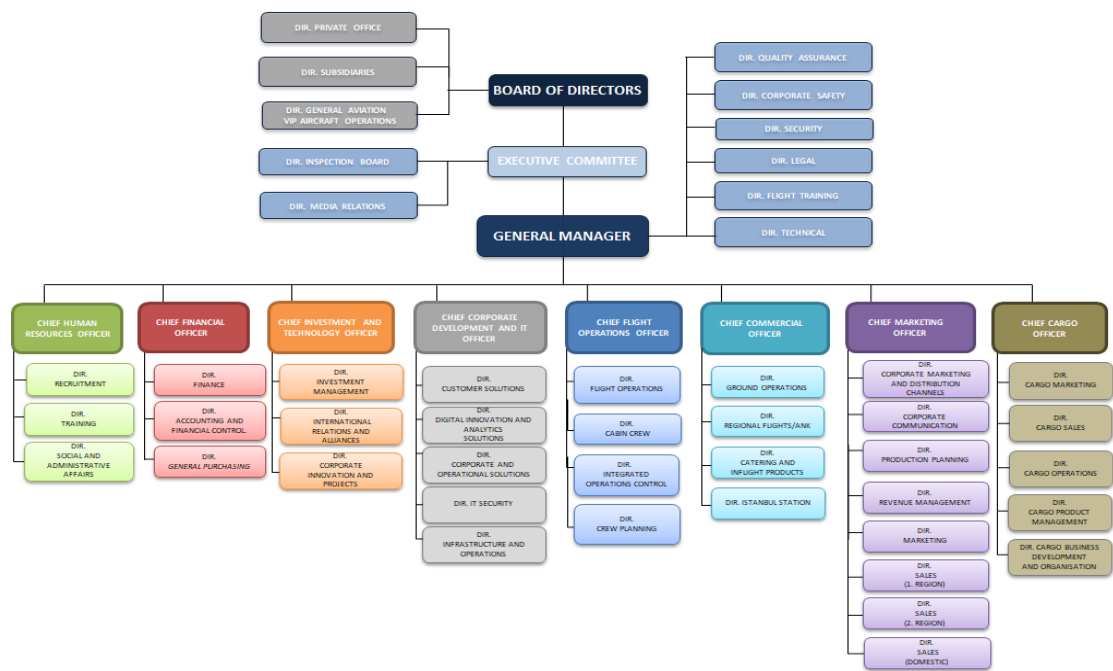
2. Use the following sub use case to book travel:

- *select trip from the previous use case,*
- *select seat preference (window, aisle or middle),*
- *input passenger data,*
- *submit the booking and get a receipt.*

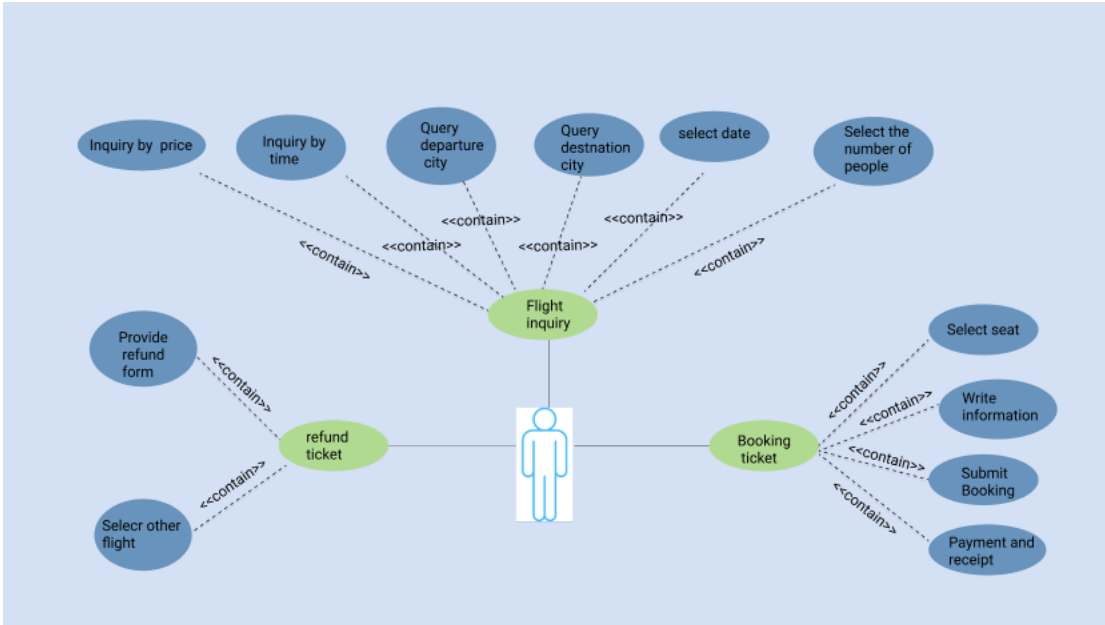
3. Cancel the trip.

Other use cases can also be considered

3.1 Organization chart



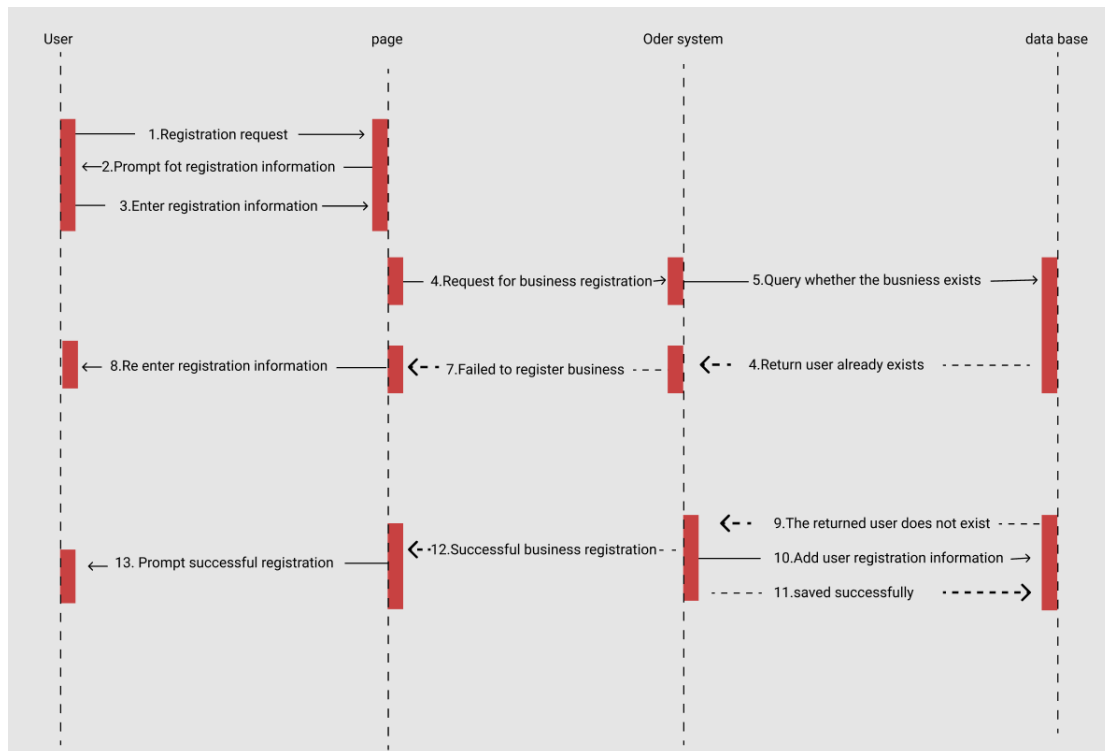
3.2 Data flow graph and data dictionary



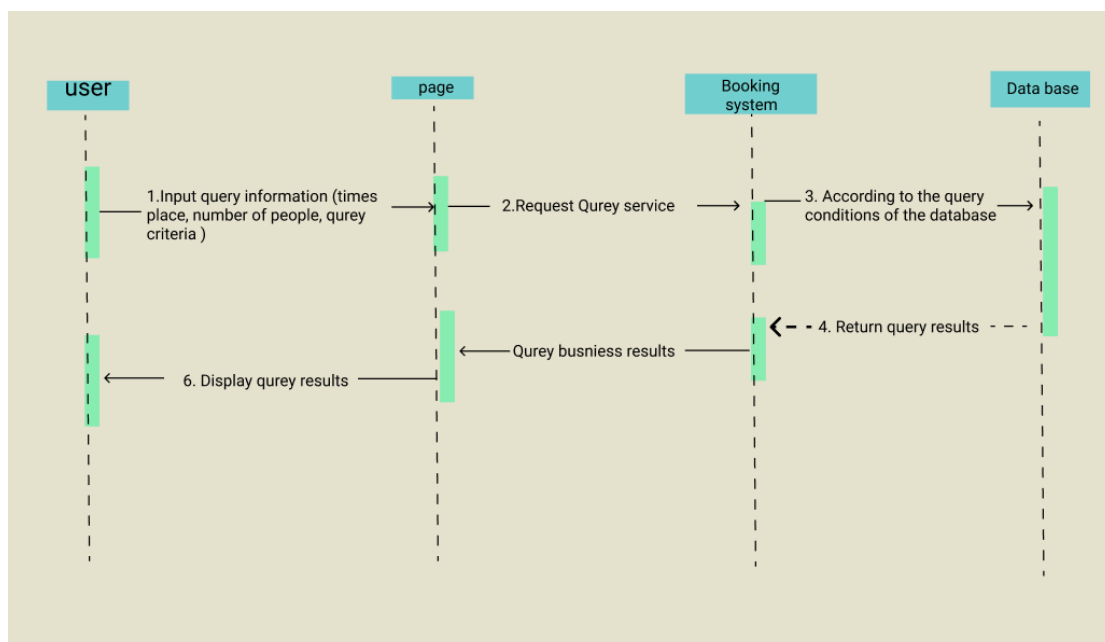
3.3 System function structure

3.3.1 Three layer C / S structure

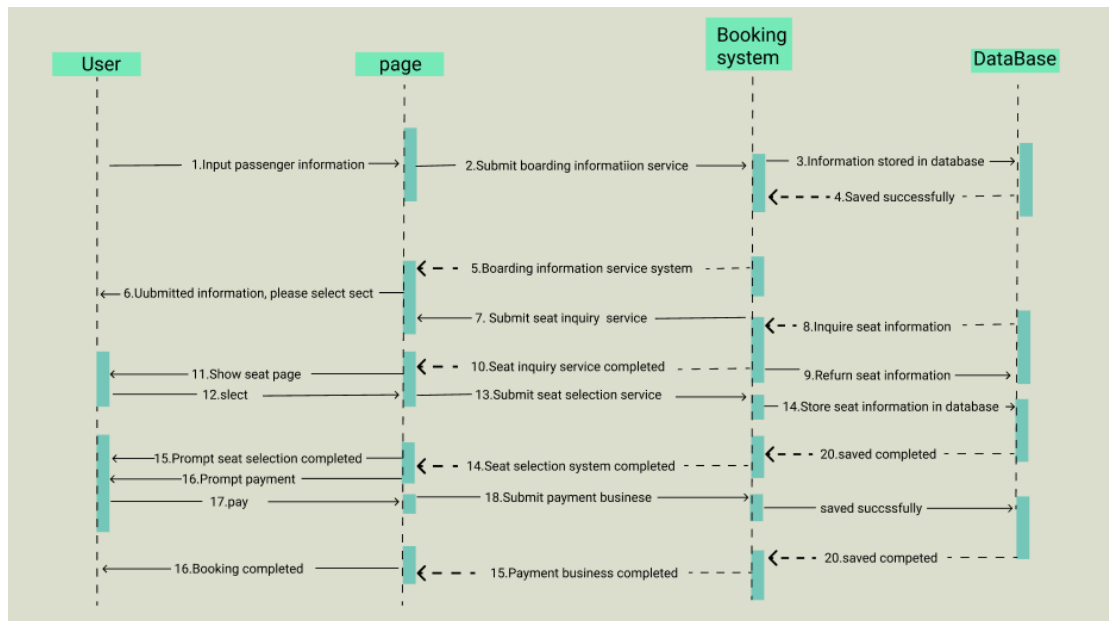
User registration sequence diagram:



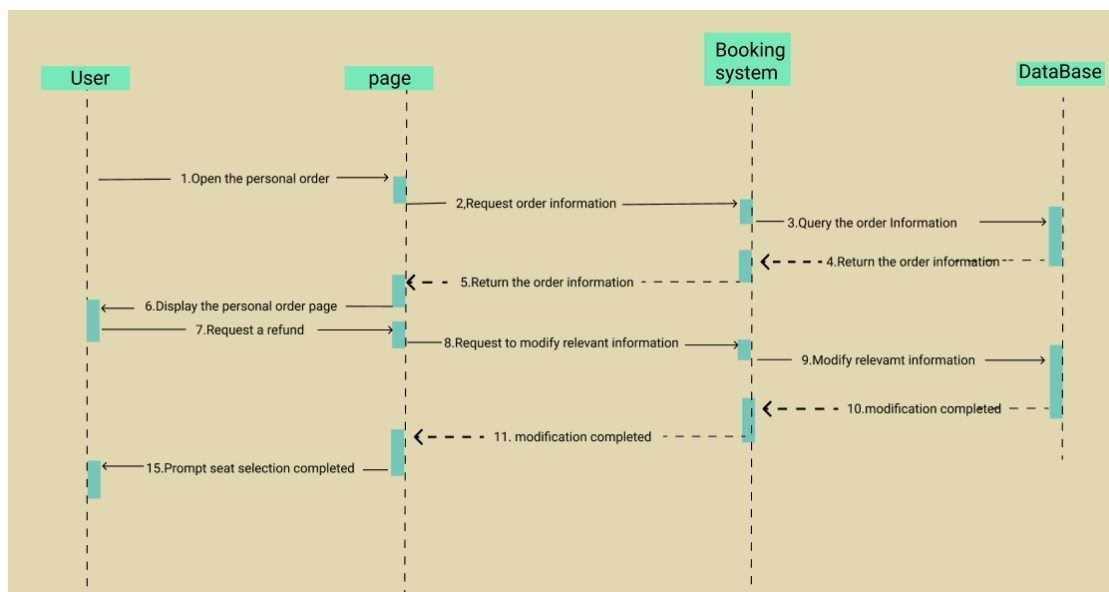
Flight query sequence diagram:



User booking sequence diagram:

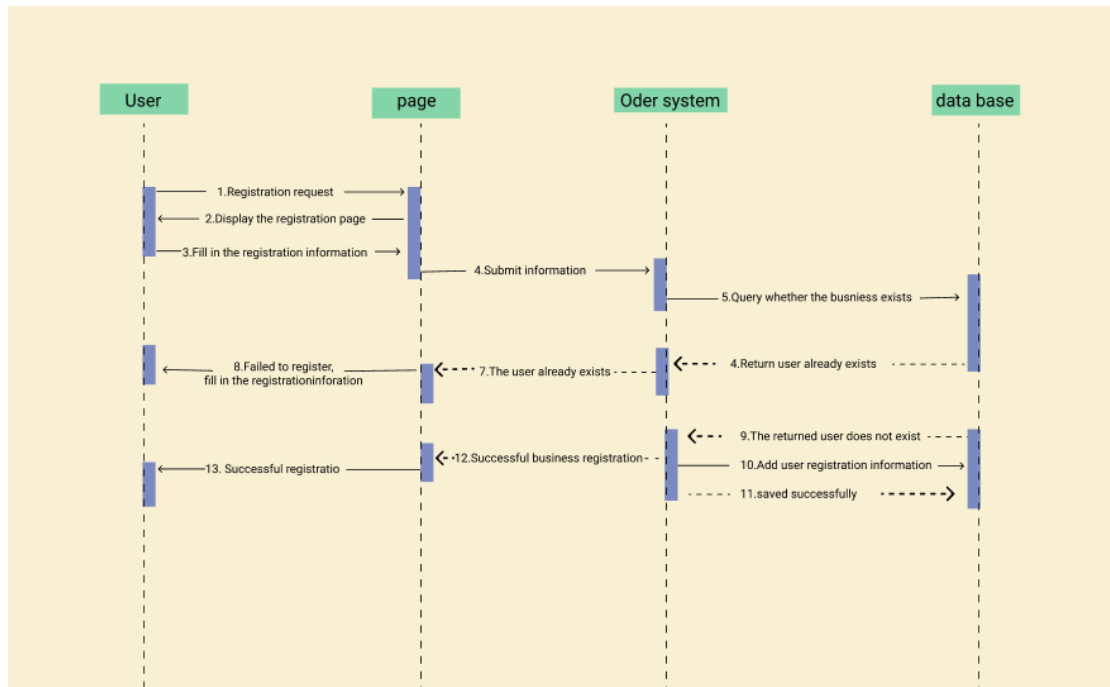


User refund sequence diagram:

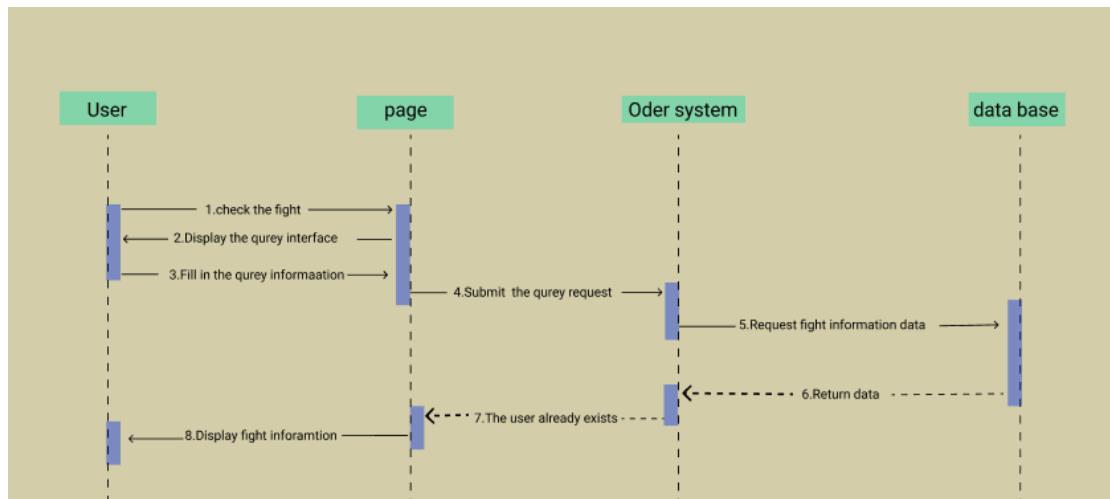


3.3.2 Two-layer C / S structure

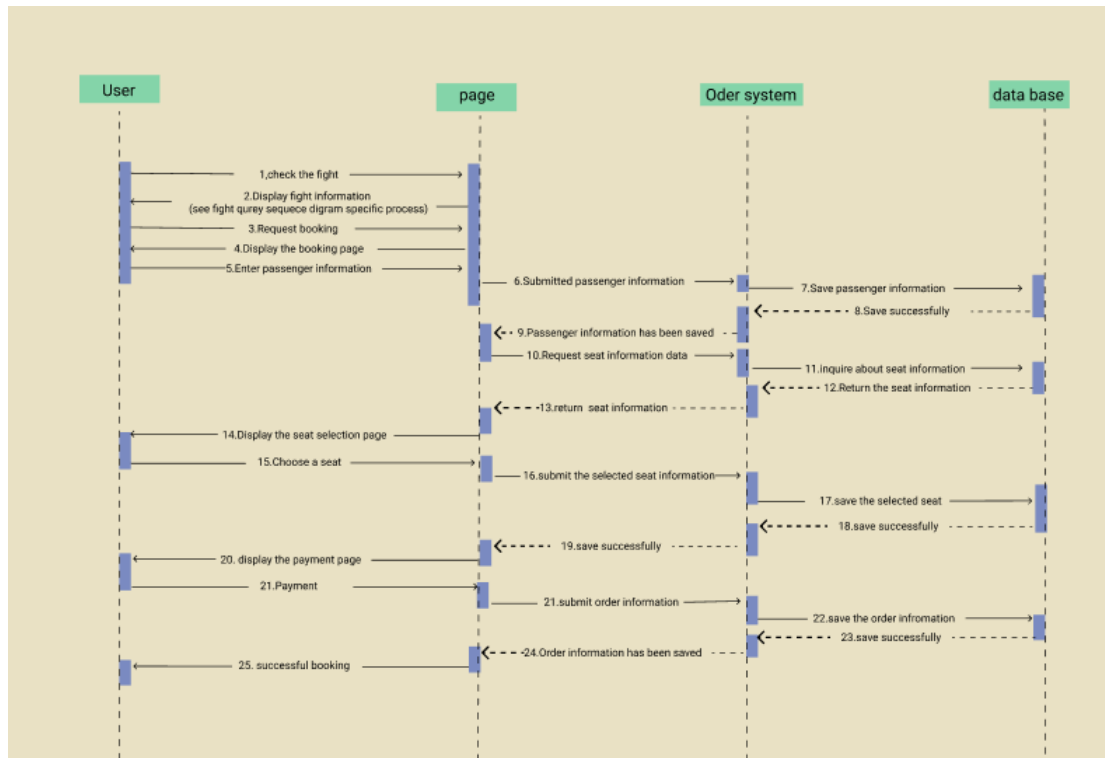
User registration timing chart:



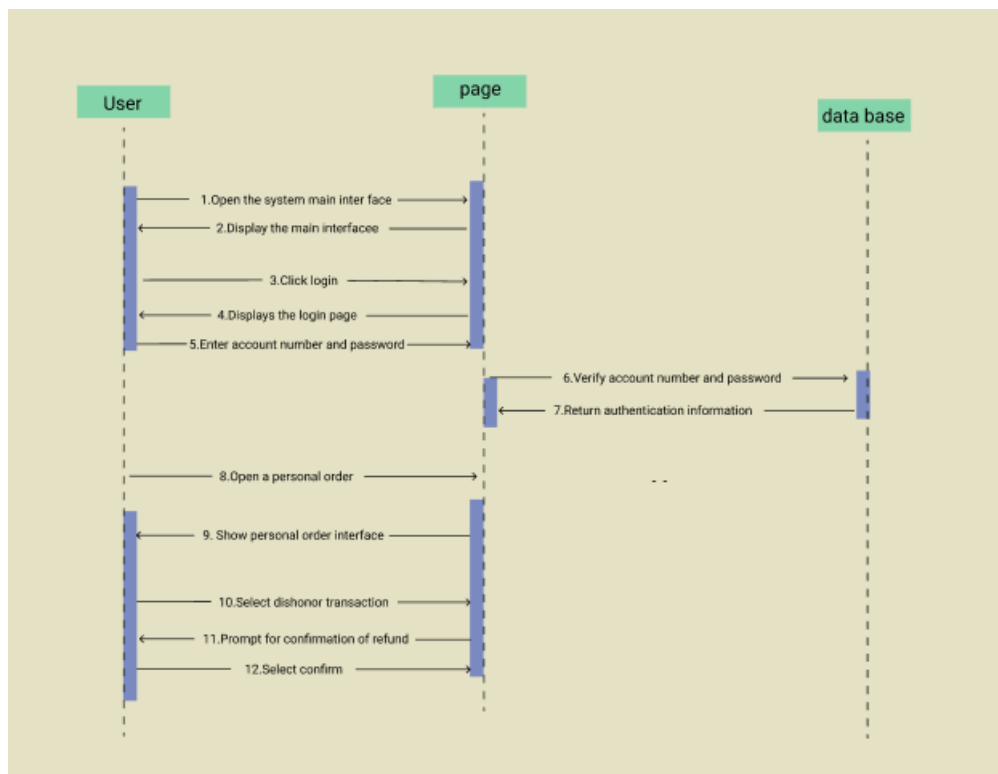
Fight inquiry sequence diagram:



User booking sequence diagram:



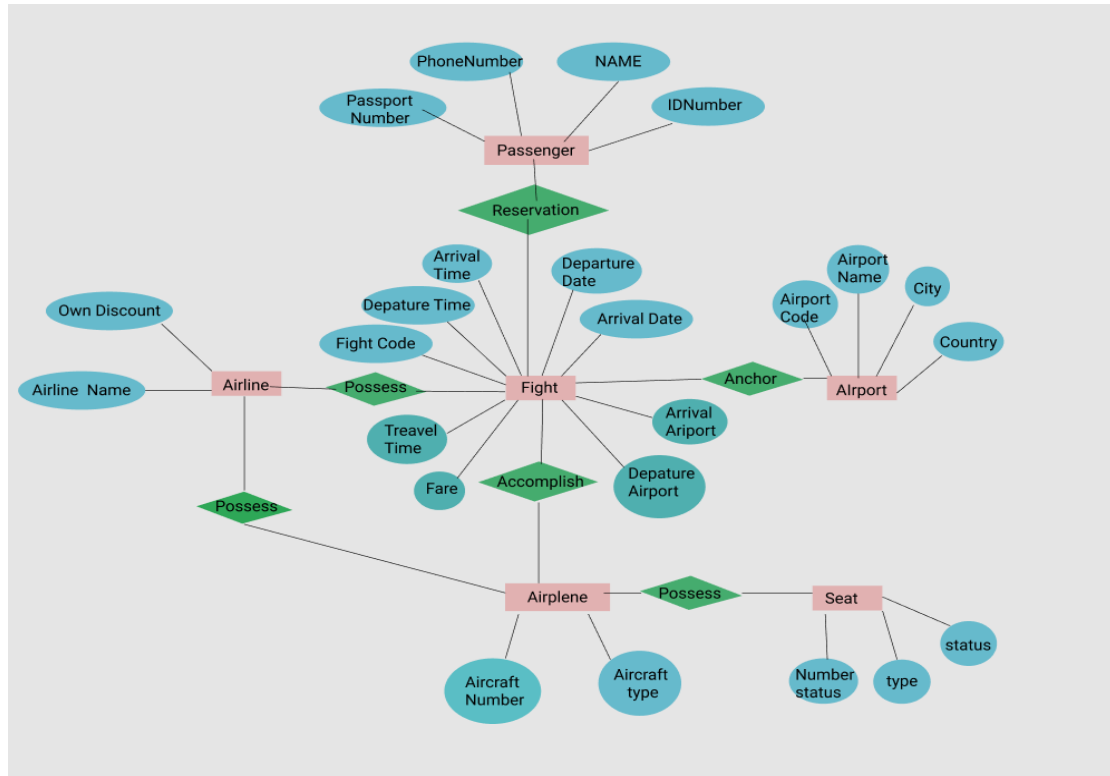
User refund sequence diagram:



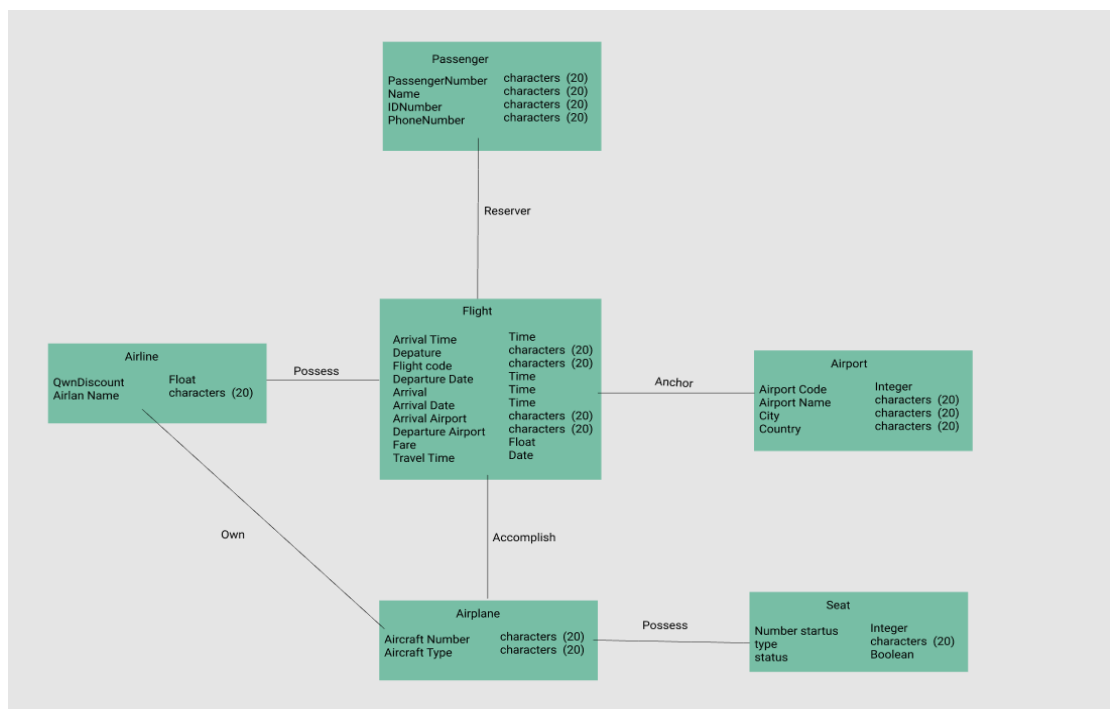
4. Database Design

4.1 Conceptual design (E-R diagram)

E-R Diagram:



Conceptual structure of design:



4.2 Logical structure design

The ER graph is transformed into a relational schema, and the attributes, functional dependencies, candidate codes and external codes of each relationship are determined, and the relational schema is normalized to at least 3NF:

Passengers (passport number, name, ID number, mobile phone number)

Reservation (passport number, flight number)

Flight (flight number, company name, aircraft number, departure date, departure time, arrival date, arrival time, departure airport, destination airport, travel time, cost)

Airlines (company name, discount)

Parking (airport number, flight number)

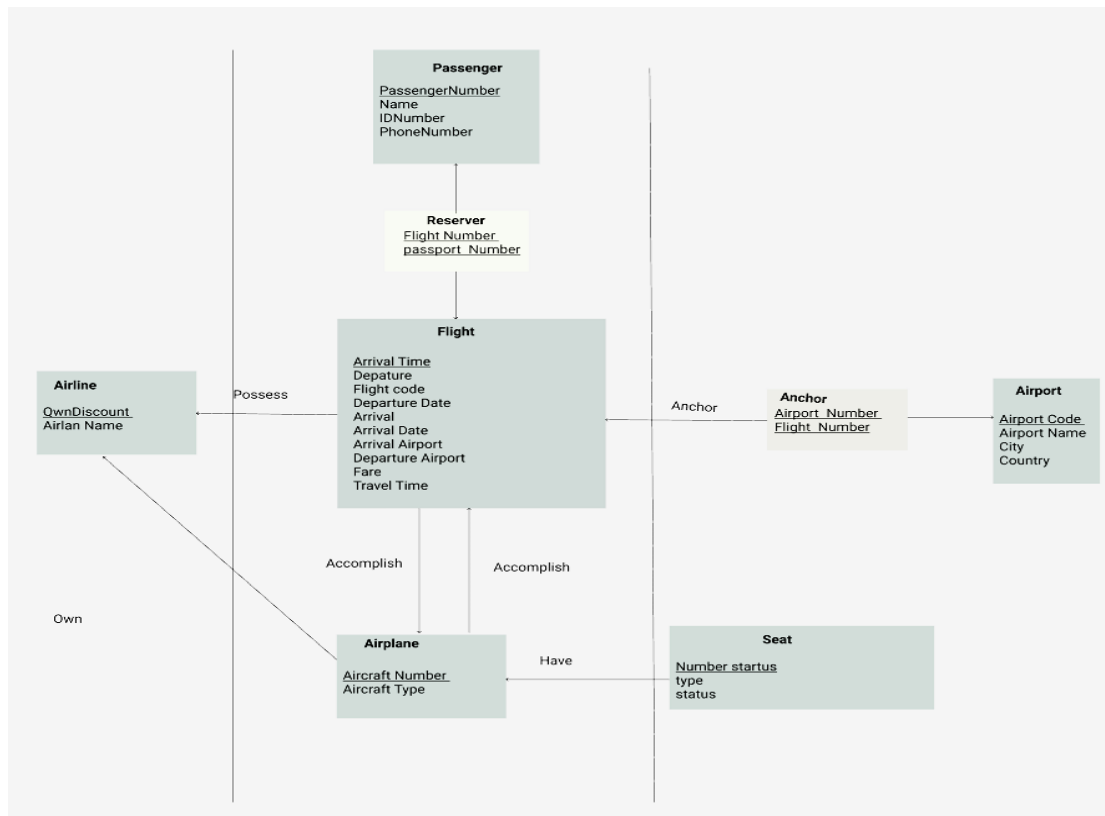
Airport (airport number, airport name, city, country)

Aircraft (aircraft number, flight number, company name, aircraft type)

Seat (seat number, aircraft number, type, status)

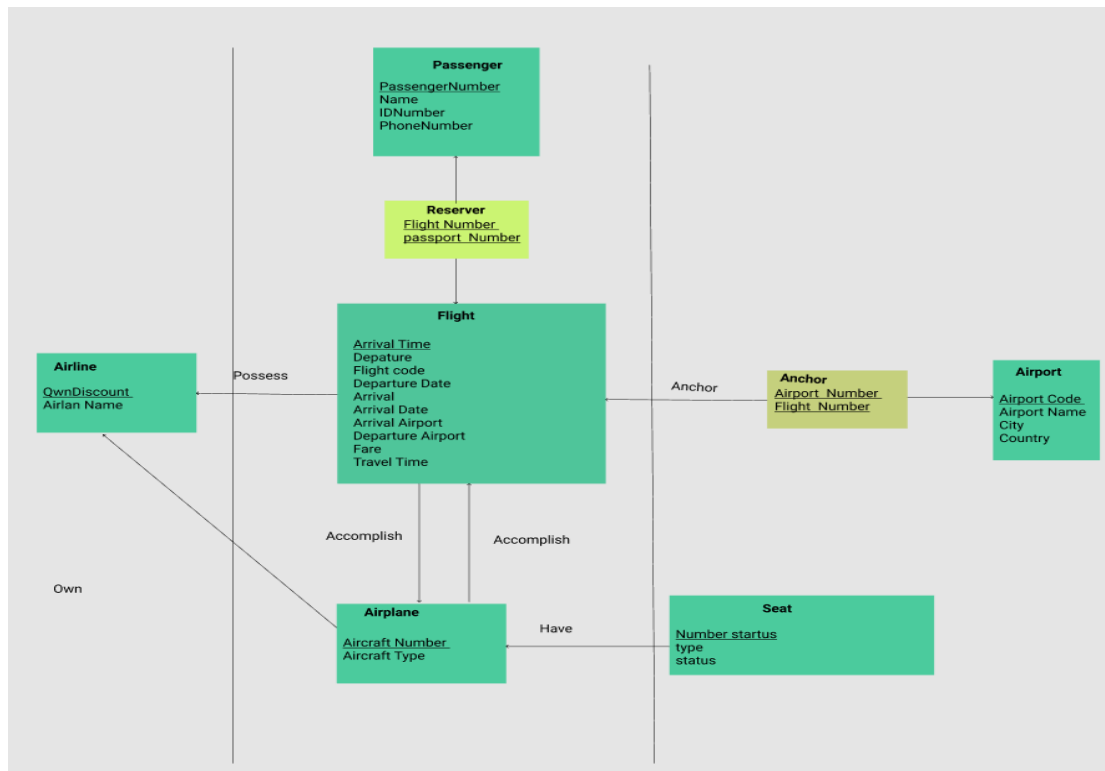
In the above relational mode, the underline is the main code of horizontal line, and the underline is the outer code of wavy line

Logical structure diagram of design:



4.3 Physical structure design

Physical structure diagram of design:



5. Database Implementation and Operation

5.1 Introduction of database management system

Starting from the database design, the database is designed according to the data involved in the system and their relations and constraints. Then, according to the basic access operation of the database, the basic Dao is designed for the later complex functions. According to the requirements, we divide the function into three main parts: vote, reservation and refund. Based on this, the front-end page is designed, and then according to the data required by the front-end page, the servlet is used to process the data retrieved from the database and the data returned from the front-end page to realize the interaction between the front-end and the front-end.

The main design idea of front-end page is simple and clear, and then unify the distribution and style of each page. The front page is responsible for display and response. The back-end designs the servlet program according to the three use case diagrams of ballot, booking and refund. It stores the flight information, passenger information and seat selection information selected by the user into the session domain. Once the transaction submission fails, the data is rolled back, and the user's temporary seat selection number is displayed back to the seat selection page with the servlet. When the user clicks on the ticket reservation, the user's information will be preserved when the user returns the ticket, the

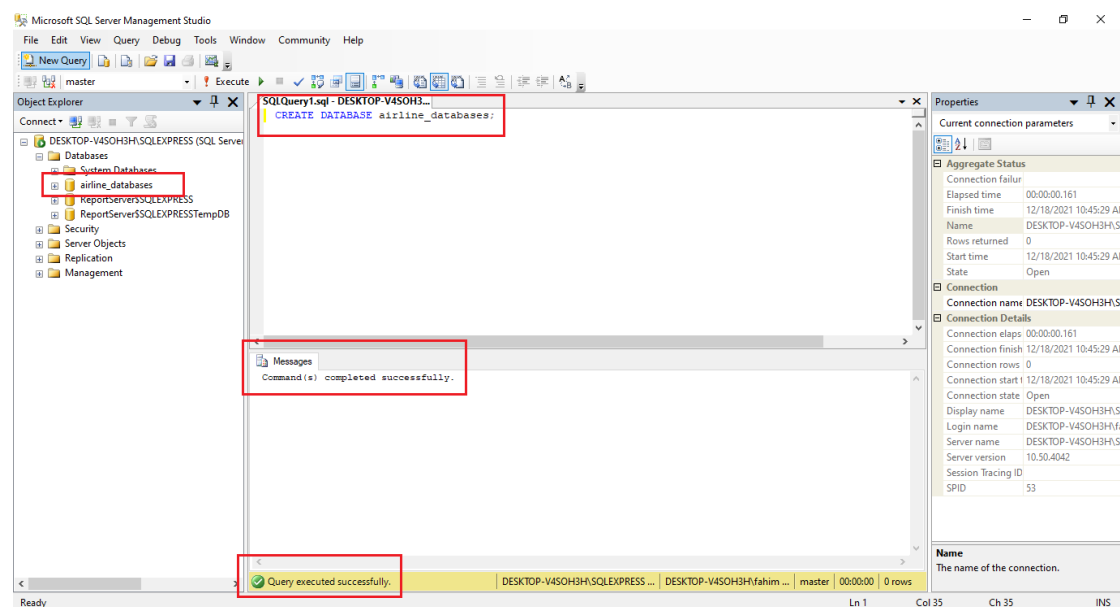
booking information of the user in the database will be deleted and the session field will be cleared. The data used by the servlet is obtained from the database by Dao, and the data processed by the servlet is also stored in the database by Dao, so as to realize the information interaction between the front-end, business processing and database layers.

5.2 Database creation and data entry

Database creation, table creation and data entry code screenshot

Database Creation:

CREATE DATABASE airline_databases



USE airline_databases

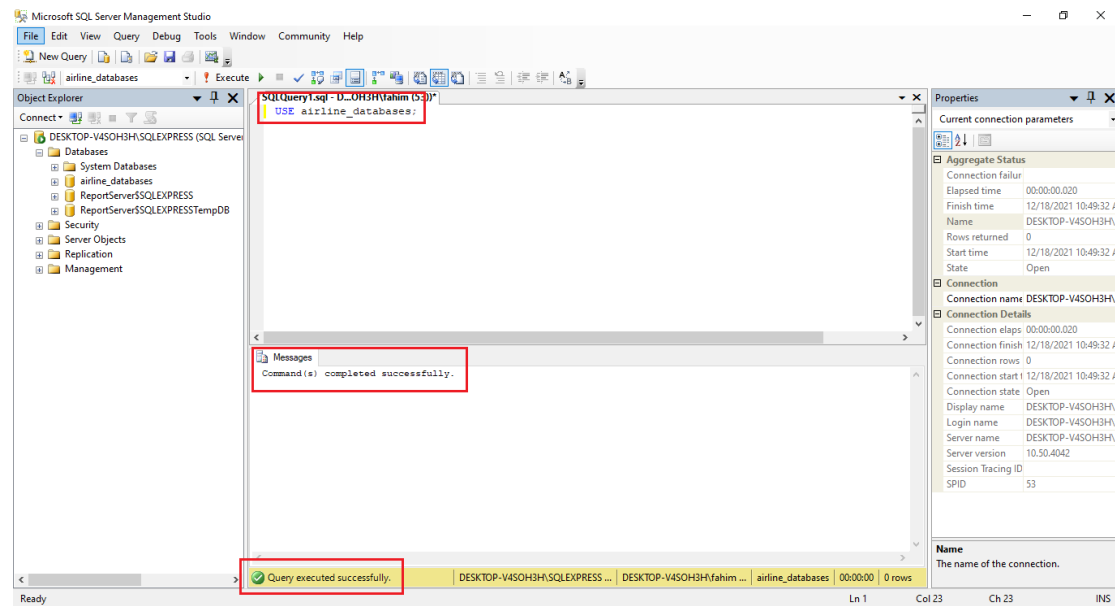
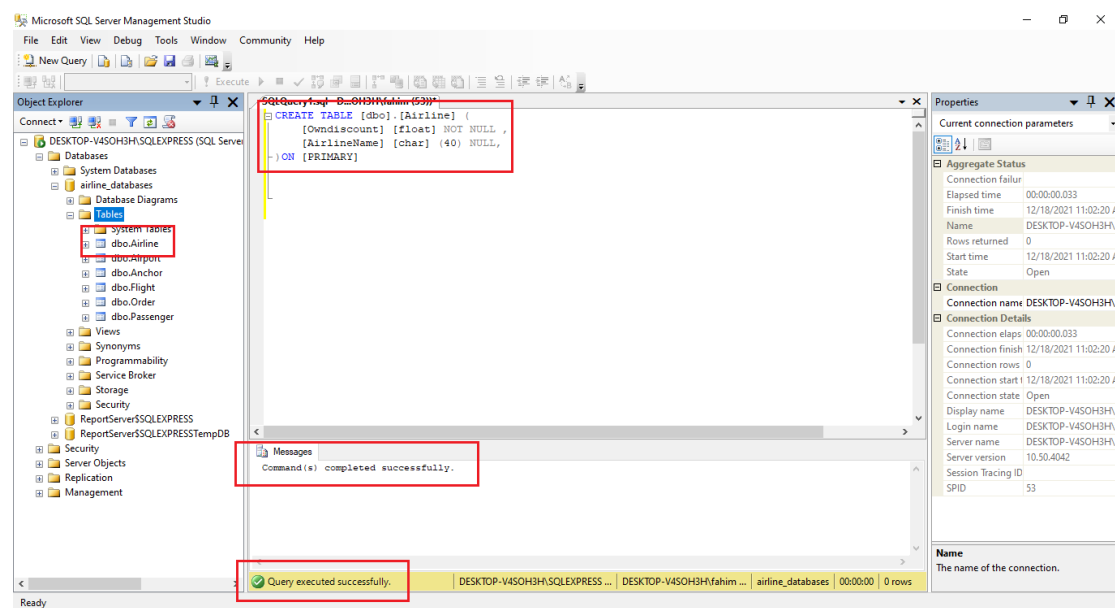


Table Creation:

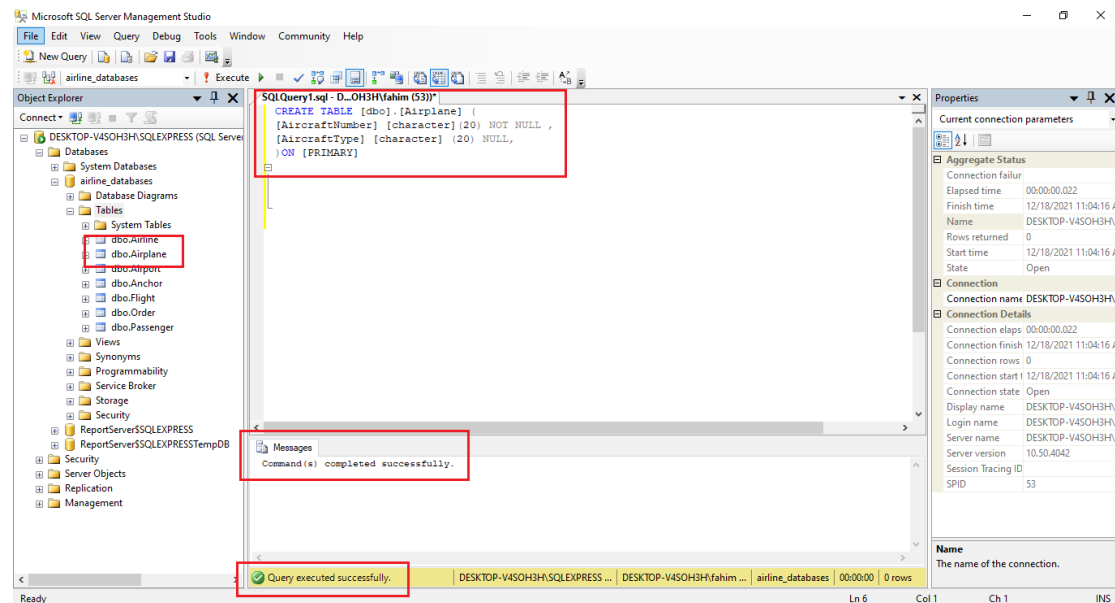
Airline:

```
CREATE TABLE [dbo].[Airline] (  
    [Owndiscount] [float] NOT NULL ,  
    [AirlineName] [char] (40) NULL,  
) ON [PRIMARY]
```



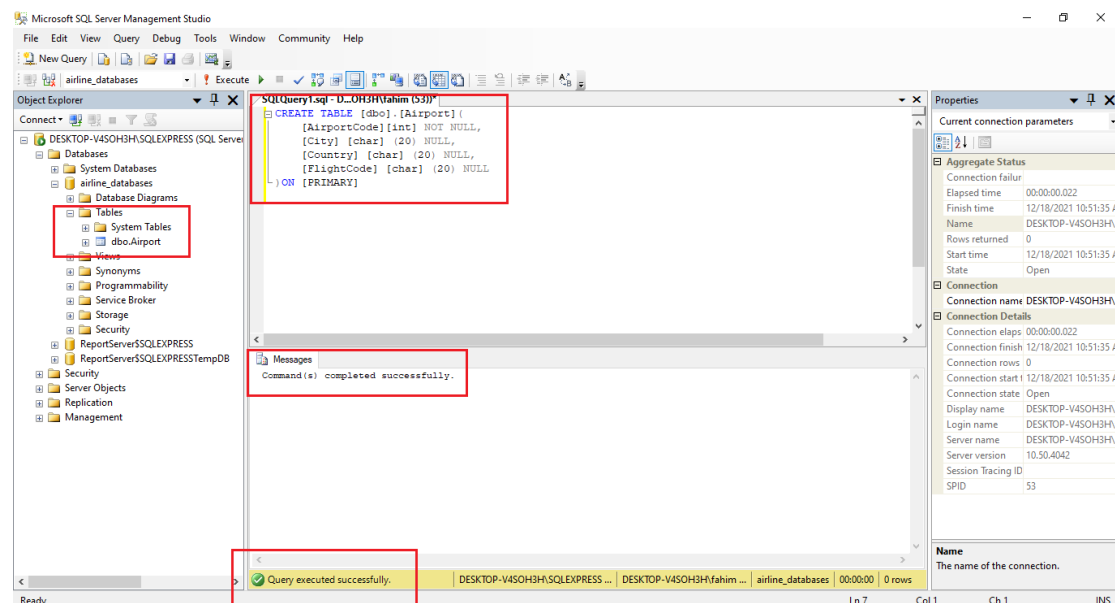
Airplane:

```
CREATE TABLE [dbo].[Airplane] (  
    [AircraftNumber] [character](20) NOT NULL ,  
    [AircraftType] [character] (20) NULL,  
)ON [PRIMARY]
```



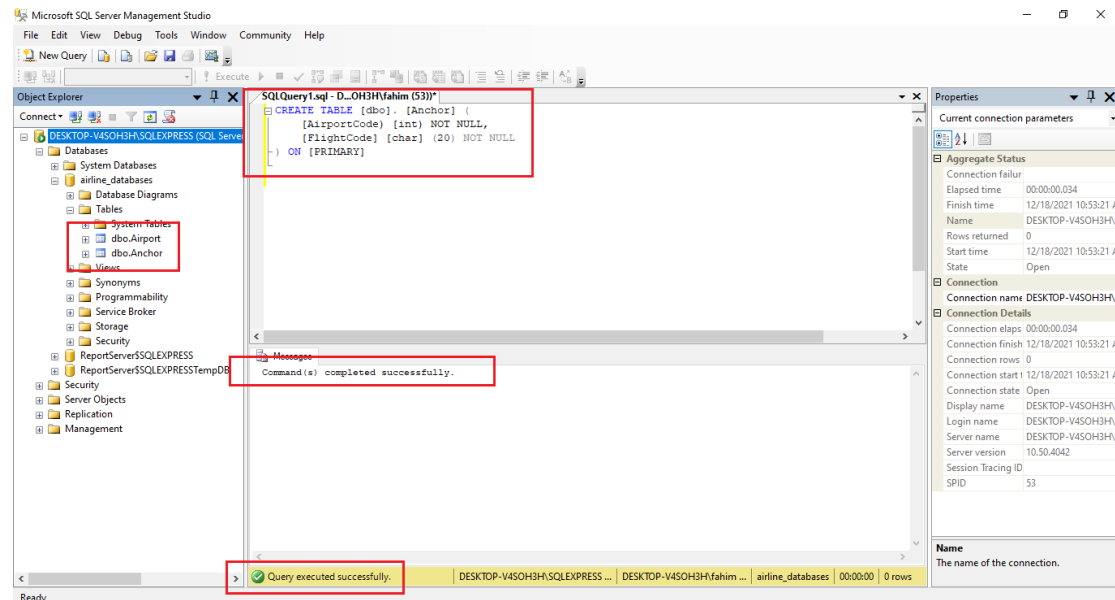
Airport:

```
CREATE TABLE [dbo].[Airport](  
    [AirportCode][int] NOT NULL,  
    [City] [char] (20) NULL,  
    [Country] [char] (20) NULL,  
    [FlightCode] [char] (20) NULL  
)ON [PRIMARY]
```



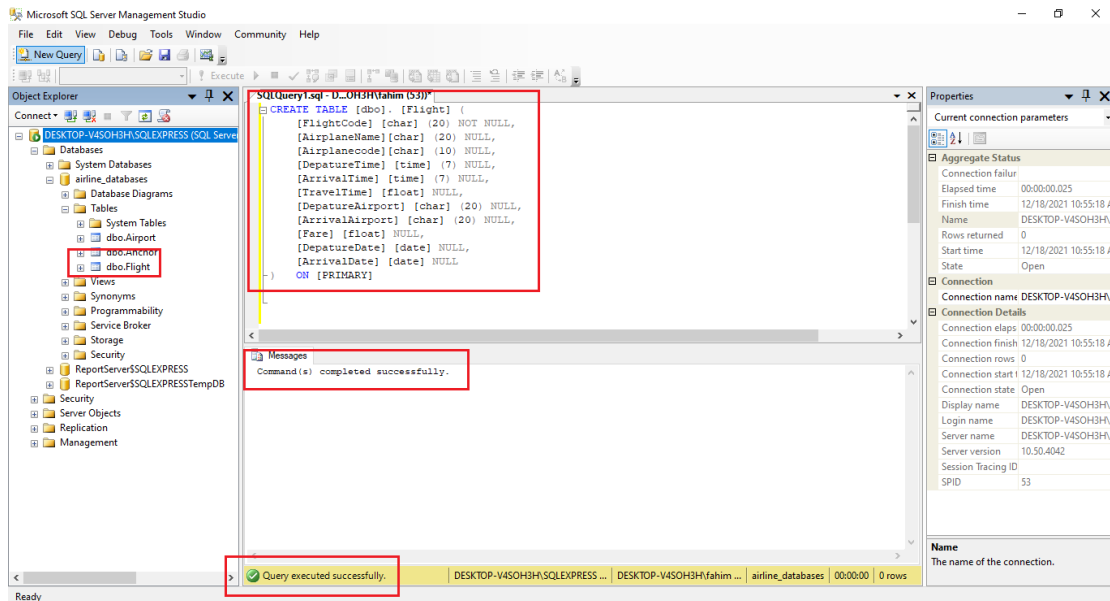
Anchor:

```
CREATE TABLE [dbo]. [Anchor] (  
    [AirportCode] [int] NOT NULL,  
    [FlightCode] [char] (20) NOT NULL  
) ON [PRIMARY]
```



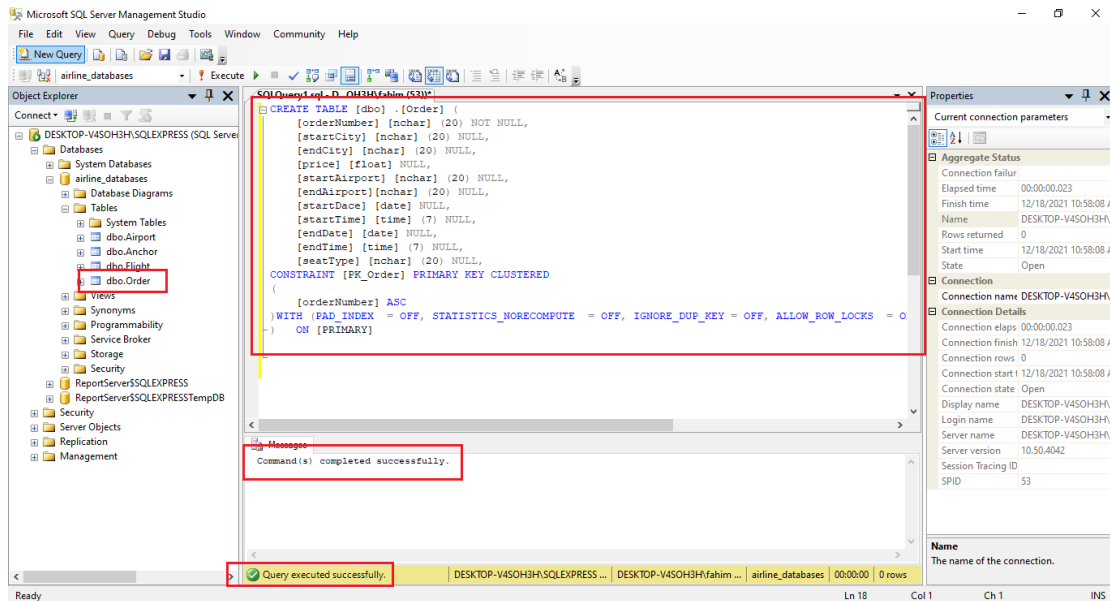
Flight:

```
CREATE TABLE [dbo]. [Flight] (  
    [FlightCode] [char] (20) NOT NULL,  
    [AirplaneName][char] (20) NULL,  
    [Airplanecode][char] (10) NULL,  
    [DepatureTime] [time] (7) NULL,  
    [ArrivalTime] [time] (7) NULL,  
    [TravelTime] [float] NULL,  
    [DepatureAirport] [char] (20) NULL,  
    [ArrivalAirport] [char] (20) NULL,  
    [Fare] [float] NULL,  
    [DepatureDate] [date] NULL,  
    [ArrivalDate] [date] NULL  
) ON [PRIMARY]
```



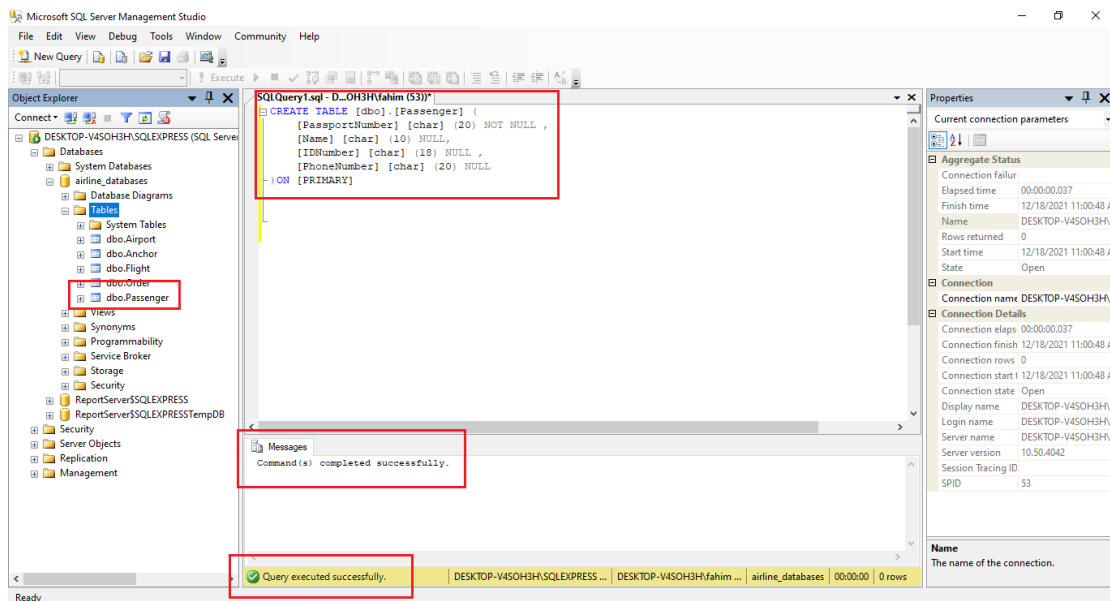
Order:

```
CREATE TABLE [dbo].[Order] (
  [orderNumber] [nchar] (20) NOT NULL,
  [startCity] [nchar] (20) NULL,
  [endCity] [nchar] (20) NULL,
  [price] [float] NULL,
  [startAirport] [nchar] (20) NULL,
  [endAirport] [nchar] (20) NULL,
  [startDace] [date] NULL,
  [startTime] [time] (7) NULL,
  [endDate] [date] NULL,
  [endTime] [time] (7) NULL,
  [seatType] [nchar] (20) NULL,
  CONSTRAINT [PK_Order] PRIMARY KEY CLUSTERED
  (
    [orderNumber] ASC
  ) WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF,
  IGNORE_DUP_KEY = OFF, ALLOW_ROW_LOCKS = ON,
  ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]
) ON [PRIMARY]
```



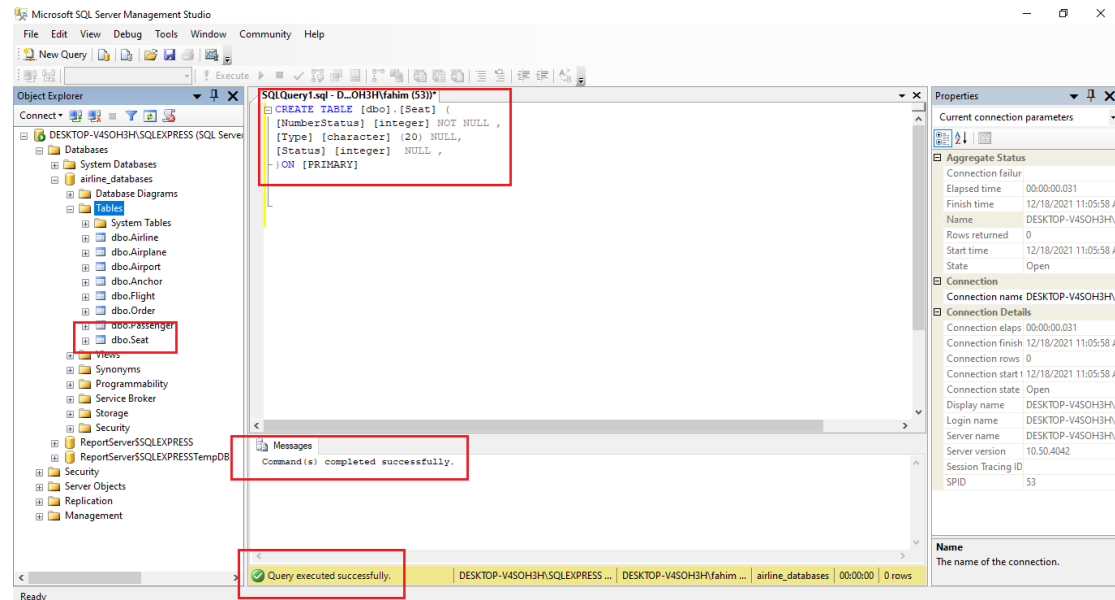
Passenger:

```
CREATE TABLE [dbo].[Passenger] (
    [PassportNumber] [char] (20) NOT NULL ,
    [Name] [char] (10) NULL,
    [IDNumber] [char] (18) NULL ,
    [PhoneNumber] [char] (20) NULL
) ON [PRIMARY]
```



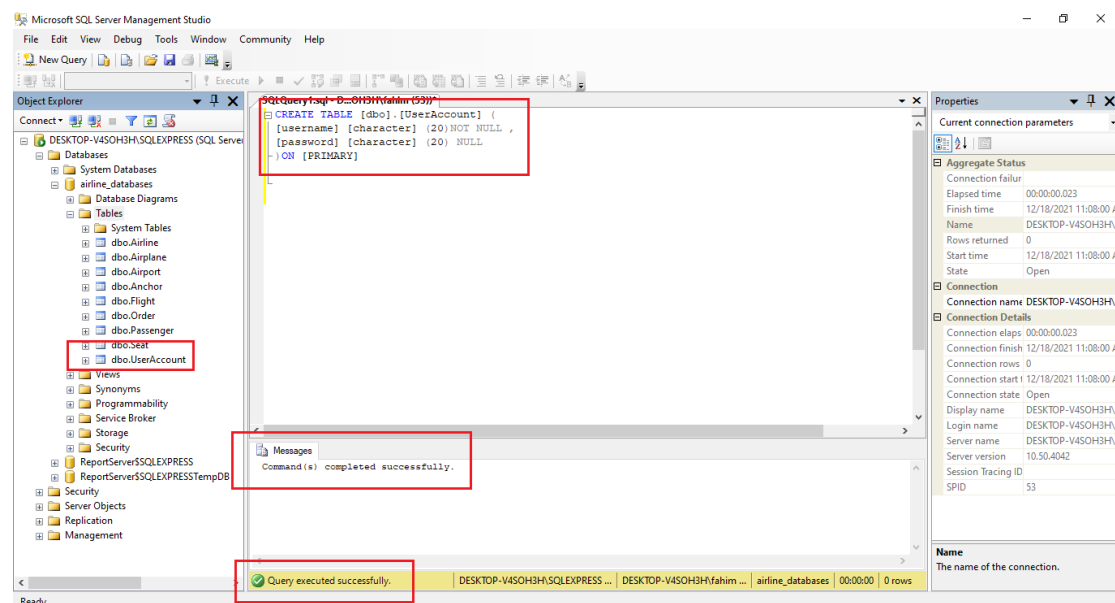
Seat:

```
CREATE TABLE [dbo].[Seat] (  
[NumberStatus] [integer] NOT NULL ,  
[Type] [character] (20) NULL ,  
[Status] [integer] NULL ,  
) ON [PRIMARY]
```



User:

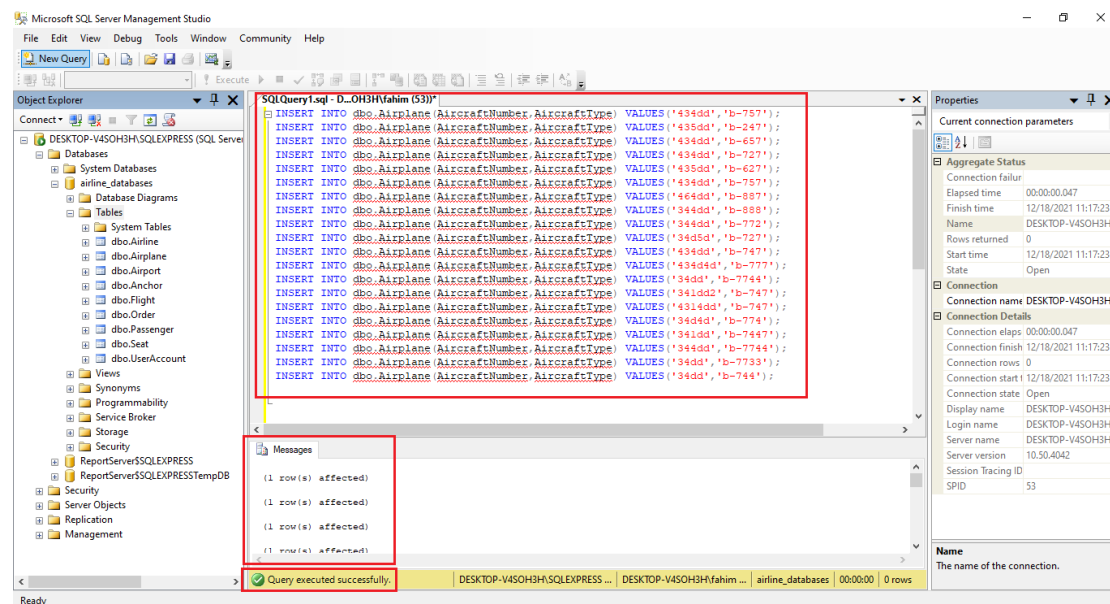
```
CREATE TABLE [dbo].[UserAccount] (  
[username] [character] (20) NOT NULL ,  
[password] [character] (20) NULL  
) ON [PRIMARY]
```



Data Entry:

Data insert at airplane table:

```
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('434dd','b-757');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('435dd','b-247');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('434dd','b-657');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('434dd','b-727');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('435dd','b-627');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('434dd','b-757');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('464dd','b-887');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('344dd','b-888');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('344dd','b-772');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('34d5d','b-727');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('434dd','b-747');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('434d4d','b-777');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('34dd','b-7744');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('341dd2','b-747');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('4314dd','b-747');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('34d4d','b-774');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('341dd','b-7447');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('344dd','b-7744');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('34dd','b-7733');
INSERT INTO dbo.Airplane(AircraftNumber,AircraftType) VALUES('34dd','b-744');
```



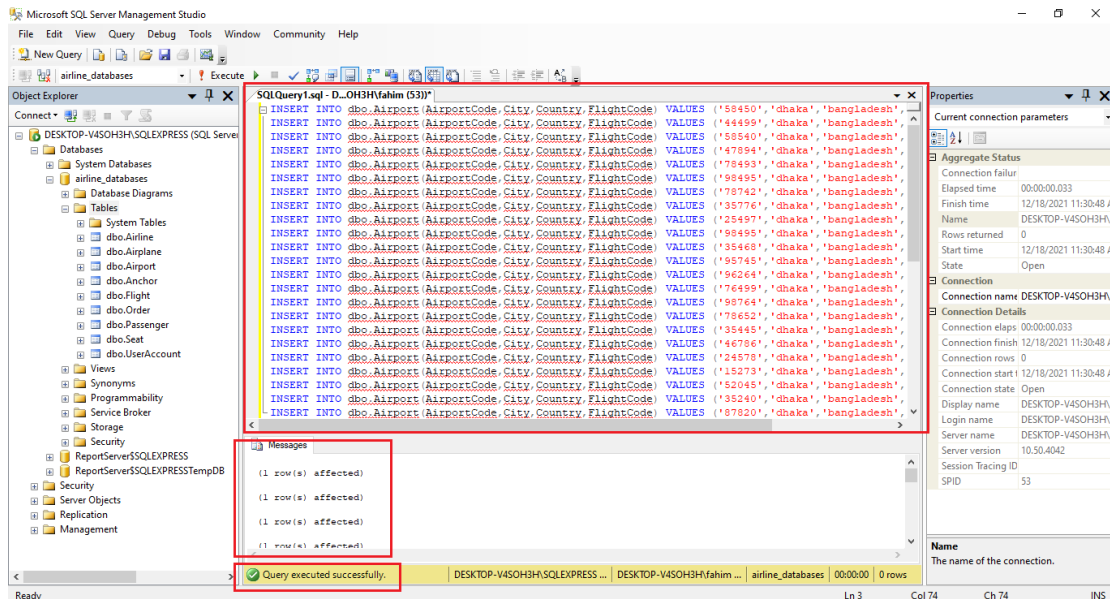
Data insert at Airport table:

```
INSERT INTO dbo.Airport(AirportCode,City,Country,FlightCode) VALUES
('58450','dhaka','bangladesh','dhsbgf');
INSERT INTO dbo.Airport(AirportCode,City,Country,FlightCode) VALUES
('44499','dhaka','bangladesh','jakdek');
```

```

INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('58540', 'dhaka', 'bangladesh', 'dhsbgf');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('47894', 'dhaka', 'bangladesh', 'jausgi');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('78493', 'dhaka', 'bangladesh', 'rgeghi');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('98495', 'dhaka', 'bangladesh', 'werssg');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('78742', 'dhaka', 'bangladesh', 'xtrdyh');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('35776', 'dhaka', 'bangladesh', 'qgfrnb');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('25497', 'dhaka', 'bangladesh', 'ndrtsg');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('98495', 'dhaka', 'bangladesh', 'pouidg');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('35468', 'dhaka', 'bangladesh', 'asxgre');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('95745', 'dhaka', 'bangladesh', 'veszra');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('96264', 'dhaka', 'bangladesh', 'hdrdrt');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('76499', 'dhaka', 'bangladesh', 'qgbtyh');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('98764', 'dhaka', 'bangladesh', 'mtcfyu');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('78652', 'dhaka', 'bangladesh', 'xcvgrd');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('35445', 'dhaka', 'bangladesh', 'adfvvb');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('46786', 'dhaka', 'bangladesh', 'btrhsa');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('24578', 'dhaka', 'bangladesh', 'xcvxcf');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('15273', 'dhaka', 'bangladesh', 'rtbgnf');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('52045', 'dhaka', 'bangladesh', 'caewtt');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('35240', 'dhaka', 'bangladesh', 'pytfvg');
INSERT INTO dbo.Airport(AirportCode, City, Country, FlightCode) VALUES
('87820', 'dhaka', 'bangladesh', 'xzcvsd');

```

Data insert at Flight table:

INSERT INTO

dbo.Flight(FlightCode,AirplaneName,Airplanecode,DepatureTime,ArrivalTime,TravelTime,DepatureAirport,ArrivalAirport,Fare,DepatureDate,ArrivalDate)

VALUES ('FFES','China Southern','44ddw','10:34:09 AM','7:04:09 AM','3.2','Beijing','Wuhan','342.3','1-28-2021','1-28-2018');

INSERT INTO

dbo.Flight(FlightCode,AirplaneName,Airplanecode,DepatureTime,ArrivalTime,TravelTime,DepatureAirport,ArrivalAirport,Fare,DepatureDate,ArrivalDate)

VALUES ('FFES','Eastern Airlines','46tgf','6:3:09 AM','9:04:09 PM','5.6','Wuhan','Guangzhou','342.3','1-28-2021','1-28-2021');

INSERT INTO

dbo.Flight(FlightCode,AirplaneName,Airplanecode,DepatureTime,ArrivalTime,TravelTime,DepatureAirport,ArrivalAirport,Fare,DepatureDate,ArrivalDate)

VALUES ('KLHL','China Southern','44ddw','10:34:09 PM','7:04:09 AM','1.5','Wuhan','Beijing','342.3','6-2-2021','6-28-2021');

INSERT INTO

dbo.Flight(FlightCode,AirplaneName,Airplanecode,DepatureTime,ArrivalTime,TravelTime,DepatureAirport,ArrivalAirport,Fare,DepatureDate,ArrivalDate)

VALUES ('MUUT','MALINDO Airline','96dsg','3:34:09 PM','5:04:04 AM','6.5','Wuhan','Mumbai','862.3','2-28-2021','2-28-2021');

INSERT INTO

dbo.Flight(FlightCode,AirplaneName,Airplanecode,DepatureTime,ArrivalTime,TravelTime,DepatureAirport,ArrivalAirport,Fare,DepatureDate,ArrivalDate)


```
VALUES ('KHFG','KD Airline','16tjh','7:34:09 PM','1:04:09 PM','6.2','Wuhan','Lasa','342.3','8-28-2021','8-28-2021');
```

INSERT INTO

```
dbo.Flight(FlightCode,AirplaneName,Airplanecode,DepatureTime,ArrivalTime,TravelTime,DepatureAirport,ArrivalAirport,Fare,DepatureDate,ArrivalDate)  
VALUES ('DFWD','Native Thai','152gf','10:34:09 AM','12:01:09 AM','3.2','Wuhan','Kunming','342.3','5-8-2021','5-8-2021');
```

INSERT INTO

```
dbo.Flight(FlightCode,AirplaneName,Airplanecode,DepatureTime,ArrivalTime,TravelTime,DepatureAirport,ArrivalAirport,Fare,DepatureDate,ArrivalDate)  
VALUES ('SGGV','China Southern','479DER','10:34:09 AM','3:02:09 PM','3.2','Wuhan','Pakistan','342.3','1-28-2021','1-28-2018');
```

INSERT INTO

```
dbo.Flight(FlightCode,AirplaneName,Airplanecode,DepatureTime,ArrivalTime,TravelTime,DepatureAirport,ArrivalAirport,Fare,DepatureDate,ArrivalDate)  
VALUES ('JGKBN','Scot Airline','496dw','10:34:09 AM','2:04:01 AM','3.2','Wuhan','Bali','342.3','1-28-2021','1-28-2018');
```

INSERT INTO

```
dbo.Flight(FlightCode,AirplaneName,Airplanecode,DepatureTime,ArrivalTime,TravelTime,DepatureAirport,ArrivalAirport,Fare,DepatureDate,ArrivalDate)  
VALUES ('KJHKD','Air Machigan','46mc','6:34:02 PM','9:04:09 AM','3.2','Wuhan','Washington','4569.3','6-9-2021','6-9-2021');
```

INSERT INTO

```
dbo.Flight(FlightCode,AirplaneName,Airplanecode,DepatureTime,ArrivalTime,TravelTime,DepatureAirport,ArrivalAirport,Fare,DepatureDate,ArrivalDate)  
VALUES ('SDGRF','Air Beijing','BJ454','1:34:09 PM','10:04:09 PM','3.2','Wuhan','Beijing','342.3','5-12-2021','5-12-2021');
```

INSERT INTO

```
dbo.Flight(FlightCode,AirplaneName,Airplanecode,DepatureTime,ArrivalTime,TravelTime,DepatureAirport,ArrivalAirport,Fare,DepatureDate,ArrivalDate)  
VALUES ('DSRGFD','US Bangla','Boeng178','1:00:00 AM','3:00:00 AM','3.2','Wuhan','Dhaka','3752.3','1-28-2021','1-28-2021');
```

INSERT INTO

```
dbo.Flight(FlightCode,AirplaneName,Airplanecode,DepatureTime,ArrivalTime,TravelTime,DepatureAirport,ArrivalAirport,Fare,DepatureDate,ArrivalDate)  
VALUES ('FFES','China Southern','44ddw','10:34:09 AM','10:04:09 AM','3.2','Wuhan','Shanghai','342.3','5-8-2021','5-8-2021');
```

INSERT INTO

```
dbo.Flight(FlightCode,AirplaneName,Airplanecode,DepatureTime,ArrivalTime,TravelTime,
DepatureAirport,ArrivalAirport,Fare,DepatureDate,ArrivalDate)
VALUES ('DFWD','NAtive Thai','152gf','10:34:09 AM','7:04:09
AM','3.2','Wuhan','Kunming','342.3','5-8-2021','5-8-2021')
```

INSERT INTO

```
dbo.Flight(FlightCode,AirplaneName,Airplanecode,DepatureTime,ArrivalTime,TravelTime,
DepatureAirport,ArrivalAirport,Fare,DepatureDate,ArrivalDate)
VALUES ('FFES','China Southern','44ddw','10:34:09 AM','7:04:09
AM','3.2','Wuhan','Kalkatta','342.3','12-28-2021','12-28-2021');
```

INSERT INTO

```
dbo.Flight(FlightCode,AirplaneName,Airplanecode,DepatureTime,ArrivalTime,TravelTime,
DepatureAirport,ArrivalAirport,Fare,DepatureDate,ArrivalDate)
VALUES ('FFES','China Eastern','644kl','10:34:09 AM','7:04:09
AM','3.2','Wuhan','Lanzhou','342.3','1-28-2021','1-28-2021');
```

INSERT INTO

```
dbo.Flight(FlightCode,AirplaneName,Airplanecode,DepatureTime,ArrivalTime,TravelTime,
DepatureAirport,ArrivalAirport,Fare,DepatureDate,ArrivalDate)
VALUES ('FFES','Air Asia','44ddw','10:34:09 AM','7:04:09
AM','3.2','Wuhan','Giangxi','342.3','12-2-2021','12-2-2021');
```

INSERT INTO

```
dbo.Flight(FlightCode,AirplaneName,Airplanecode,DepatureTime,ArrivalTime,TravelTime,
DepatureAirport,ArrivalAirport,Fare,DepatureDate,ArrivalDate)
VALUES ('FFES','China Southern','44ddw','10:34:09 AM','7:04:09
AM','3.2','Beijing','Wuhan','342.3','12-28-2021','12-28-2021');
```

Microsoft SQL Server Enterprise Manager interface showing a successful SQL query execution. The query window displays the following SQL code:

```
INSERT INTO dbo.Flight (FlightCode, AirplaneName, Airplanecode, DepatureTime, ArrivalTime, TravelTime, DepatureAirport, ArrivalAirport, Fare, DepatureDate, ArrivalDate)
VALUES ('FFES', 'China Southern', '44ddw', '10:34:09 AM', '7:04:09 AM', '3.2', 'Beijing', 'Wuhan', '342.3', '12-28-2021', '12-28-2021');

INSERT INTO dbo.Flight (FlightCode, AirplaneName, Airplanecode, DepatureTime, ArrivalTime, TravelTime, DepatureAirport, ArrivalAirport, Fare, DepatureDate, ArrivalDate)
VALUES ('FFES', 'Eastern Airlines', '46tgf', '6:3:09 AM', '9:04:09 PM', '5.6', 'Wuhan', 'Guangzhou', '342.3', '12-28-2021', '12-28-2021');

INSERT INTO dbo.Flight (FlightCode, AirplaneName, Airplanecode, DepatureTime, ArrivalTime, TravelTime, DepatureAirport, ArrivalAirport, Fare, DepatureDate, ArrivalDate)
VALUES ('KLHL', 'China Southern', '44ddw', '10:34:09 PM', '7:04:09 AM', '1.5', 'Wuhan', 'Beijing', '342.3', '12-28-2021', '12-28-2021');

INSERT INTO dbo.Flight (FlightCode, AirplaneName, Airplanecode, DepatureTime, ArrivalTime, TravelTime, DepatureAirport, ArrivalAirport, Fare, DepatureDate, ArrivalDate)
VALUES ('MUUI', 'MALINDO Airline', '96dag', '3:34:09 PM', '5:04:04 AM', '6.5', 'Wuhan', 'Mumbai', '342.3', '12-28-2021', '12-28-2021');

INSERT INTO dbo.Flight (FlightCode, AirplaneName, Airplanecode, DepatureTime, ArrivalTime, TravelTime, DepatureAirport, ArrivalAirport, Fare, DepatureDate, ArrivalDate)
VALUES ('KHFG', 'KD Airline', '16tjh', '7:34:09 PM', '1:04:09 PM', '6.2', 'Wuhan', 'Lasa', '342.3', '8-28-2021', '8-28-2021');

INSERT INTO dbo.Flight (FlightCode, AirplaneName, Airplanecode, DepatureTime, ArrivalTime, TravelTime, DepatureAirport, ArrivalAirport, Fare, DepatureDate, ArrivalDate)
VALUES ('10PMT', 'Malindo Airline', '96dag', '3:34:09 PM', '5:04:04 AM', '6.5', 'Wuhan', 'Mumbai', '342.3', '12-28-2021', '12-28-2021');
```

The Messages pane shows the following results:

- (1 row(s) affected)
- (1 row(s) affected)
- (1 row(s) affected)
- (1 row(s) affected)
- (1 row(s) affected)
- (1 row(s) affected)

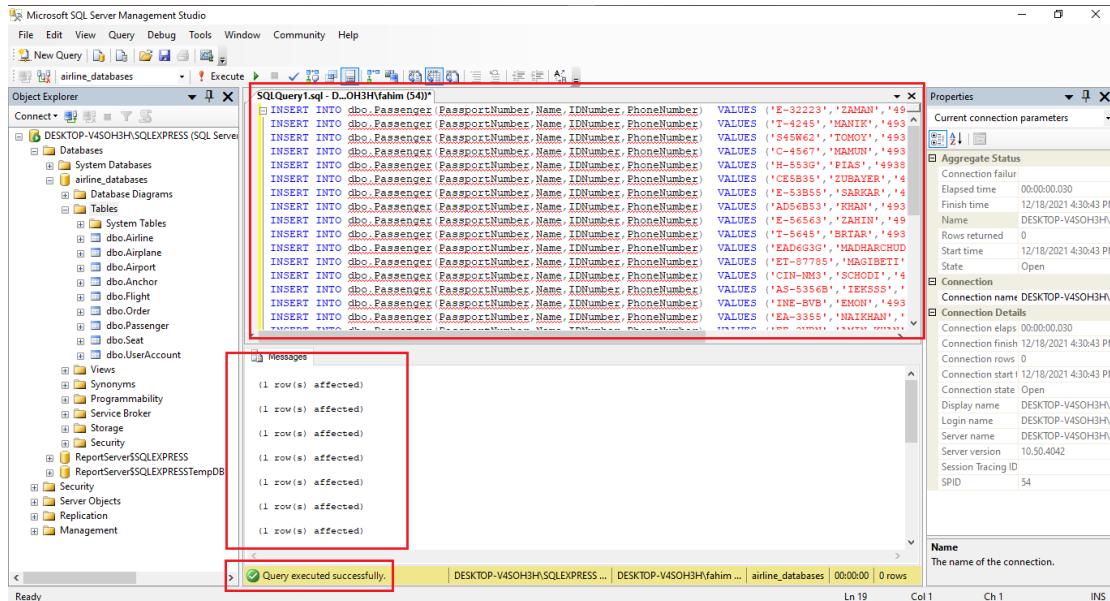
The Properties pane shows the following connection details:

- Connection name: DESKTOP-V45OH3H\S
- Connection elaps: 00:00:00.030
- Connection finish: 12/18/2021 4:28:01 PM
- Connection rows: 0
- Connection start: 12/18/2021 4:28:01 PM
- Connection state: Open
- Display name: DESKTOP-V45OH3H\S
- Login name: DESKTOP-V45OH3H\S
- Server name: DESKTOP-V45OH3H\S
- Server version: 10.50.4042
- Session Tracing ID: SPID
- SPID: 54

The status bar at the bottom indicates: Query executed successfully. | DESKTOP-V45OH3H\S\SQLSERVER ... | DESKTOP-V45OH3H\S\airline_databases | 00:00:00 | 0 rows

Data insert for Passenger table:

```
INSERT INTO dbo.Passenger(PassportNumber,Name,IDNumber,PhoneNumber) VALUES
('E-32223','ZAMAN','493882NJD','5465335');
INSERT INTO dbo.Passenger(PassportNumber,Name,IDNumber,PhoneNumber) VALUES
('T-4245','MANIK','493882NJD','5658375');
INSERT INTO dbo.Passenger(PassportNumber,Name,IDNumber,PhoneNumber) VALUES
('S45W62','TOMOY','493882NJD','57643');
INSERT INTO dbo.Passenger(PassportNumber,Name,IDNumber,PhoneNumber) VALUES
('C-4567','MAMUN','493882NJD','96876553');
INSERT INTO dbo.Passenger(PassportNumber,Name,IDNumber,PhoneNumber) VALUES
('H-553G','PIAS','493882NJD','36756453');
INSERT INTO dbo.Passenger(PassportNumber,Name,IDNumber,PhoneNumber) VALUES
('CE5B35','ZUBAYER','493882NJD','3865645');
INSERT INTO dbo.Passenger(PassportNumber,Name,IDNumber,PhoneNumber) VALUES
('E-53B55','SARKAR','493882NJD','8675453');
INSERT INTO dbo.Passenger(PassportNumber,Name,IDNumber,PhoneNumber) VALUES
('AD56B53','KHAN','493882NJD','675646756');
INSERT INTO dbo.Passenger(PassportNumber,Name,IDNumber,PhoneNumber) VALUES
('E-56563','ZAHIN','493882NJD','87564556');
INSERT INTO dbo.Passenger(PassportNumber,Name,IDNumber,PhoneNumber) VALUES
('T-5645','BRTAR','493882NJD','678675436');
INSERT INTO dbo.Passenger(PassportNumber,Name,IDNumber,PhoneNumber) VALUES
('EAD6G3G','MADHARCHUD','493882NJD','47865746');
INSERT INTO dbo.Passenger(PassportNumber,Name,IDNumber,PhoneNumber) VALUES
('ET-87785','MAGIBETTI','493882NJD','5768786');
INSERT INTO dbo.Passenger(PassportNumber,Name,IDNumber,PhoneNumber) VALUES
('CIN-NM3','SCHODI','493882NJD','86756466');
INSERT INTO dbo.Passenger(PassportNumber,Name,IDNumber,PhoneNumber) VALUES
('AS-5356B','IEKSSS','493882NJD','7564567');
INSERT INTO dbo.Passenger(PassportNumber,Name,IDNumber,PhoneNumber) VALUES
('INE-BVB','EMON','493882NJD','8675646735');
INSERT INTO dbo.Passenger(PassportNumber,Name,IDNumber,PhoneNumber) VALUES
('EA-3355','NAIKHAN','493882NJD','857645365');
INSERT INTO dbo.Passenger(PassportNumber,Name,IDNumber,PhoneNumber) VALUES
('EE-3VBN','AMIN KHAN','493882NJD','646537876');
INSERT INTO dbo.Passenger(PassportNumber,Name,IDNumber,PhoneNumber) VALUES
('EAA36GV','JAMIN KHAN','493882NJD','8675645656');
```



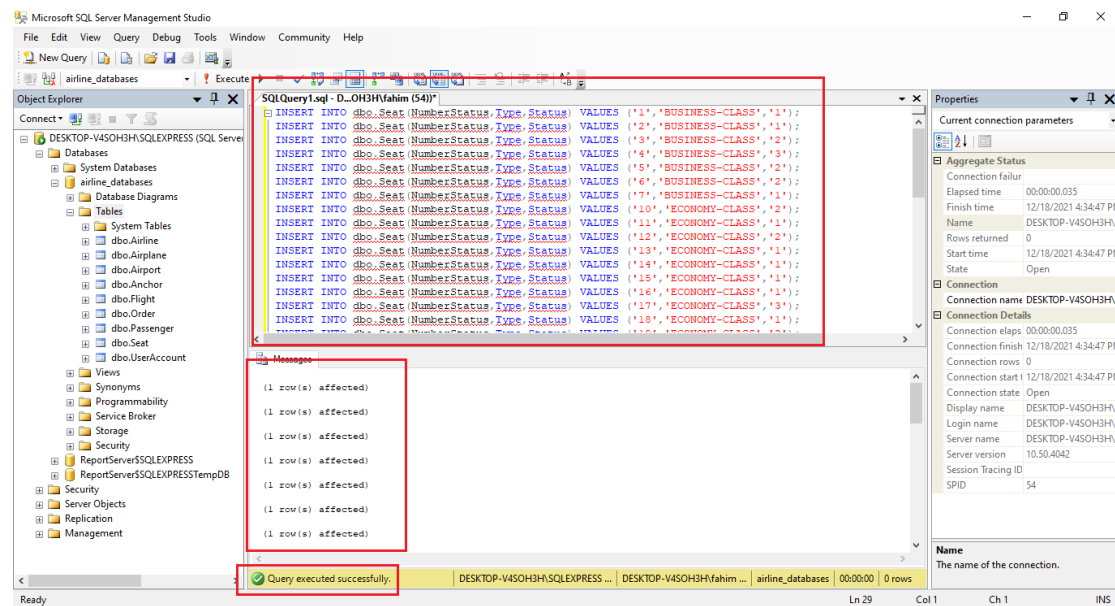
Data insert for Seat table:

```

INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('1','BUSNIESS-CLASS','1');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('2','BUSNIESS-CLASS','1');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('3','BUSNIESS-CLASS','2');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('4','BUSNIESS-CLASS','3');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('5','BUSNIESS-CLASS','2');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('6','BUSNIESS-CLASS','2');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('7','BUSNIESS-CLASS','1');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('10','ECONOMY-CLASS','2');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('11','ECONOMY-CLASS','1');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('12','ECONOMY-CLASS','2');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('13','ECONOMY-CLASS','1');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('14','ECONOMY-CLASS','1');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('15','ECONOMY-CLASS','1');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('16','ECONOMY-CLASS','1');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('17','ECONOMY-CLASS','3');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('18','ECONOMY-CLASS','1');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('19','ECONOMY-CLASS','2');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('20','ECONOMY-CLASS','2');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('21','ECONOMY-CLASS','2');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('22','ECONOMY-CLASS','1');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('23','ECONOMY-CLASS','1');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('24','ECONOMY-CLASS','3');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('25','ECONOMY-CLASS','2');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('26','ECONOMY-CLASS','1');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('27','ECONOMY-CLASS','3');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('28','ECONOMY-CLASS','2');
INSERT INTO dbo.Seat(NumberStatus,Type,Status) VALUES ('29','ECONOMY-CLASS','1');

```

INSERT INTO dbo.Seat(NumberStatus,Type,Status) **VALUES** ('30','ECONOMY-CLASS','2');



Data insert for Airline table:

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('3','China Southern Airlines');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('1','American Airlines');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('3','Delta Air Lines');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('22','Frontier Airlines');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('4','Hawaiian Airlines');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('10','Air China');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('3','China Eastern Airlines');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('3','Hainan Airlines');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('21','Shenzhen Airlines');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('12','Sichuan Airlines');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('1','XiamenAir');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('00','Jetstar Asia Airways');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('3','Scoot');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('13','SilkAir');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('5','Singapore Airlines');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('6','Biman Bangladesh Airlines');

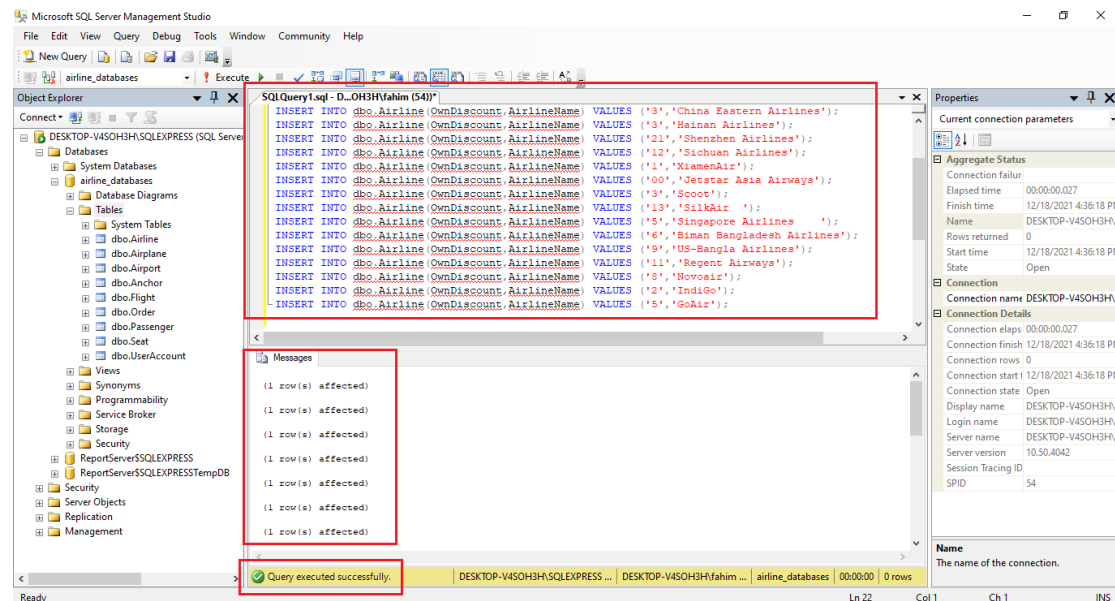
INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('9','US-Bangla Airlines');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('11','Regent Airways');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('8','Novoair');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('2','IndiGo');

INSERT INTO dbo.Airline(OwnDiscount,AirlineName) **VALUES** ('5','GoAir');



Data insert for UserAccount table:

In here I face some problem, its “call string or binary would be truncated.”

Then I overcome this problem by using proper size of string. Its data insert for a passenger user account information. When a passenger come and use my website/application for search or query she/he should create account/login. So we need to store client user name and password.

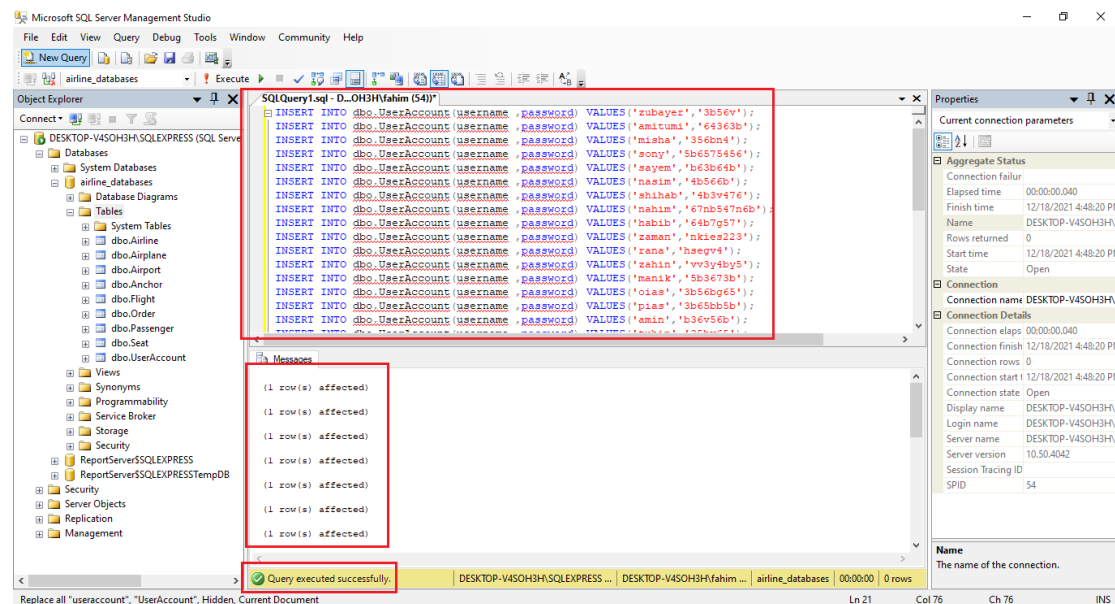
```
INSERT INTO dbo.UserAccount(username ,password) VALUES('zubayer','3b56v');
INSERT INTO dbo.UserAccount(username ,password) VALUES('amitumi','64363b');
INSERT INTO dbo.UserAccount(username ,password) VALUES('misha','356bn4');
INSERT INTO dbo.UserAccount(username ,password) VALUES('sony','5b6575456');
INSERT INTO dbo.UserAccount(username ,password) VALUES('sayem','b63b64b');
INSERT INTO dbo.UserAccount(username ,password) VALUES('nasim','4b566b');
INSERT INTO dbo.UserAccount(username ,password) VALUES('shihab','4b3v476');
INSERT INTO dbo.UserAccount(username ,password) VALUES('nahim','67nb547n6b');
INSERT INTO dbo.UserAccount(username ,password) VALUES('habib','64b7g57');
INSERT INTO dbo.UserAccount(username ,password) VALUES('zaman','nkies223');
INSERT INTO dbo.UserAccount(username ,password) VALUES('rana','hsegv4');
INSERT INTO dbo.UserAccount(username ,password) VALUES('zahin','vv3y4by5');
INSERT INTO dbo.UserAccount(username ,password) VALUES('manik','5b3673b');
INSERT INTO dbo.UserAccount(username ,password) VALUES('oias','3b56bg65');
INSERT INTO dbo.UserAccount(username ,password) VALUES('pias','3b65bb5b');
INSERT INTO dbo.UserAccount(username ,password) VALUES('amin','b36v56b');
```



```

INSERT INTO dbo.UserAccount(username ,password) VALUES('tuhin','35bv65');
INSERT INTO dbo.UserAccount(username ,password) VALUES('kamal','5n7b6n');
INSERT INTO dbo.UserAccount(username ,password) VALUES('laoshi','b35b76');
INSERT INTO dbo.UserAccount(username ,password) VALUES('santi','b453636v');
INSERT INTO dbo.UserAccount(username ,password) VALUES('lalamia','3nb6bn');
INSERT INTO dbo.UserAccount(username ,password) VALUES('fahim','fm6fm6');
INSERT INTO dbo.UserAccount(username ,password) VALUES('sayma','sm03f');

```



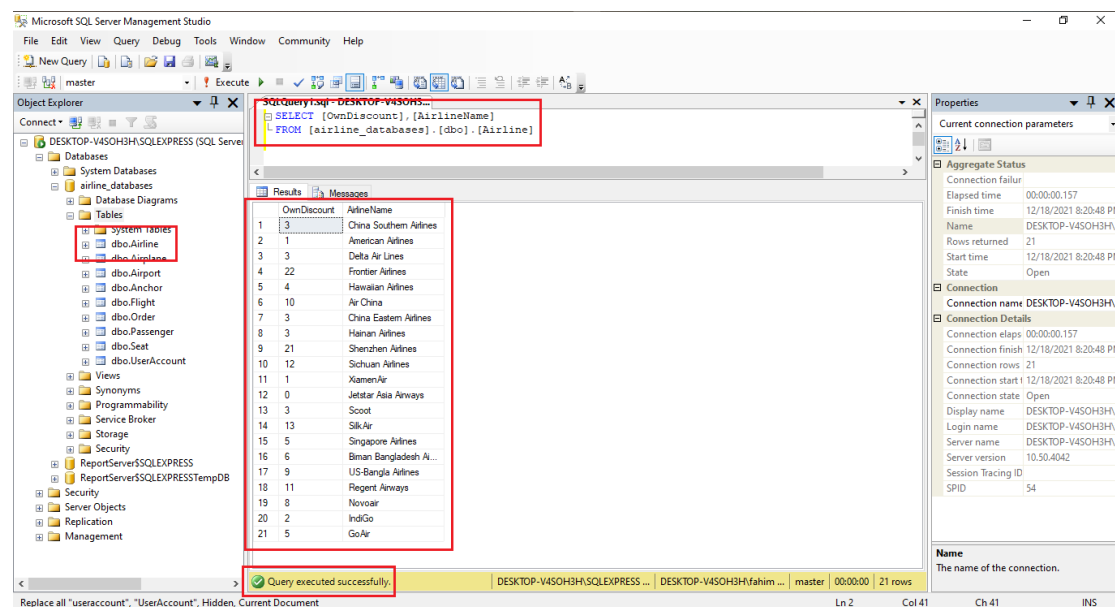
5.3 Database query

Airline:

```

SELECT [OwnDiscount],[AirlineName]
FROM [airline_databases].[dbo].[Airline]

```



Airplane:

```
SELECT [AircraftNumber],[AircraftType]
FROM [airline_databases].[dbo].[Airplane]
```

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left displays the database structure, with the 'dbo.Airplane' table highlighted. The SQL Query window in the center contains the following query:

```
SELECT [AircraftNumber],[AircraftType]
FROM [airline_databases].[dbo].[Airplane]
```

The Results pane shows the output of the query, which consists of 20 rows. The status bar at the bottom indicates 'Query executed successfully.' and '20 rows'.

AircraftNumber	AircraftType
434dd	b-757
435dd	b-247
434dd	b-657
434dd	b-727
435dd	b-627
434dd	b-757
464dd	b-887
344dd	b-888
344dd	b-772
344dd	b-727
434dd	b-747
434dd	b-777
34dd	b-7744
341dd2	b-747
4314dd	b-747
344dd	b-774
341dd	b-7447
344dd	b-7744
34dd	b-7733
34dd	b-744

Airport:

```
SELECT [AirportCode],[City],[Country],[FlightCode]
FROM [airline_databases].[dbo].[Airport]
```

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left displays the database structure, with the 'dbo.Airport' table highlighted. The SQL Query window in the center contains the following query:

```
SELECT [AirportCode],[City],[Country],[FlightCode]
FROM [airline_databases].[dbo].[Airport]
```

The Results pane shows the output of the query, which consists of 23 rows. The status bar at the bottom indicates 'Query executed successfully.' and '23 rows'.

AirportCode	City	Country	FlightCode
58450	dhaka	bangladesh	dhakbf
44499	dhaka	bangladesh	jalcdk
58540	dhaka	bangladesh	dhakbf
47894	dhaka	bangladesh	jaung
70493	dhaka	bangladesh	rgjghi
98495	dhaka	bangladesh	wernag
78742	dhaka	bangladesh	xtdyh
35776	dhaka	bangladesh	qgmb
25497	dhaka	bangladesh	ndtag
98495	dhaka	bangladesh	poudg
35468	dhaka	bangladesh	assga
95745	dhaka	bangladesh	vesza
96264	dhaka	bangladesh	hddrt
76499	dhaka	bangladesh	qgtyh
98764	dhaka	bangladesh	mtcdy
78652	dhaka	bangladesh	xcvrd
35445	dhaka	bangladesh	adrvb
46786	dhaka	bangladesh	bthaa
24578	dhaka	bangladesh	xvcvf
15273	dhaka	bangladesh	rtbgrf
52045	dhaka	bangladesh	caewtt
35240	dhaka	bangladesh	pyfvg
87820	dhaka	bangladesh	xzcvd

Flight:

```
SELECT [FlightCode],[AirplaneName],[AirplaneCode],[DepatureTime],  
[ArrivalTime],[TravelTime],[DepatureAirport],  
[ArrivalAirport],[Fare],[DepatureDate],[ArrivalDate]  
FROM [airline_databases].[dbo].[Flight]
```

The screenshot shows the Microsoft SQL Server Management Studio interface. The 'Query Explorer' on the left displays the database structure, with 'dbo.Flight' highlighted. The 'SQL Query' window in the center contains the following query:

```
SELECT [FlightCode],[AirplaneName],[AirplaneCode],[DepatureTime],[ArrivalTime],[TravelTime],  
[DepatureAirport],[ArrivalAirport],[Fare],[DepatureDate],[ArrivalDate]  
FROM [airline_databases].[dbo].[Flight]
```

The 'Results' pane shows 32 rows of data with columns: FlightCode, AirplaneName, AirplaneCode, DepatureTime, ArrivalTime, TravelTime, DepatureAirport, ArrivalAirport, Fare, DepatureDate, and ArrivalDate. The status bar at the bottom indicates 'Query executed successfully.' and '32 rows'.

Passenger:

```
SELECT [PassportNumber],[Name],[IDNumber],[PhoneNumber]  
FROM [airline_databases].[dbo].[Passenger]
```

The screenshot shows the Microsoft SQL Server Management Studio interface. The 'Query Explorer' on the left displays the database structure, with 'dbo.Passenger' highlighted. The 'SQL Query' window in the center contains the following query:

```
SELECT [PassportNumber],[Name],[IDNumber],[PhoneNumber]  
FROM [airline_databases].[dbo].[Passenger]
```

The 'Results' pane shows 18 rows of data with columns: PassportNumber, Name, IDNumber, and PhoneNumber. The status bar at the bottom indicates 'Query executed successfully.' and '18 rows'.

Seat:

```
SELECT [NumberStatus],[Type],[Status]
FROM [airline_databases].[dbo].[Seat]
```

Microsoft SQL Server Management Studio

SQLQuery1.sql - DESKTOP-V45OH3H...

```
SELECT [NumberStatus],[Type],[Status]
FROM [airline_databases].[dbo].[Seat]
```

Results

NumberStatus	Type	Status
1	BUSINESS-CLASS	1
2	BUSINESS-CLASS	1
3	BUSINESS-CLASS	2
4	BUSINESS-CLASS	3
5	BUSINESS-CLASS	2
6	BUSINESS-CLASS	2
7	BUSINESS-CLASS	1
8	ECONOMY-CLASS	2
9	ECONOMY-CLASS	1
10	ECONOMY-CLASS	2
11	ECONOMY-CLASS	1
12	ECONOMY-CLASS	1
13	ECONOMY-CLASS	1
14	ECONOMY-CLASS	1
15	ECONOMY-CLASS	3
16	ECONOMY-CLASS	1
17	ECONOMY-CLASS	2
18	ECONOMY-CLASS	2
19	ECONOMY-CLASS	2
20	ECONOMY-CLASS	1
21	ECONOMY-CLASS	1
22	ECONOMY-CLASS	3
23	ECONOMY-CLASS	2

Query executed successfully. DESKTOP-V45OH3H\SQLEXPRESS ... DESKTOP-V45OH3H\fhahim ... master | 00:00:00 | 28 rows

Replace all "useraccount", "UserAccount", Hidden, Current Document

Properties

Current connection parameters

Aggregate Status

Connection failures

Elapsed time 00:00:00.114

Finish time 12/18/2021 9:07:51 PM

Name DESKTOP-V45OH3H\SQLEXPRESS

Rows returned 28

Start time 12/18/2021 9:07:51 PM

State Open

Connection

Connection name DESKTOP-V45OH3H\SQLEXPRESS

Connection Details

Connection elapsed time 00:00:00.114

Connection finish time 12/18/2021 9:07:51 PM

Connection rows returned 28

Connection start time 12/18/2021 9:07:51 PM

Connection state Open

Display name DESKTOP-V45OH3H\SQLEXPRESS

Login name DESKTOP-V45OH3H\fhahim

Server name DESKTOP-V45OH3H\SQLEXPRESS

Server version 10.50.4042

Session Tracing ID SPID 54

Name The name of the connection.

UserAccount:

```
SELECT [username],[password]
FROM [airline_databases].[dbo].[UserAccount]
```

Microsoft SQL Server Management Studio

SQLQuery1.sql - D:\OH3H\fhahim (541)

```
SELECT [username],[password]
FROM [airline_databases].[dbo].[UserAccount]
```

Results

username	password
zubayer	3b56v
amitum	64363b
misha	3582n4
sony	5b6575456
nasim	b53b54b
sayem	4b56b
shihab	4b2v476
rahim	67b547b6b
habib	64b7g57
zaman	nkies223
rana	haegv4
zahir	vv3y4by5
manik	5b3673b
oias	3b58bg65
pias	3b65bb5b
amin	b36v56b
tuhin	35bv65
kamal	5n7b6n
laoshi	b39b76
santi	b453636v
lalania	3nb6bn
fhahim	fm6m6
sayma	sm03f

Query executed successfully. DESKTOP-V45OH3H\SQLEXPRESS ... DESKTOP-V45OH3H\fhahim ... airline_databases | 00:00:00 | 23 rows

Replace all "useraccount", "UserAccount", Hidden, Current Document

Properties

Current connection parameters

Aggregate Status

Connection failures

Elapsed time 00:00:00.079

Finish time 12/18/2021 9:24:24 PM

Name DESKTOP-V45OH3H\SQLEXPRESS

Rows returned 23

Start time 12/18/2021 9:24:24 PM

State Open

Connection

Connection name DESKTOP-V45OH3H\SQLEXPRESS

Connection Details

Connection elapsed time 00:00:00.079

Connection finish time 12/18/2021 9:24:24 PM

Connection rows returned 23

Connection start time 12/18/2021 9:24:24 PM

Connection state Open

Display name DESKTOP-V45OH3H\SQLEXPRESS

Login name DESKTOP-V45OH3H\fhahim

Server name DESKTOP-V45OH3H\SQLEXPRESS

Server version 10.50.4042

Session Tracing ID SPID 54

Name The name of the connection.

5.4 Database control

The software architecture involved in this experiment is two modes of C/S structure: fat client mode and thin client mode, i.e. two-stage structure and three-dimensional structure. The server of fat client mode is only responsible for data management, while the client is responsible for interactive interface and business processing. The thin client joins the application server to deal with the business logic and rules, so that the client's task is only responsible for representation, which simplifies the task.

In this experiment, the aircraft reservation system stores all kinds of data including airport, flight and seat. Business logic includes the corresponding flight, seat, passenger access, and the cost of flight comparison and evaluation to select a better flight. The presentation layer is mainly used to select flights, seats and orders.

If the two-tier C/S structure is selected, the server is only responsible for data management, and the logical processing, including flight comparison, will be carried out directly on the presentation page. That is to use java code to process data in JSP_page, and then display the data on this page. If it is a three-tier C/S structure, we will use the servlet to process the data, and the JSP page will submit the form to the servlet. In terms of security, the two-tier structure directly interacts with the database, which is less secure than the three-tier structure. In terms of

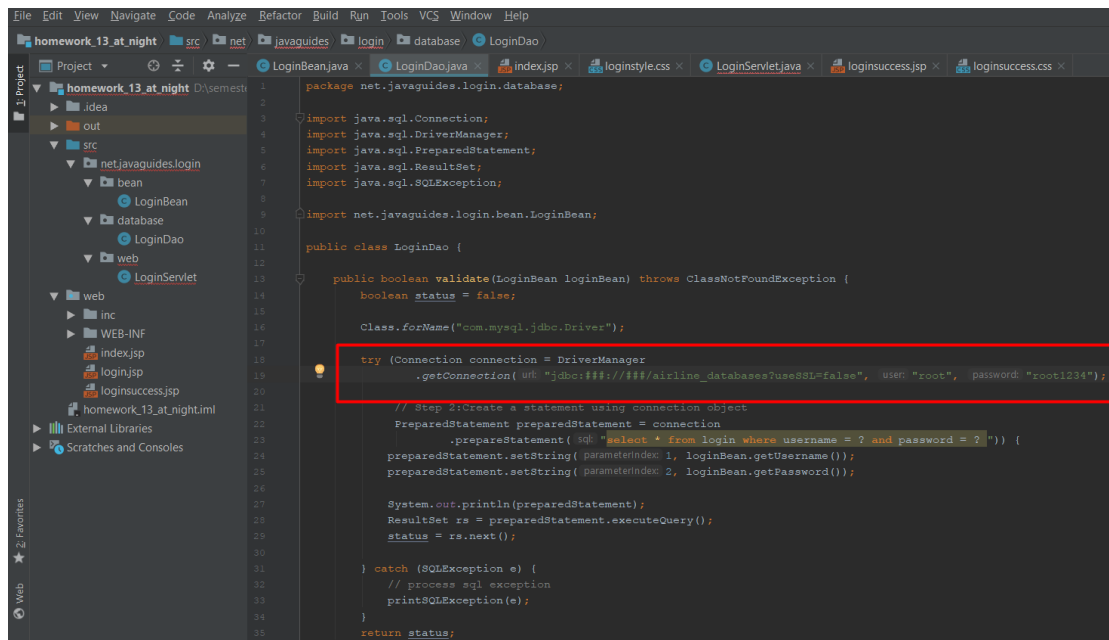
performance, the two-tier client takes on more tasks, and the page loading is slower than the three-tier structure, so the performance is not dominant. Moreover, the coupling of the three-layer structure is looser, which is more convenient for modification.

If the number of databases, users and aircraft companies of the system is further increased, the two-tier client will be easier in data management and database sharing due to its simple task. However, due to the heavy task of logical processing, the page loading will be further slow, which will make the user experience decline.

6. Program Design Description

6.1 Database connection

Connect to my local database and enter my account password (create java Dao class + servlet)



The screenshot shows an IDE with a project named 'homework_13_at_night'. The project structure includes a 'src' directory with sub-packages 'net.javaguides.login', 'database', and 'web'. The 'LoginDao.java' file is open in the editor. It contains the following code:

```
package net.javaguides.login.database;

import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import java.sql.SQLException;

import net.javaguides.login.bean.LoginBean;

public class LoginDao {

    public boolean validate(LoginBean loginBean) throws ClassNotFoundException {
        boolean status = false;

        Class.forName("com.mysql.jdbc.Driver");

        try (Connection connection = DriverManager
            .getConnection("jdbc:mysql://localhost:3306/airline_databases?useSSL=false", "user", "root", "password: root1234");
            // Step 2: Create a statement using connection object
            PreparedStatement preparedStatement = connection
                .prepareStatement("select * from login where username = ? and password = ?")) {
            preparedStatement.setString(1, loginBean.getUsername());
            preparedStatement.setString(2, loginBean.getPassword());

            System.out.println(preparedStatement);
            ResultSet rs = preparedStatement.executeQuery();
            status = rs.next();
        } catch (SQLException e) {
            // process sql exception
            printSQLException(e);
        }

        return status;
    }
}
```

6.2 System menu

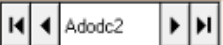
1. Open the reservation form-

- Select the flight
- Destination
- Ticket fair
- Seat
- Passenger details etc.

2. System program-

- Query of airline has its own database.
- When merging flights, the time required for connecting airports

should be considered, i.e. connection time. When booking all flights of the same airline, the price will be discounted according to the airline's own discount (%).

AIRLINE RESERVATION SYSTEM			
RESERVATION FORM			
RESERVATION DETAILS			
FLIGHT NO :	<input type="text"/>	TICKET FARE :	<input type="text"/>
ORIGIN :	<input type="text"/>	FLIGHT TYPE :	<input type="text"/>
DESTINATION :	<input type="text"/>		
CLASS :	<input type="text"/>		
PASSENGER DETAILS			
PASSENGER NAME :	<input type="text"/>		
PASSENGER ADDRESS :	<input type="text"/>		
PASSPORT NO :	<input type="text"/>		
PASSENGER STATUS :	<input type="text"/>		
<input type="button" value="ADD"/>		<input type="button" value="view"/>	<input type="button" value="EXIT"/>

6.3 User login

First we have to login using the username and password. Then we can see the reservation form.

USER NAME :	<input type="text"/>
PASSWORD :	<input type="password"/>
<input type="button" value="LOGIN"/> <input type="button" value="CANCEL"/>	

6.4 Data entry, modification and deletion

Data Entry: Here we have to enter all the data according to our choice and then click the “ADD” button. As a result, all the data will be entered in the database.

AIRLINE RESERVATION SYSTEM

RESERVATION FORM

RESERVATION DETAILS

FLIGHT NO :

TICKET FARE :

ORIGIN :

FLIGHT TYPE :

DESTINATION :

CLASS :

PASSENGER DETAILS

PASSENGER NAME :

PASSENGER ADDRESS :

PASSPORT NO :

PASSENGER STATUS :

ADD

view

EXIT

CLICK ADD TO INSERT DATA

AIRLINE RESERVATION SYSTEM	
RESERVATION FORM	
RESERVATION DETAILS	
FLIGHT NO : B-757	TICKET FARE : 150USD
ORIGIN : WUHAN	FLIGHT TYPE : FFES
DESTINATION : BEIJING	
CLASS : ECONOMY-CLASS	
PASSENGER DETAILS	
PASSENGER NAME : ZAMAN	
PASSENGER ADDRESS : HONGSHAN, WUHAN	
PASSPORT NO : E-32223	
PASSENGER STATUS : MALE	
<input type="button" value="EDIT"/>	<input type="button" value="CANCEL"/>

Modification: For data modification click the “EDIT” button. Then we modified some data and click the “ADD” button.

AIRLINE RESERVATION SYSTEM	
RESERVATION FORM	
RESERVATION DETAILS	
FLIGHT NO : B-757	TICKET FARE : 150USD
ORIGIN : WUHAN	FLIGHT TYPE : FFES
DESTINATION : BEIJING	
CLASS : ECONOMY-CLASS	
PASSENGER DETAILS	
PASSENGER NAME : ZAMAN	
PASSENGER ADDRESS : HONGSHAN, WUHAN	
PASSPORT NO : E-32223	
PASSENGER STATUS : MALE	
<input type="button" value="EDIT"/>	<input type="button" value="CANCEL"/>
CLICK EDIT TO MODIFICATION DATA	

AIRLINE RESERVATION SYSTEM	
RESERVATION FORM	
RESERVATION DETAILS	
FLIGHT NO :	B-757
TICKET FARE :	250USD
ORIGIN :	WUHAN
FLIGHT TYPE :	FFES
DESTINATION :	BEIJING
CLASS :	BUSINESS-CLASS
PASSENGER DETAILS	
PASSENGER NAME :	ZAMAN
PASSENGER ADDRESS :	HONGSHAN, WUHAN
PASSPORT NO :	E-32223
PASSENGER STATUS :	MALE
<div>ADDviewEXIT</div> <p>CLICK ADD TO INSERT DATA</p>	

After Modification:

AIRLINE RESERVATION SYSTEM	
RESERVATION FORM	
RESERVATION DETAILS	
FLIGHT NO : B-757	TICKET FARE : 250USD
ORIGIN : WUHAN	FLIGHT TYPE : FFES
DESTINATION : BEIJING	
CLASS : BUSINESS-CLASS	
PASSENGER DETAILS	
PASSENGER NAME : ZAMAN	
PASSENGER ADDRESS : HONGSHAN, WUHAN	
PASSPORT NO : E-32223	
PASSENGER STATUS : MALE	
<div>EDITCANCEL</div>	

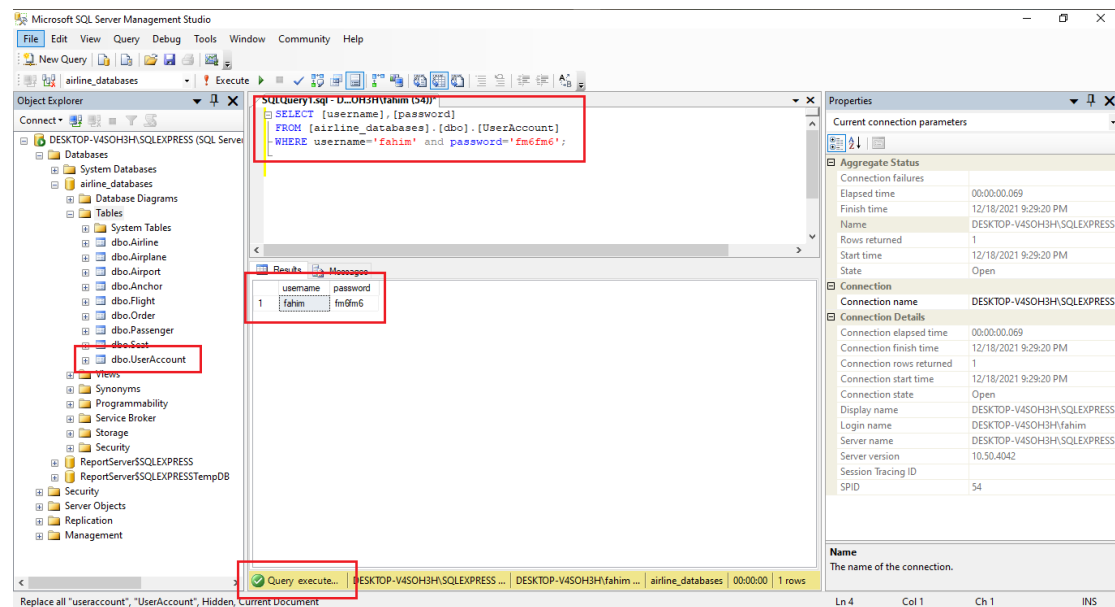
Deletion: For delete all the data we have to click the “CANCEL” button.

As a result, all the data will be deleted from the database.

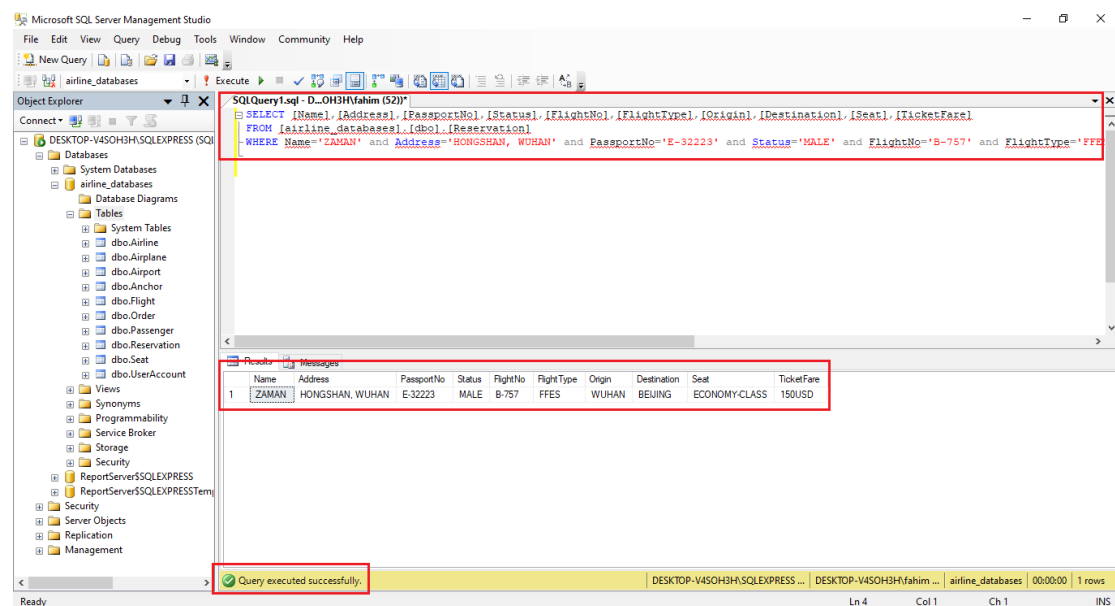
AIRLINE RESERVATION SYSTEM	
RESERVATION FORM	
RESERVATION DETAILS	
FLIGHT NO : B-757	TICKET FARE : 250USD
ORIGIN : WUHAN	FLIGHT TYPE : FFES
DESTINATION : BEIJING	
CLASS : BUSINESS-CLASS	
PASSENGER DETAILS	
PASSENGER NAME : ZAMAN	
PASSENGER ADDRESS : HONGSHAN, WUHAN	
PASSPORT NO : E-22222	
PASSENGER STATUS : MALE	
<input type="button" value="EDIT"/>	<input type="button" value="CANCEL"/>
CLICK CANCEL TO DELETE DATA	

6.5 Database query

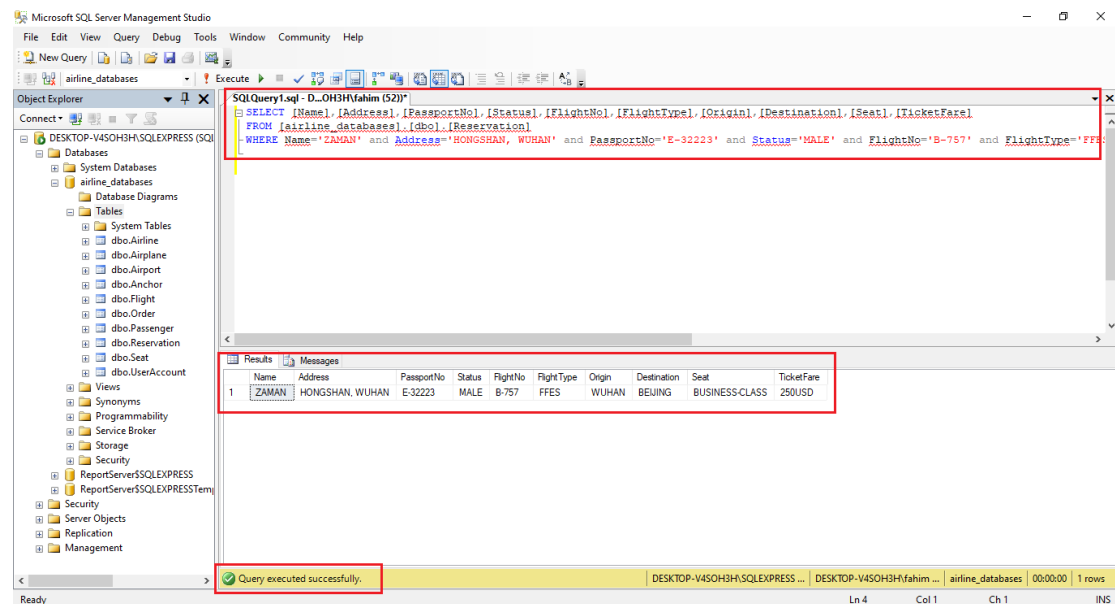
User Login: After enter the username and password we can see the user data in the database.



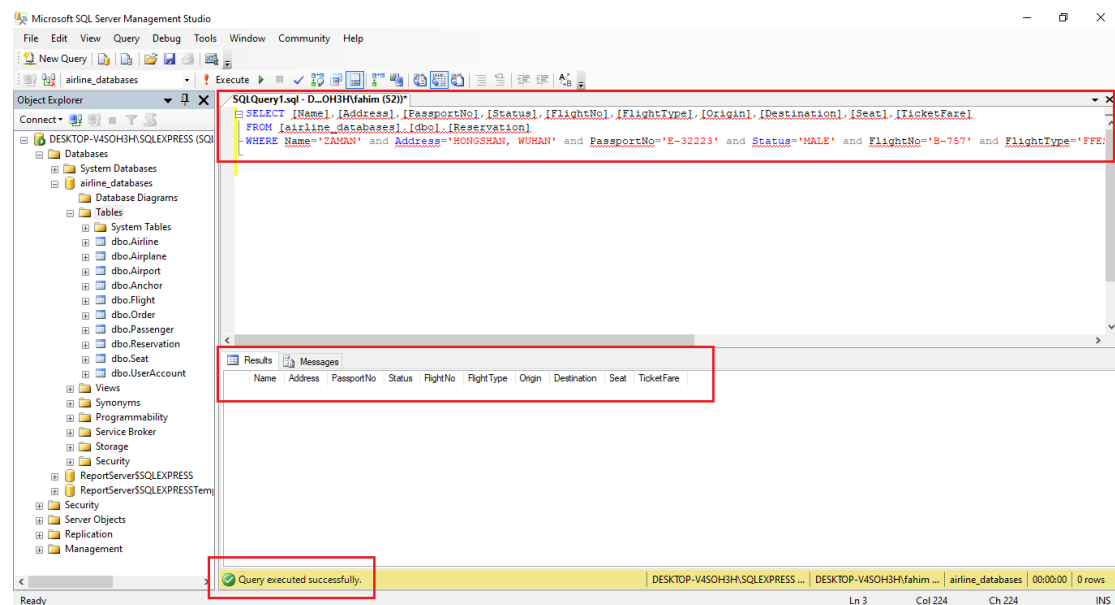
Data Entry: After enter all the data in the reservation form we can see all the data in the database.



Modification: After modify some data in the reservation form we can see the modified data in the database.



Deletion: After delete all the data in the reservation form we can't see the data in the database anymore.



7. Summary of Course Design

7.1 Problems and solutions in curriculum design

1. Haven't deep knowledge about store process in database. After complete this project, know me able to connect, modify the remote connection.
2. Now I am able to insertion and values. And have knowledge modify values which are already inserted in a table.
3. If has there any kind of type defined error like string, varchar, char, int, float etc. Now I am able to resolve.

7.2 Analysis of existing problems

In this database project (airplane database management) we are used to insertion data in our local database directly (means an operators only they can insert).

But I future, it's can update like real time data insertion.

If we create an application it's can be able to call (.json) API from Airlines Company and airport management center. And then our application can modify API data and convert it SQL language and real-time dynamic insert, modify and deletion on database.

7.3 Experience of curriculum design

In the project curriculum design

- Connect a local database software like Ms SQL 2008, MySQL etc.
- Create/build database
- Create table
- Create schema
- Create or make relationship between a table to another table
- Insert data, modification and deletion by (database management operator)
- Passenger query

I also learn java (database connection servlet and Dao class) how to create a java class and how connect a. In additional to these, how to overcome my database by Dao class laziness, How to find a quick and accurate solution using the Internet (Google). Special from <https://stackoverflow.com/> how to get my answer. And a best website for learning Database is <https://www.geeksforgeeks.org/dbms/>