Database Applications Development
(MIS 571)

Group 6 Project Final Report

Customer Travel Itinerary

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Business Problem

Project statement

When looking at vacation trips, people tend to look at the most affordable and cost efficient method. Our idea is to present an application that will allow people to choose the best travel plan. We plan to design a financial budgeting database that includes five main features such as the location, restaurants, tourist attractions, transportations and shopping centers. Every feature includes several choices with different prices. For example, the transportation department can provide several modes of transportations like train, bus, airplane, and bike with different prices. No matter what travel combination the customers choose, the database will calculate the total amount of money so that the customers can compare different combinations and choose the best one according to their preference.

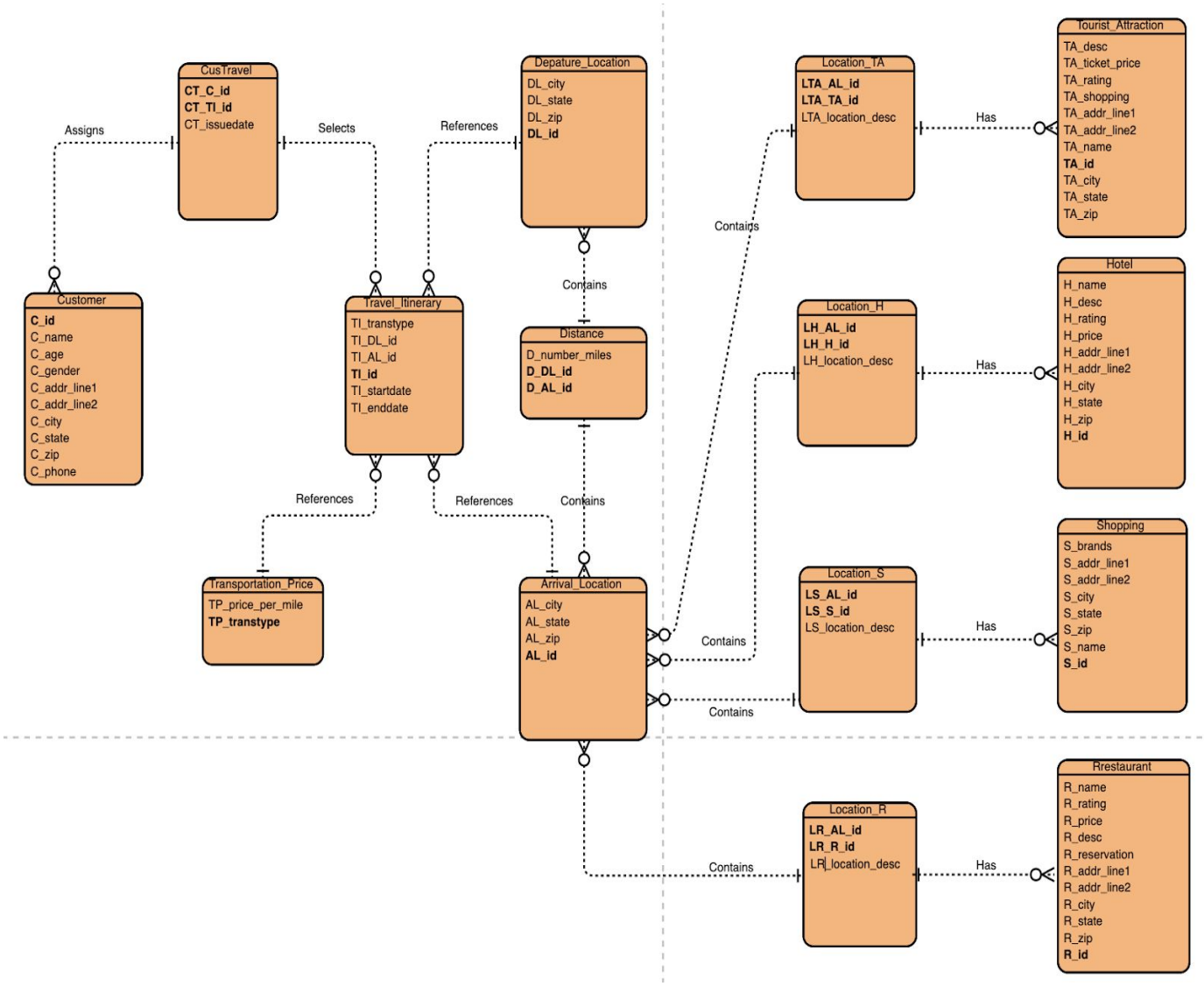
Objective

By establishing the database, the customers can find the travel combination they want and its availability in an easy way. They do not need to calculate the price by themselves since the database will automatically calculate the price of the travel plan that includes the price of hotel, transportation, restaurant. The database also provides the rating of shopping malls, tourist attractions and restaurants from the highest score to the lowest score so customers can choose the one they like according to the ranking. The information needed for this to be done involves customer information, such as customer id, customer name, customer age, travel itinerary, departure location, distance, arrival location as well as some information about restaurants, hotels, shopping malls and tourist attractions.

A database management and checking system would have: a travel planning application based on a large database, simplifies price check and hotel reservation process, supports online price checking and offers the best travel combination to its users.

Database design

Entity Relationship Diagram



Customer Travel Itinerary Database Description

- CUSTOMER: To identify each customer by unique ID and to store their basic information, including customer last name, customer first name, customer age, customer phone number, customer address, customer city, customer state and customer zip code. All the customer information can relate to other entities by C_ID.
- CUSTRAVEL: To connect customers' travel information and customer information by customer travel ID, travel itinerary ID and the travel plan issue date.
- TRAVEL_ITINERARY: To identify customers' travel itinerary by travel itinerary ID and to store the relative information, including departure location ID, arrival location ID, transportation type, the start date and the end date of travel. All travel itinerary information can relate to other entities by TI_ID.
- TRANSPORTAION_PRICE: To identify the transportation price by the price/mile and transportation type. All transportation price information can relate to other entities by TP_Transtype.
- DEPARTURE_LOCATION: To identify the departure location by the ID of departure location, the city, state and zip code of departure location. All departure location information can relate to other entities by DL_ID.
- ARRIVAL_LOCATION: To identify the arrival location by the ID of the arrival location the city, state and zip code of arrival location. All departure location information can relate to other entities by AL_ID.
- DISTANCE: To connect the information between departure location and arrival location by departure location ID, arrival location ID, and the miles between departure location and arrival location.
- TOURIST_ATTRACTION: To identify the tourist attraction information by unique tourist attraction ID, the ticket price, description, shopping information, address, zip code, city, state, rating and name of tourist attraction. All tourist attraction information can relate to other entities by TA_ID.
- HOTEL: To identify the hotel information by unique hotel ID, the availability, description, price, address, zip code, city, state, rating and name of hotel. All hotel information can relate to other entities by H_ID.
- SHOPPING: To identify the shopping mall information by unique shopping ID, the brands, address, zip code, city, state and name of shopping mall. All shopping mall information can relate to other entities by S_ID.
- RESTAURANT: To identify the restaurant information by unique restaurant ID, the reservation, description, price, address, zip code, city, state, rating and name of restaurant. All restaurant information can relate to other entities by R_ID.

- LOCATION_TA: To connect the information of arrival location and the information of tourist attraction by arrival location ID, tourist attraction ID and tourist attraction location description.
- LOCATION_H: To connect the information of arrival location and the information of hotel by arrival location ID, hotel ID and tourist attraction location description.
- LOCATION_S: To connect the information of arrival location and the information of shopping mall by arrival location ID, shopping mall ID and shopping mall location description.
- LOCATION_R: To connect the information of arrival location and the information of restaurant by arrival location ID, restaurant ID and restaurant location description.

Attributes and Descriptions

- CUSTOMER entity contains 10 attributes
  Customer ID (C_id) is the key attribute assigned to each customer. We use the CHAR format to identify ID numbers that help the staff to easily extract all the information of this customer from the database.
  Customer name (C_name) is the attribute that records each customer's name, so we use the VARCHAR format, which refers to a data type of a field (or column) in a database management system, which can hold letters and numbers, to define these data.
  Customer age (C_age) is the attribute that records each customer's age, so we use the int format.
  Customer gender (D_gender) is the attribute that records each customer's gender, we use Char format, M represents male, F represents female and Null represents unknown.
  Customer address (C_addr_line1, C_addr_line2) Customer phone (C_phone), city (C_city), state(C_state), zip code(C_zip) are six attributes that record customer's basic contact information, all the information contains letters or numbers, so we use VARCHAR and CHAR to format these data.
- DEPARTURE_LOCATION entity contains 4 attributes
  Departure location ID (DL_id) is the key attribute assigned to each departure location. We use CHAR format to identify the ID number of every departure location.
  The state (DL_state), city (DL_city), zip code (DL_zip) of departure location are three attributes that record departure location's basic information, so we use VARCHAR to format these data.
- ARRIVAL_LOCATION entity contains 4 attributes
  Arrival location ID (AL_id) is the key attribute assigned to each arrival location. We use the CHAR format to identify the ID number of every arrival location.

The state (AL_state), city (AL_city), zip code (AL_zip) of arrival location are three attributes that record arrival location's basic information, we use VARCHAR to format these data.

- TRANSPORTATION_PRICE entity contains 2 attributes
  The price/ mile of transportation (TP_price_per_mile) is used to record the price/ mile of different types of transportation, it includes numbers so we use CHAR to format the data.
  The type of transportation (TP_transtype) is the primary attribute assigned to each transportation. We use VARCHAR to format the data.
- TRAVEL_ITINERATY entity contains 6 attributes
  Travel itinerary ID (TI_id) is the primary attribute assigned to each travel itinerary. We use CHAR to format the data.
  The transportation type in travel itinerary (TI_transtype) is the foreign attribute assigned to check the transportation type, it is an important attribute.
  Departure location id and arrival location id under travel itinerary (TI_DL_id, TI_AL_id) are important composite attributes assigned to check the departure location and arrival location, we use CHAR to format the data.
  The start date and end date of the travel itinerary (TI_startdate, TI_enddate) are two attributes to record the basic date information of the travel. We use the date format for the data.
- CUSTRAVEL entity contains 3 attributes
  The customer id under customer travel document and travel itinerary id under customer travel document (CT_C_id, CT_TI_id) are the composite primary attributes to connect with customer information and travel itinerary information. We use CHAR to format the data.
  Customer issue date (CT_issuedate) is the attribute to record the issue date of travel. We use the date format for the data.
- DISTANCE entity contains 3 attributes
  The departure location id and arrival location id under the distance document (D_DL_id, D_AL_id) are the composite primary attributes to check the departure location and arrival location, we use CHAR to format the data.
  miles (D_numnber_miles) is the attribute to record the distance between departure location and arrival location.
- TOURIST_ATTRACTION entity contains 11 attributes
  Tourist attraction id (TA_id) is the primary attribute assigned to each tourist attraction, we use CHAR to format it.
  Tourist attraction address (TA_addr_line1, TA_addr_line2) name (TA_name), city (TA_city), state(TA_state), zip code(TA_zip), ticket price (TA_ticket_price), rating (TA_rating) and description (TA_desc) are ten attributes that record Tourist attractions'

basic information, all the information contains letters or numbers, so we use VARCHAR, INT and CHAR to format these data.
Tourist attraction shopping (TA_shopping) is the attribute assigned to check the stores in attractions, we use VARCHAR to format the data.

- HOTEL entity contains 10 attributes
  Hotel ID (H_id) is the primary attribute assigned to each hotel, we use CHAR to format it.
  Hotel address (H_addr_line1, H_addr_line2) name (H_name), city (H_city), state(H_state), zip code(H_zip), price (H_price), rating (H_rating) and description (H_desc) are nine attributes that record hotels' basic information, all the information contains letters or numbers, so we use VARCHAR, INT and CHAR to format these data.
- SHOPPING entity contains 8 attributes
  Shopping ID (S_id) is the primary attribute assigned to each shopping mall, we use CHAR to format it.
  Shopping mall address (S_addr_line1, S_addr_line2) name (S_name), city (S_city), state(S_state), zip code(S_zip), brands (S_brands) and rating (S_rating) are seven attributes that record shopping malls' basic information, all the information contains letters or numbers, so we use VARCHAR, INT and CHAR to format these data.
- RESTAURANT entity contains 11 attributes
  Restaurant id (R_id) is the primary attribute assigned to each restaurant, we use CHAR to format it.
  Restaurant address (R_addr_line1, R_addr_line2) name (R_name), city (R_city), state(R_state), zip code(R_zip), rating (R_rating), description (R_desc) and reservation (R_reservation) are ten attributes that record Restaurant' basic information, all the information contains letters or numbers, so we use VARCHAR, INT and CHAR to format these data.
- LOCATION_TA entity contains 3 attributes
  LTA_AL_id and LTA_TA_id are the composite primary attributes assigned to connect the arrival location and tourist attraction location, we use CHAR to format the data.
  LTA_location_desc is the attribute to find the tourist attraction location, so we use VARCHAR to format the data.
- LOCATION_H entity contains 3 attributes
  LH_AL_id and LH_TA_id are the composite primary attributes assigned to connect the arrival location and hotel location, we use CHAR to format the data.
  LH_location_desc is the attribute to find the hotel location, so we use CHAR to format the data.
- LOCATION_S entity contains 3 attributes
  LS_AL_id and LS_S_id are the composite primary attributes assigned to connect the arrival location and shopping mall location, so we use CHAR to format the data.

LS_location_desc is the attribute to find the shopping mall location, so we use CHAR to format the data.

- LOCATION_R entity contains 3 attributes
  LR_AL_id and LR_R_id are the composite primary attributes assigned to connect the arrival location and restaurant location, we use CHAR to format the data.
  LR_location_desc is the attribute to find the restaurant location, so we use CHAR to format the data.

Third Normal Form Relationship

Customer (**C_id**, C_name, C_age, C_gender, C_addr_line1, C_addr_line2, C_city, C_state, C_zip, C_phone)
Transportation_Price (**TP_transtype**, TP_price_per_mile)
Departure_Location (**DL_id**, DL_city, DL_state, DL_zip)
Arrival_Location (**AL_id**, AL_city, AL_state, AL_zip)
Distance (**D_DL_id, D_AL_id**, D_number_miles)
Tourist_Attraction (**TA_id**, TA_name, TA_desc, TA_ticket_price, TA_rating, TA_addr_line1, TA_addr_line2, TA_city, TA_state, TA_zip)
Hotel (**H_id**, H_name, H_desc, H_rating, H_price, H_addr_line1, H_addr_line2, H_city, H_state, H_zip)
Shopping_Mall (**S_id**, S_name, S_brands, S_addr_line1, S_addr_line2, S_city, S_state, S_zip)
Restaurant (**R_id**, R_name, R_desc, R_price, R_rating, R_addr_line1, R_addr_line2, R_city, R_state, R_zip, R_reservation)
Location_TA (***LTA_AL_id, LTA_TA_id***, LTA_location_desc)
Location_S (***LS_AL_id, LS_S_id***, LS_location_desc)
Location_H (***LH_AL_id, LH_H_id***, LH_location_desc)
Location_R (***LR_AL_id, LR_R_id***, LR_location_desc)
Travel_Itinerary (**TI_id**, *TI_transtype, TI_DL_id, TI_AL_id*, TI_startdate, TI_enddate)
CusTravel (***CT_C_id, CT_TI_id***, CT_issuedate)

Data Dictionary

Customer

Column	Data Type	Description
C_id	char(6)	Primary Key of the table
C_name	varchar(15)	Customer's full name
C_age	int	Customer's age
C_gender	char(1)	Customer's gender: M= Male F= Female, Null = Unknown
C_addr_line1	varchar(25)	Customer's primary address
C_addr_line2	varchar(25)	Customer's secondary address
C_city	nvarchar(25)	Customer's city of residence
C_state	varchar(2)	Customer's state of residence abbreviated
C_zip	varchar(10)	Customer's zip code of residence
C_phone	char(10)	Customer's phone number

Distance

Column	Data Type	Description
D_DL_id	char(6)	Composite Primary Key of the table
D_AL_id	char(6)	Composite Primary Key of the table
D_number_miles	int	The number of miles from the departing city to the arriving city

Transportation_Price

Column	Data Type	Description
TP_price_per_mile	char(6)	The price of every type of transportation per mile
TP_transtype	varchar(10)	Primary key of the table

Hotel

Column	Data Type	Description
H_id	char(6)	Primary Key of the table
H_name	varchar(25)	The name of hotel
H_desc	nvarchar(50)	The description of hotel
H_rating	char(1)	The rating of hotel
H_price	decimal(8,2)	The price of each room in the hotel
H_availablity_by_date	date	The availability of a room in the hotel
H_addr_line1	varchar(25)	Hotel's primary address
H_addr_line2	varchar(25)	Hotel's secondary address
H_city	varchar(25)	The city of the hotel's location
H_state	varchar(2)	The state of the hotel's location abbreviated
H_zip	varchar(10)	The zip code of hotel's location

Tourist_Attraction

Column	Data Type	Description
TA_id	char(6)	Primary Key of the table
TA_desc	nvarchar(25)	The description of the scenery

TA_ticket_price	decimal(8,2)	The ticket price of scenery
TA_rating	char(1)	The rating of scenery
TA_shopping	varchar(50)	Does the scenery contain shopping mall
TA_addr_line1	varchar(25)	The primary address of scenery
TA_addr_line2	varchar(25)	The secondary address of scenery
TA_name	varchar(20)	The name of the scenery
TA_city	nvarchar(25)	The city where the scenery is
TA_state	varchar(2)	The state where the scenery is
TA_zip	varchar(6)	The zip code of the scenery

Shopping

Column	Data Type	Description
S_id	char(6)	Primary Key of the table
S_name	varchar(15)	Shopping mall's name
S_brands	varchar(25)	The number of brands that the mall has
S_addr_line1	varchar(25)	The primary address of the mall
S_addr_line2	varchar(25)	The secondary address of the mall
S_city	varchar(25)	The city of the shopping mall
S_state	varchar(2)	The state of the shopping mall
S_zip	varchar(10)	Shopping mall's zip code

Restaurant

Column	Data Type	Description
R_id	char(6)	Primary Key of the table
R_name	varchar(20)	Restaurant's name
R_rating	char(1)	Restaurant's rating
R_desc	varchar(25)	Restaurant's description
R_price	decimal(8,2)	Restaurant's price
R_zip	varchar(6)	Restaurant's zip code
R_city	varchar(25)	The city of the Restaurant
R_state	varchar(2)	The state of the Restaurant
R_reservation	varchar(20)	The state of the Restaurant reservation
R_addr_line2	varchar(25)	Restaurant's primary address
R_addr_line1	varchar(25)	Restaurant's secondary address

Travel_Itinerary

Column	Data Type	Description
Ti_id	char(6)	Primary Key of the table
Ti_transtype	char(6)	Customer's transportation type
Ti_AL_id	char(6)	The description of arrival location
Ti_startdate	date	The start date
Ti_DL_id	char(6)	The description of departure location
Ti_enddate	date	The end date

Location_TA

Column	Data Type	Description
LTA_AL_id	char(6)	Primary key of the table
LTA_TA_id	char(6)	Primary key of the table
LTA_location_desc	varchar(50)	The description of tourist attraction location

Arrival_Location

Column	Data Type	Description
AL_city	varchar(25)	The city of the arrival location
AL_state	varchar(2)	The state of the arrival location
AL_zip	varchar(6)	The zip code of the arrival location
AL_id	**char(10)**	Primary key of the table

Custravel

Column	Data Type	Description
CT_C_id	char(6)	Primary key of the table
CT_TI_id	char(6)	Primary key of the table
CT_issuedate	date	The issue date of customer travel

Departure_location

Column	Data Type	Description
DL_id	char(6)	Primary key of the table
DL_city	varchar(25)	The city of departure location

DL_state	varchar(2)	The state of departure location
DL_zip	varchar(10)	The zip code of departure location

Location_H

Column	Data Type	Description
LH_AL_id	char(6)	Primary key of the table
LH_H_id	char(6)	Primary key of the table
LTA_location_desc	varchar(50)	Description of tourist attraction location

Location_S

Column	Data Type	Description
LS_AL_id	char(6)	Primary key of the table
LS_S_id	char(6)	Primary key of the table
LTA_location_desc	varchar(50)	Description of tourist attraction location

Location_R

Column	Data Type	Description
LR_AL_id	char(6)	Primary key of the table
LR_R_id	char(6)	Primary key of the table
LTA_location_desc	varchar(50)	Description of tourist attraction location

Relationships between each Table and Assumptions

CusTrave : Customer = 1:M

A customer travel table contains many customers

CusTravel: Travel_Itinerary = 1:M

A customer travel table contains many travel itineraries

Departure_Location : Travel_Itinerary = 1:M

A departure location table contains many travel itineraries

Transportation_Price : Travel_Itinerary = 1:M

A transportation price table contains many travel itineraries

Arrival_Location : Travel_Itinerary = 1:M

A arrival location table contains many travel itineraries

Distance : Arrival_Location = 1:M

A distance document contains many arrival locations

Distance : Departure_Location = 1:M

A distance document contains many departure locations

Location_R : Arrival_Location = 1:M

A restaurant location document contains many arrival locations

Location_S : Arrival_Location = 1:M

A shopping mall location table contains many arrival locations

Location_H : Arrival_Location = 1:M

A hotel location document contains many arrival locations

Location_TA : Arrival_Location= 1:M

A tourist attraction location table contains many arrival locations

Location_TA : Tourist_Attraction = 1:M

A tourist attraction location table contains many tourist attractions

Location_H : Hotel = 1: M

A hotel location table contains many hotels

Location_H : Shopping = 1:M

A hotel location table contains many shopping malls

Location_R : Restaurant = 1:M

A restaurant location table contains many restaurants

User Interface and Query Documentation

The output of running the table creation command and output listing of running the insert commands is provided below.

Remark: The real Android Platform runs in an emulated environment and the proposed database design may be redundant in the real application. In order to improve the efficiency in the real deployment environment, the real database running in the android platform is more concise and the redundant functions of the proposed database may not be included in the database implemented in the android platform database.

The following SQL commands should be implemented in order to realize this purpose.

Create Table and Insert Values

```
.echo ON
.mode list
.separator "  |  "
.output finalProject.txt
.open travelItinerary.DB

PRAGMA foreign_keys = ON;

DROP TABLE IF EXISTS CusTravel;
DROP TABLE IF EXISTS Travel_Itinerary;
DROP TABLE IF EXISTS Location_R;
DROP TABLE IF EXISTS Location_H;
DROP TABLE IF EXISTS Location_S;
DROP TABLE IF EXISTS Location_TA;
DROP TABLE IF EXISTS Restaurant;
```

```
DROP TABLE IF EXISTS Shopping_Mall;
DROP TABLE IF EXISTS Hotel;
DROP TABLE IF EXISTS Tourist_Attraction;
DROP TABLE IF EXISTS Distance;
DROP TABLE IF EXISTS Arrivial_Location;
DROP TABLE IF EXISTS Depature_Location;
DROP TABLE IF EXISTS Transportation_price;
DROP TABLE IF EXISTS Customer;
DROP VIEW IF EXISTS Customer_Itinerary;



CREATE TABLE Customer (
C_id CHAR(6) CONSTRAINT Customer_C_id_pk PRIMARY KEY,
C_name VARCHAR(15),
C_age INTEGER,
C_gender CHAR(1),
C_addr_line1 VARCHAR(25),
C_addr_line2 VARCHAR(25),
C_city VARCHAR(25),
C_state VARCHAR(2),
C_zip VARCHAR(10),
C_phone CHAR(10) );

CREATE TABLE Transportation_Price (
TP_price_per_mile CHAR(6),
TP_transtype VARCHAR(10) CONSTRAINT Transportation_Price_TP_transtype_pk
PRIMARY KEY);

CREATE TABLE Depature_Location (
DL_id CHAR(6)  CONSTRAINT Depature_Location_DL_id_pk PRIMARY KEY,
DL_city VARCHAR(25),
DL_state VARCHAR(2),
DL_zip VARCHAR(10));

CREATE TABLE Arrivial_Location (
AL_id CHAR(10) CONSTRAINT Arrivial_Location_AL_id_pk PRIMARY KEY,
AL_city VARCHAR(25),
AL_state VARCHAR(2),
```

```
AL_zip VARCHAR(6));


CREATE TABLE Distance (
D_DL_id CHAR(6) NOT NULL CONSTRAINT D_DL_id_Fk REFERENCES
Depature_Location(DL_id),
D_AL_id CHAR(6) NOT NULL CONSTRAINT D_AL_id_Fk REFERENCES
Arrivial_Location(AL_id),
D_number_miles INTEGER,
CONSTRAINT Distance_pk PRIMARY KEY(D_DL_id, D_AL_id) );

CREATE TABLE Tourist_Attraction (
TA_id CHAR(6) CONSTRAINT Tourist_Attraction_TA_id_pk PRIMARY KEY,
TA_name VARCHAR(20),
TA_desc VARCHAR(100),
TA_ticket_price DECIMAL(8,2),
TA_rating CHAR(1),
TA_addr_line1 VARCHAR(25),
TA_addr_line2 VARCHAR(25),
TA_city VARCHAR(25),
TA_state VARCHAR(2),
TA_zip VARCHAR(6));

CREATE TABLE Hotel(
H_id CHAR(6) CONSTRAINT Hotel_pk PRIMARY KEY,
H_name VARCHAR(25),
H_desc VARCHAR(50),
H_rating CHAR(1),
H_price DECIMAL(8,2),
H_addr_line1 VARCHAR(25),
H_addr_line2 VARCHAR(25),
H_city VARCHAR(25),
H_state VARCHAR(2),
H_zip VARCHAR(10) );

CREATE TABLE Shopping_Mall (
S_id CHAR(6) CONSTRAINT Shopping_Mall_pk PRIMARY KEY,
S_name VARCHAR(15),
S_brands VARCHAR(25),
```

```
S_addr_line1 VARCHAR(25),
S_addr_line2 VARCHAR(25),
S_city VARCHAR(25),
S_state VARCHAR(2),
S_zip VARCHAR(10) );

CREATE TABLE Restaurant (
R_id CHAR(6) CONSTRAINT Restaurant_id_pk PRIMARY KEY,
R_name VARCHAR(20),
R_desc VARCHAR(25),
R_price DECIMAL(8,2),
R_rating CHAR(1),
R_addr_line1 VARCHAR(25),
R_addr_line2 VARCHAR(25),
R_city VARCHAR(25),
R_state VARCHAR(2),
R_zip VARCHAR(6),
R_reservation VARCHAR(20));

CREATE TABLE Location_TA (
LTA_AL_id CHAR(6) NOT NULL CONSTRAINT LTA_AL_id_FK REFERENCES
Arrivial_Location(AL_id),
LTA_TA_id CHAR(6) NOT NULL CONSTRAINT LTA_TA_id_FK REFERENCES
Tourist_Attraction(TA_id),
LTA_location_desc VARCHAR(50),
CONSTRAINT Location_TA PRIMARY KEY(LTA_AL_id,LTA_TA_id) );

CREATE TABLE Location_S (
LS_AL_id CHAR(6) NOT NULL CONSTRAINT LS_AL_id_FK REFERENCES
Arrivial_Location(AL_id),
LS_S_id CHAR(6) NOT NULL CONSTRAINT LS_S_id_FK REFERENCES
Shopping_Mall(S_id),
LS_location_desc VARCHAR(50),
CONSTRAINT Location_S_pk PRIMARY KEY(LS_AL_id,LS_S_id));

CREATE TABLE Location_H (
LH_AL_id CHAR(6) NOT NULL CONSTRAINT LH_AL_id_FK REFERENCES
Arrivial_Location(AL_id),
LH_H_id CHAR(6) NOT NULL CONSTRAINT LH_H_id_fk REFERENCES Hotel(H_id),
```

```
LH_location_desc VARCHAR(50),
CONSTRAINT Location_H_pk PRIMARY KEY(LH_AL_id,LH_H_id));

CREATE TABLE Location_R (
LR_AL_id CHAR(6) NOT NULL CONSTRAINT LR_AL_id_FK REFERENCES
Arrivial_Location(AL_id),
LR_R_id CHAR(6) NOT NULL CONSTRAINT LR_R_id_FK REFERENCES
Restaurant(R_id),
LR_location_desc VARCHAR(50),
CONSTRAINT Location_R_pk PRIMARY KEY(LR_AL_id,LR_R_id) );

CREATE TABLE Travel_Itinerary(
TI_id CHAR(6) CONSTRAINT Travel_Itinerary_TI_id_pk PRIMARY KEY,
TI_transtype CHAR(6) CONSTRAINT Travel_Itinerary_TI_transtype_fk REFERENCES
Transportation_Price(TP_transtype),
TI_DL_id CHAR(6) CONSTRAINT Travel_Itinerary_TI_DL_id_fk REFERENCES
Depature_Location(DL_id),
TI_AL_id CHAR(6) CONSTRAINT Travel_Itinerary_TI_AL_id_fk REFERENCES
Arrivial_Location(AL_id),
TI_startdate DATE,
TI_enddate DATE);

CREATE TABLE CusTravel (
CT_C_id CHAR(6) CONSTRAINT CT_C_id_FK REFERENCES Customer(C_id),
CT_TI_id CHAR(6) CONSTRAINT CT_TI_id_fk REFERENCES Travel_Itinerary(TI_id),
CT_issuedate DATE,
CONSTRAINT CusTravel_pk PRIMARY KEY(CT_C_id, CT_Ti_id));

CREATE VIEW Customer_Itinerary AS
SELECT Customer.C_id, Customer.C_name, Travel_Itinerary.TI_startdate,
Travel_Itinerary.TI_enddate,Depature_Location.DL_city,Arrivial_Location.AL_city,Travel_Itin
erary.TI_transtype,(Transportation_Price.TP_price_per_mile*Distance.D_number_miles) as
TPprice, Hotel.H_name, min(Hotel.H_price*17) as Hotelprice
from Customer, Travel_Itinerary
join CusTravel, Arrivial_Location, Distance, Transportation_Price, Depature_Location,
Location_H, Hotel
on Customer.C_id=CusTravel.CT_C_id and CusTravel.CT_TI_id=Travel_Itinerary.TI_id and
Arrivial_Location.AL_id=Travel_Itinerary.TI_AL_id and
Depature_Location.DL_id=Travel_Itinerary.TI_DL_id
```

```
AND Travel_Itinerary.TI_transtype=Transportation_Price.TP_transtype AND
Distance.D_AL_id=Arrivial_Location.AL_id AND
Distance.D_DL_id=Depature_Location.DL_id
AND Location_H.LH_AL_id=Arrivial_Location.AL_id AND
Location_H.LH_H_id=Hotel.H_id
group by C_id;



INSERT INTO Customer VALUES('C001','Mark','20','M','90 High Land
ST','','Worcester','MA','01609','5085642951');
INSERT INTO Customer VALUES('C002','Dennis','28','F','98 Torrey
ST','','Framingham','MA','01702','3218452691');
INSERT INTO Customer VALUES('C003','Tony','35','M','100 Park
Ave','','Worcester','MA','01609','3265456125');
INSERT INTO Customer VALUES('C004','Lisa','45','F','175 W Brookline
ST','','Boston','MA','02118','3218322691');

INSERT INTO Transportation_Price VALUES('0.8','BUS');
INSERT INTO Transportation_Price VALUES('1','FLIGHT');
INSERT INTO Transportation_Price VALUES('1.2','RAILWAY');

INSERT INTO Depature_Location VALUES('D001','Boston','MA','02118');
INSERT INTO Depature_Location VALUES('D002','Worcester','MA','01610');

INSERT INTO Arrivial_Location VALUES('A001','New York','NY','10002');
INSERT INTO Arrivial_Location VALUES('A002','Orlando','FL','32807');

INSERT INTO Distance VALUES('D001','A001',300);
INSERT INTO Distance VALUES('D002','A001',350);
INSERT INTO Distance VALUES('D001','A002',800);
INSERT INTO Distance VALUES('D002','A002',850);



INSERT INTO Tourist_Attraction VALUES('TA001','Statue of Liberty','a gift of friendship
from the people of France to the United States',18.00,'4','Liberty Island New York, NY
10004','','New York','NY','10004');
```

INSERT INTO Tourist_Attraction VALUES('TA002','The Metropolitan Museum of Art','the largest art museum in the United States',25.00,'5','1000 Fifth Avenue New York City 10028','','New York','NY','10028');
INSERT INTO Tourist_Attraction VALUES('TA003','Central Park','the most visited urban park in the United States',0.00,'3','Manhattan New York City','','New York','NY','10030');
INSERT INTO Tourist_Attraction VALUES('TA004','Broadway theatre','the highest commercial level of live theater',50.00,'4','1681 Broadway New York City 10020','','New York','NY','10020');
INSERT INTO Tourist_Attraction VALUES('TA005','Empire Building','Famous building in nyc',30.00,'2','26 E Mahhtan Road','','New York','NY','10038');
INSERT INTO Tourist_Attraction VALUES('TA006','Universal Orlando Resort','a famous theme park',130.00,'5','807 South Street,Orlando,Florida 32819','','Orlando','FL','32819');
INSERT INTO Tourist_Attraction VALUES('TA007','Disneyland','the largest Disneyland in the world',300.00,'5','Orlando,Florida 32830','','Orlando','FL','32830');
INSERT INTO Tourist_Attraction VALUES('TA008','SeaWorld Orlando','Marine life theme park',119.00,'5','7007 Sea World Drive,Orlando,Florida 32821','','Orlando','FL','32821');
INSERT INTO Tourist_Attraction VALUES('TA009','Magic Kingdom Park','dwarf roller coaster',0.00,'5','1180 Seven Seas Drive, Lake Buena Vista, Florida 32830','','Orlando','FL','32830');
INSERT INTO Tourist_Attraction VALUES('TA010','Titanic:the artifact exhibition','Back to the romantic classic Titanic',25.00,'5','7324 International Drive, Orlando, Florida 32819','','Orlando','FL','32819');

INSERT INTO HOTEL VALUES('H001','Crosby Street Hotel','in the heart of New York vibrant SoHo neighbourhood','5',745.00,'79 Crosby St, New York City, NY 10012-3905','','New York','NY','10012');
INSERT INTO HOTEL VALUES('H002','Lowell Hotel','A landmark luxury hotel in the heart of Manhattan','4.5',628.00,'28 E 63rd St Between Madison and Park Avenues, New York City, NY 10065-8088','','New York','NY','10065');
INSERT INTO HOTEL VALUES('H003','The Whitby Hotel','an excellent choice for travelers visiting New York City','5',655.00,'18 W 56th St, New York City, NY 10019-3806','','New York','NY','10019');
INSERT INTO HOTEL VALUES('H004','Casamia 36 Hotel','just steps away from a rich mosaic of culture','3',927.00,'449 W 36th St 36th Street between 9th & 10th Avenues, New York City, NY 10018-6303','','New York','NY','10018');
INSERT INTO HOTEL VALUES('H005','The Lexington Hotel','Located in the heart of Midtown fashionable East Side','4',221.00,'511 Lexington Avenue at 48th Street,New York City,NY 10017','','New York','NY','10017');

INSERT INTO HOTEL VALUES('H006','NoMo SoHo Hotel','an area renowned for fashion, art, and design','4',200.00,'9 Crosby Street, New York City, NY 10013','','New York','NY','10013');
INSERT INTO HOTEL VALUES('H007','Disney Yacht Club Resort','Relax in the inviting elegance of a plush lobby replete with nautical touches','4.5',370.00,'1700 Epcot Resorts Boulevard Lake Buena Vista, Orlando, FL 32830','','Orlando','FL','32830');
INSERT INTO HOTEL VALUES('H008','Disney Polynesian Village Resort','enjoy moonlit nights on our torch-lined waterfront to the exotic tastes of our world-class restaurants','4',515.00,'1600 Seven Seas Drive, Orlando, FL 32830','','Orlando','FL','32830');
INSERT INTO HOTEL VALUES('H009','Home2 Suites by Hilton Orlando Near UCF','the excitement of Universal Orlando ResortTM is less than 20 minutes away','5',134.00,'3414 Technological Avenue, Orlando, FL 32817-1477','','Orlando','FL','32817');
INSERT INTO HOTEL VALUES('H010','Rosen Plaza Hotel','A standout among Orlando finest meeting','4',69.00,'9700 International Dr, Orlando, FL 32819-8114','','Orlando','FL','32819');
INSERT INTO HOTEL VALUES('H011','Rosen Shingle Creek','A hotel that surprises and delights','4.5',81.00,'9939 Universal Blvd., Orlando, FL 32819-8701','','Orlando','FL','32819');
INSERT INTO HOTEL VALUES('H012','Walt Disney World Swan','Leave the every day behind','4',265.00,'1200 Epcot Resorts Blvd, Orlando, FL 32830','','Orlando','FL','32830');

INSERT INTO Shopping_Mall VALUES('S001','Manhattan Mall','700','100 W 33rd St,New York,NY 10001','','New York','NY','10001');
INSERT INTO Shopping_Mall VALUES('S002','Queens Center Mall','600','90-15 Queens Blvd, Queens,NY 11373','','New York','NY','11373');
INSERT INTO Shopping_Mall VALUES('S003','Bay Plaza Shopping Centre','480','2100 Bartow Ave,The Bronx,NY 10475','','New York','NY','10475');
INSERT INTO Shopping_Mall VALUES('S004','The Mall at Millenia','500','4200 Conroy Rd, Orlando, FL 32839','','Orlando','FL','32839');
INSERT INTO Shopping_Mall VALUES('S005','Magic Mall','280','2155 W Colonial Dr,Orlando, FL 32804','','Orlando','FL','32804');

INSERT INTO Restaurant VALUES('R001','Frevo','Modern French Style',1000.00,'5','48 W 8th St, New York, NY 10011','','New York','NY','10011','YES');
INSERT INTO Restaurant VALUES('R002','Estela','New American Style',100.00,'4.5','47 E Houston St 1st floor, New York, NY 10012','','New York','NY','10012','YES');
INSERT INTO Restaurant VALUES('R003','Carmine Italian Restaurant','Italian Style',50.00,'4.5','200 W 44th St, New York, NY 10036','','New York','NY','10036','NO');
INSERT INTO Restaurant VALUES('R004','Upland','California Style',200.00,'4.5','345 Park Ave S, New York, NY 10010','','New York','NY','10010','YES');
INSERT INTO Restaurant VALUES('R005','Tapa Toro','Spanish Style',60.00,'4','8441 International Dr #260, Orlando, FL 32819','','Orlando','FL','32819','YES');

```
INSERT INTO Restaurant VALUES('R006','Shin Jung Korean Restaurant','Korean
Style',80.00,'4.5','1638 E Colonial Dr, Orlando, FL 32803','','Orlando','FL','32803','YES');
INSERT INTO Restaurant VALUES('R007','Soco Restaurant','South American
Style',100.00,'4.5','629 E Central Blvd, Orlando, FL 32801','','Orlando','FL','32801','YES');
INSERT INTO Restaurant VALUES('R008','Linda La Cantina Steak
House','Steak',50.00,'4','4721 E Colonial Dr, Orlando, FL 32803','','Orlando','FL','32803','YES');

INSERT INTO Location_TA VALUES('A001','TA001','Tourist Attractions of NYC');
INSERT INTO Location_TA VALUES('A001','TA002','Tourist Attractions of NYC');
INSERT INTO Location_TA VALUES('A001','TA003','Tourist Attractions of NYC');
INSERT INTO Location_TA VALUES('A001','TA004','Tourist Attractions of NYC');
INSERT INTO Location_TA VALUES('A001','TA005','Tourist Attractions of NYC');
INSERT INTO Location_TA VALUES('A002','TA006','Tourist Attractions of Orlando');
INSERT INTO Location_TA VALUES('A002','TA007','Tourist Attractions of Orlando');
INSERT INTO Location_TA VALUES('A002','TA008','Tourist Attractions of Orlando');
INSERT INTO Location_TA VALUES('A002','TA009','Tourist Attractions of Orlando');
INSERT INTO Location_TA VALUES('A002','TA010','Tourist Attractions of Orlando');

INSERT INTO Location_S VALUES('A001','S001','Shopping Mall of NYC');
INSERT INTO Location_S VALUES('A001','S002','Shopping Mall of NYC');
INSERT INTO Location_S VALUES('A001','S003','Shopping Mall of NYC');
INSERT INTO Location_S VALUES('A002','S004','Shopping Mall of Orlando');
INSERT INTO Location_S VALUES('A002','S005','Shopping Mall of Orlando');

INSERT INTO Location_H VALUES('A001','H001','Hotel of NYC');
INSERT INTO Location_H VALUES('A001','H002','Hotel of NYC');
INSERT INTO Location_H VALUES('A001','H003','Hotel of NYC');
INSERT INTO Location_H VALUES('A001','H004','Hotel of NYC');
INSERT INTO Location_H VALUES('A001','H005','Hotel of NYC');
INSERT INTO Location_H VALUES('A001','H006','Hotel of NYC');
INSERT INTO Location_H VALUES('A002','H007','Hotel of Orlando');
INSERT INTO Location_H VALUES('A002','H008','Hotel of Orlando');
INSERT INTO Location_H VALUES('A002','H009','Hotel of Orlando');
INSERT INTO Location_H VALUES('A002','H010','Hotel of Orlando');
INSERT INTO Location_H VALUES('A002','H011','Hotel of Orlando');
INSERT INTO Location_H VALUES('A002','H012','Hotel of Orlando');

INSERT INTO Location_R VALUES('A001','R001','Restaurant of NYC');
INSERT INTO Location_R VALUES('A001','R002','Restaurant of NYC');
```

```
INSERT INTO Location_R VALUES('A001','R003','Restaurant of NYC');
INSERT INTO Location_R VALUES('A001','R004','Restaurant of NYC');
INSERT INTO Location_R VALUES('A002','R005','Restaurant of Orlando');
INSERT INTO Location_R VALUES('A002','R006','Restaurant of Orlando');
INSERT INTO Location_R VALUES('A002','R007','Restaurant of Orlando');
INSERT INTO Location_R VALUES('A002','R008','Restaurant of Orlando');

INSERT INTO Travel_Itinerary
VALUES('000001','FLIGHT','D001','A001',DATE('2020-04-02'),DATE('2020-04-08'));
INSERT INTO Travel_Itinerary
VALUES('000002','FLIGHT','D001','A001',DATE('2020-03-05'),DATE('2020-03-10'));
INSERT INTO Travel_Itinerary
VALUES('000003','RAILWAY','D001','A002',DATE('2020-04-15'),DATE('2020-05-02'));
INSERT INTO Travel_Itinerary
VALUES('000004','BUS','D002','A002',DATE('2020-04-22'),DATE('2020-05-03'));

INSERT INTO CusTravel VALUES('C001','000001',DATE('2020-04-08'));
INSERT INTO CusTravel VALUES('C002','000002',DATE('2020-03-10'));
INSERT INTO CusTravel VALUES('C003','000003',DATE('2020-05-02'));
INSERT INTO CusTravel VALUES('C004','000004',DATE('2020-05-03'));


.output stdout
.echo off
```

Output

```
sqlite> INSERT INTO Customer VALUES('C001','Mark','20','M','90 High Land
ST','','Worcester','MA','01609','5085642951');
sqlite> INSERT INTO Customer VALUES('C002','Dennis','28','F','98 Torrey
ST','','Framingham','MA','01702','3218452691');
sqlite> INSERT INTO Customer VALUES('C003','Tony','35','M','100 Park
Ave','','Worcester','MA','01609','3265456125');
sqlite> INSERT INTO Customer VALUES('C004','Lisa','45','F','175 W Brookline
ST','','Boston','MA','02118','3218322691');
sqlite>

sqlite> INSERT INTO Transportation_Price VALUES('0.8','BUS');
```

```
sqlite> INSERT INTO Transportation_Price VALUES('1','FLIGHT');
sqlite> INSERT INTO Transportation_Price VALUES('1.2','RAILWAY');
sqlite>

sqlite> INSERT INTO Depature_Location VALUES('D001','Boston','MA','02118');
sqlite> INSERT INTO Depature_Location VALUES('D002','Worcester','MA','01610');
sqlite>

sqlite> INSERT INTO Arrivial_Location VALUES('A001','New York','NY','10002');
sqlite> INSERT INTO Arrivial_Location VALUES('A002','Orlando','FL','32807');
sqlite>

sqlite> INSERT INTO Distance VALUES('D001','A001',300);
sqlite> INSERT INTO Distance VALUES('D002','A001',350);
sqlite> INSERT INTO Distance VALUES('D001','A002',800);
sqlite> INSERT INTO Distance VALUES('D002','A002',850);
sqlite>

sqlite>

sqlite> INSERT INTO Tourist_Attraction VALUES('TA001','Statue of Liberty','a gift of
friendship from the people of France to the United States',18.00,'4','Liberty Island New York,
NY 10004','','New York','NY','10004');
sqlite> INSERT INTO Tourist_Attraction VALUES('TA002','The Metropolitan Museum of
Art','the largest art museum in the United States',25.00,'5','1000 Fifth Avenue New York City
10028','','New York','NY','10028');
sqlite> INSERT INTO Tourist_Attraction VALUES('TA003','Central Park','the most visited
urban park in the United States',0.00,'3','Manhattan New York City','','New York','NY','10030');
sqlite> INSERT INTO Tourist_Attraction VALUES('TA004','Broadway theatre','the highest
commercial level of live theater',50.00,'4','1681 Broadway New York City 10020','','New
York','NY','10020');
sqlite> INSERT INTO Tourist_Attraction VALUES('TA005','Empire Building','Famous
building in nyc',30.00,'2','26 E Mahhtan Road','','New York','NY','10038');
sqlite> INSERT INTO Tourist_Attraction VALUES('TA006','Universal Orlando Resort','a
famous theme park',130.00,'5','807 South Street,Orlando,Florida 32819','','Orlando','FL','32819');
sqlite> INSERT INTO Tourist_Attraction VALUES('TA007','Disneyland','the largest
Disneyland in the world',300.00,'5','Orlando,Florida 32830','','Orlando','FL','32830');
sqlite> INSERT INTO Tourist_Attraction VALUES('TA008','SeaWorld Orlando','Marine life
theme park',119.00,'5','7007 Sea World Drive,Orlando,Florida 32821','','Orlando','FL','32821');
```

```
sqlite> INSERT INTO Tourist_Attraction VALUES('TA009','Magic Kingdom Park','dwarf roller coaster',0.00,'5','1180 Seven Seas Drive, Lake Buena Vista, Florida 32830','','Orlando','FL','32830');
sqlite> INSERT INTO Tourist_Attraction VALUES('TA010','Titanic:the artifact exhibition','Back to the romantic classic Titanic',25.00,'5','7324 International Drive, Orlando, Florida 32819','','Orlando','FL','32819');
sqlite>

sqlite> INSERT INTO HOTEL VALUES('H001','Crosby Street Hotel','in the heart of New York vibrant SoHo neighbourhood','5',745.00,'79 Crosby St, New York City, NY 10012-3905','','New York','NY','10012');
sqlite> INSERT INTO HOTEL VALUES('H002','Lowell Hotel','A landmark luxury hotel in the heart of Manhattan','4.5',628.00,'28 E 63rd St Between Madison and Park Avenues, New York City, NY 10065-8088','','New York','NY','10065');
sqlite> INSERT INTO HOTEL VALUES('H003','The Whitby Hotel','an excellent choice for travelers visiting New York City','5',655.00,'18 W 56th St, New York City, NY 10019-3806','','New York','NY','10019');
sqlite> INSERT INTO HOTEL VALUES('H004','Casamia 36 Hotel','just steps away from a rich mosaic of culture','3',927.00,'449 W 36th St 36th Street between 9th & 10th Avenues, New York City, NY 10018-6303','','New York','NY','10018');
sqlite> INSERT INTO HOTEL VALUES('H005','The Lexington Hotel','Located in the heart of Midtown fashionable East Side','4',221.00,'511 Lexington Avenue at 48th Street,New York City,NY 10017','','New York','NY','10017');
sqlite> INSERT INTO HOTEL VALUES('H006','NoMo SoHo Hotel','an area renowned for fashion, art, and design','4',200.00,'9 Crosby Street, New York City, NY 10013','','New York','NY','10013');
sqlite> INSERT INTO HOTEL VALUES('H007','Disney Yacht Club Resort','Relax in the inviting elegance of a plush lobby replete with nautical touches','4.5',370.00,'1700 Epcot Resorts Boulevard Lake Buena Vista, Orlando, FL 32830','','Orlando','FL','32830');
sqlite> INSERT INTO HOTEL VALUES('H008','Disney Polynesian Village Resort','enjoy moonlit nights on our torch-lined waterfront to the exotic tastes of our world-class restaurants','4',515.00,'1600 Seven Seas Drive, Orlando, FL 32830','','Orlando','FL','32830');
sqlite> INSERT INTO HOTEL VALUES('H009','Home2 Suites by Hilton Orlando Near UCF','the excitement of Universal Orlando ResortTM is less than 20 minutes away','5',134.00,'3414 Technological Avenue, Orlando, FL 32817-1477','','Orlando','FL','32817');
sqlite> INSERT INTO HOTEL VALUES('H010','Rosen Plaza Hotel','A standout among Orlando finest meeting','4',69.00,'9700 International Dr, Orlando, FL 32819-8114','','Orlando','FL','32819');
```

```
sqlite> INSERT INTO HOTEL VALUES('H011','Rosen Shingle Creek','A hotel that surprises
and delights','4.5',81.00,'9939 Universal Blvd., Orlando, FL
32819-8701','','Orlando','FL','32819');
sqlite> INSERT INTO HOTEL VALUES('H012','Walt Disney World Swan','Leave the everyday
behind','4',265.00,'1200 Epcot Resorts Blvd, Orlando, FL 32830','','Orlando','FL','32830');
sqlite>

sqlite> INSERT INTO Shopping_Mall VALUES('S001','Manhattan Mall','700','100 W 33rd
St,New York,NY 10001','','New York','NY','10001');
sqlite> INSERT INTO Shopping_Mall VALUES('S002','Queens Center Mall','600','90-15
Queens Blvd, Queens,NY 11373','','New York','NY','11373');
sqlite> INSERT INTO Shopping_Mall VALUES('S003','Bay Plaza Shopping Centre','480','2100
Bartow Ave,The Bronx,NY 10475','','New York','NY','10475');
sqlite> INSERT INTO Shopping_Mall VALUES('S004','The Mall at Millenia','500','4200
Conroy Rd, Orlando, FL 32839','','Orlando','FL','32839');
sqlite> INSERT INTO Shopping_Mall VALUES('S005','Magic Mall','280','2155 W Colonial
Dr,Orlando, FL 32804','','Orlando','FL','32804');
sqlite>

sqlite> INSERT INTO Restaurant VALUES('R001','Frevo','Modern French Style',1000.00,'5','48
W 8th St, New York, NY 10011','','New York','NY','10011','YES');
sqlite> INSERT INTO Restaurant VALUES('R002','Estela','New American
Style',100.00,'4.5','47 E Houston St 1st floor, New York, NY 10012','','New
York','NY','10012','YES');
sqlite> INSERT INTO Restaurant VALUES('R003','Carmine Italian Restaurant','Italian
Style',50.00,'4.5','200 W 44th St, New York, NY 10036','','New York','NY','10036','NO');
sqlite> INSERT INTO Restaurant VALUES('R004','Upland','California Style',200.00,'4.5','345
Park Ave S, New York, NY 10010','','New York','NY','10010','YES');
sqlite> INSERT INTO Restaurant VALUES('R005','Tapa Toro','Spanish Style',60.00,'4','8441
International Dr #260, Orlando, FL 32819','','Orlando','FL','32819','YES');
sqlite> INSERT INTO Restaurant VALUES('R006','Shin Jung Korean Restaurant','Korean
Style',80.00,'4.5','1638 E Colonial Dr, Orlando, FL 32803','','Orlando','FL','32803','YES');
sqlite> INSERT INTO Restaurant VALUES('R007','Soco Restaurant','South American
Style',100.00,'4.5','629 E Central Blvd, Orlando, FL 32801','','Orlando','FL','32801','YES');
sqlite> INSERT INTO Restaurant VALUES('R008','Linda La Cantina Steak
House','Steak',50.00,'4','4721 E Colonial Dr, Orlando, FL 32803','','Orlando','FL','32803','YES');
sqlite>

sqlite> INSERT INTO Location_TA VALUES('A001','TA001','Tourist Attractions of NYC');
```

```
sqlite> INSERT INTO Location_TA VALUES('A001','TA002','Tourist Attractions of NYC');
sqlite> INSERT INTO Location_TA VALUES('A001','TA003','Tourist Attractions of NYC');
sqlite> INSERT INTO Location_TA VALUES('A001','TA004','Tourist Attractions of NYC');
sqlite> INSERT INTO Location_TA VALUES('A001','TA005','Tourist Attractions of NYC');
sqlite> INSERT INTO Location_TA VALUES('A002','TA006','Tourist Attractions of Orlando');
sqlite> INSERT INTO Location_TA VALUES('A002','TA007','Tourist Attractions of Orlando');
sqlite> INSERT INTO Location_TA VALUES('A002','TA008','Tourist Attractions of Orlando');
sqlite> INSERT INTO Location_TA VALUES('A002','TA009','Tourist Attractions of Orlando');
sqlite> INSERT INTO Location_TA VALUES('A002','TA010','Tourist Attractions of Orlando');
sqlite>

sqlite> INSERT INTO Location_S VALUES('A001','S001','Shopping Mall of NYC');
sqlite> INSERT INTO Location_S VALUES('A001','S002','Shopping Mall of NYC');
sqlite> INSERT INTO Location_S VALUES('A001','S003','Shopping Mall of NYC');
sqlite> INSERT INTO Location_S VALUES('A002','S004','Shopping Mall of Orlando');
sqlite> INSERT INTO Location_S VALUES('A002','S005','Shopping Mall of Orlando');
sqlite>

sqlite> INSERT INTO Location_H VALUES('A001','H001','Hotel of NYC');
sqlite> INSERT INTO Location_H VALUES('A001','H002','Hotel of NYC');
sqlite> INSERT INTO Location_H VALUES('A001','H003','Hotel of NYC');
sqlite> INSERT INTO Location_H VALUES('A001','H004','Hotel of NYC');
sqlite> INSERT INTO Location_H VALUES('A001','H005','Hotel of NYC');
sqlite> INSERT INTO Location_H VALUES('A001','H006','Hotel of NYC');
sqlite> INSERT INTO Location_H VALUES('A002','H007','Hotel of Orlando');
sqlite> INSERT INTO Location_H VALUES('A002','H008','Hotel of Orlando');
sqlite> INSERT INTO Location_H VALUES('A002','H009','Hotel of Orlando');
sqlite> INSERT INTO Location_H VALUES('A002','H010','Hotel of Orlando');
sqlite> INSERT INTO Location_H VALUES('A002','H011','Hotel of Orlando');
sqlite> INSERT INTO Location_H VALUES('A002','H012','Hotel of Orlando');
sqlite>

sqlite> INSERT INTO Location_R VALUES('A001','R001','Restaurant of NYC');
sqlite> INSERT INTO Location_R VALUES('A001','R002','Restaurant of NYC');
sqlite> INSERT INTO Location_R VALUES('A001','R003','Restaurant of NYC');
sqlite> INSERT INTO Location_R VALUES('A001','R004','Restaurant of NYC');
sqlite> INSERT INTO Location_R VALUES('A002','R005','Restaurant of Orlando');
sqlite> INSERT INTO Location_R VALUES('A002','R006','Restaurant of Orlando');
sqlite> INSERT INTO Location_R VALUES('A002','R007','Restaurant of Orlando');
```

```
sqlite> INSERT INTO Location_R VALUES('A002','R008','Restaurant of Orlando');

sqlite> INSERT INTO Travel_Itinerary
VALUES('000001','FLIGHT','D001','A001',DATE('2020-04-02'),DATE('2020-04-08'));
sqlite> INSERT INTO Travel_Itinerary
VALUES('000002','FLIGHT','D001','A001',DATE('2020-03-05'),DATE('2020-03-10'));
sqlite> INSERT INTO Travel_Itinerary
VALUES('000003','RAILWAY','D001','A002',DATE('2020-04-15'),DATE('2020-05-02'));
sqlite> INSERT INTO Travel_Itinerary
VALUES('000004','BUS','D002','A002',DATE('2020-04-22'),DATE('2020-05-03'));
sqlite>

sqlite> INSERT INTO CusTravel VALUES('C001','000001',DATE('2020-04-08'));
sqlite> INSERT INTO CusTravel VALUES('C002','000002',DATE('2020-03-10'));
sqlite> INSERT INTO CusTravel VALUES('C003','000003',DATE('2020-05-02'));
sqlite> INSERT INTO CusTravel VALUES('C004','000004',DATE('2020-05-03'));


sqlite> .output stdout
.output stdout
sqlite> .echo off
.echo off
sqlite>
```

SQL Query Documentation

The queries mentioned below can be run by installing sqlite and using DB Browser or the command prompt by pasting the select statements. Below is the output from running each query using the sample data in our database:

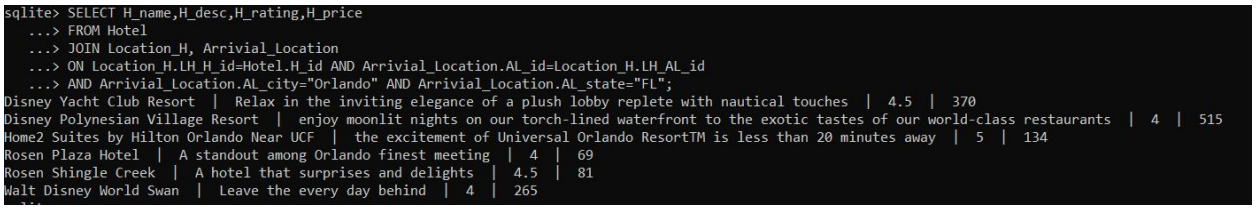
1. Display customer information for a particular customer id:

```
SELECT *
FROM Customer
WHERE C_id='C003';
```

```
sqlite> SELECT *
   ...> FROM Customer
   ...> WHERE C_id='C003';
C003  |  Tony  |  35  |  M  |  100 Park Ave  |     |  Worcester  |  MA  |  01609  |  3265456125
```

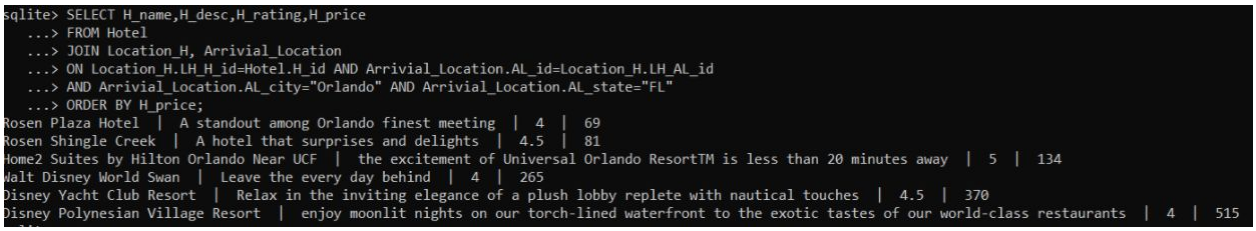
2. Filter list of hotels for a particular location chosen by the customer and display Corresponding price and rating of hotels

```
SELECT H_name,H_desc,H_rating,H_price
FROM Hotel
JOIN Location_H, Arrivial_Location
ON Location_H.LH_H_id=Hotel.H_id AND Arrivial_Location.AL_id=Location_H.LH_AL_id
AND Arrivial_Location.AL_city="Orlando" AND Arrivial_Location.AL_state="FL";
```



3. Arrange Hotel list by ascending order of Price or descending order of Rating

```
SELECT H_name,H_desc,H_rating,H_price
FROM Hotel
JOIN Location_H, Arrivial_Location
ON Location_H.LH_H_id=Hotel.H_id AND
Arrivial_Location.AL_id=Location_H.LH_AL_id
AND Arrivial_Location.AL_city="Orlando" AND Arrivial_Location.AL_state="FL"
ORDER BY H_price;
```




```
SELECT H_name,H_desc,H_rating,H_price
FROM Hotel
JOIN Location_H, Arrivial_Location
ON Location_H.LH_H_id=Hotel.H_id AND Arrivial_Location.AL_id=Location_H.LH_AL_id
AND Arrivial_Location.AL_city="Orlando" AND Arrivial_Location.AL_state="FL"
ORDER BY H_rating DESC;
```

```
sqlite> SELECT H_name,H_desc,H_rating,H_price
   ...> FROM Hotel
   ...> JOIN Location_H, Arrivial_Location
   ...> ON Location_H.LH_H_id=Hotel.H_id AND Arrivial_Location.AL_id=Location_H.LH_AL_id
   ...> AND Arrivial_Location.AL_city="Orlando" AND Arrivial_Location.AL_state="FL"
   ...> ORDER BY H_rating DESC;
Home2 Suites by Hilton Orlando Near UCF  |  the excitement of Universal Orlando ResortTM is less than 20 minutes away  |  5  |  134
Disney Yacht Club Resort  |  Relax in the inviting elegance of a plush lobby replete with nautical touches  |  4.5  |  370
Rosen Shingle Creek  |  A hotel that surprises and delights  |  4.5  |  81
Disney Polynesian Village Resort  |  enjoy moonlit nights on our torch-lined waterfront to the exotic tastes of our world-class restaurants  |  4  |  515
Rosen Plaza Hotel  |  A standout among Orlando finest meeting  |  4  |  69
Walt Disney World Swan  |  Leave the every day behind  |  4  |  265
```

4. List the Types of Transportation, the corresponding price of the transportation type, Travel From Location and Travel To Location

```
SELECT Transportation_Price.TP_transtype,
(Transportation_Price.TP_price_per_mile*Distance.D_number_miles) as Price,
Arrivial_Location.AL_city, Depature_Location.DL_city
from Transportation_Price, Distance, Arrivial_Location, Depature_Location
JOIN Travel_Itinerary
on Arrivial_Location.AL_id=Distance.D_AL_id and Depature_Location.DL_id=Distance.D_DL_id
AND Travel_Itinerary.TI_transtype=Transportation_Price.TP_transtype
AND Arrivial_Location.AL_id='A002'
and Depature_Location.DL_id='D001'
group by Transportation_Price.TP_transtype;
```

```
sqlite> SELECT Transportation_Price.TP_transtype, (Transportation_Price.TP_price_per_mile*Distance.D_number_miles) as Pr
ice, Arrivial_Location.AL_city, Depature_Location.DL_city
   ...> from Transportation_Price, Distance, Arrivial_Location, Depature_Location
   ...> JOIN Travel_Itinerary
   ...> on Arrivial_Location.AL_id=Distance.D_AL_id and Depature_Location.DL_id=Distance.D_DL_id
   ...> AND Travel_Itinerary.TI_transtype=Transportation_Price.TP_transtype
   ...> AND Arrivial_Location.AL_id='A002'
   ...> and Depature_Location.DL_id='D001'
   ...> group by Transportation_Price.TP_transtype;
BUS  |  640.0  |  Orlando  |  Boston
FLIGHT  |  1440.0  |  Orlando  |  Boston
RAILWAY  |  800  |  Orlando  |  Boston
```

5. Arrange Transportation type by ascending order of Price

```
SELECT Transportation_Price.TP_transtype,
(Transportation_Price.TP_price_per_mile*Distance.D_number_miles) as Price,
Arrivial_Location.AL_city, Depature_Location.DL_city
from Transportation_Price, Distance, Arrivial_Location, Depature_Location
JOIN Travel_Itinerary
on Arrivial_Location.AL_id=Distance.D_AL_id and Depature_Location.DL_id=Distance.D_DL_id
AND Travel_Itinerary.TI_transtype=Transportation_Price.TP_transtype
AND Arrivial_Location.AL_id='A002'
and Depature_Location.DL_id='D001'
```

group by Transportation_Price.TP_transtype
ORDER BY price;

```
sqlite> SELECT Transportation_Price.TP_transtype, (Transportation_Price.TP_price_per_mile*Distance.D_number_miles) as Pr
ice, Arrivial_Location.AL_city, Depature_Location.DL_city
   ...> from Transportation_Price, Distance, Arrivial_Location, Depature_Location
   ...> JOIN Travel_Itinerary
   ...> on Arrivial_Location.AL_id=Distance.D_AL_id and Depature_Location.DL_id=Distance.D_DL_id
   ...> AND Travel_Itinerary.TI_transtype=Transportation_Price.TP_transtype
   ...> AND Arrivial_Location.AL_id='A002'
   ...> and Depature_Location.DL_id='D001'
   ...> group by Transportation_Price.TP_transtype
   ...> ORDER BY price;
BUS  |  640.0  |  Orlando  |  Boston
RAILWAY  |  800  |  Orlando  |  Boston
FLIGHT  |  1440.0  |  Orlando  |  Boston
```

6. Filter list of Restaurants for a particular location chosen by the customer and display Corresponding price, rating and availability status of those hotels

SELECT
Restaurant.R_name,Restaurant.R_price,Restaurant.R_rating,Restaurant.R_reservation,Restaurant.R_addr_line1
from Restaurant
JOIN Location_R, Arrivial_Location
ON Location_R.LR_R_id=Restaurant.R_id AND Arrivial_Location.AL_id=Location_R.LR_AL_id
AND Arrivial_Location.AL_city="Orlando" AND Arrivial_Location.AL_state="FL";

```
sqlite> SELECT Restaurant.R_name,Restaurant.R_price,Restaurant.R_rating,Restaurant.R_reservation,Restaurant.R_addr_line1

   ...> from Restaurant
   ...> JOIN Location_R, Arrivial_Location
   ...> ON Location_R.LR_R_id=Restaurant.R_id AND Arrivial_Location.AL_id=Location_R.LR_AL_id
   ...> AND Arrivial_Location.AL_city="Orlando" AND Arrivial_Location.AL_state="FL";
Tapa Toro  |  60  |  4  |  YES  |  8441 International Dr #260, Orlando, FL 32819
Shin Jung Korean Restaurant  |  80  |  4.5  |  YES  |  1638 E Colonial Dr, Orlando, FL 32803
Soco Restaurant  |  100  |  4.5  |  YES  |  629 E Central Blvd, Orlando, FL 32801
Linda La Cantina Steak House  |  50  |  4  |  YES  |  4721 E Colonial Dr, Orlando, FL 32803
```

7. Arrange Restaurants list by descending order of Rating or ascending order of Price

SELECT
Restaurant.R_name,Restaurant.R_price,Restaurant.R_rating,Restaurant.R_reservation,Restaurant.R_addr_line1
from Restaurant
JOIN Location_R, Arrivial_Location
ON Location_R.LR_R_id=Restaurant.R_id AND Arrivial_Location.AL_id=Location_R.LR_AL_id
AND Arrivial_Location.AL_city="Orlando" AND Arrivial_Location.AL_state="FL"
order by R_rating desc;

```
sqlite> SELECT Restaurant.R_name,Restaurant.R_price,Restaurant.R_rating,Restaurant.R_reservation,Restaurant.R_addr_line1

   ...> from Restaurant
   ...> JOIN Location_R, Arrivial_Location
   ...> ON Location_R.LR_R_id=Restaurant.R_id AND Arrivial_Location.AL_id=Location_R.LR_AL_id
   ...> AND Arrivial_Location.AL_city="Orlando" AND Arrivial_Location.AL_state="FL"
   ...> order by R_rating desc;
Shin Jung Korean Restaurant  |  80  |  4.5  |  YES  |  1638 E Colonial Dr, Orlando, FL 32803
Soco Restaurant  |  100  |  4.5  |  YES  |  629 E Central Blvd, Orlando, FL 32801
Tapa Toro  |  60  |  4  |  YES  |  8441 International Dr #260, Orlando, FL 32819
Linda La Cantina Steak House  |  50  |  4  |  YES  |  4721 E Colonial Dr, Orlando, FL 32803
```

SELECT
Restaurant.R_name,Restaurant.R_price,Restaurant.R_rating,Restaurant.R_reservation,Restaurant.R_addr_line1
from Restaurant
JOIN Location_R, Arrivial_Location
ON Location_R.LR_R_id=Restaurant.R_id AND Arrivial_Location.AL_id=Location_R.LR_AL_id
AND Arrivial_Location.AL_city="Orlando" AND Arrivial_Location.AL_state="FL"
order by R_price;

```
sqlite> SELECT Restaurant.R_name,Restaurant.R_price,Restaurant.R_rating,Restaurant.R_reservation,Restaurant.R_addr_line1

   ...> from Restaurant
   ...> JOIN Location_R, Arrivial_Location
   ...> ON Location_R.LR_R_id=Restaurant.R_id AND Arrivial_Location.AL_id=Location_R.LR_AL_id
   ...> AND Arrivial_Location.AL_city="Orlando" AND Arrivial_Location.AL_state="FL"
   ...> order by R_price;
Linda La Cantina Steak House  |  50  |  4  |  YES  |  4721 E Colonial Dr, Orlando, FL 32803
Tapa Toro  |  60  |  4  |  YES  |  8441 International Dr #260, Orlando, FL 32819
Shin Jung Korean Restaurant  |  80  |  4.5  |  YES  |  1638 E Colonial Dr, Orlando, FL 32803
Soco Restaurant  |  100  |  4.5  |  YES  |  629 E Central Blvd, Orlando, FL 32801
```

8. Filter list of shopping malls for a particular location chosen by the customer and display Corresponding prices of shopping malls

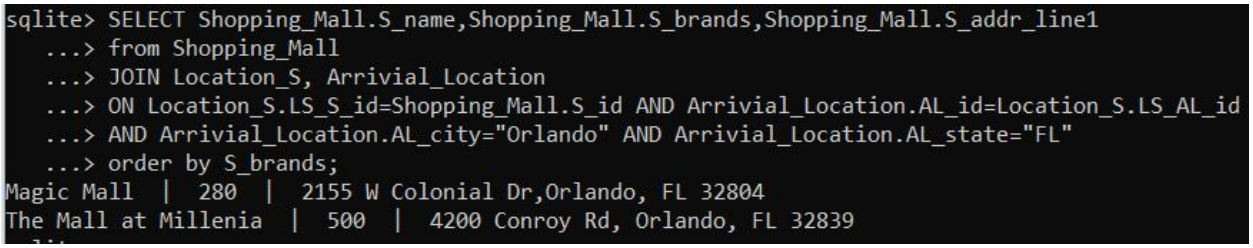
SELECT Shopping_Mall.S_name,Shopping_Mall.S_brands,Shopping_Mall.S_addr_line1
from Shopping_Mall
JOIN Location_S, Arrivial_Location
ON Location_S.LS_S_id=Shopping_Mall.S_id AND
Arrivial_Location.AL_id=Location_S.LS_AL_id
AND Arrivial_Location.AL_city="Orlando" AND Arrivial_Location.AL_state="FL";

```
sqlite> SELECT Shopping_Mall.S_name,Shopping_Mall.S_brands,Shopping_Mall.S_addr_line1
   ...> from Shopping_Mall
   ...> JOIN Location_S, Arrivial_Location
   ...> ON Location_S.LS_S_id=Shopping_Mall.S_id AND Arrivial_Location.AL_id=Location_S.LS_AL_id
   ...> AND Arrivial_Location.AL_city="Orlando" AND Arrivial_Location.AL_state="FL";
The Mall at Millenia  |  500  |  4200 Conroy Rd, Orlando, FL 32839
Magic Mall  |  280  |  2155 W Colonial Dr,Orlando, FL 32804
```

9. Arrange Shopping malls list by ascending order of brands

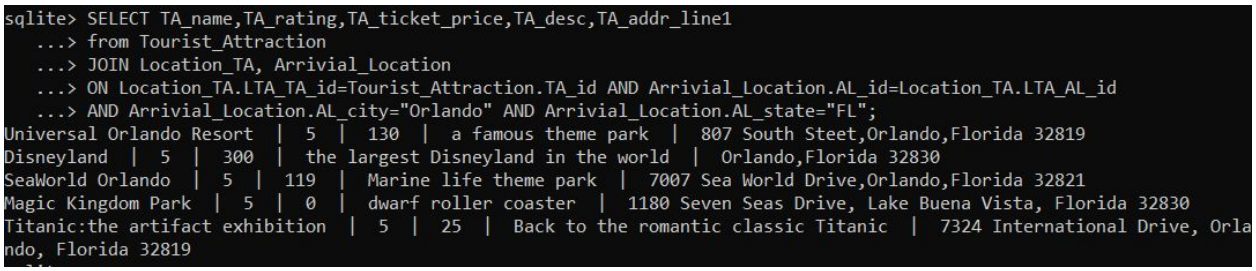
SELECT Shopping_Mall.S_name,Shopping_Mall.S_brands,Shopping_Mall.S_addr_line1

```
from Shopping_Mall
JOIN Location_S, Arrivial_Location
ON Location_S.LS_S_id=Shopping_Mall.S_id AND
Arrivial_Location.AL_id=Location_S.LS_AL_id
AND Arrivial_Location.AL_city="Orlando" AND Arrivial_Location.AL_state="FL"
order by S_brands;
```



10. Filter list of Travel Attractions for a particular location chosen by the customer and display Corresponding cost of visit those Travel Attractions

```
SELECT TA_name,TA_rating,TA_ticket_price,TA_desc,TA_addr_line1
from Tourist_Attraction
JOIN Location_TA, Arrivial_Location
ON Location_TA.LTA_TA_id=Tourist_Attraction.TA_id AND
Arrivial_Location.AL_id=Location_TA.LTA_AL_id
AND Arrivial_Location.AL_city="Orlando" AND Arrivial_Location.AL_state="FL";
```



11. Arrange Travel Attractions by descending order or Rating or ascending order of Price

```
SELECT TA_name,TA_rating,TA_ticket_price,TA_desc,TA_addr_line1
from Tourist_Attraction
JOIN Location_TA, Arrivial_Location
ON Location_TA.LTA_TA_id=Tourist_Attraction.TA_id AND
Arrivial_Location.AL_id=Location_TA.LTA_AL_id
AND Arrivial_Location.AL_city="Orlando" AND Arrivial_Location.AL_state="FL"
ORDER BY TA_rating desc;
```

```
sqlite> SELECT TA_name,TA_rating,TA_ticket_price,TA_desc,TA_addr_line1
   ...> from Tourist_Attraction
   ...> JOIN Location_TA, Arrivial_Location
   ...> ON Location_TA.LTA_TA_id=Tourist_Attraction.TA_id AND Arrivial_Location.AL_id=Location_TA.LTA_AL_id
   ...> AND Arrivial_Location.AL_city="Orlando" AND Arrivial_Location.AL_state="FL"
   ...> ORDER BY TA_rating desc;
Universal Orlando Resort  |  5  |  130  |  a famous theme park  |  807 South Steet,Orlando,Florida 32819
Disneyland  |  5  |  300  |  the largest Disneyland in the world  |  Orlando,Florida 32830
SeaWorld Orlando  |  5  |  119  |  Marine life theme park  |  7007 Sea World Drive,Orlando,Florida 32821
Magic Kingdom Park  |  5  |  0  |  dwarf roller coaster  |  1180 Seven Seas Drive, Lake Buena Vista, Florida 32830
Titanic:the artifact exhibition  |  5  |  25  |  Back to the romantic classic Titanic  |  7324 International Drive, Orla
ndo, Florida 32819
```

SELECT TA_name,TA_rating,TA_ticket_price,TA_desc,TA_addr_line1
from Tourist_Attraction
JOIN Location_TA, Arrivial_Location
ON Location_TA.LTA_TA_id=Tourist_Attraction.TA_id AND
Arrivial_Location.AL_id=Location_TA.LTA_AL_id
AND Arrivial_Location.AL_city="Orlando" AND Arrivial_Location.AL_state="FL"
ORDER BY TA_ticket_price;

```
sqlite> SELECT TA_name,TA_rating,TA_ticket_price,TA_desc,TA_addr_line1
   ...> from Tourist_Attraction
   ...> JOIN Location_TA, Arrivial_Location
   ...> ON Location_TA.LTA_TA_id=Tourist_Attraction.TA_id AND Arrivial_Location.AL_id=Location_TA.LTA_AL_id
   ...> AND Arrivial_Location.AL_city="Orlando" AND Arrivial_Location.AL_state="FL"
   ...> ORDER BY TA_ticket_price;
Magic Kingdom Park  |  5  |  0  |  dwarf roller coaster  |  1180 Seven Seas Drive, Lake Buena Vista, Florida 32830
Titanic:the artifact exhibition  |  5  |  25  |  Back to the romantic classic Titanic  |  7324 International Drive, Orla
ndo, Florida 32819
SeaWorld Orlando  |  5  |  119  |  Marine life theme park  |  7007 Sea World Drive,Orlando,Florida 32821
Universal Orlando Resort  |  5  |  130  |  a famous theme park  |  807 South Steet,Orlando,Florida 32819
Disneyland  |  5  |  300  |  the largest Disneyland in the world  |  Orlando,Florida 32830
```

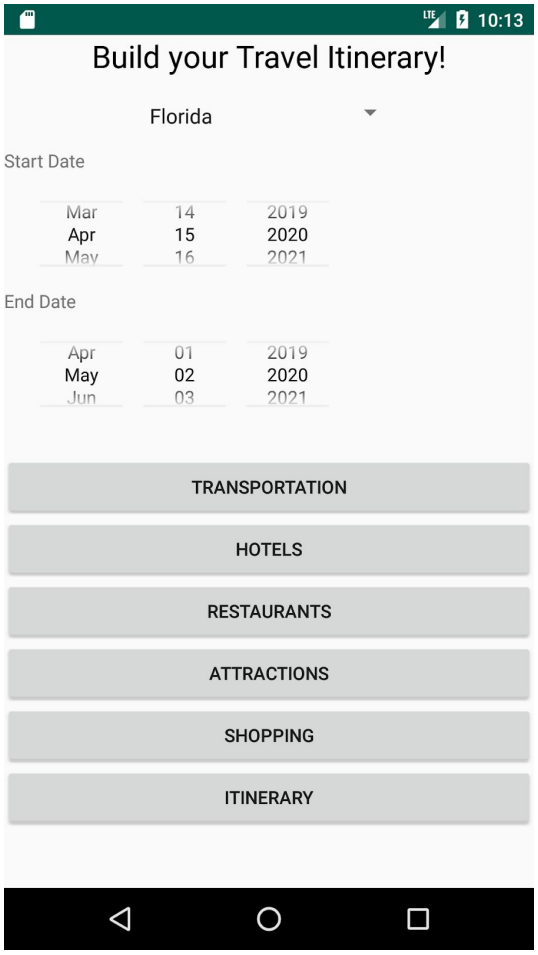
12. Display the final customer itinerary as per the fields chosen by the customer

select * from Customer_Itinerary where C_id='C003';

```
sqlite> select * from Customer_Itinerary where C_id='C003';
C003  |  Tony  |  2020-04-15  |  2020-05-02  |  Boston  |  Orlando  |  RAILWAY  |  800  |  Rosen Plaza Hotel  |  1173
```

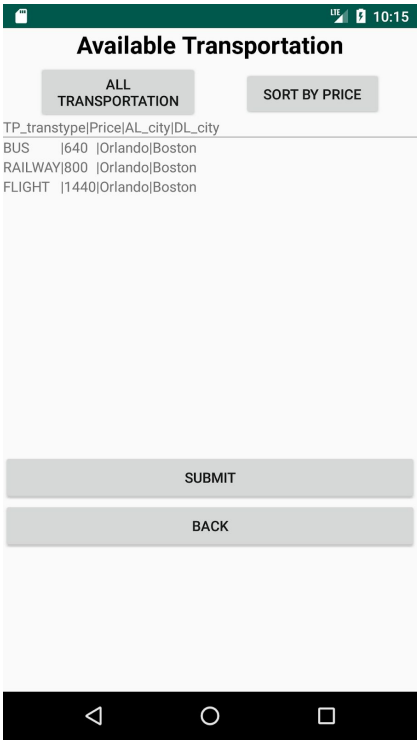
User Interface and Navigation:

The first page is the **customer input page** where they input their travel location, in this case the customer selects Florida, as well as the start and end dates of their trip.

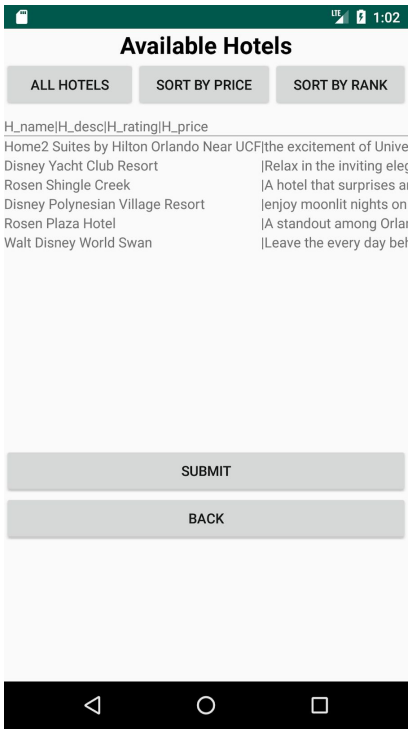


Next, the customer can select any page such as transportation, hotels, restaurants, attractions, and shopping areas to see availability, costs, and ranks.

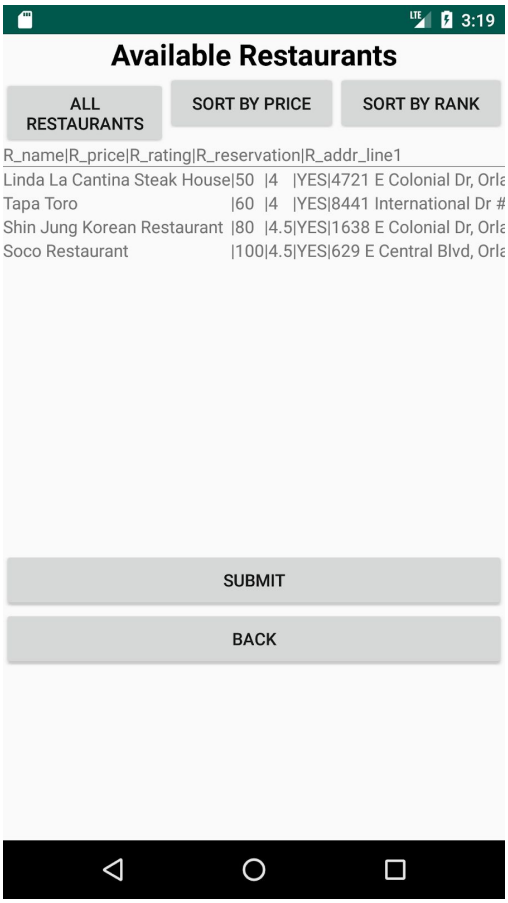
The customer chooses **transportation** and can then view all transport modes as well as sort by price to find the cheapest option. The cheapest available transportation mode is by bus and the most expensive is by flight. They can make a selection, hit the submit button, and then go back to the main page.



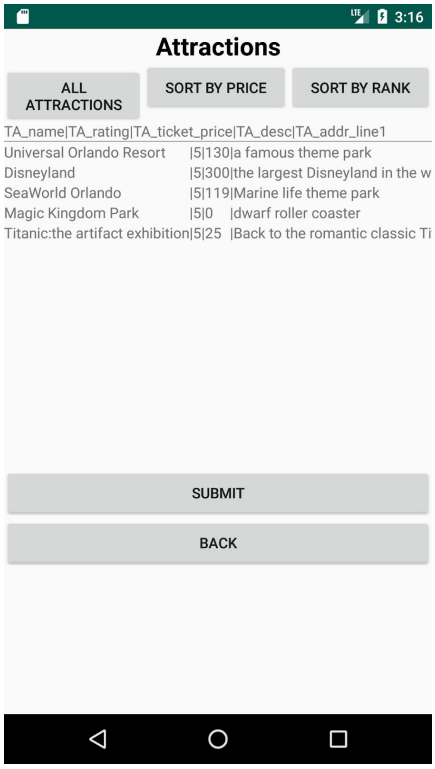
After, the customer goes to **hotels**. They can view all hotels, sort by price, or view by rank. In this picture below, the list of hotels are sorted by rank with the highest rated hotel being Home2 Suites by Hilton Orlando near UCF. They can make a selection and proceed to the main page.



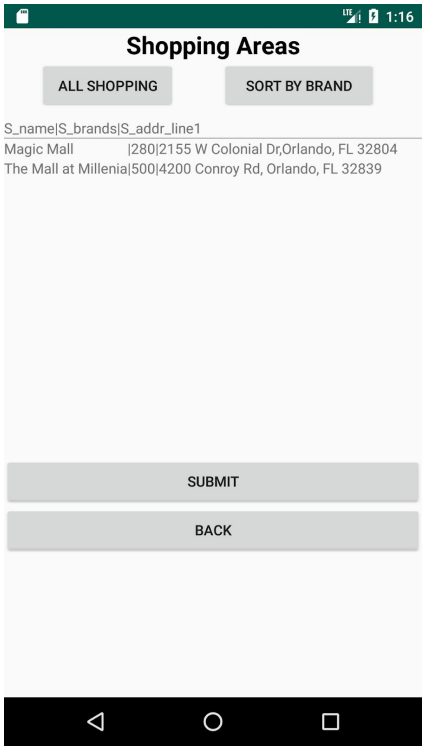
Similarly, this process can be done for **restaurants and attractions**. The customer chooses to sort the list of restaurants by price. The Linda La Cantina SteakHouse is an above average and cheaper place to dine in Florida.



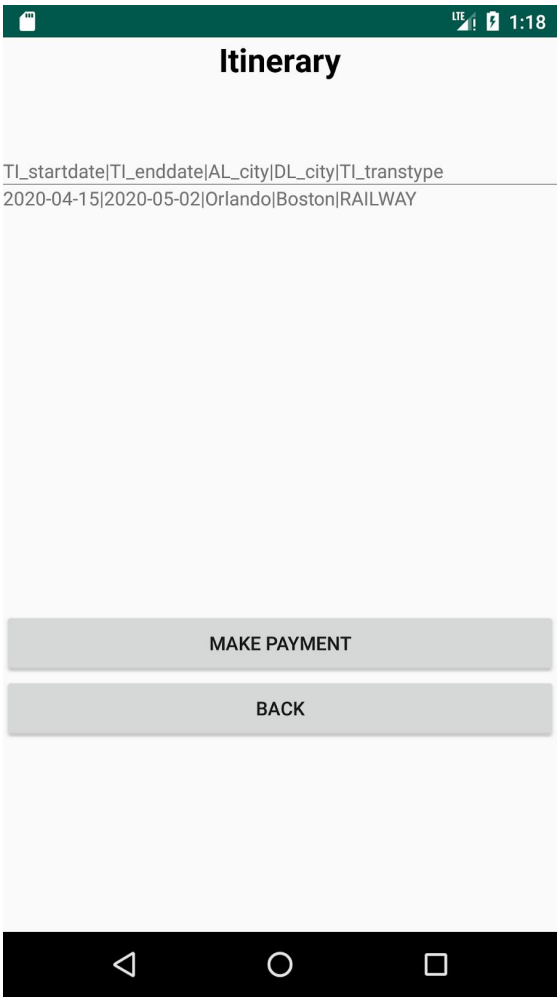
The customer then proceeds to the **attractions** page and sorts them by rank. Universal Orlando Resort and Disneyland are among the top ranked attractions.



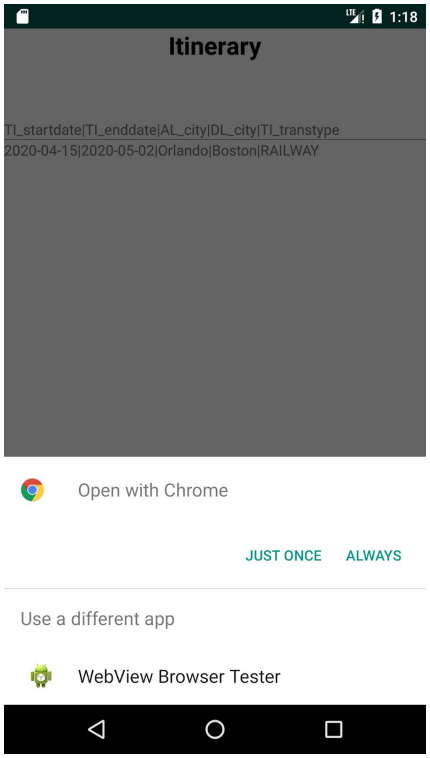
For **shopping**, customers can view shopping locations or malls in the area as well as sort by brands sold as shown in the picture below:



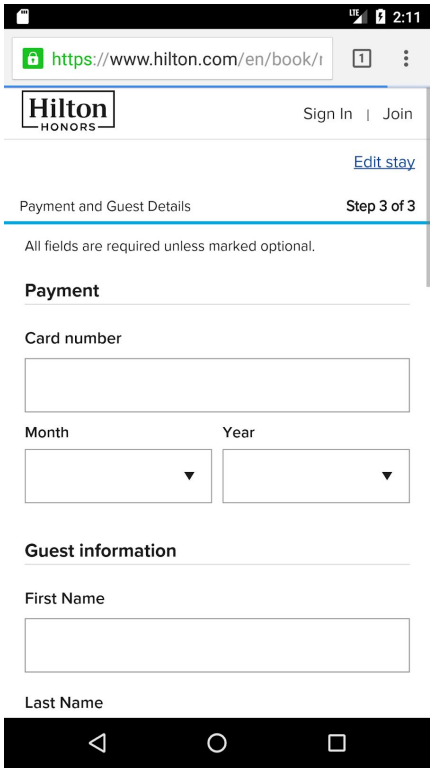
Finally, the customer can view their **itinerary** for the dates chosen. The arrival city is Orlando, Departure city is Boston, and the customer will be traveling by train.



They can click the ‘make a payment’ button and proceed to the secure website to place their reservations. The browser loads and the customer chooses to view the site on chrome.



The **travel reservation page** displays asking the customer for a credit card to make the payment and guest information.



Technical Documentation and Implementation

Space Estimates

The database would need a considerable amount of space because it needs to store multiple travel itineraries of a customer. It also needs to store multiple locations as well as each location's available transportation modes, hotels, restaurants, attractions, and shopping areas. Therefore, a suggested amount would be 100GB.

Backup and Security

Some backup and security features are needed in order to protect a customer's identity, travel plans, and data. For any reason if the application crashes or does not function normally, the customer's data needs to be backed up so that they would not have to rebuild their itinerary. This would add to the storage allocated for the application and database. It could be done through external hard drives or the cloud for example. In addition, security would need to be provided because others should not be able to view or stalk a customer's travel plans or data for safety reasons. Since it would lead to payment and a customer's personal information is needed, the security feature is essential such as setting up virus protection or checking data for accuracy and authenticity.

Data Quality

Some data quality problems include missing, inaccurate, or redundant data. A customer could forget to fill out the end date of the trip leading to missing data. This could also lead to inaccurate information as the database can produce wrong price estimates of the travel activities. There may also be redundant data that can be filtered out. All of these problems could be reduced by having error messages in the code warning the user to input the data or prevent advancing when performing erroneous actions in the application.

Code

The code consists of multiple components. One is the ‘command’ folder located under the package folder ‘com.example.travel_itinerary’ which includes the file that contains the location of the database file, which is under the ‘assets’ folder in the ‘main’ folder, and the list of SQL Query commands listed in the previous section. Next is the ‘util’ folder that contains all the database file opening and parsing operations. The ‘view’ folder has the file that sets up a table view to see the query output when clicking on a button on the user interface. After that, there are java classes, also located under the ‘main’ folder for each of the activities in a travel itinerary such as the main Customer Page, Transportation, Hotels, Restaurants, Attractions, Shopping, and the final Travel Itinerary. The **Customer and Transportation Java class code** is below. The rest of the Java classes follow the same layout as the Transportation page.

Customer.java:

```
package com.example.travel_itinerary;

import com.example.travel_itinerary.util.DBOperator;

import android.app.Activity;
import android.content.Intent;
import android.os.Bundle;

import android.view.View;
import android.widget.Button;



public class MainActivity extends Activity implements View.OnClickListener {

  Button transportBtn, hotelsBtn, restaurantsBtn, attractionsBtn, shoppingBtn, itineraryBtn;
  /** Called when the activity is first created. */
  @Override
  public void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.customer);

    transportBtn=(Button)this.findViewById(R.id.transportation);
    transportBtn.setOnClickListener(this);

    hotelsBtn=(Button)this.findViewById(R.id.hotels);
    hotelsBtn.setOnClickListener(this);
```

```
        restaurantsBtn=(Button)this.findViewById(R.id.restaurants);
        restaurantsBtn.setOnClickListener(this);

        attractionsBtn=(Button)this.findViewById(R.id.attractions);
        attractionsBtn.setOnClickListener(this);

        shoppingBtn=(Button)this.findViewById(R.id.shopping);
        shoppingBtn.setOnClickListener(this);

        itineraryBtn=(Button)this.findViewById(R.id.itinerary);
        itineraryBtn.setOnClickListener(this);


        //copy database file
        try{
            DBOperator.copyDB(getBaseContext());
        }catch(Exception e){
            e.printStackTrace();
        }
    }

    public void onClick(View v) {
        int id = v.getId();
        if (id == R.id.transportation) {
            Intent intent = new Intent(this, Transportation.class);
            this.startActivity(intent);
        } else if (id == R.id.hotels) {
            Intent intent = new Intent(this, Hotels.class);
            this.startActivity(intent);
        } else if (id == R.id.restaurants) {
            Intent intent = new Intent(this, Restaurants.class);
            this.startActivity(intent);
        }else if (id == R.id.attractions) {
            Intent intent = new Intent(this, Attractions.class);
            this.startActivity(intent);
        }else if (id == R.id.shopping) {
            Intent intent = new Intent(this, Shopping.class);
            this.startActivity(intent);
        }else if (id == R.id.itinerary) {
            Intent intent = new Intent(this, Itinerary.class);
            this.startActivity(intent);
        }
    }
}
```

Transportation.java:

```
package com.example.travel_itinerary;

import com.example.travel_itinerary.command.SQLCommand;
import com.example.travel_itinerary.util.DBOperator;
import com.example.travel_itinerary.view.TableView;

import android.app.Activity;
import android.content.Intent;
import android.database.Cursor;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.DatePicker;
import android.widget.EditText;
import android.widget.ScrollView;
import android.widget.Toast;
import android.widget.Spinner;

public class Transportation extends Activity implements View.OnClickListener {

  Button transport_backBtn, showall_transportbtn, price_transportbtn;
  ScrollView transportQuery;

  public void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.transportation);
    //copy database file
    try{
      DBOperator.copyDB(getBaseContext());
    }catch(Exception e){
      e.printStackTrace();
    }
    transport_backBtn=(Button)this.findViewById(R.id.TransBack);
    transport_backBtn.setOnClickListener(this);

    showall_transportbtn=(Button)this.findViewById(R.id.AllTrans);
    showall_transportbtn.setOnClickListener(this);

    price_transportbtn=(Button)this.findViewById(R.id.TransPrice);
    price_transportbtn.setOnClickListener(this);

    transportQuery = (ScrollView)this.findViewById(R.id.TransView);
  }

  public void onClick(View v)
  {
    String sql="";
    int id=v.getId();
```

```
    if (id==R.id.AllTrans){

        transportQuery.removeAllViews();

        sql= SQLCommand.QUERY11;

        Cursor cursor=DBOperator.getInstance().execQuery(sql);
        transportQuery.addView(new TableView(this.getBaseContext(),cursor));

    }else if (id==R.id.TransPrice){

        transportQuery.removeAllViews();

        sql= SQLCommand.QUERY12;

        Cursor cursor=DBOperator.getInstance().execQuery(sql);
        transportQuery.addView(new TableView(this.getBaseContext(),cursor));
    }
    else if (id==R.id.TransBack){
        //Go back to main screen
        Intent intent = new Intent(this, MainActivity.class);
        this.startActivity(intent);
    }
  }
}
```

Another component is the 'layout' folder located under 'res'. The 'layout' folder contains all the .xml design layouts for all the pages. The **customer.xml and hotels.xml** files are shown below. All the other .xml files follow a similar design to the hotels.xml.

customer.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  android:orientation="vertical">

  <TextView
    android:id="@+id/customerID"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center_horizontal"
    android:text="@string/customerID"
    android:textColor="@android:color/black"
    android:textSize="24sp" />
```

```
<LinearLayout
   android:layout_width="match_parent"
   android:layout_height="55dp"
   android:orientation="horizontal">

   <Spinner
      android:id="@+id/locations"
      android:layout_width="203dp"
      android:layout_height="35dp"
      android:layout_gravity="center"
      android:layout_marginLeft="105dp"
      android:layout_marginTop="5dp"
      android:layout_marginRight="160dp"
      android:layout_marginBottom="5dp"
      android:dropDownWidth="270dp"
      android:dropDownSelector="@android:drawable/spinner_background"
      android:entries="@array/query_array"
      android:gravity="center"
      android:paddingTop="5dp"
      android:prompt="@string/query_prompt" />

</LinearLayout>

<LinearLayout
   android:id="@+id/datePickerID"
   android:layout_width="match_parent"
   android:layout_height="238dp"
   android:orientation="vertical">

   <TextView
      android:id="@+id/startdate"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:text="@string/startdate" />

   <DatePicker
      android:id="@+id/datePicker1"
      android:layout_width="wrap_content"
      android:layout_height="84dp"
      android:layout_marginLeft="20dp"
      android:layout_marginTop="5dp"
      android:calendarViewShown="false"
      android:datePickerMode="spinner" />

   <TextView
      android:id="@+id/enddate"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:text="@string/enddate" />
```

```
    <DatePicker
        android:id="@+id/datePicker2"
        android:layout_width="wrap_content"
        android:layout_height="84dp"
        android:layout_marginLeft="20dp"
        android:layout_marginTop="5dp"
        android:calendarViewShown="false"
        android:datePickerMode="spinner" />
  </LinearLayout>

  <Button
    android:id="@+id/transportation"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="@string/transportation_btn" />

  <Button
    android:id="@+id/hotels"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="@string/hotel_btn" />

  <Button
    android:id="@+id/restaurants"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="@string/restaurant_btn" />

  <Button
    android:id="@+id/attractions"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="@string/attractions_btn" />

  <Button
    android:id="@+id/shopping"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="@string/shopping_btn" />

  <Button
    android:id="@+id/itinerary"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="@string/itinerary_btn" />
</LinearLayout>
```

hotels.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
  android:orientation="vertical" android:layout_width="match_parent"
  android:layout_height="match_parent">

  <TextView
    android:id="@+id/HotelText"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center_horizontal"
    android:text="@string/HotelText"
    android:textColor="@android:color/black"
    android:textSize="24sp"
    android:textStyle="bold" />

  <LinearLayout
    android:layout_width="match_parent"
    android:layout_height="56dp"
    android:orientation="horizontal">

    <Button
      android:id="@+id/AllHotel"
      android:layout_width="134dp"
      android:layout_height="wrap_content"
      android:text="@string/allhotel" />

    <Button
      android:id="@+id/HotelPrice"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_weight="1"
      android:text="@string/hotelprice" />

    <Button
      android:id="@+id/HotelRank"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_weight="1"
      android:text="@string/hotelrank" />
  </LinearLayout>

  <ScrollView
    android:id="@+id/hotelView"
    android:layout_width="match_parent"
    android:layout_height="334dp" />

  <Button
    android:id="@+id/HotelSubmit"
```

```
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Submit" />

  <Button
    android:id="@+id/HotelBack"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="@string/hotels_back_btn" />
</LinearLayout>
```

In addition, in the ‘values’ folder located under the same ‘res’ folder, a list of buttons and its text values are listed:

string.xml

```
<resources>
  <string name="app_name">Travel_Itinerary</string>
  <string name="action_settings">Settings</string>
  <string name="HotelText">Available Hotels</string>
  <string name="itinerary_btn">Itinerary</string>
  <string name="customerID">Build your Travel Itinerary!</string>
  <string name="startdate">Start Date</string>
  <string name="enddate">End Date</string>
  <string name="transportation_btn">Transportation</string>
  <string name="hotel_btn">Hotels</string>
  <string name="restaurant_btn">Restaurants</string>
  <string name="attractions_btn">Attractions</string>
  <string name="shopping_btn">Shopping</string>
  <string name="attract_back_btn">Back</string>
  <string name="hotels_back_btn">Back</string>
  <string name="itinerary_back_btn">Back</string>
  <string name="restaurants_back_btn">Back</string>
  <string name="shopping_back_btn">Back</string>
  <string name="transport_back_btn">Back</string>
  <string name="query_prompt">Choose a Location</string>
  <string name="alltransportbtn">All Transportation</string>
  <string name="sorttransportprice">Sort by Price</string>
  <string name="sorttransportrank">Sort by Rank</string>
  <string name="allattract">All Attractions</string>
  <string name="attractprice">Sort by Price</string>
  <string name="attractrank">Sort by Rank</string>
  <string name="allhotel">All Hotels</string>
  <string name="hotelprice">Sort By Price</string>
  <string name="hotelrank">Sort by Rank</string>
  <string name="allrest">All Restaurants</string>
  <string name="restprice">Sort by Price</string>
  <string name="restrank">Sort by Rank</string>
```

```
  <string name="allshop">All Shopping</string>
  <string name="shopbrand">Sort by Brand</string>
  <string name="makepay">Make Payment</string>

</resources>
```

Finally, the **AndroidManifest.xml** page contains all the registered pages of the application:

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
  package="com.example.travel_itinerary">

  <application
    android:allowBackup="true"
    android:icon="@mipmap/ic_launcher"
    android:label="@string/app_name"
    android:roundIcon="@mipmap/ic_launcher_round"
    android:supportsRtl="true"
    android:theme="@style/AppTheme">
    <activity
      android:name=".MainActivity"
      android:label="@string/app_name"
      android:theme="@style/AppTheme.NoActionBar">
      <intent-filter>
        <action android:name="android.intent.action.MAIN" />

        <category android:name="android.intent.category.LAUNCHER" />
      </intent-filter>
    </activity>
    <activity android:name=".Attractions"
      android:theme="@style/AppTheme.NoActionBar"></activity>
    <activity android:name=".Hotels"
      android:theme="@style/AppTheme.NoActionBar"></activity>
    <activity android:name=".Itinerary"
      android:theme="@style/AppTheme.NoActionBar"></activity>
    <activity android:name=".Restaurants"
      android:theme="@style/AppTheme.NoActionBar"></activity>
    <activity android:name=".Shopping"
      android:theme="@style/AppTheme.NoActionBar"></activity>
    <activity android:name=".Transportation"
      android:theme="@style/AppTheme.NoActionBar"></activity>
  </application>

</manifest>
```

Conclusion

In conclusion, we learned a lot of important concepts from doing the travel itinerary database project. We applied the theoretical knowledge earned in class to the practical problem at hand. We also learned how to design and create a database from scratch to make it easier and more efficient for customers to find the cheapest and available travel itinerary. Learning android application development, integrating the application with the database, performing data retrieval by executing SQL queries, and displaying the results on the user interface were new experiences and skills that we can apply in the future.