Dallas Express

Travel Group

BUAN 6320 - Database Foundations for Business Analytics

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Problem Description

Problem Statement

The travel industry year over year has decreased the number of agents it employs. Our newly created snip-off company, The Dallas Express Travel Group - formerly apart of American Express, plans to stay competitive by using data analytics to better predict where our clients may want to visit. With these predictions our team can overall sell better experiences to our clients, so they may continue to return and utilize our services, driving growth within our business. At American Express, our former systems to track our activities included Microsoft Excel files and outdated Legacy systems. Our Data Management team has created a relational database to house all our data going forward, our team hopes to eliminate the former systems to reduce error inputs and query data quickly for our team to analyze.

Organization Description

Does it feel like you are working all the time and never have a chance for a getaway? The Dallas Express Travel Group, formerly apart of American Express, is here to serve you! Our team assists you through the entire travel experience. To begin, you first login our website or app and create a profile. We then suggest where you may want to visit based on your questionnaire and offer you a price that is affordable for your budget. Every quarter - 3 months, you will receive a new offer based on hotels or resorts that want to fill rooms, giving you the best deals possible. Our agents contact you frequently throughout the entire process, aiding with anything you may need. Visit our website today at DallasExpressTravelGroup.com or download our app to begin your experience!

Scope of database

Our database consists of ten tables which will house all our company data and it includes: employee, customer, hotel, bus, flight, tour agent, itinerary, package tour, tour spot, and bookings. We will break down each table and their designated columns or attributes.

The employee table is an extremely crucial table. Our employee table houses our customer service representatives, our data analytics team, our finance group, our marketing team, and all other general services functions. Here we will house information such as: an employee ID – which will be the primary key, the employee's first name, the employee's last name, the employee's job title, and their respective hiring date.

The customer table is very important a table, our team tries to keep this data table very clean, accurate, and updated much as possible. Our marketing team works out of this table. They will send quarterly promotions and other types of advertising to gain client business. They will also send follow up surveys to each client afterwards to ensure top quality customer services was given. This will be where we house information like their: customer ID – which will be the primary key, the customers first name, the customers last name, the customers location like the city, state, zip, the customers phone number, and the customers' email.

The hotel table will store information pertaining to the hotel itself. This can be where our clients or internal team reach hotel staff. The data housed here will include: the hotel ID – which will be the primary key, the hotel name, the hotel street address, the hotel city, and the hotel zip code.

The bus table is used to house our bus driver's information. Our group works with many contracted bus drivers throughout the world in hopes they give our clients the best transportation experience when they travel. This table will house information like: bus ID – which is the primary key, the bus drivers name, and the bus driver phone number.

The flight table is used to store information related to the airline, the customers departure, and the customer return time. This table is in place to ensure we are always on schedule and keeping our clients valuable time as a priority. This table will house information like: the plane ticket ID – which is the primary key, the customer departure ticket number, the customer returning ticket number, the departure leave time, the departure going time, the returning leave time, and the final return going time.

The tour agent table is used to store information about our contracted tour agents. We keep track of this information because our tour agents are on a commission pay schedule. This is to incentives each agent and to also see which are our top performing agents. This table will house information like: the tour agent ID – which is the primary key, the tour agent's first name, the tour agent's last name, the tour agent's phone number, and the tour agents city of residence.

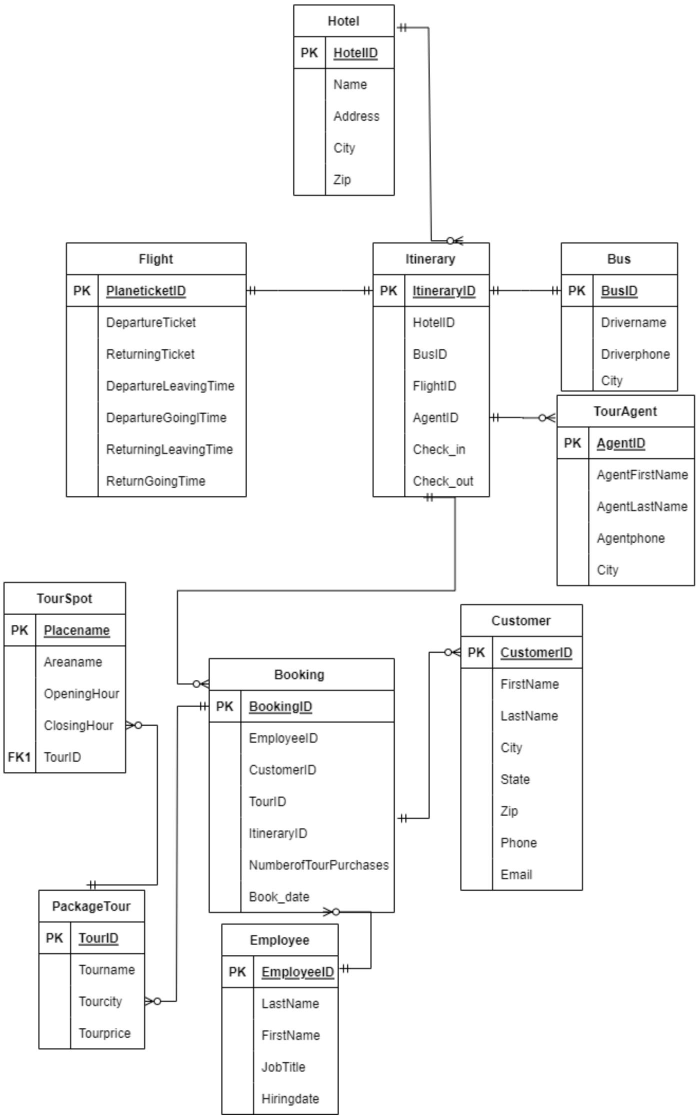
The itinerary table is used to store information based on the client's agenda per the day and it also ties to many of our other tables as well. This table will house information like: the itinerary ID – which is the primary key, the hotel ID – which is a foreign key and references the hotel table, the bus ID – which is a foreign key and references the bus table, the flight ID – which is a foreign key and references the flight table, the tour agent's ID – which is a foreign key and references the tour agent table, the event's check in for customers, and the events check out for customers.

The package tour table is used to store information based on the actual tour itself. This table will house information like: the tour ID – which is a primary key, the tour name, the tour city – where the tour takes place, and the total tour price.

The tour spot table is used to store information about specific spots or places within each package tour. This table will house information like: the place's name – which is the primary key, the tour ID – which is a foreign key and references the tour table, the area's name, the hour which the spot opens, and the closing hour for the spot.

The booking table is a very crucial table that houses all booking information as it ties to events, clients, and employees that sold a particular package. This is updated and reviewed weekly to ensure our bookings are accurate and this is where our data analytics team comes in. The data team runs statistical testing to try and predict where our clients may want to visit next. This table will house information like: the booking ID – which is a primary key, the employee's ID – which is a foreign key and refences the employee table, the customer's ID – which is a foreign key and refences the customer table, the tour ID – which is a foreign key and refences the tour table, the itinerary's ID – which is a foreign key and refences the itinerary table, the number of tour's purchases per booking ID, and the booking date.

Entity-Relationship Diagram



Relational Database Schema

```
CREATE TABLE Employee (EmployeeID nvarchar(5) NOT NULL PRIMARY KEY,
       FirstName nvarchar(15) NOT NULL,
    LastName nvarchar(15) NOT NULL,
       JobTitle nvarchar(15) NOT NULL,
       Hiringdate date NOT NULL);

Create TABLE Customer(
       CustomerID int NOT NULL PRIMARY KEY,
       FirstName nvarchar(50) NOT NULL,
       LastName nvarchar(50) NOT NULL,
       City nvarchar(50) NOT NULL,
       State nvarchar(20) NOT NULL,
       Zip nvarchar(12) NOT NULL,
       Phone nvarchar(15),
       Email nvarchar(30));


CREATE TABLE Hotel (
       HotelID int NOT NULL PRIMARY KEY,
       Name nvarchar(50) NOT NULL,
       Address nvarchar(100) NOT NULL,
       City nvarchar(50) NOT NULL,
       Zip nvarchar(12) NOT NULL);

CREATE TABLE Bus(
       BusID int NOT NULL PRIMARY KEY,
       Drivername nvarchar(50) NOT NULL,
       Driverphone nvarchar(20) NOT NULL,
       City nvarchar(50) NOT NULL);


CREATE TABLE Flight(
       PlaneticketID int NOT NULL PRIMARY KEY,
       DepartureTicket nvarchar(4) NOT NULL,
       ReturningTicket nvarchar(4) NOT NULL,
       DepartureLeavingTime datetime NOT NULL,
       DepartureGoinglTime datetime NOT NULL,
       ReturningLeavingTime datetime NOT NULL,
       ReturnGoingTime datetime NOT NULL);

CREATE TABLE TourAgent(
       AgentID int NOT NULL PRIMARY KEY,
       AgentFirstName nvarchar(50) NOT NULL,
       AgentLastName nvarchar(50),
       Agentphone nvarchar(15) NOT NULL,
       City nvarchar(50) NOT NULL);
```

```
CREATE TABLE Itinerary (
       ItineraryID int NOT NULL Primary KEY,
       HotelID int NOT NULL FOREIGN KEY References Hotel(HotelID),
       BusID int NOT NULL FOREIGN KEY REFERENCES Bus(BusID),
       FlightID int NOT NULL FOREIGN KEY REFERENCES Flight(PlaneTicketID),
       AgentID int NOT NULL FOREIGN KEY REFERENCES TourAgent(AgentID),
       Check_in date NOT NULL,
       Check_out date NOT NULL);AgentID int NOT NULL ,
Check_in datetime2 NOT NULL,
Check_out datetime2 NOT NULL);
```

```
CREATE TABLE PackageTour(
       TourID int NOT NULL PRIMARY KEY,
       Tourname nvarchar(50) NOT NULL,
       Tourcity nvarchar(50) NOT NULL,
       Tourprice money NOT NULL);
```

```
CREATE TABLE TourSpot(
Placename nvarchar(50) NOT NULL PRIMARY KEY,
Areaname nvarchar(20)NOT NULL ,
OpeningHour time NOT NULL,
ClosingHour time NOT NULL,
TourID int NOT NULL FOREIGN KEY REFERENCES PackageTour(TourID));
```

```
       CREATE TABLE TourSpot(
       Placename nvarchar(50) NOT NULL PRIMARY KEY,
       Areaname nvarchar(20)NOT NULL ,
       OpeningHour time NOT NULL,
       ClosingHour time NOT NULL,
       TourID int NOT NULL FOREIGN KEY REFERENCES PackageTour(TourID));
```

```
CREATE TABLE Booking (
       BookingID int NOT NULL PRIMARY KEY,
       EmployeeID nvarchar(5) NOT NULL FOREIGN KEY REFERENCES Employee(EmployeeID),
       CustomerID int NOT NULL FOREIGN KEY REFERENCES Customer(CustomerID),
       TourID int FOREIGN KEY REFERENCES PackageTour(TourID),
       ItineraryID int NOT NULL FOREIGN KEY REFERENCES Itinerary(ItineraryID),
       NumeberofTourPurchases int NOT NULL ,
       Date date  NOT NULL);
```

Loaded Relational Database with Data

```
INSERT INTO Employee (EmployeeID, FirstName, LastName, JobTitle, Hiringdate)
VALUES (12345, 'Ben', 'Miller','Salesperson',  '11-05-2017'),
      (12346, 'Garret', 'Vargas', 'Salesperson' , '04-20-2019'),
           (12347, 'Kim','Ralls', 'Salesperson' ,'05-16-2020'),
           (12348, 'Ken', 'Myer', 'Manager','02-03-2015'),
           (12349, 'Babara', 'MoreLand','Clerk', '01-30-2020');
```

```
INSERT INTO Customer (CustomerID, FirstName, LastName, City, State, Zip, Phone, Email)
VALUES
 (1, 'Debra', 'Burks','Orchard Park','NY', '14127', '(797)883-1900','debra.burks@yahoo.com'),
 (2, 'Kasha', 'Todd', 'Campell','CA', '95008', '(750)642-8864','kasha.todd@yahoo.com'),  (3,
'Olivia','Lucas', 'Sacramento' ,'CA', '95820', NULL,'olivia.lucas@gmail.com')
(4, 'Ava', 'Liam', 'Jackson Heights','NY', '14450','(343)945-0605', 'liamavia123@msn.com'),
(5, 'Mia', 'Noah','Adrian', 'MI', '49221-1859','(523)778-8784','mia.noah@gmail.com'),
 (6, 'Emma','Jane','Bayville', 'NJ','08721-2856','(586)380-8797', 'emma.jane@gmail.com'), (7,
'Pamelia', 'Newman','Hoboken', 'NJ', '07030-4453', NULL, 'pamelia.newman@gmail.com');
```

```
INSERT INTO TourAgent(AgentID, AgentFirstName, AgentLastName, Agentphone, City)
VALUES ( 1, 'Emily', 'Cameron',  '(503)612-7071', 'New Jersey'),
              (2, 'William', 'Miller', '(720)350-9127', 'San Diego'),
                    (3, 'Sebastian', 'Metcalfe', '(582)282-3746', 'Los Angeles'),
                    (4, 'Stewart' , 'Lewis','(928)277-2031', 'Adrian'),
                    (5, 'Jason' , 'David','(426)277-2031', 'Nevada');
```

```
INSERT INTO Hotel(HotelID, Name, Address, City, Zip)
VALUES (1, 'California Suites Hotel', '5415 Clairemont Messa Blvd','San Diego', '92117'),
                   (2, 'The Westin Los Angeles Airport', '5400 W Century Blvd', 'Los Angeles',
'90045'),
                   (3, 'Las Vegas Hilton', '999 W Resort World Dr','Nevada','89109'),
                   (4, 'Renaissance New York Times Square Hotel', '714 Seventh Avenue At, W
48th St', 'New York','10036'),
                   (5, ' The Westin New York at Times Square', '270W 43rd St', 'New York',
'10036'),
                   (6, 'Hampton Inn & Suites Adrian', '1335 S Main St,', 'Adrian', '49221');
```

```
INSERT INTO Bus(BusID, DriverName, Driverphone, City)
VALUES (1, 'Jack Richins', '(927)523-416', 'San Diego'),
                              (2, 'John Evans' , '(514)625-5001', 'Los Angeles'),
                              (3, 'Sariya Khanna', '(417)214-5134', 'New York'),
                              (4, 'Amanda', '(527)214-5613', 'Adrian'),
                              (5, 'Chris', '(702)213-3134', 'Nevada');


INSERT INTO Flight(PlaneticketID, DepartureTicket, ReturningTicket, DepartureLeavingTime,
DepartureGoinglTime, ReturningLeavingTime, ReturnGoingTime)
VALUES (1, 'AB12', 'DE14','02-12-22 10:30 PM', '02-13-22 01:00 AM', '02-14-22 9:30 AM',
'02-14-22 12:00 PM'),
                              (2, 'AB13', 'DE15','02-13-22 5:30 PM', '02-13-22 6:30 PM', '02-14-22
10:30 AM', '02-14-22 11:00 AM'),
                              (3, 'AB14', 'DE16','02-13-22 6:30 AM', '02-13-22 7:30 AM', '02-15-22
11:30 AM', '02-14-22 12:30 AM'),
                          (4, 'AB15', 'DE17','02-14-22 9:30 AM', '02-14-22 11:30 AM', '02-16-22 8:30
AM', '02-16-22 10:30 AM'),
                               (5, 'AB16', 'DE18','02-13-22 6:30 AM', '02-13-22 7:30 AM', '02-15-22
11:30 AM', '02-14-22 12:30 AM');



Insert INTO Itinerary (ItineraryID,HotelID,BusID,FlightID,AgentID,Check_in,Check_out)
VALUES(1,5,3, 1, 1, '02-13-22 01:30 AM', '02-14-22 8:45 PM'),
         (2,3,5, 2, 2, '02-13-22 8:00 PM', '02-14-22 10:00 AM'),
      (3,2,3, 4,1, '02-13-22 8:00 PM', '02-14-22 10:00 AM'),
            (4,3 ,3, 2 ,4, '02-13-22 8:00 PM', '02-14-22 10:00 AM'),
             (5,4,1, 5,5, '02-13-22 8:00 PM', '02-14-22 10:00 AM');



Insert INTO PackageTour(TourID,Tourname,Tourcity, Tourprice)
VALUES (1, 'Travel Nation', 'New York', 2500.99),
          (2, 'Sunrise and Sunset Trips', 'San Diego', 3000.99),
              (3, 'Conquest Tours', 'Adrian', 1999.99),
              (4, 'Nomadic Tours', 'Nevada', 2099.99),
              (5, 'Holiday Charm', 'Los Angeles', 2699.99);


INSERT INTO TourSpot(Placename, Areaname, OpeningHour, ClosingHour, TourID)
VALUES ('Statue of Liberty', 'New York','08:30', '16:00', 1),
      ('Central Park', 'New York','06:00', '13:00', 1),
      ('The Metropolitan Museum of Art', 'New York','10:00', '21:00', 1),
      ('Balboa Park','San Diego','11:00','17:30',2),
      ('San Diego Zoo', 'San Diego','8:00','17:00',2),
      ('Gaslamp Quarter' , 'San Diego', '7:00','17:00',2),
        ('Grand Canyon Skywalk','Nevada','9:00','15:00',3),
        ('Valley of Fire','Nevada','9:00','16:00',3),
        ('Reef Aquarium','Adrian','8:00','15:00',4),
        ('Lost Spirits Distillery','Los Angeles','7:00','16:30',5),
        ('The Grammy Museum','Los Angeles','8:00','16:30',5),
        ('Golden Gate Bridge', 'Los Angeles','08:30', '16:00', 5),
  ('Niagra Falls', 'Nevada','08:30', '15:00', 3),
  ('Florida Keys', 'Los Angeles','08:30', '19:00',5),
 ('Las Vegas Strip', 'Nevada','08:30', '18:00', 3),
 ('Denali National Park', 'Adrian','08:30', '16:00',4),
 ('White House', 'Nevada','08:30', '15:00', 4);
```

```
INSERT INTO Booking(BookingID, EmployeeID, CustomerID, TourID, ItineraryID,
NumeberofTourPurchases,Date)
VALUES (1,12345,1,1,3, 1, '01-11-2022'),
                     (2,12346,2,2,1,1, '01-14-2022'),
                     (3,12347,2,1,2,2, '01-15-2022'),
                     (4,12348,3,3,3,1,'01-15-2022'),
                     (5,12347,4,2,4,1,'01-16-2022'),
                     (6,12345,5,4,5,1,'02-16-2022'),
                     (7,12346,7,4,5,1,'03-16-2022'),
                     (8,12345,5,4,5,2,'02-16-2022'),
                     (9,12345,5,4,5,1,'02-16-2022');
```

Sample Data Reports

```
              --     Which tour was the most popular
select a.TourID, a.Tourname,  sum(b.NumeberofTourPurchases) as NumeberofTourPurchases
from PackageTour a
left outer join booking b
on a.tourid = b.tourid
group by a.TourID, a.Tourname
order by 3 desc

-- List the top three hotel that customers books
select Hotel.HotelID, Hotel.Name, NumeberofTourPurchases from hotel
join itinerary on itinerary.hotelID = hotel.hotelID
join booking on booking.itineraryid = itinerary.itineraryid
order by NumeberofTourPurchases desc
OFFSET 0 ROWS FETCH FIRST 3 ROWS ONLY;


--     List all employees who were hired in the spring?
select *
from employee
where month(hiringdate) IN(3,4,5)


-- Which employee has been working the longest?
select * from employee
order by Hiringdate asc
OFFSET 0 ROWS FETCH FIRST 1 ROWS ONLY
```

Contribution

Thomas M Benitez created the MS word document, compiled each section, and completed section 1.

Khoa Nguyen completed section 3.

Sungho Yim completed section 2.

Farid Ijazi completed section 4.