

CS6131 Database Design

Project Final Report Submission

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Submission Instructions

* You will need to submit the following files in your final project submission:
 * Your Jupyter Notebook report. Name the report 'ProjectFinalReport.ipynb'.
 * All relevant image files to be displayed in this report (make sure you use relative file referencing and the image will display in another computer).
 * Attached each file one by one and upload on Coursemology.
 * Please print a copy of the final report to OneNote Individual Notebook space > Project. Double check on the image resolution. If the resolution is poor, please copy and paste the ORIGINAL clear image into the OneNote page (paste at the side of the printed image).
 * Any submission that fails to comply to the above instructions will result in upto 5% penalty.
 * You may wish to refer to the following reference to help organize and "beautify" your final report here.

<https://thecodingbot.com/markdown-in-jupyter-ipython-notebook-cheatsheet/>

Section A: Overview & Business Rules

Overview

Complete your writeup of the project overview here.

Amidst the easing of COVID lockdown restrictions all around the globe, there is a sudden surge in demand for travelling. With so many vacations people desire to go for, organising the planning of these vacations is especially important to ensure that all the relevant aspects are planned for for a smooth trip. Especially for family vacations, those who plan these vacations would want a place to keep track of all the details required for the trip. They would also want the rest of their family to be informed of the trip itinerary to stay on track, even with the latest updates. Some families may also want a platform for them to share their fond memories of the trip together.

As such, a family centred holiday planning drive allows for the above functionalities to be achieved all at once. Not only is it beneficial to the people who plan, but also for the family members to all enjoy the trip together smoothly.

In order to efficiently and structurely store vacations details, summaries, planning, sharings, a database should be used. A RDBMS system allows all of the data to be stored in a consistent manner where data type domains are kept strict to ensure the usability of the data, as well as efficient queuring and prevent data loss for the best user experience. By using a relational database, it ensures that all data updating and modifications are complete so no data is lost, consistency such that all users are able to see the same vacation details and allows all vacations to be updated simultaneously without affecting each other. Finally, it also ensures that no data is lost due to any technical faults by any single user once the data transaction is done to allow all users to use the drive without being affected.

Business Rules

Complete your writeup of the final business rules here.

Every **USER** has a **unique user_id**, **username**, **password** and **email**. Each user also has a setting, which comprises of two flags - whether the user **shares their drive** and whether they **subscribe to emails**. Each user must be under one of the three plans - basic, plus or premium plan.

A user is *in* a vacation group, where a user can be in multiple vacation groups and each vacation group contains at least one user. A user with basic plan will have a vacation group limit, where they can only be in a maximum of 5 vacation groups, therefore **group count** is used to keep track of the number of vacation groups. A user with either plus or premium plan can be part of an unlimited number of vacation groups.

Each **VACATION GROUP** will have a **unique id**, **group name** and **pin** and goes for any number of vacations. A user with a plus plan will have a upgrade vacation limit, where the user can only upgrade a maximum of 5 vacations. A user with basic plan is unable to upgrade vacations, while a user with premium plan can upgrade unlimited number of vacations.

Each vacation group *goes for* multiple vacations. Each **VACATION** must have and only has one vacation group which *goes for* it (i.e. there are no individual users which go for a vacation without a vacation group, they must be under a vacation group which can consist of 1 person). Each vacation can be **upgraded by a particular user** or not upgraded. A non-upgrade vacation will only have part of the features, while an upgraded vacation can have all features. A non-upgraded vacation is unable to use the sharing function of the vacation. Once a user decides to upgrade, the upgrade cannot be reverted (i.e. if the user decides to downgrade the vacation, the upgrade count would still remain the same as the upgrade feature is counted as being used). Each vacation also has a **unique id**, a **brief description** of the trip, **start** and **end date** and **budget limit** on the trip.

A vacation can have multiple features - a Summary, Timeline, Planning and Sharing, but only one of each type of feature and each feature is derived or comprised of multiple entities.

The summary of a vacation will consist of the brief overview of the trip, made of two main components - duration and expenditure. The duration includes the start date, end date (attributes of **VACATION**), start country, end country and number of days for the vacation. The start and end country are the locations of the first and last destinations in the database, so the destination NOT NECESSARILY starts on the start date of the trip, or the end date of the trip as they may be blank on the exact starting and ending dates of the trip. The expenditure includes the budget limit (attribute of **VACATION**), current total expenditure and the expenditure breakdown.

The timeline of a vacation consists of the trip's outline by day, where each **ITINERARY** of the trip will be outlined. Each itinerary breakdown is identified by the unique **day number** and **time** of itinerary activity for the particular vacation (i.e. other vacations can have the same day number and timing), which consists of other details such as the **type of itinerary** (i.e. attraction, food, transport, etc), **description** and **location**. On top of the consolidated itinerary, the timeline of a vacation also consists of a breakdown of the places visited during the trip, where a vacation *has destinations* for the trip. There is a database of **DESTINATIONS**, with a unique **id**, **country** and **state**, where multiple destinations can be referenced for each vacation and each reference also includes details about the **number of days** spent and the **starting date** at that destination.

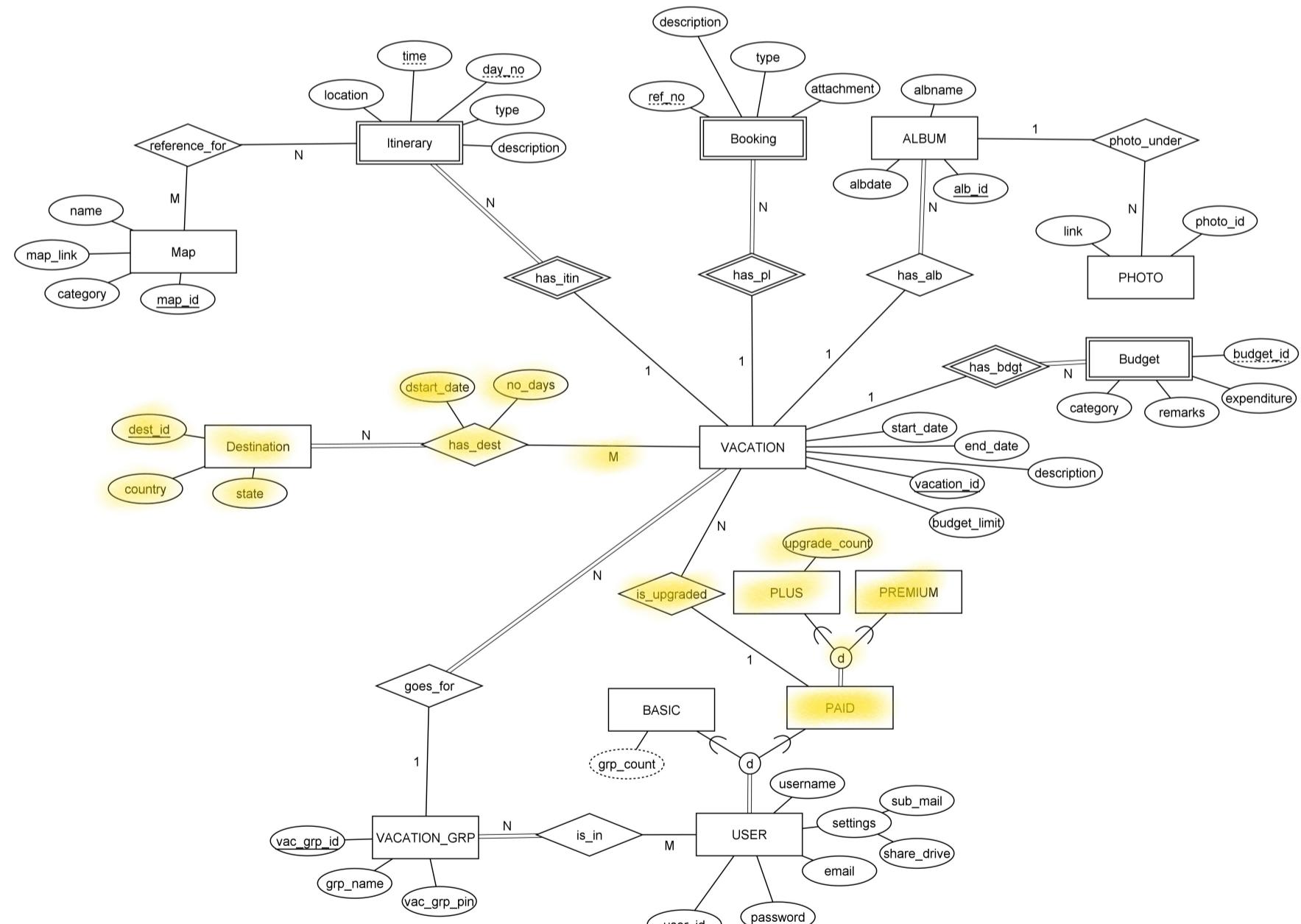
The planning of a vacation consists of several components - maps, booking and budget. For easier reference by the users, several **MAPS** can also be uploaded onto the drive. Each map has a unique **id**, **name**, **category** of map (accommodation, transport, attraction or others) and **map link attachment**. Maps can be *referenced* for multiple itineraries. A vacation also includes bookings made to places of interest. Each **BOOKING** has a unique **reference number** for the particular vacation, **type**, **description** and **attachment**. The expenditure of the trip is also managed under planning, where the expenditure is split into **BUDGET** for individual components. Each budget breakdown consists of a unique **budget id** for the particular vacation, **category** of expenditure, **expenditure** in dollars and some **remarks** regarding the amount spent.

Finally, the sharing of a vacation involves the sharing of **PHOTOS** for each vacation. Each **PHOTO** has a unique **id** and corresponding **link** to the actual image. Several photos will fall under an **ALBUM** (for keepsake of the fond memories forged during the trip), which has a unique **id**, **album name** and **album created date**. A vacation *has albums*, and all albums must fall under a vacation. All photos are available for public viewing (i.e. all users that use the platform). Albums can only be visible by users in the vacation.

Section B: ER Model

Attached the image of your FINAL ER Model here.

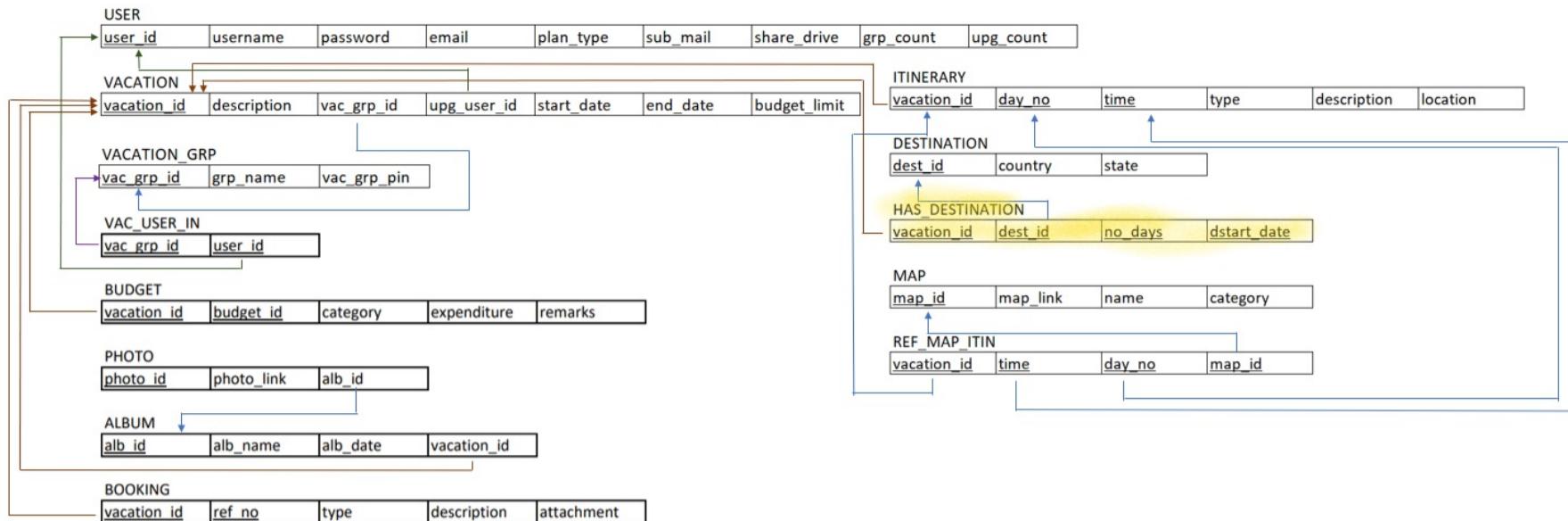
Double click here to insert image. Any further changes from previous deliverables should be highlighted in yellow.



Section C: Relational Model

Attached the image of your FINAL Relational Model here

Double click here to insert image. Any further changes from previous deliverables should be highlighted in yellow.



Justify your mapping strategy from ER to relational, particularly if the approach deviates from the norm, or you have inheritance in your ER model (i.e. which strategy is adopted for inheritance mapping and why).

Strategy 8C (single relation with one type attribute) for mapping generalization and specialisation (subclass relationship) is used for faster querying and also due to only one distinct attribute for each subclass (plan type) of USER, thus the optimal strategy for faster querying and minimal data storage.

Additionally, the relationship upgrade from plus and premium user can be generalised using one arrow in the relational schema as they are distinct specialisation from the parent class user (i.e. one upg_user_id can only point to one user_id and there cannot be vacations upgraded by multiple users).

If the relational schema mapped from the ER is not in 3NF, propose relevant normalization to make all relations in 3NF. You may leave this part blank if no further normalization is required.

Proposed normalization, if any

Section D: DDL Schema

Fill in the relevant code required to create the relations from your database.

Your code should be end to end (i.e. I should be able to execute on my computer without much problem).

```

In [1]: %load_ext sql
In [2]: %sql mysql+pymysql://root:admin@localhost/ --make sure user is root and password is admin
In [3]: %%sql
DROP DATABASE IF EXISTS READYHOLS;
* mysql+pymysql://root:***@localhost/
18 rows affected.
Out[3]: []

```

```

In [4]: %%sql
CREATE DATABASE READYHOLS;
USE READYHOLS;

CREATE TABLE user(
    user_id      char(9) not null ,
    username     varchar(30),
    password     varchar(1024),
    email        varchar(30),
    plan_type    char(10),
    sub_mail     boolean,
    share_drive  boolean,
    grp_count    integer,
    upg_count    integer,
    primary key (user_id)
);

CREATE TABLE vacation(
    vac_id       char(9) not null ,
    description  char(50),
    vac_grp_id   char(9),
    upg_user_id  char(9),
    start_date   date,
    end_date     date,
    budget_limit integer,
    primary key (vac_id),
    foreign key (vac_grp_id) references VACATION_GRP(vac_grp_id),
    foreign key (upg_user_id) references User(upg_user_id)
);

```

```
foreign key (upg_user_id) references user(user_id) on update cascade on delete cascade
);

CREATE TABLE vacation_grp(
    vac_grp_id    char(9) not null ,
    grp_name      varchar(50),
    vac_grp_pin   varchar(1024),
    primary key (vac_grp_id)
);

CREATE TABLE vac_user_in(
    vac_grp_id    char(9) not null,
    user_id       char(9) not null,
    primary key (vac_grp_id,user_id),
    foreign key (vac_grp_id) references vacation_grp(vac_grp_id) on update cascade on delete cascade,
    foreign key (user_id) references user(user_id) on update cascade on delete cascade
);

CREATE TABLE budget(
    vac_id        char(9) not null,
    budget_id     char(9) not null,
    category      varchar(30),
    expenditure   integer,
    remarks       text,
    primary key (vac_id,budget_id),
    foreign key (vac_id) references vacation(vac_id) on update cascade on delete cascade
);

CREATE TABLE album(
    alb_id        char(9) not null ,
    alb_name      varchar(50),
    alb_date      date,
    vac_id        char(9) not null,
    foreign key (vac_id) references vacation(vac_id) on update cascade on delete cascade,
    primary key (alb_id)
);

CREATE TABLE photo(
    photo_id      char(9) not null ,
    photolink     varchar(1024),
    alb_id        char(9),
    primary key (photo_id),
    foreign key (alb_id) references album(alb_id) on update cascade on delete cascade
);

CREATE TABLE booking(
    vac_id        char(9) not null ,
    ref_no        varchar(30),
    booking_type  varchar(30),
    description   text,
    attachment    varchar(1024),
    primary key (vac_id,ref_no),
    foreign key (vac_id) references vacation(vac_id) on update cascade on delete cascade
);

CREATE TABLE itinerary(
    vac_id        char(9) not null ,
    day_no        integer not null,
    itin_time     time not null,
    itin_type     varchar(30),
    description   varchar(100),
    location      varchar(50),
    primary key (vac_id, day_no, itin_time),
    foreign key (vac_id) references vacation(vac_id) on update cascade on delete cascade
);

CREATE TABLE destination(
    dest_id       char(9) not null ,
    country       varchar(50),
    state         varchar(50),
    primary key (dest_id)
);

CREATE TABLE has_destination(
    vac_id        char(9) not null ,
    dest_id       char(9) not null,
    no_days       integer not null,
    dstart_date   date not null,
    primary key (vac_id, dest_id, no_days, dstart_date),
    foreign key (vac_id) references vacation(vac_id) on update cascade on delete cascade,
    foreign key (dest_id) references destination(dest_id) on update cascade on delete cascade
);

CREATE TABLE vac_map(
    map_id        char(9) not null ,
    map_link      varchar(1024),
    name          varchar(50),
    category      varchar(30),
    primary key (map_id)
);

CREATE TABLE ref_map_itin(
```

```
In [5]: %%sql  
grant all privileges on readyhols.* to 'root'@'localhost'  
flush privileges;  
  
* mysql+pymysql://root:***@localhost/  
0 rows affected.  
0 rows affected.  
Out[5]: []
```

Section E: Data Population Script

Fill in relevant code to populate data into your database. It is sufficient to have 20-50 records per table (some may have more, some less). They should be logically related and realistic. Please do not overpopulate data. Note that you should use INSERT commands. If you are using other means to populate your database, please ensure I can run the scripts easily.

Vacation Grp Pins (00000001,345677725845) (00000002,524638776254) (00000003,296729573058) (00000004,108394827503)
(00000005,104927684838) (00000006,234098134099) (00000007,254235426752) (00000008,425435345344) (00000009,254533453435)
(00000010,352534534534)

User Credentials (Anna,12345678) (Benny,abcdefgh) (Charlie,56789012) (Daniel,DANIEL12) (Elliot,iLoveCSS) (Francis,56789012) (Daisy,13579120)
(Oliver,25345423) (James,35423455442) (Lily,4532dfsd34) (Zachary,gfasf3144) (Timothy,SGDFD2353253) (Nicholas,245224gGSGS23)
(Kenneth,1435SFFS) (Ryan,13414FSESF)

Add in relevant select statements to show that your data is populated correctly FOR EACH relation, one cell each relation.

```
In [6]: %%sql
INSERT INTO user VALUES ('000000001', 'Anna', 'pbkdf2:sha256:260000$Jxu38JhpUtj2KORr$55d32b66ff58895a05b949a82c6f36b99155a1756c97'
INSERT INTO user VALUES ('000000002', 'Benny', 'pbkdf2:sha256:260000$Mcpq3Myee1i5bCtT$ba786e92ef49008cd901ea9f4c3755ee6744f6e27'
INSERT INTO user VALUES ('000000003', 'Charlie', 'pbkdf2:sha256:260000$uo8D9nnQq19HeQ9M$c28d7c62fde881951f6df3af255b94b36d430eaa1'
INSERT INTO user VALUES ('000000004', 'Daniel', 'pbkdf2:sha256:260000$J0UbwJQb9uYD3ak4$73083e4b3782fd6e3f3c7cb53993ce7e0e30444ac1'
INSERT INTO user VALUES ('000000005', 'Elliot', 'pbkdf2:sha256:260000$dFLTKchGWUAW3mAi$9d736306a948c332fa964e32a5ff3512d8ee3ed3f9'
INSERT INTO user VALUES ('000000006', 'Francis', 'pbkdf2:sha256:260000$SVcQ1PKIBruOPCc9$34210b10d536c98190931926489602b549e944b2e'
INSERT INTO user VALUES ('000000007', 'Daisy', 'pbkdf2:sha256:260000$D5MRjuhsDRGhvF0U$6463e2efa30c5ccd419409fcfe5cea2d2a8184485af'
INSERT INTO user VALUES ('000000008', 'Oliver', 'pbkdf2:sha256:260000$dMm5M04gRcCVqhqv$b0dd4fb3479c9569b8e661d3de93e30b1ced55f919'
INSERT INTO user VALUES ('000000009', 'James', 'pbkdf2:sha256:260000$UbeVKUEfIHPgdUq0$1490d1bfe0fca810965894c06721a5a44aa95599007'
INSERT INTO user VALUES ('000000010', 'Lily', 'pbkdf2:sha256:260000$iu5a2hLPbbq0h9qp$ad150a2d245212428c11bceb3bd3a373f108acf6c2b9'
INSERT INTO user VALUES ('000000011', 'Zachary', 'pbkdf2:sha256:260000$3VXezVtYKD5B98JJ$860bc12e6b9706e3588efbf9b99a7abac079fc25c'
INSERT INTO user VALUES ('000000012', 'Timothy', 'pbkdf2:sha256:260000$p67QeoHkf71JapqV$9284be1a767d01f9a32bb3dba883652a1fc31e6b6'
INSERT INTO user VALUES ('000000013', 'Nicholas', 'pbkdf2:sha256:260000$LnileY33cGTTJ9qL$70a9ae449f158740733a99ba0c8689b2156fbf47'
INSERT INTO user VALUES ('000000014', 'Kenneth', 'pbkdf2:sha256:260000$Sk2SjX3o6RdKPFly$262e12ab3330a73f53aea0a445754f94f83bb2179'
TNSERT TINTO user VALIUES ('000000015', 'Ryan', 'pbkdf2:sha256:260000$BA33onvD0mbiuiJY$71e7f6e27605c3a6066f595295d8a0h6c85a285ace53
```

```
In [7]: %%sql  
INSERT INTO vacation_grp VALUES ('000000001', 'Lee Family', 'pbkdf2:sha256:260000$yVjpA1TNHDLnkaYI$5bf657ad985560ab03969a06305fb';  
INSERT INTO vacation_grp VALUES ('000000002', 'Teoh Family', 'pbkdf2:sha256:260000$teETLSB9xJaY0VeB$58d8cfeaaa1da459f186cd9b5f0a8';  
INSERT INTO vacation_grp VALUES ('000000003', 'Tan Family', 'pbkdf2:sha256:260000$cktvJI8HoWIypb8i$afefc233c4ad296a5e1c76097a41e9';  
INSERT INTO vacation_grp VALUES ('000000004', 'CS Major Family', 'pbkdf2:sha256:260000$dlfqI9wjkNGNSQ1X$d69bc9ef22e24a90b19055322';  
INSERT INTO vacation_grp VALUES ('000000005', 'OSAP Trip Group', 'pbkdf2:sha256:260000$5TL2ZMPb1LpeGypC$c0884f7b9926d312ee3ebbfde';  
INSERT INTO vacation_grp VALUES ('000000006', 'Cluster 12A', 'pbkdf2:sha256:260000$Vu7ni5rPG3TcwUsn$c5c825d27fc2f7229f3e4710ffdb9';  
INSERT INTO vacation_grp VALUES ('000000007', 'Wong Family', 'pbkdf2:sha256:260000$u6EBic07w9PNTjM7$2d84af2aa481f5c8a56b16fad7efa';  
INSERT INTO vacation_grp VALUES ('000000008', 'M23605', 'pbkdf2:sha256:260000$An4DGMpVbdGjFgNe$2f897c09f4f7afdd687a51ae29d1198c3e';  
INSERT INTO vacation_grp VALUES ('000000009', 'Class of 2023', 'pbkdf2:sha256:260000$e5hRpXNPKS1TrgFx$75bf612651527765c87f57f0f7e';  
INSERT INTO vacation_grp VALUES ('000000010', 'Besties', 'pbkdf2:sha256:260000$HgyuZ0oe8JMPHdZ$a10dc526eda9fa1c2411c53d3ea1e0cf8');
```

Out[7]:

```
In [8]: %%sql
INSERT INTO vacation VALUES ('000000001', 'Trip to Malaysia', '000000003', null, '2023-02-13', '2023-02-16', 5000);
INSERT INTO vacation VALUES ('000000002', 'Trip to Japan', '000000001', '000000002', '2023-03-29', '2023-04-11', 10000);
INSERT INTO vacation VALUES ('000000003', 'Trip to Germany', '000000002', '000000002', '2023-02-26', '2023-03-10', 10000);
INSERT INTO vacation VALUES ('000000004', 'Trip to USA', '000000005', '000000006', '2023-06-13', '2023-06-20', 20000);
INSERT INTO vacation VALUES ('000000005', 'Trip to Switzerland', '000000005', '000000004', '2024-06-02', '2024-06-20', 25000);
INSERT INTO vacation VALUES ('000000006', 'Trip to Australia', '000000004', '000000002', '2023-05-08', '2023-05-30', 50000);
INSERT INTO vacation VALUES ('000000007', 'Trip to Bangkok', '000000009', '000000011', '2023-04-19', '2023-04-23', 5000);
INSERT INTO vacation VALUES ('000000008', 'Trip to China', '000000008', '000000011', '2023-08-15', '2023-08-23', 23800);
INSERT INTO vacation VALUES ('000000009', 'Trip to Mongolia', '000000003', '000000014', '2023-04-20', '2023-05-05', 2400);
INSERT INTO vacation VALUES ('000000010', 'Trip to UK', '000000006', null, '2023-09-01', '2023-09-16', 123500);
INSERT INTO vacation VALUES ('000000011', 'Trip to Paris', '000000005', '000000009', '2023-11-01', '2023-11-21', 1200);
INSERT INTO vacation VALUES ('000000012', 'Trip to Vietnam', '000000010', '000000002', '2023-10-10', '2023-10-25', 13700);
INSERT INTO vacation VALUES ('000000013', 'Trip to Thailand', '000000003', '000000014', '2023-07-05', '2023-07-25', 6200);
INSERT INTO vacation VALUES ('000000014', 'Trip to Taiwan', '000000008', '000000002', '2024-07-15', '2024-07-30', 3200);
INSERT INTO vacation VALUES ('000000015', 'Trip to India', '000000003', '000000014', '2023-12-10', '2023-12-22', 13400);
INSERT INTO vacation VALUES ('000000016', 'Trip to Cambodia', '000000006', null, '2024-01-01', '2024-02-01', 2100);
INSERT INTO vacation VALUES ('000000017', 'Trip to Laos', '000000007', '000000002', '2024-03-05', '2024-03-13', 10000);
INSERT INTO vacation VALUES ('000000018', 'Trip to Brunei', '000000002', '000000002', '2024-04-01', '2024-04-15', 23400);
INSERT INTO vacation VALUES ('000000019', 'Trip to Indonesia', '000000004', '000000009', '2024-07-01', '2024-07-15', 14200);
INSERT INTO vacation VALUES ('000000020', 'Trip to Canada', '000000008', null, '2024-08-15', '2024-09-01', 1250);
```

```
In [9]: %%sql  
INSERT INTO vac_user_in VALUES ('000000001', '000000001')
```



```
In [10]: %%sql
INSERT INTO budget VALUES ('000000001', '000000001', 'FOOD', 100, 'Airport Food');
INSERT INTO budget VALUES ('000000001', '000000002', 'FOOD', 60, 'Penang Street Food');
INSERT INTO budget VALUES ('000000001', '000000003', 'ATTRACTION', 20, 'Trick Eye Museum');
INSERT INTO budget VALUES ('000000001', '000000004', 'OTHERS', 2000, 'Hard Rock Hotel');
INSERT INTO budget VALUES ('000000001', '000000005', 'FOOD', 500, 'Din Tai Fung');
INSERT INTO budget VALUES ('000000002', '000000001', 'ATTRACTION', 8000, 'Universal Studios Malaysia');
INSERT INTO budget VALUES ('000000002', '000000002', 'OTHERS', 5000, 'Shopping Expenses');
INSERT INTO budget VALUES ('000000002', '000000003', 'FOOD', 2000, 'Ramen Restaurant');
INSERT INTO budget VALUES ('000000002', '000000004', 'FOOD', 100, 'Japanese Omurice');
INSERT INTO budget VALUES ('000000002', '000000005', 'TRANSPORT', 15, 'MRT fares');
INSERT INTO budget VALUES ('000000002', '000000006', 'OTHERS', 40, 'Jakuzzi');
INSERT INTO budget VALUES ('000000002', '000000007', 'FOOD', 1000, 'Premium Japanese Food');
INSERT INTO budget VALUES ('000000003', '000000001', 'TRANSPORT', 200, 'Concession Card Fees');
INSERT INTO budget VALUES ('000000003', '000000002', 'OTHERS', 500, 'Souvenirs');
```

```
INSERT INTO budget VALUES ('000000003', '000000003', 'FOOD', 50, 'Kebab and Burritos');
INSERT INTO budget VALUES ('000000003', '000000004', 'FOOD', 100, 'Sausages and Ham');
INSERT INTO budget VALUES ('000000004', '000000001', 'FOOD', 1000, 'Western Restaurant Buffet');
INSERT INTO budget VALUES ('000000004', '000000002', 'ATTRACTION', 10, 'Entrance Fee to National Park');
INSERT INTO budget VALUES ('000000004', '000000003', 'TRANSPORT', 500, 'Public Transport Fees');
INSERT INTO budget VALUES ('000000004', '000000004', 'ATTRACTION', 100, 'Souvenirs from Night Market');
INSERT INTO budget VALUES ('000000004', '000000005', 'FOOD', 500, 'Burgers and Fries');
INSERT INTO budget VALUES ('000000004', '000000006', 'FOOD', 100, 'Chinese Restaurant');
INSERT INTO budget VALUES ('000000004', '000000007', 'OTHERS', 1000, 'Shopping Mall Groceries');
INSERT INTO budget VALUES ('000000004', '000000008', 'ATTRACTION', 600, 'Night Gazing Workshop');
INSERT INTO budget VALUES ('000000005', '000000001', 'FOOD', 300, 'Macdonalds');
INSERT INTO budget VALUES ('000000005', '000000002', 'ATTRACTION', 400, 'CERN tour tickets');
INSERT INTO budget VALUES ('000000005', '000000003', 'TRANSPORT', 1000, 'Public Transport Fees');
INSERT INTO budget VALUES ('000000005', '000000004', 'OTHERS', 2000, 'Hotel Fees');
INSERT INTO budget VALUES ('000000005', '000000005', 'OTHERS', 1000, 'Shopping Expenses');
INSERT INTO budget VALUES ('000000005', '000000006', 'FOOD', 400, 'Swiss Restaurant Desert');
INSERT INTO budget VALUES ('000000005', '000000007', 'ATTRACTION', 1240, 'Matterhorn Guided Tour');
INSERT INTO budget VALUES ('000000005', '000000008', 'TRANSPORT', 1044, 'Rail Tour');
INSERT INTO budget VALUES ('000000005', '000000009', 'OTHERS', 1000, 'Hiking Equipment');
INSERT INTO budget VALUES ('000000005', '000000010', 'OTHERS', 300, 'Tour Guide for Old Town');
INSERT INTO budget VALUES ('000000006', '000000001', 'ATTRACTION', 600, 'Honey Farm');
INSERT INTO budget VALUES ('000000006', '000000002', 'ATTRACTION', 500, 'Strawberry Farm');
INSERT INTO budget VALUES ('000000006', '000000003', 'ATTRACTION', 800, 'Penguin Siting Tour');
INSERT INTO budget VALUES ('000000006', '000000004', 'OTHERS', 1000, 'Hiking Gear');
INSERT INTO budget VALUES ('000000006', '000000005', 'ATTRACTION', 800, 'Mountain Hiking Tour');
INSERT INTO budget VALUES ('000000006', '000000006', 'ATTRACTION', 400, 'Wildlife Reserve Tickets');
INSERT INTO budget VALUES ('000000006', '000000007', 'OTHERS', 1000, 'Apartment Rental');
INSERT INTO budget VALUES ('000000006', '000000008', 'FOOD', 400, 'Ship Restaurant');
INSERT INTO budget VALUES ('000000007', '000000001', 'OTHERS', 2500, 'Shopping Expenses');
INSERT INTO budget VALUES ('000000007', '000000002', 'FOOD', 100, 'Roadside Dumpling Restaurant');
INSERT INTO budget VALUES ('000000007', '000000003', 'FOOD', 800, 'Night Market Food');
INSERT INTO budget VALUES ('000000007', '000000004', 'FOOD', 500, 'Bangkok Weekend Market Food');
INSERT INTO budget VALUES ('000000007', '000000005', 'ATTRACTION', 200, 'Bangkok Cultural Tour');
INSERT INTO budget VALUES ('000000007', '000000006', 'FOOD', 100, 'Bangkok Flea Market Purchases');
INSERT INTO budget VALUES ('000000007', '000000007', 'ATTRACTION', 150, 'Longtail boat Canal Tour');
INSERT INTO budget VALUES ('000000007', '000000008', 'FOOD', 500, 'Railway market Food');
INSERT INTO budget VALUES ('000000008', '000000001', 'ATTRACTION', 100, 'Historical Museum Entrance Fees');
INSERT INTO budget VALUES ('000000008', '000000002', 'OTHERS', 500, 'Zhangjiajie National Park');
INSERT INTO budget VALUES ('000000009', '000000001', 'ATTRACTION', 150, 'Immersive Cultural Experience Tour');
INSERT INTO budget VALUES ('000000009', '000000002', 'FOOD', 200, 'Traditional Mongolia Food');
INSERT INTO budget VALUES ('000000010', '000000001', 'FOOD', 150, 'Roadside British Restaurant');
INSERT INTO budget VALUES ('000000010', '000000002', 'OTHERS', 500, 'Shopping Expenses');
INSERT INTO budget VALUES ('000000010', '000000003', 'ATTRACTION', 200, 'Monument Tour');
INSERT INTO budget VALUES ('000000010', '000000004', 'ATTRACTION', 150, 'Palace Visit');
```

Out[10]:

In [11]:

```
INSERT INTO album VALUES ('000000001', 'Memories of Japan Part 1', '2023-04-10', '000000002');
INSERT INTO album VALUES ('000000002', 'Memories of Japan Part 2', '2023-04-15', '000000002');
INSERT INTO album VALUES ('000000003', 'Memories of Germany', '2023-02-25', '000000003');
INSERT INTO album VALUES ('000000004', 'Memories of USA', '2023-06-20', '000000004');
INSERT INTO album VALUES ('000000005', 'Memories of Switzerland Part 1', '2024-06-10', '000000005');
INSERT INTO album VALUES ('000000006', 'Memories of Switzerland Part 2', '2024-06-15', '000000005');
INSERT INTO album VALUES ('000000007', 'Memories of Switzerland Part 3', '2024-06-23', '000000005');
INSERT INTO album VALUES ('000000008', 'Memories of Switzerland Part 4', '2024-06-25', '000000005');
INSERT INTO album VALUES ('000000009', 'Australia Mountains', '2023-05-10', '000000006');
INSERT INTO album VALUES ('000000010', 'Australia Farm Visits', '2023-05-12', '000000006');
INSERT INTO album VALUES ('000000011', 'Australia Family Photos', '2023-05-14', '000000006');
INSERT INTO album VALUES ('000000012', 'Australia Scenery', '2023-05-16', '000000006');
INSERT INTO album VALUES ('000000013', 'Australia Animals', '2023-05-18', '000000006');
INSERT INTO album VALUES ('000000014', 'Bangkok Street Food', '2023-04-21', '000000007');
INSERT INTO album VALUES ('000000015', 'Bangkok Night Markets', '2023-04-21', '000000007');
INSERT INTO album VALUES ('000000016', 'China nature sites', '2023-08-15', '000000008');
INSERT INTO album VALUES ('000000017', 'Memories of China trip', '2023-08-15', '000000008');
INSERT INTO album VALUES ('000000018', 'Mongolia Immersive Tour', '2023-04-19', '000000009');
INSERT INTO album VALUES ('000000019', 'Memories of Mongolia Part 1', '2023-04-20', '000000009');
INSERT INTO album VALUES ('000000020', 'Memories of Mongolia Part 2', '2023-05-05', '000000009');
```

In [12]: %%sql

Out[12]: []

In [13]:

```
INSERT INTO booking VALUES ('000000001', '20957134LAS', 'TRANSPORT', 'air ticket to malaysia', '20957134LAS.pdf');
INSERT INTO booking VALUES ('000000001', '57186275DGA', 'FOOD', 'reservation for restaurant', '57186275DGA.pdf');
INSERT INTO booking VALUES ('000000001', '56246593GLK', 'INSURANCE', 'basic insurance', '56246593GLK.pdf');
INSERT INTO booking VALUES ('000000002', '05782485KXN', 'ATTRACTION', 'premium tickets to museum', '05782485KXN.pdf');
INSERT INTO booking VALUES ('000000005', '09562434MAS', 'TRANSPORT', 'air ticket to switzerland', '09562434MAS.pdf');
INSERT INTO booking VALUES ('000000006', '23409845KFS', 'TRANSPORT', 'air ticket to australia', '23409845KFS.pdf');
INSERT INTO booking VALUES ('000000002', '34134123FDA', 'INSURANCE', 'Earthquake insurance', '34134123FDA.pdf');
INSERT INTO booking VALUES ('000000002', '2458745JKSF', 'FOOD', 'Reservation for ramen restaurant', '2458745JKSF.pdf');
INSERT INTO booking VALUES ('000000002', '989042JGKFS', 'TRANSPORT', 'Rental Mini Van', '989042JGKFS.pdf');
INSERT INTO booking VALUES ('000000003', '302870396HDLS', 'INSURANCE', 'premium insurance', '302870396HDLS.pdf');
INSERT INTO booking VALUES ('000000003', '49482JSDKF', 'FOOD', 'booking for kebab restaurant', '49482JSDKF.pdf');
INSERT INTO booking VALUES ('000000003', 'BFSD2462JS', 'ATTRACTION', 'germany city tour', 'BFSD2462JS.pdf');
INSERT INTO booking VALUES ('000000003', 'GSD39682JDF', 'TRANSPORT', 'germany air tickets', 'GSD39682JDF.pdf');
INSERT INTO booking VALUES ('000000003', '5923NFSDF432', 'TRANSPORT', 'bus transit tickets', '5923NFSDF432.pdf');
INSERT INTO booking VALUES ('000000003', 'FKJL93248025H', 'ATTRACTION', 'cave mine tour booking', 'FKJL93248025H.pdf');
INSERT INTO booking VALUES ('000000003', 'FGSF975238SDF', 'ATTRACTION', 'scenery walk booking', 'FGSF975238SDF.pdf');
INSERT INTO booking VALUES ('000000004', '35CXV8090ZC', 'OTHERS', 'hotel booking usa', '35CXV8090ZC.pdf');
INSERT INTO booking VALUES ('000000004', '523VBSFA352', 'INSURANCE', 'health insurance', '523VBSFA352.pdf');
INSERT INTO booking VALUES ('000000004', 'SFDFD35286DF', 'TRANSPORT', 'plane tickets', 'SFDFD35286DF.pdf');
INSERT INTO booking VALUES ('000000004', '70938GDKJS0SD', 'ATTRACTION', 'tickets to unesco sites', '70938GDKJS0SD.pdf');
INSERT INTO booking VALUES ('000000004', '45236HSDF8343', 'TRANSPORT', 'transit bus booking', '45236HSDF8343.pdf');
INSERT INTO booking VALUES ('000000004', '09568SDFKS3NX', 'ATTRACTION', 'city cultural tour', '09568SDFKS3NX.pdf');
INSERT INTO booking VALUES ('000000005', 'BM25385NCMXS', 'ATTRACTION', 'mountain tour switzerland', 'BM25385NCMXS.pdf');
INSERT INTO booking VALUES ('000000005', 'AD0235682NMS', 'TRANSPORT', 'hotel tickets', 'AD0235682NMS.pdf');
INSERT INTO booking VALUES ('000000005', '6341489SFSDFD', 'ATTRACTION', 'cultural tour ', '6341489SFSDFD.pdf');
INSERT INTO booking VALUES ('000000005', '43298SDFFNM3', 'INSURANCE', 'basic insurance plan', '43298SDFFNM3.pdf');
INSERT INTO booking VALUES ('000000005', '0S98DFSN2356N', 'FOOD', 'swiss restaurant booking', '0S98DFSN2356N.pdf');
INSERT INTO booking VALUES ('000000005', '230984NDSFJKD', 'TRANSPORT', 'tourist train ticket bookings', '230984NDSFJKD.pdf');
INSERT INTO booking VALUES ('000000005', '32598VFDJSKJS', 'ATTRACTION', 'swiss unesco site visit', '32598VFDJSKJS.pdf');
INSERT INTO booking VALUES ('000000005', '5398243DSEJEL', 'TRANSPORT', 'bus booking', '5398243DSEJEL.pdf');
```

```
* mysql+pymysql://root:***@localhost/
1 rows affected.
```

Out[13]: []

In [14]: %%sql

```
INSERT INTO itinerary VALUES ('000000001', 1, '09:00:00', 'ATTRACTION', 'penang street tour', 'penang street');
INSERT INTO itinerary VALUES ('000000001', 1, '12:00:00', 'FOOD', 'penang street food', 'penang street');
INSERT INTO itinerary VALUES ('000000001', 1, '14:00:00', 'SIGHTSEEING', 'penang street', 'penang street');
INSERT INTO itinerary VALUES ('000000001', 2, '08:00:00', 'TOUR', 'malaysia heritage tour', 'butterworth');
INSERT INTO itinerary VALUES ('000000001', 2, '13:00:00', 'FOOD', 'restaurant food', 'butterworth street 2');
INSERT INTO itinerary VALUES ('000000001', 2, '16:00:00', 'OTHERS', 'rest in hotel', 'butterworth');
INSERT INTO itinerary VALUES ('000000001', 3, '09:00:00', 'ATTRACTION', 'trickeye museum malaysia', 'kedah avenue 2');
INSERT INTO itinerary VALUES ('000000001', 3, '14:00:00', 'SIGHTSEEING', 'statues around city area', 'malaysia');
INSERT INTO itinerary VALUES ('000000001', 4, '09:00:00', 'SIGHTSEEING', 'stroll along mural walls', 'kuala lumpur street 14');
INSERT INTO itinerary VALUES ('000000002', 1, '09:00:00', 'ATTRACTION', 'sakura national park ', 'street 5');
INSERT INTO itinerary VALUES ('000000002', 1, '13:00:00', 'FOOD', 'Ramen restaurant', 'street 10');
INSERT INTO itinerary VALUES ('000000002', 1, '17:00:00', 'SIGHTSEEING', 'night streets shopping', 'tokyo streets');
INSERT INTO itinerary VALUES ('000000002', 2, '10:00:00', 'ATTRACTION', 'japanses tea cultural experience', 'street 15');
INSERT INTO itinerary VALUES ('000000002', 2, '15:00:00', 'FOOD', 'japanese snacks bar', 'street 20');
INSERT INTO itinerary VALUES ('000000002', 3, '09:00:00', 'SIGHTSEEING', 'japanses home visits', 'kyoto district 2');
INSERT INTO itinerary VALUES ('000000002', 3, '15:00:00', 'OTHERS', 'japanese souvenir shopping', 'kyoto district 5');
INSERT INTO itinerary VALUES ('000000002', 4, '08:00:00', 'FOOD', 'traditional japanese cuisine restaurant', 'osaka avenue 5');
INSERT INTO itinerary VALUES ('000000003', 1, '09:00:00', 'SIGHTSEEING', 'streets of gottingen', 'gottingen');
INSERT INTO itinerary VALUES ('000000003', 1, '11:00:00', 'OTHERS', 'Shopping', 'gottingen suburb town');
INSERT INTO itinerary VALUES ('000000003', 2, '12:00:00', 'TOUR', 'cave mine tour ', 'district 10');
INSERT INTO itinerary VALUES ('000000003', 2, '16:30:00', 'FOOD', 'Christmas market food', 'district 15');
INSERT INTO itinerary VALUES ('000000003', 3, '10:30:00', 'TOUR', 'Day tour of gottingen', 'gottingen area');
INSERT INTO itinerary VALUES ('000000003', 3, '16:30:00', 'SIGHTSEEING', 'ancient buildings of gottingen', 'gottingen area');
INSERT INTO itinerary VALUES ('000000004', 1, '08:00:00', 'OTHERS', 'USA Immersion Trip Day 1 Camp', 'california');
INSERT INTO itinerary VALUES ('000000004', 2, '09:00:00', 'OTHERS', 'USA Immersion Trip Day 2 Camp', 'texas street 10');
INSERT INTO itinerary VALUES ('000000004', 3, '08:30:00', 'OTHERS', 'USA Immersion Trip Day 3 Camp', 'michigan area 2');
INSERT INTO itinerary VALUES ('000000004', 4, '09:00:00', 'OTHERS', 'USA Immersion Trip Day 4 Camp', 'florida');
INSERT INTO itinerary VALUES ('000000005', 1, '10:00:00', 'OTHERS', 'CERN Welcome Lecture', 'avenue 100');
INSERT INTO itinerary VALUES ('000000005', 1, '18:00:00', 'ATTRACTION', 'Visit to Museum', 'avenue 251');
INSERT INTO itinerary VALUES ('000000005', 2, '09:30:00', 'OTHERS', 'CERN Workshop', 'avenue 100');
INSERT INTO itinerary VALUES ('000000005', 3, '09:00:00', 'TOUR', 'CERN Site Day Tour', 'avenue 100');
INSERT INTO itinerary VALUES ('000000005', 4, '08:30:00', 'OTHERS', 'CERN Content Lecture', 'avenue 100');
INSERT INTO itinerary VALUES ('000000005', 5, '08:45:00', 'OTHERS', 'Visit to Data Center CERN', 'avenue 105');
INSERT INTO itinerary VALUES ('000000005', 5, '20:00:00', 'SIGHTSEEING', 'Switzerland Night Market', 'switz zurich street 10');
INSERT INTO itinerary VALUES ('000000005', 6, '08:30:00', 'TOUR', 'Accelerator Tour', 'avenue 110');
INSERT INTO itinerary VALUES ('000000005', 6, '17:30:00', 'FOOD', 'Swiss Restaurant for Dinner', 'switz street 341');
INSERT INTO itinerary VALUES ('000000005', 7, '08:00:00', 'OTHERS', 'Day Immersion in Switzerland Culture', 'switz district 10')
```

Out[14]:

```
%>%sqi
INSERT INTO destination VALUES ('000000001', 'Malaysia', 'Penang');
INSERT INTO destination VALUES ('000000002', 'Malaysia', 'Butterworth');
INSERT INTO destination VALUES ('000000003', 'Malaysia', 'Kedah');
INSERT INTO destination VALUES ('000000004', 'Malaysia', 'Kuala Lumpur');
INSERT INTO destination VALUES ('000000005', 'Japan', 'Tokyo');
INSERT INTO destination VALUES ('000000006', 'Japan', 'Hokkaido');
INSERT INTO destination VALUES ('000000007', 'Japan', 'Kyoto');
INSERT INTO destination VALUES ('000000008', 'Japan', 'Osaka');
INSERT INTO destination VALUES ('000000009', 'Germany', 'Gottingen');
INSERT INTO destination VALUES ('000000010', 'Germany', 'Berlin');
INSERT INTO destination VALUES ('000000011', 'USA', 'California');
INSERT INTO destination VALUES ('000000012', 'USA', 'Texas');
INSERT INTO destination VALUES ('000000013', 'USA', 'Michigan');
INSERT INTO destination VALUES ('000000014', 'USA', 'Florida');
INSERT INTO destination VALUES ('000000015', 'Switzerland', 'Bern');
INSERT INTO destination VALUES ('000000016', 'Switzerland', 'Zurich');
INSERT INTO destination VALUES ('000000017', 'Switzerland', 'Lucerne');
INSERT INTO destination VALUES ('000000018', 'Switzerland', 'Lausanne');
INSERT INTO destination VALUES ('000000019', 'Switzerland', 'Grindelwald');
INSERT INTO destination VALUES ('000000020', 'Switzerland', 'Basel');
INSERT INTO destination VALUES ('000000021', 'Thailand', 'Bangkok');
INSERT INTO destination VALUES ('000000022', 'France', 'Paris');
INSERT INTO destination VALUES ('000000023', 'China', 'Shanghai');
INSERT INTO destination VALUES ('000000024', 'China', 'Xiamen');
INSERT INTO destination VALUES ('000000025', 'Australia', 'Tasmania');
```

Out[15]: [

In [16]:

```
INSERT INTO has_destination VALUES ('000000001', '000000001', 1, '2023-02-13')
INSERT INTO has_destination VALUES ('000000001', '000000002', 1, '2023-02-14')
INSERT INTO has_destination VALUES ('000000001', '000000003', 1, '2023-02-14')
INSERT INTO has_destination VALUES ('000000001', '000000004', 1, '2023-02-15')
INSERT INTO has_destination VALUES ('000000002', '000000005', 2, '2023-03-31')
INSERT INTO has_destination VALUES ('000000002', '000000006', 2, '2023-04-02')
INSERT INTO has_destination VALUES ('000000002', '000000007', 2, '2023-04-05')
INSERT INTO has_destination VALUES ('000000002', '000000008', 3, '2023-04-07')
INSERT INTO has_destination VALUES ('000000003', '000000009', 8, '2023-02-27')
INSERT INTO has_destination VALUES ('000000003', '000000010', 3, '2023-03-07')
INSERT INTO has_destination VALUES ('000000004', '000000011', 1, '2023-06-13')
INSERT INTO has_destination VALUES ('000000004', '000000012', 2, '2023-06-14')
INSERT INTO has_destination VALUES ('000000004', '000000013', 2, '2023-06-16')
INSERT INTO has_destination VALUES ('000000004', '000000014', 2, '2023-06-18')
INSERT INTO has_destination VALUES ('000000005', '000000015', 4, '2024-06-02')
INSERT INTO has_destination VALUES ('000000005', '000000016', 3, '2024-06-06')
INSERT INTO has_destination VALUES ('000000005', '000000017', 3, '2024-06-09')
INSERT INTO has_destination VALUES ('000000005', '000000018', 3, '2024-06-12')
INSERT INTO has_destination VALUES ('000000005', '000000019', 2, '2024-06-15')
INSERT INTO has_destination VALUES ('000000005', '000000020', 3, '2024-06-17')
```

Out[16]: [

In [17]:

```
-->sql
INSERT INTO vac_map VALUES ('000000001', 'map-penang.pdf', 'Map of Penang', 'GENERAL');
INSERT INTO vac_map VALUES ('000000002', 'map-japan-mrt.pdf', 'Map of Japan MRT Lines', 'TRANSPORT');
INSERT INTO vac_map VALUES ('000000003', 'map-gemany-rewe.pdf', 'Map of Germany Shopping Mall Rewe', 'OTHERS');
INSERT INTO vac_map VALUES ('000000004', 'map-usa-california.pdf', 'Map of USA State California', 'GENERAL');
INSERT INTO vac_map VALUES ('000000005', 'map-switz-museum.pdf', 'Map of Switzerland Museum', 'ATTRACTION');
INSERT INTO vac_map VALUES ('000000006', 'map-aus-tasmania.pdf', 'Terrain Guide of Australia Tasmania', 'OTHERS');
INSERT INTO vac_map VALUES ('000000007', 'map-christmas-market.pdf', 'Christmas Market Highlights', 'OTHERS');
INSERT INTO vac_map VALUES ('000000008', 'map-penang-recommend.pdf', 'Penang Street Recommended Locations', 'ATTRACTION');
INSERT INTO vac_map VALUES ('000000009', 'map-cern.pdf', 'CERN Building', 'OTHERS');
INSERT INTO vac_map VALUES ('000000010', 'map-german-bus.pdf', 'Germany Bus Timings', 'TRANSPORT');
INSERT INTO vac_map VALUES ('000000011', 'map-japan-streets.pdf', 'Japanses Street Eateries', 'OTHERS');
INSERT INTO vac_map VALUES ('000000012', 'map-cave-mine.pdf', 'Germany UNESCO Mine Site', 'ATTRACTION');
INSERT INTO vac_map VALUES ('000000013', 'map-usa-camp-tour-route.pdf', 'May of USA Camp Tour Route', 'GENERAL');
INSERT INTO vac_map VALUES ('000000014', 'map-switz-cultural-sites.pdf', 'Iconic Sites in Switzerland', 'GENERAL');
INSERT INTO vac_map VALUES ('000000015', 'map-germany.pdf', 'Map of Germany', 'GENERAL');
INSERT INTO vac_map VALUES ('000000016', 'map-usa-mrt.pdf', 'Subway Railway Lines USA', 'TRANSPORT');
TNSERT TINTO vac_map VALUES ('000000017', 'map-switzerland.pdf', 'Map of Switzerland', 'GENERAL');
```

```
INSERT INTO vac_map VALUES ('000000018', 'map-swiss-night-attractions.pdf', 'Night Attractions of Switzerland', 'ATTRACTION');
INSERT INTO vac_map VALUES ('000000019', 'map-swiss-bus-timings.pdf', 'Bus availability Switzerland', 'TRANSPORT');
INSERT INTO vac_map VALUES ('000000020', 'map-accelerator-layout-cern.pdf', 'Accelerator Layout for CERN', 'OTHERS');
```

```
* mysql+pymysql://root:***@localhost/
1 rows affected.
```

Out[17]: []

In [18]:

```
%%sql
INSERT INTO ref_map_itin VALUES ('000000001', '09:00:00', 1, '000000001');
INSERT INTO ref_map_itin VALUES ('000000003', '11:00:00', 1, '000000003');
INSERT INTO ref_map_itin VALUES ('000000003', '09:00:00', 1, '000000007');
INSERT INTO ref_map_itin VALUES ('000000001', '12:00:00', 1, '000000008');
INSERT INTO ref_map_itin VALUES ('000000005', '08:45:00', 5, '000000009');
INSERT INTO ref_map_itin VALUES ('000000003', '09:00:00', 1, '000000010');
INSERT INTO ref_map_itin VALUES ('000000003', '11:00:00', 1, '000000010');
INSERT INTO ref_map_itin VALUES ('000000001', '14:00:00', 1, '000000008');
INSERT INTO ref_map_itin VALUES ('000000005', '09:00:00', 3, '000000009');
INSERT INTO ref_map_itin VALUES ('000000004', '08:00:00', 1, '000000013');
INSERT INTO ref_map_itin VALUES ('000000004', '09:00:00', 2, '000000013');
INSERT INTO ref_map_itin VALUES ('000000004', '08:30:00', 3, '000000013');
INSERT INTO ref_map_itin VALUES ('000000004', '09:00:00', 4, '000000013');
INSERT INTO ref_map_itin VALUES ('000000005', '18:00:00', 1, '000000005');
INSERT INTO ref_map_itin VALUES ('000000002', '17:00:00', 1, '000000011');
INSERT INTO ref_map_itin VALUES ('000000003', '12:00:00', 2, '000000012');
INSERT INTO ref_map_itin VALUES ('000000005', '08:00:00', 7, '000000014');
INSERT INTO ref_map_itin VALUES ('000000005', '08:30:00', 6, '000000020');
INSERT INTO ref_map_itin VALUES ('000000005', '20:00:00', 5, '000000019');
INSERT INTO ref_map_itin VALUES ('000000005', '20:00:00', 5, '000000018');
INSERT INTO ref_map_itin VALUES ('000000003', '10:30:00', 3, '000000010');
```

```
* mysql+pymysql://root:***@localhost/
1 rows affected.
```

Out[18]: []

Section F: Stored Program & Queries Script

Insert your Section F from phase 2 here. No further changes required / allowed.

Query 1

Question: What is the summary of my vacation?

Providing a summary of a particular vacation. A summary consist of two main components - duration and expenditure. The duration includes the start date, end date, start country, end country and number of days for the vacation. The start and end country are the locations of the first and last destinations in the database, so the destination NOT NECESSARILY starts on the start_date of the trip, or the end_date of the trip as they may be blank on the exact starting and ending dates of the trip.

The expenditure includes the budget limit, current total expenditure and the expenditure breakdown. All this information is joined into one summary table.

This is relevant as it provides a good overview of the trip for users.

The query is being updated from the phase 2 code to allow for outer join such that the summary can still be displayed when no destination or expenditure component has been added to the vacation yet which can occur if the vacation has just been created.

In [19]: `%%sql`

```
Create view vacation_summary as
(select expenditure_summary_tbl.vac_id, start_date, end_date, first_state, first_country, last_state, last_country,
datediff(end_date,start_date) as days, budget_limit, total_spend, remaining_budget from
(select start_destination_tbl.vac_id, first_state, first_country, last_state, last_country from
(select vac_id,state as first_state,country as first_country from destination d1, has_destination hd1
where dstart_date <= all (select dstart_date from has_destination hd2, destination d2
where hd2.vac_id = hd1.vac_id and hd2.dest_id = d2.dest_id) and hd1.dest_id = d1.dest_id) as start_destination_tbl
join
(select vac_id,state as last_state,country as last_country from destination d3, has_destination hd3
where dstart_date >= all (select dstart_date from has_destination hd4, destination d4
where hd4.vac_id = hd3.vac_id and hd4.dest_id = d4.dest_id) and d3.dest_id = hd3.dest_id) as end_destination_tbl
on start_destination_tbl.vac_id = end_destination_tbl.vac_id) as destination_summary_tbl
right join
(select start_end_vac.vac_id, start_date, end_date, days, budget_limit, total_spend, remaining_budget from
(select vac_id, start_date, end_date, datediff(end_date,start_date) as days from vacation) as start_end_vac
join
(select vac_id, budget_limit,
case
when total_spend is null then 0
else total_spend
end as total_spend,
case
when remaining_budget is null then budget_limit
else remaining_budget
end as remaining_budget
from
(select vacation_tbl.vac_id, budget_limit, total_spend, budget_limit-total_spend as remaining_budget
from
(select vacation.vac_id, budget_limit from vacation) as vacation_tbl
left join
(select budget.vac_id, sum(expenditure) as total_spend from budget group by budget.vac_id) as budget_tbl
on vacation_tbl.vac_id = budget_tbl.vac_id) as before_process_budget) as expense_tbl
on start_end_vac.vac_id = expense_tbl.vac_id) as expenditure_summary_tbl
on expenditure_summary_tbl.vac_id = destination_summary_tbl.vac_id)
* mysql+pymysql://root:***@localhost/
0 rows affected.
```

Out[19]: []

In [20]: `%%sql`

```
select * from vacation_summary
```

```
* mysql+pymysql://root:***@localhost/
20 rows affected.
```

vac_id	start_date	end_date	first_state	first_country	last_state	last_country	days	budget_limit	total_spend	remaining_budget
000000001	2023-02-13	2023-02-16	Penang	Malaysia	Kuala Lumpur	Malaysia	3	5000	2680	2320
000000002	2023-03-29	2023-04-11	Tokyo	Japan	Osaka	Japan	13	10000	16155	-6155
000000003	2023-02-26	2023-03-10	Gottingen	Germany	Berlin	Germany	12	10000	850	9150
000000004	2023-06-13	2023-06-20	California	USA	Florida	USA	7	20000	3810	16190
000000005	2024-06-02	2024-06-20	Bern	Switzerland	Basel	Switzerland	18	25000	8684	16316
000000006	2023-05-08	2023-05-30	None	None	None	None	22	50000	5500	44500
000000007	2023-04-19	2023-04-23	None	None	None	None	4	5000	4850	150
000000008	2023-08-15	2023-08-23	None	None	None	None	8	23800	600	23200
000000009	2023-04-20	2023-05-05	None	None	None	None	15	2400	350	2050
000000010	2023-09-01	2023-09-16	None	None	None	None	15	123500	1000	122500
000000011	2023-11-01	2023-11-21	None	None	None	None	20	1200	0	1200
000000012	2023-10-10	2023-10-25	None	None	None	None	15	13700	0	13700
000000013	2023-07-05	2023-07-25	None	None	None	None	20	6200	0	6200
000000014	2024-07-15	2024-07-30	None	None	None	None	15	3200	0	3200
000000015	2023-12-10	2023-12-22	None	None	None	None	12	13400	0	13400
000000016	2024-01-01	2024-02-01	None	None	None	None	31	2100	0	2100
000000017	2024-03-05	2024-03-13	None	None	None	None	8	10000	0	10000
000000018	2024-04-01	2024-04-15	None	None	None	None	14	23400	0	23400
000000019	2024-07-01	2024-07-15	None	None	None	None	14	14200	0	14200
000000020	2024-08-15	2024-09-01	None	None	None	None	17	1250	0	1250

Query 2

Question: What photos are relevant to me?

Get all photos from vacations from user by first finding the vacations each user has. Additionally, all public photos are joined to the table as it is assumed that most photos will belong to albums and very little photos will be public to all users therefore minimal data wastage. Values where user_id = None is where all users can access the photo.

This is relevant as it can link all the photos relevant to vacations each user has gone for including public drive.

```
In [21]: %%sql
Create view vac_user_has as
select user.user_id,vacation.vac_id from user,vacation,vac_user_in
where user.user_id = vac_user_in.user_id and vac_user_in.vac_grp_id = vacation.vac_grp_id;
select * from vac_user_has

* mysql+pymysql://root:***@localhost/
0 rows affected.
151 rows affected.
```

Out[21]:

user_id	vac_id
000000001	000000002
000000001	000000001
000000001	000000009
000000001	000000013
000000001	000000015
000000001	000000006
000000001	000000019
000000001	000000004
000000001	000000005
000000001	000000011
000000001	000000017
000000002	000000002
000000002	000000003
000000002	000000018
000000002	000000001
000000002	000000009
000000002	000000013
000000002	000000015
000000002	000000006
000000002	000000019
000000002	000000004
000000002	000000005
000000002	000000011
000000002	000000010
000000002	000000016
000000002	000000017
000000002	000000008
000000002	000000014
000000002	000000020
000000002	000000007
000000002	000000012
000000003	000000002
000000003	000000006
000000003	000000019
000000003	000000004
000000003	000000005
000000003	000000011
000000003	000000010
000000003	000000016
000000003	000000008
000000003	000000014
000000003	000000020
000000003	000000012
000000004	000000002
000000004	000000003
000000004	000000018
000000004	000000001
000000004	000000009
000000004	000000013
000000004	000000015
000000004	000000004
000000004	000000005

000000004	000000011
000000004	000000010
000000004	000000016
000000004	000000007
000000004	000000012
000000005	000000002
000000005	000000003
000000005	000000018
000000005	000000004
000000005	000000005
000000005	000000011
000000005	000000017
000000006	000000002
000000006	000000003
000000006	000000018
000000006	000000006
000000006	000000019
000000006	000000017
000000006	000000007
000000006	000000012
000000007	000000001
000000007	000000009
000000007	000000013
000000007	000000015
000000007	000000010
000000007	000000016
000000007	000000017
000000008	000000002
000000008	000000017
000000008	000000008
000000008	000000014
000000008	000000020
000000008	000000012
000000009	000000003
000000009	000000018
000000009	000000006
000000009	000000019
000000009	000000004
000000009	000000005
000000009	000000011
000000009	000000008
000000009	000000014
000000009	000000020
000000009	000000007
000000010	000000003
000000010	000000018
000000010	000000001
000000010	000000009
000000010	000000013
000000010	000000015
000000010	000000008
000000010	000000014
000000010	000000020

```
000000010 000000007  
000000010 000000012  
000000011 000000006  
000000011 000000019  
000000011 000000017  
000000011 000000008  
000000011 000000014  
000000011 000000020  
000000011 000000007  
000000012 000000002  
000000012 000000001  
000000012 000000009  
000000012 000000013  
000000012 000000015  
000000012 000000006  
000000012 000000019  
000000012 000000008  
000000012 000000014  
000000012 000000020  
000000013 000000004  
000000013 000000005  
000000013 000000011  
000000013 000000012  
000000014 000000003  
000000014 000000018  
000000014 000000001  
000000014 000000009  
000000014 000000013  
000000014 000000015  
000000014 000000006  
000000014 000000019  
000000014 000000004  
000000014 000000005  
000000014 000000011  
000000014 000000010  
000000014 000000016  
000000015 000000001  
000000015 000000009  
000000015 000000013  
000000015 000000015  
000000015 000000010  
000000015 000000016  
000000015 000000008  
000000015 000000014  
000000015 000000020  
000000015 000000012
```

In [22]: `%%sql
select * from vac_user_has`

```
* mysql+pymysql://root:***@localhost/  
151 rows affected.
```

Out[22]:

user_id	vac_id
000000001	000000002
000000001	000000001
000000001	000000009
000000001	000000013
000000001	000000015
000000001	000000006
000000001	000000019
000000001	000000004
000000001	000000005
000000001	000000011
000000001	000000017
000000002	000000002
000000002	000000003
000000002	000000018
000000002	000000001
000000002	000000009
000000002	000000013
000000002	000000015
000000002	000000006
000000002	000000019
000000002	000000004
000000002	000000005
000000002	000000011
000000002	000000010
000000002	000000016
000000002	000000017
000000002	000000008
000000002	000000014
000000002	000000020
000000002	000000007
000000002	000000012
000000003	000000002
000000003	000000006
000000003	000000019
000000003	000000004
000000003	000000005
000000003	000000011
000000003	000000010
000000003	000000016
000000003	000000008
000000003	000000014
000000003	000000020
000000003	000000012
000000004	000000002
000000004	000000003
000000004	000000018
000000004	000000001
000000004	000000009
000000004	000000013
000000004	000000015
000000004	000000004
000000004	000000005

000000004	000000011
000000004	000000010
000000004	000000016
000000004	000000007
000000004	000000012
000000005	000000002
000000005	000000003
000000005	000000018
000000005	000000004
000000005	000000005
000000005	000000011
000000005	000000017
000000006	000000002
000000006	000000003
000000006	000000018
000000006	000000006
000000006	000000019
000000006	000000017
000000006	000000007
000000006	000000012
000000007	000000001
000000007	000000009
000000007	000000013
000000007	000000015
000000007	000000010
000000007	000000016
000000007	000000017
000000008	000000002
000000008	000000017
000000008	000000008
000000008	000000014
000000008	000000020
000000008	000000012
000000009	000000003
000000009	000000018
000000009	000000006
000000009	000000019
000000009	000000004
000000009	000000005
000000009	000000011
000000009	000000008
000000009	000000014
000000009	000000020
000000009	000000007
000000010	000000003
000000010	000000018
000000010	000000001
000000010	000000009
000000010	000000013
000000010	000000015
000000010	000000008
000000010	000000014
000000010	000000020

```
000000010 000000007  
000000010 000000012  
000000011 000000006  
000000011 000000019  
000000011 000000017  
000000011 000000008  
000000011 000000014  
000000011 000000020  
000000011 000000007  
000000012 000000002  
000000012 000000001  
000000012 000000009  
000000012 000000013  
000000012 000000015  
000000012 000000006  
000000012 000000019  
000000012 000000008  
000000012 000000014  
000000012 000000020  
000000013 000000004  
000000013 000000005  
000000013 000000011  
000000013 000000012  
000000014 000000003  
000000014 000000018  
000000014 000000001  
000000014 000000009  
000000014 000000013  
000000014 000000015  
000000014 000000006  
000000014 000000019  
000000014 000000004  
000000014 000000005  
000000014 000000011  
000000014 000000010  
000000014 000000016  
000000015 000000001  
000000015 000000009  
000000015 000000013  
000000015 000000015  
000000015 000000010  
000000015 000000016  
000000015 000000008  
000000015 000000014  
000000015 000000020  
000000015 000000012
```

```
In [23]: %%sql  
#album photos table  
  
Create view user_photos as  
  
(select vac_user_has.user_id, vac_user_has.vac_id, photo.photo_id from photo, album, vac_user_has  
where album.vac_id = vac_user_has.vac_id and photo.alb_id = album.alb_id)  
  
union
```

```
#public photos_table  
(select null as user_id, null as vac_id, photo_id from photo where photo.alb_id is null)
```

```
* mysql+pymysql://root:***@localhost/  
0 rows affected.
```

```
Out[23]: []
```

```
In [24]: %%sql  
select * from user_photos
```

```
* mysql+pymysql://root:***@localhost/  
351 rows affected.
```

Out[24]:

user_id	vac_id	photo_id
000000001	000000002	000000016
000000001	000000002	000000017
000000002	000000002	000000016
000000002	000000002	000000017
000000003	000000002	000000016
000000003	000000002	000000017
000000004	000000002	000000016
000000004	000000002	000000017
000000005	000000002	000000016
000000005	000000002	000000017
000000006	000000002	000000016
000000006	000000002	000000017
000000008	000000002	000000016
000000008	000000002	000000017
000000012	000000002	000000016
000000012	000000002	000000017
000000001	000000002	000000001
000000001	000000002	000000018
000000001	000000002	000000019
000000001	000000002	000000020
000000002	000000002	000000001
000000002	000000002	000000018
000000002	000000002	000000019
000000002	000000002	000000020
000000003	000000002	000000001
000000003	000000002	000000018
000000003	000000002	000000019
000000003	000000002	000000020
000000004	000000002	000000001
000000004	000000002	000000018
000000004	000000002	000000019
000000004	000000002	000000020
000000005	000000002	000000001
000000005	000000002	000000018
000000005	000000002	000000019
000000005	000000002	000000020
000000006	000000002	000000001
000000006	000000002	000000018
000000006	000000002	000000019
000000006	000000002	000000020
000000008	000000002	000000001
000000008	000000002	000000018
000000008	000000002	000000019
000000008	000000002	000000020
000000012	000000002	000000001
000000012	000000002	000000018
000000012	000000002	000000019
000000012	000000002	000000020
00000002	000000003	000000009
00000002	000000003	000000010
00000002	000000003	000000011
00000002	000000003	000000012

000000002	000000003	000000013
000000002	000000003	000000014
000000002	000000003	000000015
000000004	000000003	000000009
000000004	000000003	000000010
000000004	000000003	000000011
000000004	000000003	000000012
000000004	000000003	000000013
000000004	000000003	000000014
000000004	000000003	000000015
000000005	000000003	000000009
000000005	000000003	000000010
000000005	000000003	000000011
000000005	000000003	000000012
000000005	000000003	000000013
000000005	000000003	000000014
000000005	000000003	000000015
000000006	000000003	000000009
000000006	000000003	000000010
000000006	000000003	000000011
000000006	000000003	000000012
000000006	000000003	000000013
000000006	000000003	000000014
000000006	000000003	000000015
000000009	000000003	000000009
000000009	000000003	000000010
000000009	000000003	000000011
000000009	000000003	000000012
000000009	000000003	000000013
000000009	000000003	000000014
000000009	000000003	000000015
000000010	000000003	000000009
000000010	000000003	000000010
000000010	000000003	000000011
000000010	000000003	000000012
000000010	000000003	000000013
000000010	000000003	000000014
000000010	000000003	000000015
000000014	000000003	000000009
000000014	000000003	000000010
000000014	000000003	000000011
000000014	000000003	000000012
000000014	000000003	000000013
000000014	000000003	000000014
000000014	000000003	000000015
000000001	000000004	000000024
000000001	000000004	000000025
000000001	000000004	000000026
000000001	000000004	000000027
000000001	000000004	000000028
000000001	000000004	000000029
000000001	000000004	000000030
000000001	000000004	000000031

000000001	000000004	000000032
000000002	000000004	000000024
000000002	000000004	000000025
000000002	000000004	000000026
000000002	000000004	000000027
000000002	000000004	000000028
000000002	000000004	000000029
000000002	000000004	000000030
000000002	000000004	000000031
000000002	000000004	000000032
000000003	000000004	000000024
000000003	000000004	000000025
000000003	000000004	000000026
000000003	000000004	000000027
000000003	000000004	000000028
000000003	000000004	000000029
000000003	000000004	000000030
000000003	000000004	000000031
000000003	000000004	000000032
000000004	000000004	000000024
000000004	000000004	000000025
000000004	000000004	000000026
000000004	000000004	000000027
000000004	000000004	000000028
000000004	000000004	000000029
000000004	000000004	000000030
000000004	000000004	000000031
000000004	000000004	000000032
000000005	000000004	000000024
000000005	000000004	000000025
000000005	000000004	000000026
000000005	000000004	000000027
000000005	000000004	000000028
000000005	000000004	000000029
000000005	000000004	000000030
000000005	000000004	000000031
000000009	000000004	000000024
000000009	000000004	000000025
000000009	000000004	000000026
000000009	000000004	000000027
000000009	000000004	000000028
000000009	000000004	000000029
000000009	000000004	000000030
000000009	000000004	000000031
000000009	000000004	000000032
000000013	000000004	000000024
000000013	000000004	000000025
000000013	000000004	000000026
000000013	000000004	000000027
000000013	000000004	000000028
000000013	000000004	000000029
000000013	000000004	000000030

000000013	000000004	000000031
000000013	000000004	000000032
000000014	000000004	000000024
000000014	000000004	000000025
000000014	000000004	000000026
000000014	000000004	000000027
000000014	000000004	000000028
000000014	000000004	000000029
000000014	000000004	000000030
000000014	000000004	000000031
000000014	000000004	000000032
000000001	000000005	000000033
000000001	000000005	000000037
000000001	000000005	000000041
000000001	000000005	000000045
000000001	000000005	000000049
000000002	000000005	000000033
000000002	000000005	000000037
000000002	000000005	000000041
000000002	000000005	000000045
000000002	000000005	000000049
000000003	000000005	000000033
000000003	000000005	000000037
000000003	000000005	000000041
000000003	000000005	000000045
000000003	000000005	000000049
000000004	000000005	000000033
000000004	000000005	000000037
000000004	000000005	000000041
000000004	000000005	000000045
000000004	000000005	000000049
000000005	000000005	000000033
000000005	000000005	000000037
000000005	000000005	000000041
000000005	000000005	000000045
000000005	000000005	000000049
000000009	000000005	000000033
000000009	000000005	000000037
000000009	000000005	000000041
000000009	000000005	000000045
000000013	000000005	000000045
000000013	000000005	000000049
000000013	000000005	000000033
000000014	000000005	000000037
000000014	000000005	000000041
000000013	000000005	000000045
000000013	000000005	000000049
000000014	000000005	000000033
000000014	000000005	000000037
000000014	000000005	000000041
000000014	000000005	000000045
000000014	000000005	000000049
000000001	000000005	000000034
000000001	000000005	000000038

000000001	000000005	000000042
000000001	000000005	000000046
000000001	000000005	000000050
000000002	000000005	000000034
000000002	000000005	000000038
000000002	000000005	000000042
000000002	000000005	000000046
000000002	000000005	000000050
000000003	000000005	000000034
000000003	000000005	000000038
000000003	000000005	000000042
000000003	000000005	000000050
000000004	000000005	000000034
000000004	000000005	000000038
000000004	000000005	000000042
000000004	000000005	000000046
000000004	000000005	000000050
000000005	000000005	000000034
000000005	000000005	000000038
000000005	000000005	000000042
000000005	000000005	000000046
000000005	000000005	000000050
000000009	000000005	000000034
000000009	000000005	000000038
000000009	000000005	000000042
000000009	000000005	000000046
000000009	000000005	000000050
000000013	000000005	000000034
000000013	000000005	000000038
000000013	000000005	000000042
000000013	000000005	000000046
000000013	000000005	000000050
000000014	000000005	000000034
000000014	000000005	000000038
000000014	000000005	000000042
000000014	000000005	000000046
000000014	000000005	000000050
000000001	000000005	000000008
000000001	000000005	000000035
000000001	000000005	000000039
000000001	000000005	000000043
000000001	000000005	000000047
000000002	000000005	000000008
000000002	000000005	000000035
000000002	000000005	000000039
000000002	000000005	000000043
000000002	000000005	000000047
000000003	000000005	000000008
000000003	000000005	000000035
000000003	000000005	000000039
000000003	000000005	000000043
000000003	000000005	000000047

000000004	000000005	000000008
000000004	000000005	000000035
000000004	000000005	000000039
000000004	000000005	000000043
000000004	000000005	000000047
000000005	000000005	000000008
000000005	000000005	000000035
000000005	000000005	000000039
000000005	000000005	000000043
000000005	000000005	000000047
000000009	000000005	000000008
000000009	000000005	000000035
000000009	000000005	000000039
000000009	000000005	000000043
000000009	000000005	000000047
000000013	000000005	000000008
000000013	000000005	000000035
000000013	000000005	000000039
000000013	000000005	000000043
000000013	000000005	000000047
000000014	000000005	000000008
000000014	000000005	000000035
000000014	000000005	000000039
000000014	000000005	000000043
000000014	000000005	000000047
000000001	000000005	000000036
000000001	000000005	000000040
000000001	000000005	000000044
000000001	000000005	000000048
000000002	000000005	000000036
000000002	000000005	000000040
000000002	000000005	000000044
000000002	000000005	000000048
000000003	000000005	000000036
000000003	000000005	000000040
000000003	000000005	000000044
000000003	000000005	000000048
000000004	000000005	000000036
000000004	000000005	000000040
000000004	000000005	000000044
000000004	000000005	000000048
000000005	000000005	000000036
000000005	000000005	000000040
000000005	000000005	000000044
000000005	000000005	000000048
000000009	000000005	000000036
000000009	000000005	000000040
000000009	000000005	000000044
000000009	000000005	000000048
000000013	000000005	000000036
000000013	000000005	000000040
000000013	000000005	000000044
000000013	000000005	000000048

000000014	000000005	000000036
000000014	000000005	000000040
000000014	000000005	000000044
000000014	000000005	000000048
000000002	000000008	000000021
000000002	000000008	000000022
000000002	000000008	000000023
000000003	000000008	000000021
000000003	000000008	000000022
000000003	000000008	000000023
000000008	000000008	000000021
000000008	000000008	000000022
000000008	000000008	000000023
000000009	000000008	000000021
000000009	000000008	000000022
000000009	000000008	000000023
000000010	000000008	000000021
000000010	000000008	000000022
000000011	000000008	000000021
000000011	000000008	000000022
000000011	000000008	000000023
000000012	000000008	000000021
000000012	000000008	000000022
000000012	000000008	000000023
000000015	000000008	000000021
000000015	000000008	000000022
000000015	000000008	000000023
None	None	000000002
None	None	000000003
None	None	000000004
None	None	000000005
None	None	000000006
None	None	000000007

Query 3

Question: What am I doing for this trip?

This query displays the overall timeline of the trip by combining itinerary and destination.

Destination is combined with itinerary by displaying the country and state the itinerary is in. This is calculated by calculating the itinerary date from the day_no from the start date of the trip and finding whether the itinerary date is within the date range of the duration of a particular destination.

```
In [25]: %%sql
select *, date_add(dstart_date, interval (no_days-1) day) dend_date from has_destination, destination
where destination.dest_id = has_destination.dest_id
* mysql+pymysql://root:***@localhost/
20 rows affected.
```

vac_id	dest_id	no_days	dstart_date	dest_id_1	country	state	dend_date
000000001	000000001	1	2023-02-13	000000001	Malaysia	Penang	2023-02-13
000000001	000000002	1	2023-02-14	000000002	Malaysia	Butterworth	2023-02-14
000000001	000000003	1	2023-02-14	000000003	Malaysia	Kedah	2023-02-14
000000001	000000004	1	2023-02-15	000000004	Malaysia	Kuala Lumpur	2023-02-15
000000002	000000005	2	2023-03-31	000000005	Japan	Tokyo	2023-04-01
000000002	000000006	2	2023-04-02	000000006	Japan	Hokkaido	2023-04-03
000000002	000000007	2	2023-04-05	000000007	Japan	Kyoto	2023-04-06
000000002	000000008	3	2023-04-07	000000008	Japan	Osaka	2023-04-09
000000003	000000009	8	2023-02-27	000000009	Germany	Gottingen	2023-03-06
000000003	000000010	3	2023-03-07	000000010	Germany	Berlin	2023-03-09
000000004	000000011	1	2023-06-13	000000011	USA	California	2023-06-13
000000004	000000012	2	2023-06-14	000000012	USA	Texas	2023-06-15
000000004	000000013	2	2023-06-16	000000013	USA	Michigan	2023-06-17
000000004	000000014	2	2023-06-18	000000014	USA	Florida	2023-06-19
000000005	000000015	4	2024-06-02	000000015	Switzerland	Bern	2024-06-05
000000005	000000016	3	2024-06-06	000000016	Switzerland	Zurich	2024-06-08
000000005	000000017	3	2024-06-09	000000017	Switzerland	Lucerne	2024-06-11
000000005	000000018	3	2024-06-12	000000018	Switzerland	Lausanne	2024-06-14
000000005	000000019	2	2024-06-15	000000019	Switzerland	Grindelwald	2024-06-16
000000005	000000020	3	2024-06-17	000000020	Switzerland	Basel	2024-06-19

In [26]: `%%sql`

```
Create view vacation_itinerary as

select sub_timeline_tbl.vac_id, itin_date, itin_time, itin_type, description, location, country, state, day_no from
(select itinerary.vac_id, day_no, itin_time, itin_type, description, location,
date_add(start_date, interval (day_no-1) day) as itin_date from
itinerary

join

(select vac_id, start_date from vacation) as vacation_tbl

on itinerary.vac_id = vacation_tbl.vac_id) as sub_timeline_tbl

left join

(select vac_id, has_destination.dest_id, no_days, dstart_date, country, state,
date_add(dstart_date, interval (no_days-1) day) dend_date from has_destination, destination
where destination.dest_id = has_destination.dest_id) as destination_tbl

on sub_timeline_tbl.vac_id = destination_tbl.vac_id and
(sub_timeline_tbl.itin_date >= dstart_date and sub_timeline_tbl.itin_date <=dend_date)

* mysql+pymysql://root:**@localhost/
0 rows affected.
```

Out[26]: `[]`In [27]: `%%sql`

```
select * from vacation_itinerary
```

```
* mysql+pymysql://root:**@localhost/
40 rows affected.
```

Out[27]:	vac_id	itin_date	itin_time	itin_type	description	location	country	state	day_no
	000000001	2023-02-13	9:00:00	ATTRACTION	penang street tour	penang street	Malaysia	Penang	1
	000000001	2023-02-13	12:00:00	FOOD	penang street food	penang street	Malaysia	Penang	1
	000000001	2023-02-13	14:00:00	SIGHTSEEING	penang street	penang street	Malaysia	Penang	1
	000000001	2023-02-14	8:00:00	TOUR	malaysia heritage tour	butterworth	Malaysia	Butterworth	2
	000000001	2023-02-14	8:00:00	TOUR	malaysia heritage tour	butterworth	Malaysia	Kedah	2
	000000001	2023-02-14	13:00:00	FOOD	restaurant food	butterworth street 2	Malaysia	Butterworth	2
	000000001	2023-02-14	13:00:00	FOOD	restaurant food	butterworth street 2	Malaysia	Kedah	2
	000000001	2023-02-14	16:00:00	OTHERS	rest in hotel	butterworth	Malaysia	Butterworth	2
	000000001	2023-02-14	16:00:00	OTHERS	rest in hotel	butterworth	Malaysia	Kedah	2
	000000001	2023-02-15	9:00:00	ATTRACTION	trickeye museum malaysia	kedah avenue 2	Malaysia	Kuala Lumpur	3
	000000001	2023-02-15	14:00:00	SIGHTSEEING	statues around city area	malaysia	Malaysia	Kuala Lumpur	3
	000000001	2023-02-16	9:00:00	SIGHTSEEING	stroll along mural walls	kuala lumpur street 14	None	None	4
	000000002	2023-03-29	9:00:00	ATTRACTION	sakura national park	street 5	None	None	1
	000000002	2023-03-29	13:00:00	FOOD	Ramen restaurant	street 10	None	None	1
	000000002	2023-03-29	17:00:00	SIGHTSEEING	night streets shopping	tokyo streets	None	None	1
	000000002	2023-03-30	10:00:00	ATTRACTION	japanses tea cultural experience	street 15	None	None	2
	000000002	2023-03-30	15:00:00	FOOD	japanese snacks bar	street 20	None	None	2
	000000002	2023-03-31	9:00:00	SIGHTSEEING	japanses home visits	kyoto district 2	Japan	Tokyo	3
	000000002	2023-03-31	15:00:00	OTHERS	japanese souvenir shopping	kyoto district 5	Japan	Tokyo	3
	000000002	2023-04-01	8:00:00	FOOD	traditional japanese cuisine restaurant	osaka avenue 5	Japan	Tokyo	4
	000000003	2023-02-26	9:00:00	SIGHTSEEING	streets of gottingen	gottingen	None	None	1
	000000003	2023-02-26	11:00:00	OTHERS	Shopping	gottingen suburb town	None	None	1
	000000003	2023-02-27	12:00:00	TOUR	cave mine tour	district 10	Germany	Gottingen	2
	000000003	2023-02-27	16:30:00	FOOD	Christmas market food	district 15	Germany	Gottingen	2
	000000003	2023-02-28	10:30:00	TOUR	Day tour of gottingen	gottingen area	Germany	Gottingen	3
	000000003	2023-02-28	16:30:00	SIGHTSEEING	ancient buildings of gottingen	gottingen area	Germany	Gottingen	3
	000000004	2023-06-13	8:00:00	OTHERS	USA Immersion Trip Day 1 Camp	california	USA	California	1
	000000004	2023-06-14	9:00:00	OTHERS	USA Immersion Trip Day 2 Camp	texas street 10	USA	Texas	2
	000000004	2023-06-15	8:30:00	OTHERS	USA Immersion Trip Day 3 Camp	michigan area 2	USA	Texas	3
	000000004	2023-06-16	9:00:00	OTHERS	USA Immersion Trip Day 4 Camp	florida	USA	Michigan	4
	000000005	2024-06-02	10:00:00	OTHERS	CERN Welcome Lecture	avenue 100	Switzerland	Bern	1
	000000005	2024-06-02	18:00:00	ATTRACTION	Visit to Museum	avenue 251	Switzerland	Bern	1
	000000005	2024-06-03	9:30:00	OTHERS	CERN Workshop	avenue 100	Switzerland	Bern	2
	000000005	2024-06-04	9:00:00	TOUR	CERN Site Day Tour	avenue 100	Switzerland	Bern	3
	000000005	2024-06-05	8:30:00	OTHERS	CERN Content Lecture	avenue 100	Switzerland	Bern	4
	000000005	2024-06-06	8:45:00	OTHERS	Visit to Data Center CERN	avenue 105	Switzerland	Zurich	5
	000000005	2024-06-06	20:00:00	SIGHTSEEING	Switzerland Night Market	switz zurich street 10	Switzerland	Zurich	5
	000000005	2024-06-07	8:30:00	TOUR	Accelerator Tour	avenue 110	Switzerland	Zurich	6
	000000005	2024-06-07	17:30:00	FOOD	Swiss Restaurant for Dinner	switz street 341	Switzerland	Zurich	6
	000000005	2024-06-08	8:00:00	OTHERS	Day Immersion in Switzerland Culture	switz district 10	Switzerland	Zurich	7

Additional Views for Project Running

```
In [28]: %%sql
create view maps_itinerary_tbl as
select maps_tbl.vac_id, maps_tbl.itin_time, maps_tbl.day_no, map_id, map_link, name, category ,
itin_date, itin_type, description, location, country, state from
(select vac_id, itin_time, day_no, vac_map.map_id, map_link, name, category from
(ref_map_itin join vac_map on vac_map.map_id = ref_map_itin.map_id)) as maps_tbl
join
vacation_itinerary
on (vacation_itinerary.day_no = maps_tbl.day_no) and (vacation_itinerary.itin_time = maps_tbl.itin_time)
and (vacation_itinerary.vac_id = maps_tbl.vac_id)

* mysql+pymysql://root:**@localhost/
0 rows affected.
```

Out[28]: []

In [29]:

```
%sql
select * from maps_itinerary_tbl
```

```
* mysql+pymysql://root:***@localhost/
21 rows affected.
```

Out[29]:

vac_id	itin_time	day_no	map_id	map_link	name	category	itin_date	itin_type	description	location	country	sta
000000001	9:00:00	1	000000001	map-penang.pdf	Map of Penang	GENERAL	2023-02-13	ATTRACTION	penang street tour	penang street	Malaysia	Pena
000000003	11:00:00	1	000000003	map-gemany-rewe.pdf	Map of Germany Shopping Mall Rewe	OTHERS	2023-02-26	OTHERS	Shopping	gottingen suburb town	None	No
000000005	18:00:00	1	000000005	map-switz-museum.pdf	Map of Switzerland Museum	ATTRACTION	2024-06-02	ATTRACTION	Visit to Museum	avenue 251	Switzerland	Ber
000000003	9:00:00	1	000000007	map-christmas-market.pdf	Christmas Market Highlights	OTHERS	2023-02-26	SIGHTSEEING	streets of gottingen	gottingen	None	No
000000001	12:00:00	1	000000008	map-penang-recommend.pdf	Penang Street Recommended Locations	ATTRACTION	2023-02-13	FOOD	penang street food	penang street	Malaysia	Pena
000000001	14:00:00	1	000000008	map-penang-recommend.pdf	Penang Street Recommended Locations	ATTRACTION	2023-02-13	SIGHTSEEING	penang street	penang street	Malaysia	Pena
000000005	9:00:00	3	000000009	map-cern.pdf	CERN Building	OTHERS	2024-06-04	TOUR	CERN Site Day Tour	avenue 100	Switzerland	Ber
000000005	8:45:00	5	000000009	map-cern.pdf	CERN Building	OTHERS	2024-06-06	OTHERS	Visit to Data Center CERN	avenue 105	Switzerland	Zuri
000000003	9:00:00	1	000000010	map-german-bus.pdf	Germany Bus Timings	TRANSPORT	2023-02-26	SIGHTSEEING	streets of gottingen	gottingen	None	No
000000003	11:00:00	1	000000010	map-german-bus.pdf	Germany Bus Timings	TRANSPORT	2023-02-26	OTHERS	Shopping	gottingen suburb town	None	No
000000003	10:30:00	3	000000010	map-german-bus.pdf	Germany Bus Timings	TRANSPORT	2023-02-28	TOUR	Day tour of gottingen	gottingen area	Germany	Gotting
000000002	17:00:00	1	000000011	map-japan-streets.pdf	Japaneses Street Eateries	OTHERS	2023-03-29	SIGHTSEEING	night streets shopping	tokyo streets	None	No
000000003	12:00:00	2	000000012	map-cave-mine.pdf	Germany UNESCO Mine Site	ATTRACTION	2023-02-27	TOUR	cave mine tour	district 10	Germany	Gotting
000000004	8:00:00	1	000000013	map-usa-camp-tour-route.pdf	May of USA Camp Tour Route	GENERAL	2023-06-13	OTHERS	USA Immersion Trip Day 1 Camp	california	USA	Californ
000000004	9:00:00	2	000000013	map-usa-camp-tour-route.pdf	May of USA Camp Tour Route	GENERAL	2023-06-14	OTHERS	USA Immersion Trip Day 2 Camp	texas street 10	USA	Tex
000000004	8:30:00	3	000000013	map-usa-camp-tour-route.pdf	May of USA Camp Tour Route	GENERAL	2023-06-15	OTHERS	USA Immersion Trip Day 3 Camp	michigan area 2	USA	Tex
000000004	9:00:00	4	000000013	map-usa-camp-tour-route.pdf	May of USA Camp Tour Route	GENERAL	2023-06-16	OTHERS	USA Immersion Trip Day 4 Camp	florida	USA	Michig
000000005	8:00:00	7	000000014	map-switz-cultural-sites.pdf	Iconic Sites in Switzerland	GENERAL	2024-06-08	OTHERS	Day Immersion in Switzerland Culture	switz district 10	Switzerland	Zuri
000000005	20:00:00	5	000000018	map-swiss-night-attractions.pdf	Night Attractions of Switzerland	ATTRACTION	2024-06-06	SIGHTSEEING	Switzerland Night Market	switz zurich street 10	Switzerland	Zuri
000000005	20:00:00	5	000000019	map-swiss-bus-timings.pdf	Bus availability Switzerland	TRANSPORT	2024-06-06	SIGHTSEEING	Switzerland Night Market	switz zurich street 10	Switzerland	Zuri
000000005	8:30:00	6	000000020	map-accelerator-layout-cern.pdf	Accelerator Layout for CERN	OTHERS	2024-06-07	TOUR	Accelerator Tour	avenue 110	Switzerland	Zuri

Triggers and Events:

Shortlist relevant triggers or scheduled events that are useful for your database system. Describe what the trigger/event is for and why it is useful for your DB.

Trigger/Event**Trigger 1**

Updating user counts for upgrade when a new vacation is inserted and is upgraded. This is useful as new vacations are added quite frequently and requires updating of upgrade count for each user to ensure that they are kept within the restrictions of the user plans.

```
In [30]: %%sql
create trigger insert_vacation
after insert on vacation
for each row update user
set upg_count = upg_count + 1
where user_id = new.upg_user_id
;
```

```
* mysql+pymysql://root:***@localhost/
0 rows affected.
```

```
Out[30]: []
```

```
In [31]: %%sql
select * from user
```

```
* mysql+pymysql://root:***@localhost/
15 rows affected.
```

user_id	username	password	email	plan_type	sub_mail	share_drive
000000001	Anna	pbkdf2:sha256:260000Jxu38JhpUtj2KORr 55d32b66ff58895a05b949a82c6f36b99155a1756c979c958cd5ba9768b4e277	anna123@nushigh.edu.sg	Basic	0	0
000000002	Benny	pbkdf2:sha256:260000Mcpq3Myee1i5bCtT ba786e92ef49008cd901eaea9f4c3755ee6744f6e278750b80a73ca12174ef76	bennyLee@nushigh.edu.sg	Premium	1	0
000000003	Charlie	pbkdf2:sha256:260000uo8D9nnQq19HeQ9M c28d7c62fde881951f6df3af255b94b36d430eaa10446545433f8b82705feba3	charlieC@nushigh.edu.sg	Plus	0	1
000000004	Daniel	pbkdf2:sha256:260000JOUbwJQb9uYD3ak4 73083e4b3782fd6e3f3c7cb53993ce7e0e30444ac70d09e8d52c9de55d5950f4	dan_iel@nushigh.edu.sg	Plus	0	1
000000005	Elliot	pbkdf2:sha256:260000dFLTKchGWUAW3mAi 9d736306a948c332fa964e32a5ff3512d8ee3ed3f9ad8d39a84b06322ced5d1e	elliot_@nushigh.edu.sg	Basic	0	1
000000006	Francis	pbkdf2:sha256:260000SVcQ1PKIbRUOPCc9 34210b10d536c98190931926489602b549e944b2e55a820ba1958981bca9fbbe	fh123@nushigh.edu.sg	Premium	1	1
000000007	Daisy	pbkdf2:sha256:260000D5MRjuhsDRGhvF0U 6463e2efa30c5cc419409fcfe5cea2d2a8184485af491d84e80634240a5a4e6	daisy_@nushigh.edu.sg	Basic	0	1
000000008	Oliver	pbkdf2:sha256:260000DmM5M04gRcCVqhvq b0dd4fb3479c9569b8e661d3de93e30b1ced55f9195b6a414290058a34e1a222	oliver_@nushigh.edu.sg	Basic	1	1
000000009	James	pbkdf2:sha256:260000UbeVKUEfIHPgdUqO 1490d1bfe0fc810965894c06721a5a44aa9559900788d723f6a695314c80795	james_@nushigh.edu.sg	Plus	1	0
000000010	Lily	pbkdf2:sha256:260000iU5a2hLPbbq0h9qp ad150a2d245212428c11bceb3bd3a373f108acf6c2b96a0388e2576637ab0887	lily_@nushigh.edu.sg	Basic	1	0
000000011	Zachary	pbkdf2:sha256:2600003VXezVtYKD5B98JJ 860bc12e6b9706e3588ebfb9b99a7abac079fc25c46b548cbea0edb59946fb4	zachary_@nushigh.edu.sg	Premium	0	0
000000012	Timothy	pbkdf2:sha256:260000p67QeoHkf71JapqV 9284be1a767d01f9a32bb3dba883652a1fc31e6b621b3c87e87da4d7e34420ec	timothy_@nushigh.edu.sg	Plus	1	1
000000013	Nicholas	pbkdf2:sha256:260000LnileY33cGTTJ9qL 70a9ae449f158740733a99ba0c8689b2156fbf47e4b72e0df20f10e043db6db0	nicholas_@nushigh.edu.sg	Basic	1	0
000000014	Kenneth	pbkdf2:sha256:260000Sk2SjX3o6RdKPfLy 262e12ab3330a73f53aea0a445754f94f83bb21751b44f03dedaabda0f5e61c3	kenneth_@nushigh.edu.sg	Plus	0	1
000000015	Ryan	pbkdf2:sha256:260000BA33onvDOmbiuLJY 71e7f6e27605c3a6066f595295d8a0b6c85a285ace531e01afb28a0bd1b3a1c5	ryan_@nushigh.edu.sg	Basic	0	0

```
In [32]: %%sql
INSERT INTO vacation VALUES("000000007","Trip to Bangkok","00000003","00000002","2023-04-19","2023-04-23",5000);
select * from user
```

```
* mysql+pymysql://root:***@localhost/
(pymysql.err.IntegrityError) (1062, "Duplicate entry '000000007' for key 'vacation.PRIMARY'")
[SQL: INSERT INTO vacation VALUES("000000007","Trip to Bangkok","00000003","00000002","2023-04-19","2023-04-23",5000);]
(Background on this error at: https://sqlalche.me/e/14/gkpj)
```

Trigger 2

Updating user counts for upgrade when a vacation is updated. If the other details (other than whether the vacation is upgraded or not), the upgrade count will remain unchanged.

If the vacation is being upgraded by another user, the original user upgrade count remains the same while the new user upgrade count increments.

If the vacation is being upgraded (from a non-upgraded state), the new user upgrade count increases.

This is useful as it ensures that all upgrade counts are being accounted for for each user.

```
In [33]: %%sql
create trigger update_vacation
after update on vacation
for each row
update user
set upg_count = upg_count + 1
where (((old.upg_user_id <> new.upg_user_id) or (old.upg_user_id is null)) and (user_id = new.upg_user_id));

* mysql+pymysql://root:***@localhost/
0 rows affected.
[]
```

Out[33]: []

```
In [34]: %%sql
select * from vacation

* mysql+pymysql://root:***@localhost/
20 rows affected.
```

vac_id	description	vac_grp_id	upg_user_id	start_date	end_date	budget_limit
000000001	Trip to Malaysia	000000003	None	2023-02-13	2023-02-16	5000
000000002	Trip to Japan	000000001	000000002	2023-03-29	2023-04-11	10000
000000003	Trip to Germany	000000002	000000002	2023-02-26	2023-03-10	10000
000000004	Trip to USA	000000005	000000006	2023-06-13	2023-06-20	20000
000000005	Trip to Switzerland	000000005	000000004	2024-06-02	2024-06-20	25000
000000006	Trip to Australia	000000004	000000002	2023-05-08	2023-05-30	50000
000000007	Trip to Bangkok	000000009	000000011	2023-04-19	2023-04-23	5000
000000008	Trip to China	000000008	000000011	2023-08-15	2023-08-23	23800
000000009	Trip to Mongolia	000000003	000000014	2023-04-20	2023-05-05	2400
000000010	Trip to UK	000000006	None	2023-09-01	2023-09-16	123500
000000011	Trip to Paris	000000005	000000009	2023-11-01	2023-11-21	1200
000000012	Trip to Vietnam	000000010	000000002	2023-10-10	2023-10-25	13700
000000013	Trip to Thailand	000000003	000000014	2023-07-05	2023-07-25	6200
000000014	Trip to Taiwan	000000008	000000002	2024-07-15	2024-07-30	3200
000000015	Trip to India	000000003	000000014	2023-12-10	2023-12-22	13400
000000016	Trip to Cambodia	000000006	None	2024-01-01	2024-02-01	2100
000000017	Trip to Laos	000000007	000000002	2024-03-05	2024-03-13	10000
000000018	Trip to Brunei	000000002	000000002	2024-04-01	2024-04-15	23400
000000019	Trip to Indonesia	000000004	000000009	2024-07-01	2024-07-15	14200
000000020	Trip to Canada	000000008	None	2024-08-15	2024-09-01	1250

```
In [35]: %%sql
UPDATE vacation
set budget_limit=10000 where vac_id="000000002";
select * from user

* mysql+pymysql://root:***@localhost/
1 rows affected.
15 rows affected.
```

user_id	username	password	email	plan_type	sub_mail	share_drive
000000001	Anna	pbkdf2:sha256:260000Jxu38JhpUtj2KORr55d32b66ff58895a05b949a82c6f36b99155a1756c979c958cd5ba9768b4e277	anna123@nushigh.edu.sg	Basic	0	0
000000002	Benny	pbkdf2:sha256:260000Mcpq3Myee1i5bCtTba786e92ef49008cd901ea9f4c3755ee6744f6e278750b80a73ca12174ef76	bennyLee@nushigh.edu.sg	Premium	1	0
000000003	Charlie	pbkdf2:sha256:260000uo8D9nnQq19HeQ9Mc28d7c62fd881951f6df3af255b94b36d430eaa10446545433f8b82705feba3	charlieC@nushigh.edu.sg	Plus	0	1
000000004	Daniel	pbkdf2:sha256:260000JOUbwJQb9uYD3ak473083e4b3782fd6e3f3c7cb53993ce7e0e3044ac70d09e8d52c9de55d5950f4	dan_iel@nushigh.edu.sg	Plus	0	1
000000005	Elliot	pbkdf2:sha256:260000dFLTKchGWUAW3mAi9d736306a948c332fa964e32a5ff3512d8ee3ed3f9ad8d39a84b06322ced5d1e	elliot_@nushigh.edu.sg	Basic	0	1
000000006	Francis	pbkdf2:sha256:260000SVcQ1PKIbRUOPCc934210b10d536c98190931926489602b549e944b2e55a820ba1958981bca9fbbe	fh123@nushigh.edu.sg	Premium	1	1
000000007	Daisy	pbkdf2:sha256:260000D5MRjuhsDRGhvF0U6463e2efa30c5ccd419409fcfe5cea2d2a8184485af491d84e80634240a5a4e6	daisy_@nushigh.edu.sg	Basic	0	1
000000008	Oliver	pbkdf2:sha256:260000dMm5M04gRcCVqhvqb0dd4fb3479c9569b8e661d3de93e30b1ced55f9195b6a414290058a34e1a222	oliver_@nushigh.edu.sg	Basic	1	1
000000009	James	pbkdf2:sha256:260000UbeVKUEfiHPgdUqO1490d1bfe0fca810965894c06721a5a44aa9559900788d723f6a695314c80795	james_@nushigh.edu.sg	Plus	1	0
000000010	Lily	pbkdf2:sha256:260000iU5a2hLPbbq0h9qpad150a2d245212428c11bceb3bd3a373f108acf6c2b96a0388e2576637ab0887	lily_@nushigh.edu.sg	Basic	1	0
000000011	Zachary	pbkdf2:sha256:2600003VXezVtYKD5B98JJ860bc12e6b9706e3588efbf9b99a7abac079fc25c46b548cbea0edb59946fbf4	zachary_@nushigh.edu.sg	Premium	0	0
000000012	Timothy	pbkdf2:sha256:260000p67QeoHkf71JapqV9284be1a767d01f9a32bb3dba883652a1fc31e6b621b3c87e87da4d7e34420ec	timothy_@nushigh.edu.sg	Plus	1	1
000000013	Nicholas	pbkdf2:sha256:260000LnileY33cGTTJ9qL70a9ae449f158740733a99ba0c8689b2156fbf47e4b72e0df20f10e043db6db0	nicholas_@nushigh.edu.sg	Basic	1	0
000000014	Kenneth	pbkdf2:sha256:260000Sk2SjX3o6RdKPfLy262e12ab3330a73f53aea0a445754f94f83bb21751b44f03dedaabda0f5e61c3	kenneth_@nushigh.edu.sg	Plus	0	1
000000015	Ryan	pbkdf2:sha256:260000BA33onvDOmbiuLJY	ryan_@nushigh.edu.sg	Basic	0	0

In [36]: `%%sql
select * from vacation`

```
* mysql+pymysql://root:***@localhost/
20 rows affected.
```

vac_id	description	vac_grp_id	upg_user_id	start_date	end_date	budget_limit
000000001	Trip to Malaysia	000000003	None	2023-02-13	2023-02-16	5000
000000002	Trip to Japan	000000001	000000002	2023-03-29	2023-04-11	10000
000000003	Trip to Germany	000000002	000000002	2023-02-26	2023-03-10	10000
000000004	Trip to USA	000000005	000000006	2023-06-13	2023-06-20	20000
000000005	Trip to Switzerland	000000005	000000004	2024-06-02	2024-06-20	25000
000000006	Trip to Australia	000000004	000000002	2023-05-08	2023-05-30	50000
000000007	Trip to Bangkok	000000009	000000011	2023-04-19	2023-04-23	5000
000000008	Trip to China	000000008	000000011	2023-08-15	2023-08-23	23800
000000009	Trip to Mongolia	000000003	000000014	2023-04-20	2023-05-05	2400
000000010	Trip to UK	000000006	None	2023-09-01	2023-09-16	123500
000000011	Trip to Paris	000000005	000000009	2023-11-01	2023-11-21	1200
000000012	Trip to Vietnam	000000010	000000002	2023-10-10	2023-10-25	13700
000000013	Trip to Thailand	000000003	000000014	2023-07-05	2023-07-25	6200
000000014	Trip to Taiwan	000000008	000000002	2024-07-15	2024-07-30	3200
000000015	Trip to India	000000003	000000014	2023-12-10	2023-12-22	13400
000000016	Trip to Cambodia	000000006	None	2024-01-01	2024-02-01	2100
000000017	Trip to Laos	000000007	000000002	2024-03-05	2024-03-13	10000
000000018	Trip to Brunei	000000002	000000002	2024-04-01	2024-04-15	23400
000000019	Trip to Indonesia	000000004	000000009	2024-07-01	2024-07-15	14200
000000020	Trip to Canada	000000008	None	2024-08-15	2024-09-01	1250

In [37]: `%%sql
UPDATE vacation
set upg_user_id="000000002" where vac_id="000000006";
select * from user`

```
* mysql+pymysql://root:***@localhost/
1 rows affected.
15 rows affected.
```

Out[37]:

user_id	username	password	email	plan_type	sub_mail	share_drive
000000001	Anna	pbkdf2:sha256:260000Jxu38JhpUtj2KORr 55d32b66ff58895a05b949a82c6f36b99155a1756c979c958cd5ba9768b4e277	anna123@nushigh.edu.sg	Basic	0	0
000000002	Benny	pbkdf2:sha256:260000Mcpq3Myee1i5bCtT ba786e92ef49008cd901ea9f4c3755ee6744f6e278750b80a73ca12174ef76	bennyLee@nushigh.edu.sg	Premium	1	0
000000003	Charlie	pbkdf2:sha256:260000uo8D9nnQq19HeQ9M c28d7c62fde881951f6df3af255b94b36d430eaa10446545433f8b82705feba3	charlieC@nushigh.edu.sg	Plus	0	1
000000004	Daniel	pbkdf2:sha256:260000JOUbwJQb9uYD3ak4 73083e4b3782fd6e3f3c7cb53993ce7e0e30444ac70d09e8d52c9de55d5950f4	dan_iel@nushigh.edu.sg	Plus	0	1
000000005	Elliot	pbkdf2:sha256:260000FLTKchGWUAW3mAi 9d736306a948c332fa964e32a5ff3512d8ee3ed3f9ad8d39a84b06322ced5d1e	elliot_@nushigh.edu.sg	Basic	0	1
000000006	Francis	pbkdf2:sha256:260000SVcQ1PKIbRUOPCc9 34210b10d536c98190931926489602b549e944b2e55a820ba1958981bca9fbbe	fh123@nushigh.edu.sg	Premium	1	1
000000007	Daisy	pbkdf2:sha256:260000D5MRjuhsDRGhvF0U 6463e2efa30c5ccd419409fcfe5cea2d2a8184485af491d84e80634240a5a4e6	daisy_@nushigh.edu.sg	Basic	0	1
000000008	Oliver	pbkdf2:sha256:260000dMm5M04gRcCVqhvq b0dd4fb3479c9569b8e661d3de93e30b1ced55f9195b6a414290058a34e1a222	oliver_@nushigh.edu.sg	Basic	1	1
000000009	James	pbkdf2:sha256:260000UbeVKUEfIH Pg dUqO 1490d1bfe0fca810965894c06721a5a44aa9559900788d723f6a695314c80795	james_@nushigh.edu.sg	Plus	1	0
000000010	Lily	pbkdf2:sha256:260000iU5a2hLPbbq0h9qp ad150a2d245212428c11bceb3bd3a373f108acf6c2b96a0388e2576637ab0887	lily_@nushigh.edu.sg	Basic	1	0
000000011	Zachary	pbkdf2:sha256:2600003VXezVtYKD5B98JJ 860bc12e6b9706e3588efbf9b99a7abac079fc25c46b548cba0edb59946fb4	zachary_@nushigh.edu.sg	Premium	0	0
000000012	Timothy	pbkdf2:sha256:260000p67QeoHkf71JapqV 9284be1a767d01f9a32bb3dba883652a1fc31e6b621b3c87e87da4d7e34420ec	timothy_@nushigh.edu.sg	Plus	1	1
000000013	Nicholas	pbkdf2:sha256:260000LnileY33cGTTJ9qL 70a9ae449f158740733a99ba0c8689b2156fb47e4b72e0df20f10e043db6db0	nicholas_@nushigh.edu.sg	Basic	1	0
000000014	Kenneth	pbkdf2:sha256:260000Sk2SjX3o6RdKPfLy 262e12ab3330a73f53aea0a445754f94f83bb21751b44f03dedaabda0f5e61c3	kenneth_@nushigh.edu.sg	Plus	0	1
000000015	Ryan	pbkdf2:sha256:260000BA33onvDOmbiuLJY 71e7f6e27605c3a6066f595295d8a0b6c85a285ace531e01afb28a0bd1b3a1c5	ryan_@nushigh.edu.sg	Basic	0	0

Trigger 3

Update group count when user is added to existing vacation group. This is useful to monitor the group count for each user to ensure that they still satisfy the user plan restrictions.

In [38]:

```
%%sql
create trigger insert_vac_grp
after insert on vac_user_in
for each row
update user
set grp_count = grp_count + 1
where (user_id = new.user_id);
```

```
* mysql+pymysql://root:***@localhost/
0 rows affected.
```

Out[38]:

In [39]:

```
%%sql
select * from user
```

```
* mysql+pymysql://root:***@localhost/
15 rows affected.
```

user_id	username	password	email	plan_type	sub_mail	share_drive
000000001	Anna	pbkdf2:sha256:260000Jxu38JhpUtj2KORr55d32b66ff58895a05b949a82c6f36b99155a1756c979c958cd5ba9768b4e277	anna123@nushigh.edu.sg	Basic	0	0
000000002	Benny	pbkdf2:sha256:260000Mcpq3Myee1i5bCtTba786e92ef49008cd901ea9f4c3755ee6744f6e278750b80a73ca12174ef76	bennyLee@nushigh.edu.sg	Premium	1	0
000000003	Charlie	pbkdf2:sha256:260000uo8D9nnQq19HeQ9Mc28d7c62fde881951f6df3af255b94b36d430eaa10446545433f8b82705feba3	charlieC@nushigh.edu.sg	Plus	0	1
000000004	Daniel	pbkdf2:sha256:260000JOUbwJQb9uYD3ak473083e4b3782fd6e3f3c7cb53993ce7e0e3044ac70d09e8d52c9de55d5950f4	dan_iel@nushigh.edu.sg	Plus	0	1
000000005	Elliot	pbkdf2:sha256:260000dFLTKchGWUAW3mAi9d736306a948c332fa964e32a5ff3512d8ee3ed3f9ad8d39a84b06322ced5d1e	elliot_@nushigh.edu.sg	Basic	0	1
000000006	Francis	pbkdf2:sha256:260000SVcQ1PKIbRUOPCc934210b10d536c98190931926489602b549e944b2e55a820ba1958981bca9fbbe	fh123@nushigh.edu.sg	Premium	1	1
000000007	Daisy	pbkdf2:sha256:260000D5MRjuhsDRGhvF0U6463e2efa30c5ccd419409fcfe5cea2d2a8184485af491d84e80634240a5a4e6	daisy_@nushigh.edu.sg	Basic	0	1
000000008	Oliver	pbkdf2:sha256:260000dMm5M04gRcCVqhvqb0dd4fb3479c9569b8e661d3de93e30b1ced55f9195b6a414290058a34e1a222	oliver_@nushigh.edu.sg	Basic	1	1
000000009	James	pbkdf2:sha256:260000UbeVKUEfiHPgdUqO1490d1bfe0fca810965894c06721a5a44aa9559900788d723f6a695314c80795	james_@nushigh.edu.sg	Plus	1	0
000000010	Lily	pbkdf2:sha256:260000iU5a2hLPbbq0h9qpad150a2d245212428c11bceb3bd3a373f108acf6c2b96a0388e2576637ab0887	lily_@nushigh.edu.sg	Basic	1	0
000000011	Zachary	pbkdf2:sha256:2600003VXezVtYKD5B98JJ860bc12e6b9706e3588efbf9b99a7abac079fc25c46b548cbea0edb59946fbf4	zachary_@nushigh.edu.sg	Premium	0	0
000000012	Timothy	pbkdf2:sha256:260000p67QeoHkf71JapqV9284be1a767d01f9a32bb3dba883652a1fc31e6b621b3c87e87da4d7e34420ec	timothy_@nushigh.edu.sg	Plus	1	1
000000013	Nicholas	pbkdf2:sha256:260000LnileY33cGTTJ9qL70a9ae449f158740733a99ba0c8689b2156fbf47e4b72e0df20f10e043db6db0	nicholas_@nushigh.edu.sg	Basic	1	0
000000014	Kenneth	pbkdf2:sha256:260000Sk2SjX3o6RdKPfLy262e12ab3330a73f53aea0a445754f94f83bb21751b44f03dedaabda0f5e61c3	kenneth_@nushigh.edu.sg	Plus	0	1
000000015	Ryan	pbkdf2:sha256:260000BA33onvDOmbiuLJY	ryan_@nushigh.edu.sg	Basic	0	0

In [40]: `%%sql`
`INSERT INTO vac_user_in VALUES("000000009","000000003");`
`select * from user`

```
* mysql+pymysql://root:***@localhost/
1 rows affected.
15 rows affected.
```

Out[40]:		user_id	username	password	email	plan_type	sub_mail	share_drive
000000001	Anna	55d32b66ff58895a05b949a82c6f36b99155a1756c979c958cd5ba9768b4e277	pbkdf2:sha256:260000Jxu38JhpUtj2KORr	anna123@nushigh.edu.sg	Basic	0	0	
000000002	Benny	ba786e92ef49008cd901ea9f4c3755ee6744f6e278750b80a73ca12174ef76	pbkdf2:sha256:260000Mcpq3Myee1i5bCtT	bennyLee@nushigh.edu.sg	Premium	1	0	
000000003	Charlie	c28d7c62fd881951f6df3af255b94b36d430eaa10446545433f8b82705feba3	pbkdf2:sha256:260000uo8D9nnQq19HeQ9M	charlieC@nushigh.edu.sg	Plus	0	1	
000000004	Daniel	73083e4b3782fd6e3f3c7cb53993ce7e0e3044ac70d09e8d52c9de55d5950f4	pbkdf2:sha256:260000JOUbwJQb9uYD3ak4	dan_iel@nushigh.edu.sg	Plus	0	1	
000000005	Elliot	9d736306a948c332fa964e32a5ff3512d8ee3ed3f9ad8d39a84b06322ced5d1e	pbkdf2:sha256:260000dFLTKchGWUAW3mAi	elliot_@nushigh.edu.sg	Basic	0	1	
000000006	Francis	34210b10d536c98190931926489602b549e944b2e55a820ba1958981bca9fbbe	pbkdf2:sha256:260000SVcQ1PKIbRUOPCc9	fh123@nushigh.edu.sg	Premium	1	1	
000000007	Daisy	6463e2efa30c5ccd419409fcfe5cea2d2a8184485af491d84e80634240a5a4e6	pbkdf2:sha256:260000D5MRjuhsDRGhvF0U	daisy_@nushigh.edu.sg	Basic	0	1	
000000008	Oliver	b0dd4fb3479c9569b8e661d3de93e30b1ced55f9195b6a414290058a34e1a222	pbkdf2:sha256:260000dMm5M04gRcCVqhvq	oliver_@nushigh.edu.sg	Basic	1	1	
000000009	James	1490d1bfe0fca810965894c06721a5a44aa9559900788d723f6a695314c80795	pbkdf2:sha256:260000UbeVKUEfiHPgdUqO	james_@nushigh.edu.sg	Plus	1	0	
000000010	Lily	ad150a2d245212428c11bceb3bd3a373f108acf6c2b96a0388e2576637ab0887	pbkdf2:sha256:260000iU5a2hLPbbq0h9qp	lily_@nushigh.edu.sg	Basic	1	0	
000000011	Zachary	860bc12e6b9706e3588efbf9b99a7abac079fc25c46b548cbea0edb59946fbf4	pbkdf2:sha256:2600003VXezVtYKD5B98JJ	zachary_@nushigh.edu.sg	Premium	0	0	
000000012	Timothy	9284be1a767d01f9a32bb3dba883652a1fc31e6b621b3c87e87da4d7e34420ec	pbkdf2:sha256:260000p67QeoHkf71JapqV	timothy_@nushigh.edu.sg	Plus	1	1	
000000013	Nicholas	70a9ae449f158740733a99ba0c8689b2156fb47e4b72e0df20f10e043db6db0	pbkdf2:sha256:260000LnileY33cGTTJ9qL	nicholas_@nushigh.edu.sg	Basic	1	0	
000000014	Kenneth	262e12ab3330a73f53aea0a445754f94f83bb21751b44f03dedaabda0f5e61c3	pbkdf2:sha256:260000Sk2SjX3o6RdKPfLy	kenneth_@nushigh.edu.sg	Plus	0	1	
000000015	Ryan		pbkdf2:sha256:260000BA33onvDOmbiuLJY	ryan_@nushigh.edu.sg	Basic	0	0	

Section G: Web UI

Instructions:

For this deliverable you will write a web application that interacts with your database to manage your domain. This application must allow the user to extract specific information from the database, through a user-friendly interface. Additional marks will be given for good webpage design (in terms of navigation, organization and functionality), and aesthetically pleasing webpage. Your web interface should allow you to demonstrate the CRUD operations:

* User Info Page:

- Allow user to register for a new account - Allow registered user to login - Allow logged in users to view and edit Profile / Account information

Other notes: - Use sessions to ensure only logged in user may access relevant information of to their account. - Relevant data validation should be done.

* Search & Browse page (i.e. Read function):

Upon login, users can search and browse the "data". Searching is likely the most typical action for a user. The user should be presented with a form to specify their search criteria, and based on the results of the underlying database query, will be presented either a list of matching records or a single matching record if only one was found.

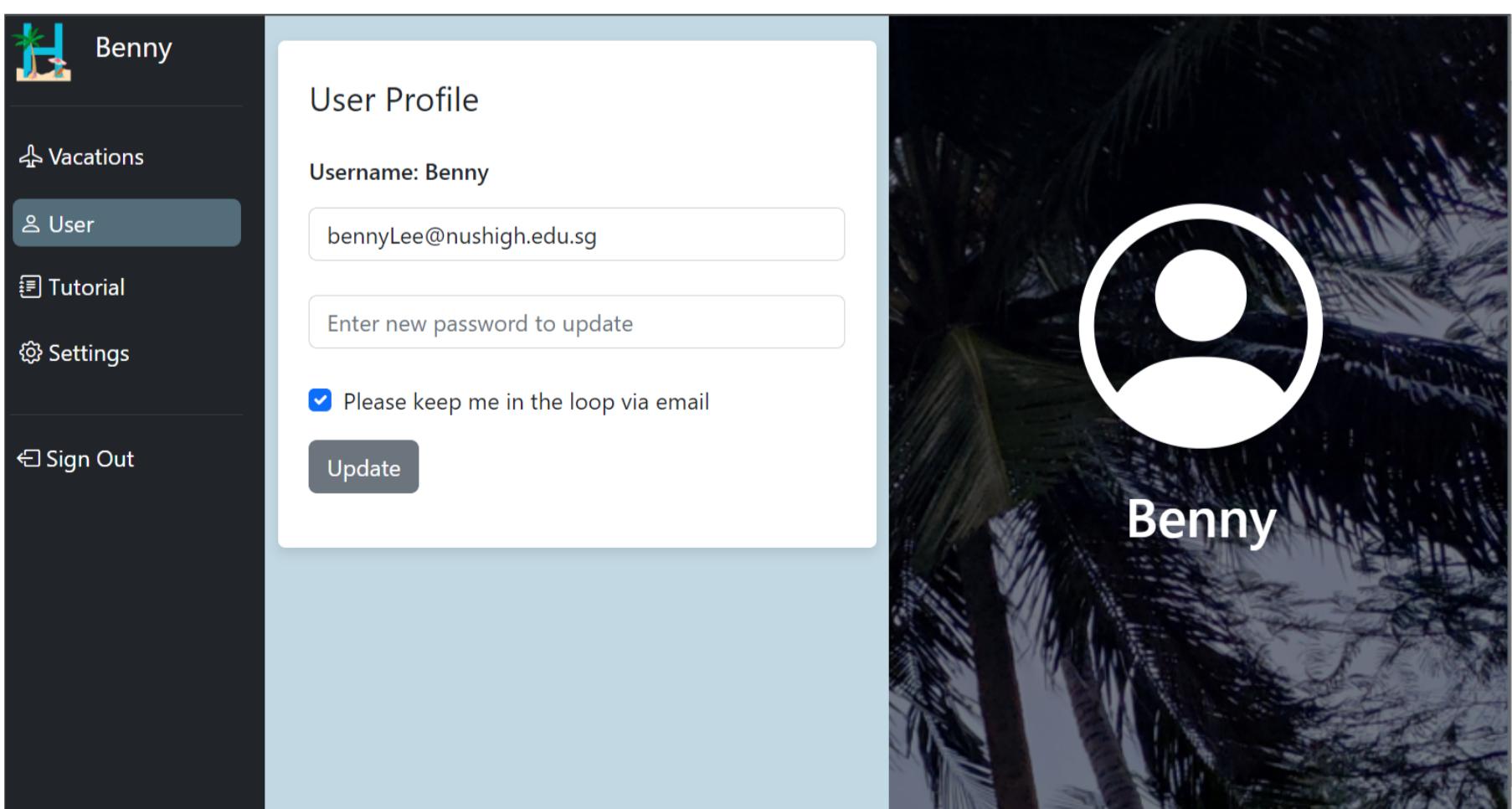
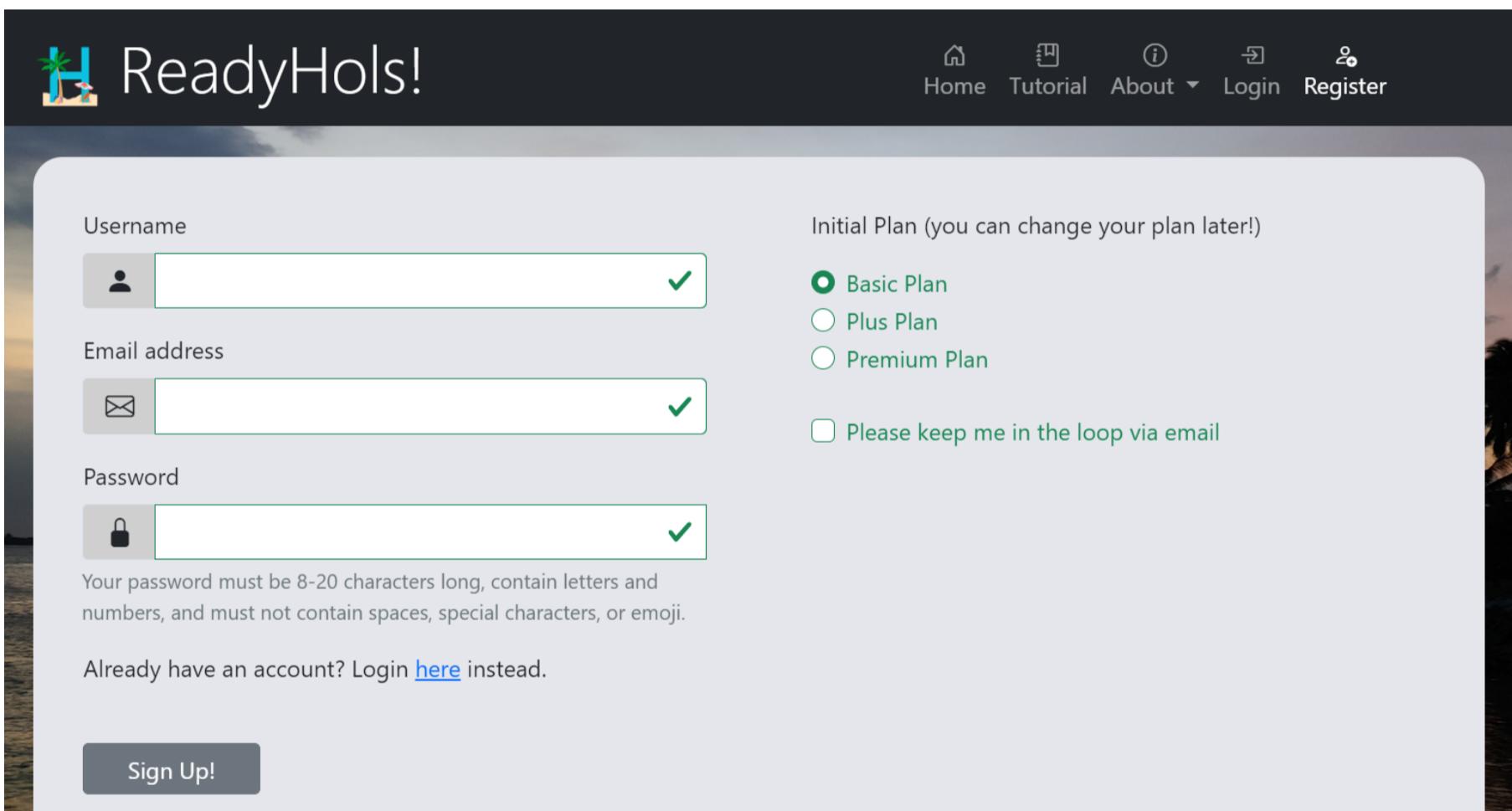
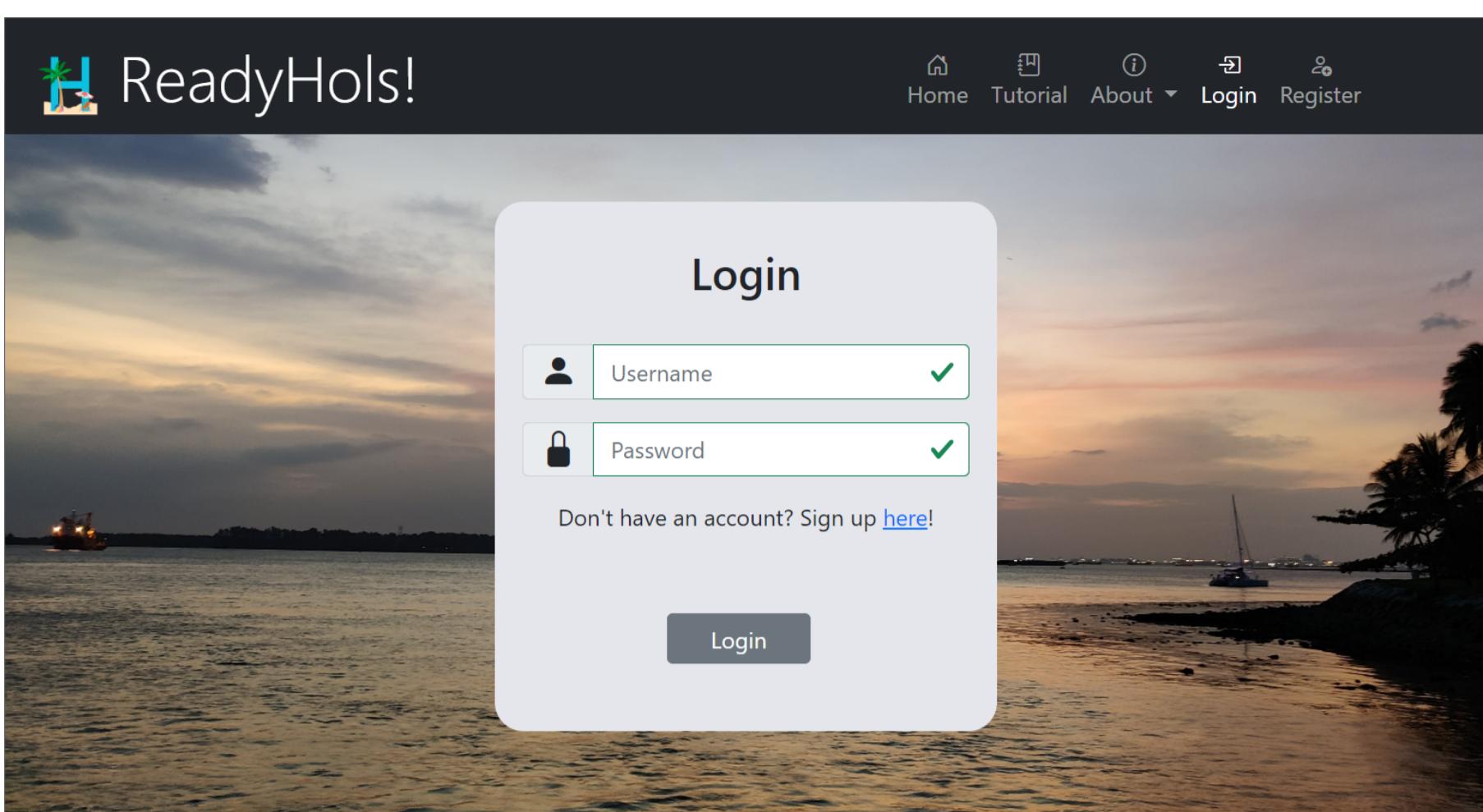
It is not necessary to allow user to search for all tables (and they shouldn't be allowed to!). Select a few tables where the search & browse function make sense. You are advised to implement the queries shortlisted in Section F where applicable.

* Pages to demo Create, Update & Delete functions:

Users should be able to insert, edit and delete their entries! Recommended to just focus on 2 each. Note that you will need to upload ALL source code for the Web UI for this section. You do not need to screen capture every page, but it should demonstrate that you have done all CRUD functions. Note that Login, Register and Profile Edit is NOT sufficient to demonstrate CRUD as it has been guided in ISSL. You should demonstrate CRUD on other tables based on shortlisted purpose of your webfrontend.

A detailed tutorial within the website will give a more detailed overview of the UI of all pages.

User Info Page



Search and Browse Page

This screenshot shows the 'Vacation Map Attachments' tab of the application. The left sidebar has a dark theme with white text. The main area has a light blue header with tabs: Budget, Booking, Itinerary, Vacation Map Attachments (which is highlighted), and Public Maps Database.

The content area displays a message: "This tab includes all itineraries with reference maps attached! This can be viewed easily from the timeline tab. To modify itineraries (or view your entire list of itineraries), please proceed to the itinerary tab." Below this are search and filter controls: "Search by pressing enter", "Search by itin time", a dropdown menu, a "Search" button, and a "Remove Map" button.

A table lists itinerary items:

No.	Time	Day No.	Description	Map Name	Attachment
1	17:00:00	1	night streets shopping	Japanes Street Eateries	view attachment

This screenshot shows the 'Upcoming Vacations' section of the application. The left sidebar has a dark theme with white text. The main area has a light blue header with the user's name, Benny, and a profile icon.

The content area starts with a welcome message: "Welcome Back, Benny!" followed by "Upcoming Vacations". It lists four trips in cards:

- Trip to Malaysia: Start: 2023-02-13, End: 2023-02-16, Explore →
- Trip to Germany: Start: 2023-02-26, End: 2023-03-10, Explore →
- Trip to Japan: Start: 2023-03-29, End: 2023-04-11, Explore →
- Trip to Bangkok: Start: 2023-04-19, End: 2023-04-23, Explore →

Below this is a section titled "All my vacations" with buttons for "Add Vacation", "Update Vacation", and "Delete Vacation". It includes search fields for "Search by pressing enter" and "Search by description". A table lists the user's vacations:

No.	Vacation Description	Start Date	End Date	Budget Limit
1	Trip to Malaysia	2023-02-13	2023-02-16	\$5000
2	Trip to Germany	2023-02-26	2023-03-10	\$10000

The vacations page also serves as a dashboard for logged in users which only the user can view. This page consists of all the vacations the user participates in.

This page includes the search and browse, only logged in information and the add/update/delete functions.

Pages to demo Create, Update and Delete Functions

Budget Limit: \$10000

Total Spent: \$850

Budget Breakdown

#	Category	Expenditure	Remarks
1	TRANSPORT	\$ 200	Concession Card Fees
2	OTHERS	\$ 500	Souvenirs
3	FOOD	\$ 50	Kebab and Burritos
4	FOOD	\$ 100	Sausages and Ham

New Budget

Budget Category:

ATTRACTION

Expenditure (in \$):

Expenditure in \$

Remarks:

Remarks

Add Cancel

Section H: Project Reflection

Write a 1 page reflection here. You may reflect on the following points:

- * What insights have you gained after completing this project? * How has completing the project affected your view of database systems? *
- How do you think this project experience would be useful to you in future? * How do you think you have managed your time for this project?
- Has the help provided in class been sufficient?

(The Write Up may seem less than 1 page as the pdf is loaded in A3.)

After completing this project, I realise the importance of planning well from the start, especially for the ER diagram and relational schema since the entire project was based off these two diagrams. Business rules are also equally important, which did not appear to be as I originally thought that it could be inferred from the ER diagram but there are certain things that cannot be described only with one type of diagram and need all of them combined.

Without a good design, the implementation part becomes hard as you will realise that some parts do not flow well and need to modify everything from the basic design which is very time consuming. I think completing my project has affected my view that database is the biggest and most time consuming part of designing anything. I originally thought that the design would take way longer than integrating the interaction with the user on the client side with the UI design but they both took very long time.

I think I have also learnt how to implement additional features not taught within the module which has helped me set the stage to go on to create my own websites which I believe will not only be useful in my studies but also in everyday tasks with the new learnt thinking process.

I think that I could have managed my time better. Although I have been consistently working on the project since the start of the year, I felt that I still did a lot more to the later stages. I think the different phases has helped us checkpoint our progress and ensure that we are on the right path to prevent a huge backlog of work, but I feel that the weightage of the first few parts should be less and more should be on the final product with all the integration and design complete as in the first few stages we were still exploring and trying out what was the best design.

I think that the nature of this project is quite different from all of the past projects we have been doing, as most of the past projects only focus on one aspect and the sole aspect taught during that particular module (i.e. focus is only on the UI part for android development, AI models for AI project) but for this project as much as the emphasis is the database, it cannot be realised without a good UI design which requires all of the integration from user input back to database and it is a lot more extensive in terms of scope and time.

However, I felt that the data population still takes disproportionately too much time as depending on the nature of the project, some tables can be self-generated based on relations if the project consists mostly of relational tables but if the project consists a lot of base tables and requires relationships to be built manually it is a lot of time spent.

Additionally, I learnt the importance of connecting the logical flow of ideas from different perspectives. Some things may seem intuitive as a user as they use the website, but it may not be as intuitive to implement it therefore it is important to take a step back and always re-evaluate whether such a function flows well on the website. As much as things may seem logical for the user, I realised it is also very important to do even the basic error checking as there may be users who intentionally key in something counter-intuitive that may break the website as well, which makes it important to do the relevant constraints. I think one example of logical checking within my project would be to handle the different conditions for the different types of plan the user has and to obey the limits imposed.

Overall, I felt that this project provided a very good starting point in creating websites and database systems with just a project idea in mind I am now able to think and plan out an entire system to fulfil the purpose. I think that this project has also allowed me to view from multiple perspectives, both as a user, designer of the interface and design of the database which helps me see how they connect and what would each stakeholder look out for.

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