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Database Systems
Mini-Project Assignment

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Abstract:

The main idea of this mini-project is to create an application called One Budget, that enables tourists to maintain a specific budget when travelling. Upon opening the application, the customer is required to either log in with their existing account or create a new account. When all their information is verified, they are asked to input their destination, trip duration, and most importantly, their trip budget. After that, they are also asked to enter a list of interests that will help the application suggest the right places. Finally, the customer receives a plan of activities and places to visit during their trip duration that fall within the budget they entered. However, if the plan does not meet their needs, they are provided with an option to create their plan from a list of places the application suggests that fall within the customer's budget.

In order to achieve the goal of the app, all information must be stored in a database. Hence why there is 5 main tables in this project: User_Info, Login_Info, Interests, Trip_Info, and Activities. Each containing their own specific attributes that are later on discussed in this report. This report also includes an ER Model that portrays the relationship between tables better and the interactions between them. To summarize the tables, their attributes, and the relationship between them, a relational model is included in the report. Finally, the physical implementation of the tables on SQL Live is also included.

The appendix contains a table showing work distribution within the group and the coding part of the project used to create the tables, insert into them, and change them.

Introduction:

One Budget is an application that allows the user to enter their personal information, destination of trip, duration, interests, and the budget they want to maintain. In return, the application provides them with the option to create their own plan from a list of activities or receive an already made plan that includes suitable activities.

In order to store all this information in our database, we created five tables: User_Info, Login_Info, Interests, Trip_Info, and Activities. Each table contains the following attributes:

Table 1: User_Info

Attributes: User_ID (primary key), name, email, gender, age, phone, and trip_plan.

Table 2: Login_Info

Attributes: User_ID (foreign key), email, password.

Table 3: Interests

Attributes: Interest_ID (primary key), Interest_Name.

Table 4: Trip_Info

Attributes: User_ID (foreign key), duration, destination, budget, Interest_ID (foreign key)

Table 5: Activities

Attributes: Activity_name (primary key), category, Interest_ID (foreign key), lower_range, upper_range, rating, time.

In order to implement these tables, we used SQL Live, and to draw the ER Diagram and the relational mapping, the website Lucid Chart was used.

Data Requirements:

- Every user has a unique ID, name, gender, social status, contact info, age, and plan status.
- Every user has a unique ID.
- USER_INFO table contains the primary key (user id). Which is a foreign key in tables LOGIN_INFO, TRIP_INFO, and SELECTED_ACTIVITIES.
- Each user has login info, which includes their id, email, and password.
- Every user is required to fill each field in TRIP_INFO. Which are budget, destination, duration, and interest_ID.
- Every USER must select one INTEREST when filling the TRIP_INFO fields.
- Every user selects several ACTIVITIES.
- Each activity has a name, category, price range, rating, and an estimated time.
- INTERESTS table contain primary key (INTEREST_ID) and INTEREST_NAME.

Conceptual Model:

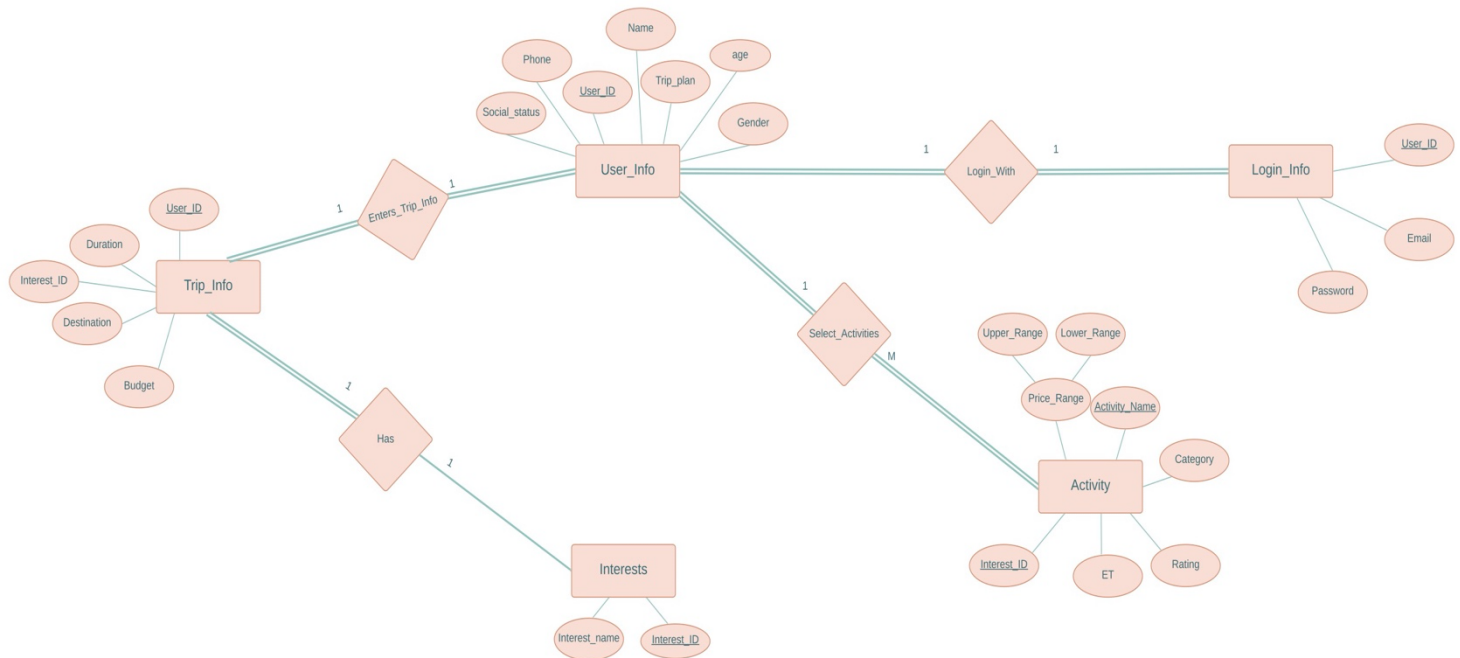


Figure 1

Figure 1 represents the ER model for our database. We have 5 main entities: **User_Info**, **Login_Info**, **Trip_Info**, **Interests**, and **Activity**. The user logs into their account with their login information, which consists of their unique user ID, email, and password. Not only that, the user is also able to enter their trip information, which consists of the trip duration, trip destination, budget, and what their interests are, and later on, all this information is connected to their user ID. Every trip information has one interest, that contains its own unique ID and a name. The user can also select many activities based on the price range, activity name, category, rating by other users, the time the activity takes and the interest that activity is linked to.

Logical Model:

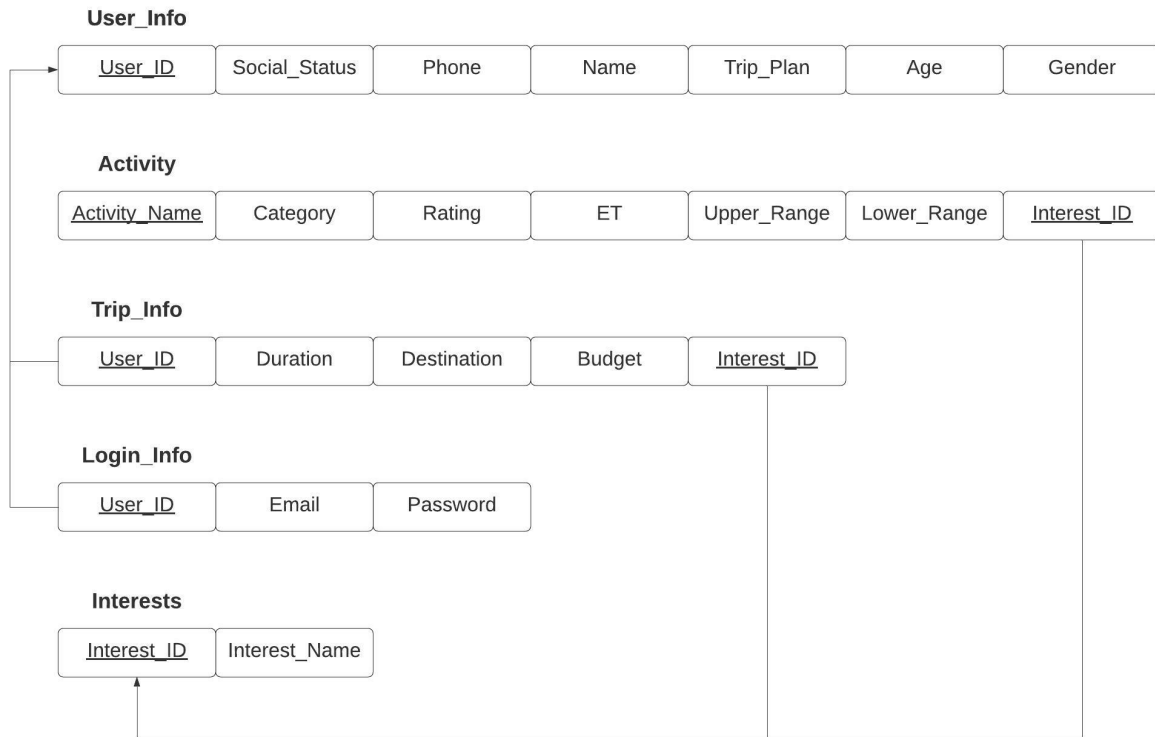


Figure 2

Figure 2 represents the relational schema for Figure 1. It shows how data is entered into tables, how it is structured, the primary keys, and foreign keys for each table.

Physical Model:

USER_ID	NAME	EMAIL	GENDER	AGE	PHONE_NUM	TRIP_PLAN	STATUS
10878	Aseel	Aseel.wajieh@gmail.com	Female	20	799547378	Unplanned	Single
10456	Lama	Lama.ahmad@gmail.com	Female	26	776544378	Planned	Single
20873	Ahmad	Ahmad.omar@hotmail.com	Male	45	781254437	Planned	Married
34251	Hazem	Hazem.ayman@yahoo.com	Male	32	795653378	Unplanned	Single
32093	Leena	Leena.moh@hotmail.com	Female	51	776144278	Planned	Married
42037	Bana	Bana.Ghazi@yahoo.com	Female	30	798801022	Planned	Married
27342	Saad	Saad.Faisal@hotmail.com	Male	22	772343442	Unplanned	Single
52297	Majd	Majd.Ahmad@hotmail.com	Male	60	790558251	Planned	Married
30897	Karam	Karam.Ahmad@gmail.com	Male	25	792947942	Unplanned	Single
56771	Lydia	Lydia.Micheal@gmail.com	Female	37	771069897	Planned	Married

Figure 3 (User_Info Table)

USER_ID	EMAIL	PASSWORD
10878	Aseel.wajieh@gmail.com	Aseel@abd9
10456	Lama.ahmad@gmail.com	Lama2001
20873	Ahmad.omar@hotmail.com	Ahmad_omar
34251	Hazem.ayman@yahoo.com	Hazemmaher1234
32093	Leena.moh@hotmail.com	l\$\$na@moh
42037	Bana.Ghazi@yahoo.com	B1a2n3a
27342	Saad.Faisal@hotmail.com	SA22@ho
52297	Majd.Ahmad@hotmail.com	Majd251
30897	Karam.Ahmad@gmail.com	Ka@ram123
56771	Lydia.Micheal@gmail.com	Lydia9897

Figure 4 (Login_Info Table)

USER_ID	DURATION	DESTINATION	BUDGET	INTEREST_ID
10878	10 days	Italy	2000	4
10456	14 days	Paris	1500	3
20873	7 days	Turkey	3500	1
34251	21 days	Spain	4500	4
32093	15 days	Greece	2400	2
42037	5 days	Quebec	4200	5
27342	35 days	Paris	6000	8
52297	60 days	Amsterdam	10000	9
30897	21 days	Turkey	3700	6
56771	43 days	Brazil	6600	2

Figure 5 (Trip_Info Table)

INTEREST_ID	INTEREST_NAME
1	Movie theaters
2	Trying new food
3	Swimming
4	Sightseeing
5	Hiking
6	Amusement Park
7	Museums
8	Bungee Jumping
9	Games
10	Karaoke

Figure 6 (Interests Table)

ACTIVITY_NAME	CATEGORY	INTEREST_ID	LOWER_RANGE	UPPER_RANGE	RATING	TIME
Dead Sea	Swimming	3	300	1500	5	-
Taj Cinema	Movie theaters	1	40	70	4	-
Cube Burger	Trying new food	2	15	65	5	2.5 hours
Amman Citadel	Sightseeing	4	10	40	4	1.5 hours
Petra	Hiking	5	150	700	5	-
Escape The Room	Games	9	15	30	5	1 hour
Galaxy Park	Games	9	10	100	5	5 hours
Uncle Osaka	Food	2	1	5	5	1.5 hours
Strikers Entertainment Center	Games	9	5	15	5	3.5 hours
Childrens Museum	Museums	7	5	15	3	2 hours

Figure 7 (Activity Table)

Implementation Environment:

UPDATE:

1)

ACTIVITY_NAME	CATEGORY	INTEREST_ID	LOWER_RANGE	UPPER_RANGE	RATING	TIME
Taj Cinema	Movie theaters	1	40	70	4	-

ACTIVITY_NAME	CATEGORY	INTEREST_ID	LOWER_RANGE	UPPER_RANGE	RATING	TIME
Taj Cinema	Movie theaters	1	40	70	4	3 hours

2)

USER_ID	NAME	EMAIL	GENDER	AGE	PHONE_NUM	TRIP_PLAN	STATUS
10878	Aseel	Aseel.wajieh@gmail.com	Female	20	799547378	Unplanned	Single
27342	Saad	Saad.Faisal@hotmail.com	Male	22	772343442	Unplanned	Single

USER_ID	NAME	EMAIL	GENDER	AGE	PHONE_NUM	TRIP_PLAN	STATUS
10878	Aseel	Aseel.wajieh@gmail.com	Female	20	799547378	Planned	Single
27342	Saad	Saad.Faisal@hotmail.com	Male	22	772343442	Planned	Single

DELETE:

3)

ACTIVITY_NAME	CATEGORY	INTEREST_ID	LOWER_RANGE	UPPER_RANGE	RATING	TIME
Dead Sea	Swimming	3	300	1500	5	-
Taj Cinema	Movie theaters	1	40	70	4	-
Cube Burger	Trying new food	2	15	65	5	2.5 hours
Amman Citadel	Sightseeing	4	10	40	4	1.5 hours
Petra	Hiking	5	150	700	5	-
Escape The Room	Games	9	15	30	5	1 hour
Galaxy Park	Games	9	10	100	5	5 hours
Uncle Osaka	Food	2	1	5	5	1.5 hours
Strikers Entertainment Center	Games	9	5	15	5	3.5 hours
Childrens Museum	Museums	7	5	15	3	2 hours

ACTIVITY_NAME	CATEGORY	INTEREST_ID	LOWER_RANGE	UPPER_RANGE	RATING	TIME
Dead Sea	Swimming	3	300	1500	5	-
Taj Cinema	Movie theaters	1	40	70	4	3 hours
Cube Burger	Trying new food	2	15	65	5	2.5 hours
Amman Citadel	Sightseeing	4	10	40	4	1.5 hours
Petra	Hiking	5	150	700	5	-
Uncle Osaka	Food	2	1	5	5	1.5 hours
Childrens Museum	Museums	7	5	15	3	2 hours

4)

ACTIVITY_NAME	CATEGORY	INTEREST_ID	LOWER_RANGE	UPPER_RANGE	RATING	TIME
Dead Sea	Swimming	3	300	1500	5	-
Taj Cinema	Movie theaters	1	40	70	4	3 hours
Cube Burger	Trying new food	2	15	65	5	2.5 hours
Amman Citadel	Sightseeing	4	10	40	4	1.5 hours
Petra	Hiking	5	150	700	5	-
Childrens Museum	Museums	7	5	15	3	2 hours
Uncle Osaka	Trying new food	2	1	5	5	1.5 hours
Strikers Entertainment Center	Games	9	5	15	5	3.5 hours
The Squad	Karaoke	10	5	10	5	1 hours

ACTIVITY_NAME	CATEGORY	INTEREST_ID	LOWER_RANGE	UPPER_RANGE	RATING	TIME
Dead Sea	Swimming	3	300	1500	5	-
Taj Cinema	Movie theaters	1	40	70	4	3 hours
Cube Burger	Trying new food	2	15	65	5	2.5 hours
Amman Citadel	Sightseeing	4	10	40	4	1.5 hours
Petra	Hiking	5	150	700	5	-
Escape The Room	Games	9	15	30	5	1 hour
Childrens Museum	Museums	7	5	15	3	2 hours
Uncle Osaka	Trying new food	2	1	5	5	1.5 hours
Strikers Entertainment Center	Games	9	5	15	5	3.5 hours
The Squad	Karaoke	10	5	10	5	1 hours

SELECT:

5)

ACTIVITY_NAME
Dead Sea
Petra

[Download CSV](#)

6)

NAME
Lama

7)

NAME
Aseel
Hazem
Leena

8)

INTEREST_NAME	Number Of Users
Bungee Jumping	1
Sightseeing	2
Swimming	1
Hiking	1
Trying new food	2
Games	1
Movie theaters	1
Amusement Park	1

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9)

NAME
Aseel
Lama
Leena

[Download CSV](#)

10)

NAME
Majd

[Download CSV](#)

11)

NAME	EMAIL_DOMAIN
Aseel	gmail
Lama	gmail
Ahmad	hotmail
Hazem	yahoo
Leena	hotmail
Bana	yahoo
Saad	hotmail
Majd	hotmail
Karam	gmail
Lydia	gmail

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12)

INTEREST_NAME	USER_ID
Museums	-
Karaoke	-
Trying new food	56771
Games	52297
Hiking	42037
Sightseeing	34251
Trying new food	32093
Amusement Park	30897
Bungee Jumping	27342
Movie theaters	20873
Sightseeing	10878
Swimming	10456

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13)

USER_ID	DURATION	DESTINATION	BUDGET	INTEREST_ID
10456	14 days	Paris	1500	3
34251	21 days	Spain	4500	4

[Download CSV](#)

14)

INTEREST_NAME
Trying new food

[Download CSV](#)

15) VIEW:

NAME	EMAIL	AGE	PHONE_NUM
Aseel	Aseel.wajieh@gmail.com	20	799547378
Lama	Lama.ahmad@gmail.com	26	776544378
Ahmad	Ahmad.omar@hotmail.com	45	781254437
Hazem	Hazem.ayman@yahoo.com	32	795653378
Leena	Leena.moh@hotmail.com	51	776144278
Bana	Bana.Ghazi@yahoo.com	30	798801022
Saad	Saad.Faisal@hotmail.com	22	772343442
Majd	Majd.Ahmad@hotmail.com	60	790558251
Karam	Karam.Ahmad@gmail.com	25	792947942
Lydia	Lydia.Micheal@gmail.com	37	771069897

[Download CSV](#)

Conclusion:

In conclusion, we created fully rounded database that will help implement the One Budget application. The database includes tables that will keep track of the user's information, trip information, their interests, list of possible activities, and in return, the user will get a trip that fits all their requirements and needs.

/*CREATING TABLE USER_INFO*/

```
Create table User_info(  
User_ID Number(5) Constraint User_ID_pk primary key,  
Name Varchar(25) Constraint Name_nn not null,  
Email Varchar(100) Constraint Email_nn not null,  
Gender Varchar(10) Constraint Gender_nn not null,  
Age Number(3) Constraint Age_nn not null,  
Phone Number(15) Constraint Phone_nn not null,  
Trip_Plan Varchar(10) Constraint Trip_Plan_nn not null  
);
```

/*CREATING TABLE LOGIN_INFO*/

```
Create table Login_info(  
User_ID Number(5) Constraint Login_User_ID_fk references User_info(User_ID),  
Email Varchar(100) Constraint Login_Email_nn not null,  
Password Varchar(50) Constraint Password_nn not null  
);
```

/*CREATING TABLE INTERESTS*/

```
Create table Interests (  
Interest_ID Number(6) Constraint Interests_ID_pk primary key,  
Interest_Name Varchar(50) Constraint Interests_Name_nn not null  
);
```

/*CREATING TABLE TRIP_INFO*/

```
Create table Trip_info(  
User_ID Number(5) Constraint Trip_User_ID_fk references User_info(User_ID),  
Duration Varchar(25) Constraint Dur_nn not null,  
Destination Varchar(50) Constraint Dest_nn not null,  
Budget Number(6) Constraint Budget_nn not null,  
Interest_ID Number(6) Constraint Interest_ID_fk references Interests(Interest_ID)  
);
```

/*CREATING TABLE ACTIVITIES*/

```
Create table Activities(  
Activity_Name Varchar(50) Constraint Act_Name_pk primary key,  
Category Varchar(50) Constraint Category_nn not null,  
Interest_ID Number(6) Constraint Interest_ID_Act_fk references Interests(Interest_ID),  
Lower_Range Number(6) Constraint Lower_nn not null,  
Upper_Range Number(6) Constraint Upper_nn not null,  
Rating Number(5) Constraint Rate_nn not null,  
Time Varchar(20) );
```

/*ALTERING TABLES*/

```
alter table User_info  
Modify Trip_Plan Varchar(15);
```

```
alter table User_info  
Rename column Phone to Phone_num;
```



```
alter table Trip_info
Add Constraint Budget_pk primary key(Budget);
```

```
alter table Trip_info
Drop Constraint Budget_pk;
```

```
alter table User_info
Add Status Varchar(10);
```

/*INSERTING INTO USER_INFO*/

```
insert into User_info
Values (10878,'Aseel','Aseel.wajieh@gmail.com','Female',20,0799547378,'Unplanned','Single');
```

```
insert into User_info
Values (10456,'Lama','Lama.ahmad@gmail.com','Female',26,0776544378,'Planned','Single');
```

```
insert into User_info
Values (20873,'Ahmad','Ahmad.omar@hotmail.com','Male',45,0781254437,'Planned','Married');
```

```
insert into User_info
Values(34251,'Hazem','Hazem.ayman@yahoo.com','Male',32,0795653378,'Unplanned','Single');
```

```
Insert into User_info
Values (32093,'Leena','Leena.moh@hotmail.com','Female',51,0776144278,'Planned','Married');
```

```
insert into User_info
values(42037,'Bana','Bana.Ghazi@yahoo.com','Female',30,0798801022,'Planned','Married');
```

```
insert into User_info
values(27342,'Saad','Saad.Faisal@hotmail.com','Male',22,0772343442,'Unplanned','Single');
```

```
insert into User_info
values(52297,'Majd','Majd.Ahmad@hotmail.com','Male',60,0790558251,'Planned','Married');
```

```
insert into User_info
values(30897,'Karam','Karam.Ahmad@gmail.com','Male',25,0792947942,'Unplanned','Single');
```

```
insert into User_info
values(56771,'Lydia','Lydia.Micheal@gmail.com','Female',37,0771069897,'Planned','Married');
```

/*INSERTING INTO LOGIN_INFO*/

```
insert into Login_info
values(10878,'Aseel.wajieh@gmail.com','Aseel@abd9');
```

```
insert into Login_info
values(10456,'Lama.ahmad@gmail.com','Lama2001');
```

```
insert into Login_info
values(20873,'Ahmad.omar@hotmail.com','Ahmad_omar');
```

```
insert into Login_info
```

```
values(34251,'Hazem.ayman@yahoo.com','Hazemmaher1234');
```

```
insert into Login_info  
values(32093,'Leena.moh@hotmail.com','l$na@moh');
```

```
insert into login_info  
values(42037,'Bana.Ghazi@yahoo.com','B1a2n3a');
```

```
insert into login_info  
values(27342,'Saad.Faisal@hotmail.com','SA22@ho');
```

```
insert into login_info  
values(52297,'Majd.Ahmad@hotmail.com','Majd251');
```

```
insert into login_info  
values(30897,'Karam.Ahmad@gmail.com','Ka@ram123');
```

```
insert into login_info  
values(56771,'Lydia.Micheal@gmail.com','Lydia9897');
```

```
/*INSERTING INTO INTERESTS*/
```

```
insert into Interests  
values(1,'Movie theaters');
```

```
insert into Interests  
values(2,'Trying new food');
```

```
insert into Interests  
values(3,'Swimming');
```

```
insert into Interests  
values(4,'Sightseeing');
```

```
insert into Interests  
values(5,'Hiking');
```

```
insert into interests  
values(6,'Amusement Park');
```

```
insert into interests  
values(7,'Museums');
```

```
insert into interests  
values(8,'Bungee Jumping');
```

```
insert into interests  
values(9,'Games');
```

```
insert into interests  
values(10,'Karaoke');
```

/*INSERTING INTO TRIP_INFO*/

```
insert into Trip_info  
values(10878,'10 days','Italy',2000,4);
```

```
insert into Trip_info  
values(10456,'14 days','Paris',1500,3);
```

```
insert into Trip_info  
values(20873,'7 days','Turkey',3500,1);
```

```
insert into Trip_info  
values(34251,'21 days','Spain',4500,4);
```

```
insert into Trip_info  
values(32093,'15 days','Greece',2400,2);
```

```
insert into Trip_info  
values(42037,'5 days','Quebec',4200,5);  
insert into Trip_info  
values(27342,'35 days','Paris',6000,8);
```

```
insert into Trip_info  
values(52297,'60 days','Amsterdam',10000,9);
```

```
insert into Trip_info  
values(30897,'21 days','Turkey',3700,6);
```

```
insert into Trip_info  
values(56771,'43 days','Brazil',6600,2);
```

/*INSERTING INTO ACTIVITIES*/

```
insert into Activities  
values('Dead Sea' , 'Swimming' , 3 , 300 , 1500 , 5 , null);
```

```
insert into Activities  
values('Taj Cinema' , 'Movie theaters' , 1 , 40 , 70 , 4.4,null);
```

```
insert into Activities  
values('Cube Burger' , 'Trying new food' , 2, 15 , 65 , 4.9,'2.5 hours');
```

```
insert into Activities  
values('Amman Citadel','Sightseeing',4,10,40,4.3,'1.5 hours');
```

```
insert into Activities  
values('Petra' , 'Hiking' ,5,150,700,4.7,null);
```

```
insert into Activities
values('Escape The Room','Games',9,15,30,5,'1 hour');
```

```
insert into Activities
values('Childrens Museum','Museums',7,5,15,3,'2 hours');
```

```
insert into Activities
values('The Squad','Karaoke',10,5,10,5,'1 hours');
```

```
insert into Activities
values('Uncle Osaka','Trying new food',2,1,5,5,'1.5 hours');
```

```
insert into Activities
values('Strikers Entertainment Center','Games',9,5,15,5,'3.5 hours');
```

/*UPDATING TABLES*/

```
1)update Activities
set Time = '3 hours'
where Activity_Name = 'Taj Cinema';
```

```
2)update User_info
set trip_plan = 'Planned'
where age in (select age from user_info where age < 23);
```

/*DELETING FROM TABLES*/

```
3)delete from Activities
where Interest_id = 9;
```

```
4)delete from activities
where activity_name like 'Escape%';
```

SELECT:

```
5)/*Display all the activities that have no estimated time and their rating is more than 4*/
select Activity_name from Activities
where time is null and Rating > 4;
```

6)/*Display all the users who are older than 18 and interested in swimming*/

```
select Name from User_info U
where age > 18 and user_id = (select user_id from trip_info where Interest_id in (select Interest_id from Interests
where interest_name = 'Swimming'));
```

7)/*Display all the users who their name contains an 'e' */

```
select name from user_info
where name like '%e%';
```

8)/*Display number of users of each interest*/

```
select interest_name , count(user_id) as "Number Of Users"
from interests I , Trip_info T
where I.interest_id = T.interest_id
group by interest_name;
```

9)/*Display all the users whose Budget is between 1000 and 2500*/

```
select Name
from User_info U , trip_info T
where U.User_id = T.User_id and T.Budget between 1000 and 2500;
```

10)/*Display all the users whose budget- is greater than all of the users who are interested in Trying new food*/

```
select name
from user_info U , Trip_info T
where U.user_id = T.user_id and T.Budget > All(select T.Budget from trip_info T , interests I where T.interest_id =
I.interest_id and I.interest_name = 'Trying new food');
```

11)/*Display all the users and their email domain */

```
select name,decode(substr(email,instr(email,'@')), '@yahoo.com','yahoo',
                                '@gmail.com','gmail',
                                '@hotmail.com','hotmail'
)Email_Domain
from user_info;
```

12)/*Display all interests and the user ID that chose it. Including the interests that weren't selected */

```
select i.interest_name , t.user_id
from interests i,trip_info t
where t.interest_id(+) = i.interest_id
order by t.user_id desc;
```

13)/*Display the trip_info for users who selected an interest that starts with 's' and are over 25 years old.*/

```
select * from trip_info
where interest_id IN (select interest_id from interests where Lower(interest_name) like 's%') AND user_id=
some(select user_id from user_info where age>25);
```

14)/*Display the most selected interest*/

```
select interest_name from interests where interest_id = (select Max(count(interest_id)) from trip_info group by
interest_id );
```

15)/*CREATING VIEW TABLE*/

```
Create or Replace view User_Profile as
select Name , Email , Age , Phone_Num
from User_info;
```