



DBMS ASSIGNMENT – 2

UE19CS301

PROJECT TITLE: ONLINE MOVIE TICKET BOOKING MANAGEMENT SYSTEM

SEMESTER: 5

SECTION: B

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MAPPING CONCEPTUAL TO RELATIONAL MODEL:

WHY DID WE CHOOSE RDBMS?

- RDBMS (Relational Database Management System), facilitates us to store the information in the form of tables instead of files hence making data access easier. The data is stored and sorted in the form of rows and columns, also referred to as tuples.
- RDBMS supports Client - Server interaction thus having an upper hand to DBMS.
- RDBMS provides for multiple user access whereas DBMS can be accessed by a single user.
- RDBMS also avoids data redundancy.

PostgreSQL is an Object Relational Database Management System (ORDBMS). ORDBMS is a RDBMS except that it offers an additional support of object oriented concepts of classes, objects and inheritance and the data can be manipulated using any query language.

WHY DID WE CHOOSE POSTGRES SQL?

PostgreSQL also known as Postgre is an open source relational database management system which can be used for free.

- PostgreSQL is used as the primary data store or data warehouse for many web, mobile, geospatial, and analytics applications.
- Programmers can create new applications, better data integrity, and developers build resilient and secure environments.
- Large datasets and complex applications can be maintained with ease.
- Postgres performed between 4 and 15 times faster than MongoDB.

STEPS TO INSTALL POSTGRESQL:

Step 1: Postgres packages can be installed using the **apt** packaging system.

Firstly, the apt package must be updated, which can be done by running the command `$ sudo apt update`.

The software is installed using the following command:

```
$ sudo apt install postgresql postgresql-contrib
```

Step 2: A connection with the newly setup database can be established by typing the following commands:

```
$ sudo su - postgres  
$ psql -U postgres -f <file_path>
```

STEPS TO EXECUTE POSTGRESQL:

Step 1: Switch over to the **postgres** account on your server by typing

```
$ sudo -i -u postgres
```

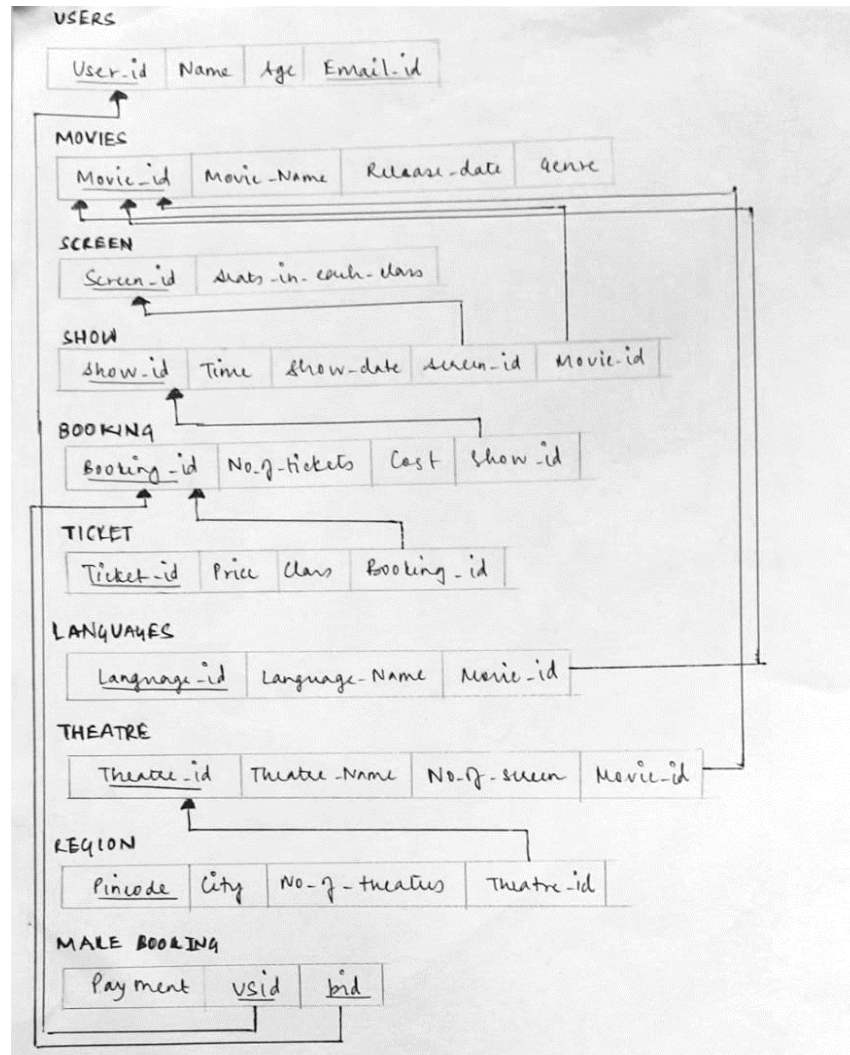
Step 2: Access a Postgres prompt immediately by typing

```
$ psql
```

Step 3: Exit out of the PostgreSQL prompt by typing

```
postgres=# \q
```

RELATIONAL SCHEMA DEPICTING THE FOREIGN KEYS AND THE PRIMARY KEYS:



Primary keys – User_ID and email_ID (table - Users), Movie_ID (table - Movies), Screen_ID (table - Screen), Show_ID (table - Show), Booking_ID (table – Booking), Ticket_ID (table - Ticket), Language_ID (table - Languages), Theatre_ID (table - Theatre), Pincode (table - Region)

Primary keys have been underlined in the diagram.

Foreign keys – Movie_ID (in tables – Show, Languages, Theatre), Screen_ID (in table – Show), Show_ID (in table – Booking), Booking_ID (in table – Ticket), Theatre_ID (in table – Region), USID and BID (in table – Make booking)

SCREENSHOTS OF THE EXECUTION:

Code for creating tables:

```
DROP DATABASE cs068_079_080;
CREATE DATABASE cs068_079_080;

\c cs068_079_080

CREATE TABLE USERS (USER_ID VARCHAR (10) NOT NULL, NAME VARCHAR (15), AGE INT, EMAIL_ID VARCHAR (25), UNIQUE (USER_ID), PRIMARY KEY(USER_ID, EMAIL_ID));

CREATE TABLE SCREEN (SCREEN_ID VARCHAR (10) NOT NULL, SEATS_IN_EACH_CLASS VARCHAR (15), PRIMARY KEY(SCREEN_ID));

CREATE TABLE MOVIES (MOVIE_ID VARCHAR (10) NOT NULL, MOVIE_NAME VARCHAR (25), RELEASE_DATE DATE, GENRE VARCHAR (15), UNIQUE (MOVIE_ID), PRIMARY KEY(MOVIE_ID));

CREATE TABLE SHOW (SHOW_ID VARCHAR (10) NOT NULL, TIME INT NOT NULL, SHOW_DATE DATE, UNIQUE (SHOW_ID), SCREEN_ID VARCHAR (10), MOVIE_ID VARCHAR (10), FOREIGN KEY (SCREEN_ID) REFERENCES SCREEN(SCREEN_ID), FOREIGN KEY (MOVIE_ID) REFERENCES MOVIES(MOVIE_ID), PRIMARY KEY(SHOW_ID));

CREATE TABLE BOOKING (BOOKING_ID VARCHAR (10) NOT NULL, NO_OF_TICKETS INT NOT NULL, COST INT NOT NULL, UNIQUE (BOOKING_ID), PRIMARY KEY(BOOKING_ID), USER_ID VARCHAR (10), SHOW_ID VARCHAR (10), FOREIGN KEY (USER_ID) REFERENCES USERS(USER_ID), FOREIGN KEY (SHOW_ID) REFERENCES SHOW(SHOW_ID));

CREATE TABLE TICKET (TICKET_ID VARCHAR (10) NOT NULL, PRICE INT NOT NULL, CLASS VARCHAR (10), BOOKING_ID VARCHAR (10), FOREIGN KEY (BOOKING_ID) REFERENCES BOOKING(BOOKING_ID), PRIMARY KEY(TICKET_ID));

CREATE TABLE LANGUAGES (LANGUAGE_ID VARCHAR (10) NOT NULL, LANGUAGE_NAME VARCHAR (10) DEFAULT 'ENGLISH' NOT NULL, MOVIE_ID VARCHAR (10), FOREIGN KEY (MOVIE_ID) REFERENCES MOVIES(MOVIE_ID), PRIMARY KEY(LANGUAGE_ID));

CREATE TABLE THEATRE (THEATRE_ID VARCHAR (10) NOT NULL, THEATRE_NAME VARCHAR (20) NOT NULL, NO_OF_SCREEN INT, MOVIE_ID VARCHAR (10), FOREIGN KEY (MOVIE_ID) REFERENCES MOVIES(MOVIE_ID), UNIQUE (THEATRE_ID), PRIMARY KEY(THEATRE_ID));

CREATE TABLE REGION (CITY VARCHAR (15), PINCODE INT NOT NULL, NO_OF_THEATRES INT, THEATRE_ID VARCHAR (10), FOREIGN KEY (THEATRE_ID) REFERENCES THEATRE(THEATRE_ID), PRIMARY KEY(PINCODE));

CREATE TABLE MAKE_BOOKING (PAYMENT VARCHAR (20) NOT NULL, USID VARCHAR (10), BID VARCHAR (10));

--Add the following constraint after the data values have been entered into the tables.

ALTER TABLE MAKE_BOOKING ADD CONSTRAINT USID FOREIGN KEY (USID) REFERENCES USERS(USER_ID);
ALTER TABLE MAKE_BOOKING ADD CONSTRAINT BID FOREIGN KEY (BID) REFERENCES BOOKING(BOOKING_ID);
```

Creating and altering tables:

```
\c cs068_079_080

INSERT into USERS values ('1QWE2345', 'ANIRUDH', 18, 'anirudhdkash@gmail.com');
INSERT into USERS values ('2ZXC5432', 'ANKITA', 28, 'ankitavas@gmail.com');
INSERT into USERS values ('7YUI3765', 'APOORVA', 23, 'apoorvab@gmail.com');
INSERT into USERS values ('1FGH6539', 'ANVIKA', 31, 'anvikas@gmail.com');
INSERT into USERS values ('8GRF4377', 'RAHUL', 54, 'rahulmehta@gmail.com');
INSERT into USERS values ('9EDC3145', 'MAYA', 17, 'mayagopalan@gmail.com');
INSERT into USERS values ('3RFP5564', 'BHARATH', 89, 'bharathpangmail.com');
INSERT into USERS values ('7DXK8945', 'KALYANAM', 81, 'kalyanamseshu@gmail.com');

INSERT into SCREEN values ('1D', 'PREMIUM');
INSERT into SCREEN values ('5C', 'VIP');
INSERT into SCREEN values ('1A', 'ECONOMY');
INSERT into SCREEN values ('4C', 'VIP');
INSERT into SCREEN values ('3B', 'ECONOMY');
INSERT into SCREEN values ('7S', 'PREMIUM');
INSERT into SCREEN values ('6A', 'PREMIUM');
INSERT into SCREEN values ('3A', 'ECONOMY');

INSERT into MOVIES values ('JUN345', 'JUMANJI', '2021-09-10', 'FANTASY');
INSERT into MOVIES values ('UP2134', 'UP', '2021-09-20', 'ANIMATED');
INSERT into MOVIES values ('LIO897', 'LIONKING', '2021-09-12', 'ANIMATED');
INSERT into MOVIES values ('RUS332', 'RUSHHOUR', '2021-09-18', 'COMEDY');
INSERT into MOVIES values ('NUN444', 'NUN', '2021-09-14', 'HORROR');
INSERT into MOVIES values ('TEN976', 'TENET', '2021-09-16', 'ACTION');
INSERT into MOVIES values ('PAR866', 'PARASITE', '2021-09-18', 'THRILLER');
INSERT into MOVIES values ('CHO117', 'CHOPSTICKS', '2021-09-22', 'COMEDY');

INSERT into SHOW values ('AKL123I', 1500, '2021-09-10', '1D', 'JUN345');
INSERT into SHOW values ('GHJ500C', 1700, '2021-09-12', '5C', 'UP2134');
INSERT into SHOW values ('IKLD23Q', 1900, '2021-09-14', '1A', 'LIO897');
INSERT into SHOW values ('HJK2217', 2100, '2021-09-16', '4C', 'RUS332');
INSERT into SHOW values ('CVNB09Z', 8500, '2021-09-18', '3B', 'NUN444');
INSERT into SHOW values ('SD67FRT', 9700, '2021-09-20', '7S', 'TEN976');
INSERT into SHOW values ('UI77PLM', 8900, '2021-09-22', '6A', 'PAR866');
INSERT into SHOW values ('WTTYH89', 1100, '2021-09-24', '3A', 'CHO117');

INSERT into BOOKING values ('1QWE2675', 5, 1000, '1QWE2345', 'AKL123I');
INSERT into BOOKING values ('JPN50080', 3, 900, '2ZXC5432', 'GHJ500C');
INSERT into BOOKING values ('BSK60106', 2, 800, '7YUI3765', 'IKLD23Q');
INSERT into BOOKING values ('KRP15060', 3, 600, '1FGH6539', 'HJK2217');
INSERT into BOOKING values ('BTM36080', 1, 400, '8GRF4377', 'CVNB09Z');
INSERT into BOOKING values ('JPN50304', 4, 1600, '9EDC3145', 'SD67FRT');
INSERT into BOOKING values ('RRN87426', 3, 900, '3RFP5564', 'UI77PLM');
INSERT into BOOKING values ('MGR48769', 2, 400, '7DXK8945', 'WTTYH89');
```

```
INSERT into TICKET values ('BSK60116', 400, 'VIP', '1QWE2675');
INSERT into TICKET values ('HSR26110', 200, 'ECONOMY', 'JPN50080');
INSERT into TICKET values ('KRP15560', 200, 'ECONOMY', 'BSK60106');
INSERT into TICKET values ('JPN59980', 300, 'PREMIUM', 'KRP15060');
INSERT into TICKET values ('JPN56604', 400, 'VIP', 'BTM36080');
INSERT into TICKET values ('MGR99769', 300, 'PREMIUM', 'JPN50304');
INSERT into TICKET values ('JPN577304', 400, 'VIP', 'RRN87426');
INSERT into TICKET values ('BSK60011', 200, 'ECONOMY', 'MGR48769');

INSERT into LANGUAGES values ('01', 'ENGLISH', 'JUN345');
INSERT into LANGUAGES values ('02', 'HINDI', 'LIO897');
INSERT into LANGUAGES values ('03', 'KANNADA', 'NUN444');
INSERT into LANGUAGES values ('04', 'TAMIL', 'PAR866');
INSERT into LANGUAGES values ('05', 'MALAYALAM', 'CHO117');
INSERT into LANGUAGES values ('06', 'TELUGU', 'UP2134');
INSERT into LANGUAGES values ('07', 'JAPANESE', 'RUS332');
INSERT into LANGUAGES values ('08', 'SPANISH', 'TEN976');

INSERT into THEATRE values ('ZX123', 'SRINIVAS THEATRE', 3, 'JUN345');
INSERT into THEATRE values ('HJ568', 'INOX MOVIES', 7, 'RUS332');
INSERT into THEATRE values ('WE614', 'CINEPOLIS', 5, 'PAR866');
INSERT into THEATRE values ('P0631', 'PVR', 6, 'TEN976');
INSERT into THEATRE values ('BN486', 'HALLMARK', 2, 'NUN444');
INSERT into THEATRE values ('DF835', 'ETA MALL', 3, 'LIO897');
INSERT into THEATRE values ('XC752', 'REX THEATRE', 4, 'TEN976');
INSERT into THEATRE values ('IU098', 'SUPER THEATRE', 1, 'UP2134');

INSERT into REGION values ('TOKYO', '234567', 74, 'HJ568');
INSERT into REGION values ('BANGALORE', '560011', 48, 'P0631');
INSERT into REGION values ('MYSORE', '570068', 17, 'HJ568');
INSERT into REGION values ('DELHI', '110001', 99, 'BN486');
INSERT into REGION values ('MUMBAI', '400002', 150, 'XC752');
INSERT into REGION values ('RAYLEIGH', '863574', 21, 'WE614');
INSERT into REGION values ('DUSSELDORF', '448822', 13, 'ZX123');
INSERT into REGION values ('MADRID', '908060', 16, 'WE614');

INSERT into MAKE_BOOKING values ('CREDITCARD', '1QWE2345', '1QWE2675');
INSERT into MAKE_BOOKING values ('CREDITCARD', '2ZXC5432', 'JPN50080');
INSERT into MAKE_BOOKING values ('DEBITCARD', '7YUI3765', 'BSK60106');
INSERT into MAKE_BOOKING values ('CREDITCARD', '1FGH6539', 'KRP15060');
INSERT into MAKE_BOOKING values ('DEBITCARD', '8GRF4377', 'BTM36080');
INSERT into MAKE_BOOKING values ('NETBANKING', '9EDC3145', 'JPN50304');
INSERT into MAKE_BOOKING values ('NETBANKING', '3RFP5564', 'MGR48769');
INSERT into MAKE_BOOKING values ('NETBANKING', '7DXK8945', 'RRN87426');
```

Code for inserting values in tables:

[illegible]

Inserting values:

[illegible][illegible]

Listing the databases:

```
postgres=# \l
```

List of databases					
Name	Owner	Encoding	Collate	Ctype	Access privileges
company	postgres	UTF8	en_IN	en_IN	
cs068_079_080	postgres	UTF8	en_IN	en_IN	
cs080	postgres	UTF8	en_IN	en_IN	
cs080lab4	postgres	UTF8	en_IN	en_IN	
postgres	postgres	UTF8	en_IN	en_IN	
srn0080	postgres	UTF8	en_IN	en_IN	
template0	postgres	UTF8	en_IN	en_IN	=c/postgres +
					postgres=CTc/postgres
template1	postgres	UTF8	en_IN	en_IN	=c/postgres +
					postgres=CTc/postgres

```
(8 rows)

postgres=#
```

Listing the relations:

```
postgres=# \c cs068_079_080
You are now connected to database "cs068_079_080" as user "postgres".
cs068_079_080=# \d
```

List of relations			
Schema	Name	Type	Owner
public	booking	table	postgres
public	languages	table	postgres
public	make_booking	table	postgres
public	movies	table	postgres
public	region	table	postgres
public	screen	table	postgres
public	show	table	postgres
public	theatre	table	postgres
public	ticket	table	postgres
public	users	table	postgres

```
(10 rows)
```

Listing the values in table – Booking:

```
cs068_079_080=# select * from booking;
 booking_id | no_of_tickets | cost | user_id | show_id
-----+-----+-----+-----+-----
 1QWE2675   |              5 | 1000 | 1QWE2345 | AKL123I
 JPN50080   |              3 |  900 | 2ZXC5432 | GHJ500C
 BSK60106   |              2 |  800 | 7YUI3765 | IKLD23Q
 KRP15060   |              3 |  600 | 1FGH6539 | HJK2217
 BTM36080   |              1 |  400 | 8GRF4377 | CVNB09Z
 JPN50304   |              4 | 1600 | 9EDC3145 | SD67FRT
 RRN87426   |              3 |  900 | 3RFP5564 | UI77PLM
 MGR48769   |              2 |  400 | 7DXK8945 | WTTYH89
(8 rows)
```

Listing the values in table – Languages:

```
cs068_079_080=# select * from languages;
 language_id | language_name | movie_id
-----+-----+-----
    01       | ENGLISH       | JUM345
    02       | HINDI         | LIO897
    03       | KANNADA       | NUN444
    04       | TAMIL         | PAR866
    05       | MALAYALAM    | CHO117
    06       | TELUGU        | UP2134
    07       | JAPANESE      | RUS332
    08       | SPANISH       | TEN976
(8 rows)
```

Listing the values in table – Make_booking:

```
cs068_079_080=# select * from make_booking;
 payment |   usid   |   bid
-----+-----+-----
 CREDITCARD | 1QWE2345 | 1QWE2675
 CREDITCARD | 2ZXC5432 | JPN50080
 DEBITCARD  | 7YUI3765 | BSK60106
 CREDITCARD | 1FGH6539 | KRP15060
 DEBITCARD  | 8GRF4377 | BTM36080
 NETBANKING | 9EDC3145 | JPN50304
 NETBANKING | 3RFP5564 | MGR48769
 NETBANKING | 7DXK8945 | RRN87426
(8 rows)
```


Listing the values in table – Movies:

```
cs068_079_080=# select * from movies;
 movie_id | movie_name | release_date | genre
-----+-----+-----+-----
 JUM345   | JUMANJI   | 2021-09-10   | FANTASY
 UP2134   | UP        | 2021-09-20   | ANIMATED
 LI0897   | LIONKING  | 2021-09-12   | ANIMATED
 RUS332   | RUSHHOUR  | 2021-09-18   | COMEDY
 NUN444   | NUN       | 2021-09-14   | HORROR
 TEN976   | TENET     | 2021-09-16   | ACTION
 PAR866   | PARASITE  | 2021-09-18   | THRILLER
 CH0117   | CHOPSTICKS | 2021-09-22   | COMEDY
(8 rows)
```

Listing the values in table – Ticket:

```
cs068_079_080=# select * from ticket;
 ticket_id | price | class | booking_id
-----+-----+-----+-----
 BSK60116 | 400   | VIP   | 1QWE2675
 HSR26110 | 200   | ECONOMY | JPN50080
 KRP15560 | 200   | ECONOMY | BSK60106
 JPN59980 | 300   | PREMIUM | KRP15060
 JPN56604 | 400   | VIP   | BTM36080
 MGR99769 | 300   | PREMIUM | JPN50304
 JPN577304 | 400   | VIP   | RRN87426
 BSK60011 | 200   | ECONOMY | MGR48769
(8 rows)
```

Listing the values in table – Show:

```
cs068_079_080=# select * from show;
 show_id | time | show_date | screen_id | movie_id
-----+-----+-----+-----+-----
 AKL123I | 1500 | 2021-09-10 | 1D        | JUM345
 GHJ500C | 1700 | 2021-09-12 | 5C        | UP2134
 IKLD23Q | 1900 | 2021-09-14 | 1A        | LI0897
 HJK2217 | 2100 | 2021-09-16 | 4C        | RUS332
 CVNB09Z | 500  | 2021-09-18 | 3B        | NUN444
 SD67FRT | 700  | 2021-09-20 | 7S        | TEN976
 UI77PLM | 900  | 2021-09-22 | 6A        | PAR866
 WTTYH89 | 1100 | 2021-09-24 | 3A        | CH0117
(8 rows)
```

Listing the values in table – Screen:

```
cs068_079_080=# select * from screen;
 screen_id | seats_in_each_class
-----+-----
      1D   | PREMIUM
      5C   | VIP
      1A   | ECONOMY
      4C   | VIP
      3B   | ECONOMY
      7S   | PREMIUM
      6A   | PREMIUM
      3A   | ECONOMY
(8 rows)
```

Listing the values in table – Region:

```
cs068_079_080=# select * from region;
  city      | zipcode | no_of_theatres | theatre_id
-----+-----+-----+-----
  TOKYO     | 234567  |          74    | HJ568
  BANGALORE | 560011  |          48    | P0631
  MYSORE    | 570068  |          17    | HJ568
  DELHI     | 110001  |          99    | BN486
  MUMBAI    | 400002  |         150    | XC752
  RAYLEIGH  | 863574  |          21    | WE614
  DUSSELDORF | 448822  |          13    | ZX123
  MADRID    | 908060  |          16    | WE614
(8 rows)
```

Listing the values in table – Theatre:

```
cs068_079_080=# select * from theatre;
 theatre_id | theatre_name | no_of_screens | movie_id
-----+-----+-----+-----
  ZX123     | SRINIVAS THEATRE |          3    | JUM345
  HJ568     | INOX MOVIES      |          7    | RUS332
  WE614     | CINEPOLIS        |          5    | PAR866
  P0631     | PVR              |          6    | TEN976
  BN486     | HALLMARK         |          2    | NUN444
  DF835     | ETA MALL         |          3    | LI0897
  XC752     | REX THEATRE      |          4    | TEN976
  IU098     | SUPER THEATRE    |          1    | UP2134
(8 rows)
```

Listing the values in table – Users:

```
cs068_079_080=# select * from users;
 user_id |  name  | age |      email_id
-----+-----+-----+-----
 1QWE2345 | ANIRUDH | 18 | anirudhdkash@gmail.com
 2ZXC5432 | ANKITA  | 20 | ankitavas@gmail.com
 7YUI3765 | APOORVA | 23 | apoorvab@gmail.com
 1FGH6539 | ANVIKA  | 31 | anvikas@gmail.com
 8GRF4377 | RAHUL   | 54 | rahulmehta@gmail.com
 9EDC3145 | MAYA    | 17 | mayagopalan@gmail.com
 3RFP5564 | BHARATH | 69 | bharathpan@gmail.com
 7DXK8945 | KALYANAM | 81 | kalyanamseshu@gmail.com
(8 rows)

cs068_079_080=#
```

Total number of tables in database – 10. Number of values in each table – 8.

INDIVIDUAL CONTRIBUTIONS OF MEMBERS:

Apoorva B S	PES1UG19CS080	Code execution, adding screenshots of execution, formatting report	Time spent: 2 hours
Ankita V	PES1UG19CS068	Mentioning why we chose PostgreSQL and relational schema	Time spent: 1.5 hours
Anvika D Shriyan	PES1UG19CS079	Mentioning why we chose RDBMS and installation steps for PostgreSQL	Time spent: 30 minutes
<u>DONE BY ALL:</u> Code for creating, altering tables and inserting values. Total time spent: 6.5 hours			Time spent: 2.5 hours