DBMS

(LAB – 6) Aggregate Functions

Name:	R Chaitanya Madhav
SRN:	PES1UG20CS634
Section:	K

1. **Find the average distance between subsequent stations for every train.**

```
MariaDB [(none)]> use cs634_rrs
Database changed
MariaDB [cs634_rrs]> select tr.train_no, ri.from_station_name, ri.to_station_name, ri.distance as average_distance from
train tr, route_info ri where tr.train_no = ri.train_no;
+----------+------------------+----------------+------------------+
| train_no | from_station_name | to_station_name | average_distance |
+----------+------------------+----------------+------------------+
|    25260 | Mangaluru         | Kannur         |              131 |
|    25260 | Mangaluru         | Palakkad       |              351 |
|    25260 | Mangaluru         | Chennai        |              481 |
|    25260 | Kannur            | Palakkad       |              220 |
|    25260 | Kannur            | Chennai        |              350 |
|    25260 | Palakkad          | Chennai        |              130 |
|    25261 | Chennai           | Palakkad       |              130 |
|    25261 | Chennai           | Kannur         |              350 |
|    25261 | Chennai           | Mangaluru      |              481 |
|    25261 | Palakkad          | Kannur         |              220 |
|    25261 | Palakkad          | Mangaluru      |              351 |
|    25261 | Kannur            | Mangaluru      |              131 |
|    58450 | Mangaluru         | Subramanya     |              195 |
|    58450 | Mangaluru         | Mysore         |              365 |
|    58450 | Mangaluru         | Bengaluru      |              504 |
|    58450 | Subramanya        | Mysore         |              170 |
|    58450 | Subramanya        | Bengaluru      |              309 |
|    58450 | Mysore            | Bengaluru      |              139 |
|    58451 | Bengaluru         | Mysore         |              139 |
|    58451 | Bengaluru         | Subramanya     |              309 |
|    58451 | Bengaluru         | Mangaluru      |              503 |
|    58451 | Mysore            | Subramanya     |              170 |
|    58451 | Mysore            | Mangaluru      |              364 |
|    58451 | Subramanya        | Mangaluru      |              194 |
|    62620 | Chennai           | Sholingur      |               90 |
|    62620 | Chennai           | Katpadi        |              129 |
|    62620 | Chennai           | Bangarpet      |              290 |
|    62620 | Chennai           | Bengaluru      |              361 |
|    62620 | Sholingur         | Katpadi        |               39 |
|    62620 | Sholingur         | Bangarpet      |              200 |
|    62620 | Sholingur         | Chennai        |              271 |
|    62620 | Katpadi           | Bangarpet      |              161 |
|    62620 | Katpadi           | Chennai        |              232 |
|    62620 | Bangarpet         | Bengaluru      |               71 |
|    62621 | Bengaluru         | Bangarpet      |               71 |
|    62621 | Bengaluru         | Katpadi        |              232 |
|    62621 | Bengaluru         | Sholigur       |              272 |
|    62621 | Bengaluru         | Chennai        |              362 |
```

2. Find the average distance between subsequent stations for every train and display them in descending order.

```
MariaDB [cs634_rrs]> select tr.train_no, ri.from_station_name, ri.to_station_name, ri.distance as average_distance from train tr, route_info ri where tr.train_no = ri.train_no ORDER BY ri.distance DESC;;
+----------+-----------------+---------------+-----------------+
| train_no | from_station_name | to_station_name | average_distance |
+----------+-----------------+---------------+-----------------+
|    58450 | Mangaluru       | Bengaluru     |             504 |
|    58451 | Bengaluru       | Mangaluru     |             503 |
|    25260 | Mangaluru       | Chennai       |             481 |
|    25261 | Chennai         | Mangaluru     |             481 |
|    58450 | Mangaluru       | Mysore        |             365 |
|    58451 | Mysore          | Mangaluru     |             364 |
|    62621 | Bengaluru       | Chennai       |             362 |
|    62620 | Chennai         | Bengaluru     |             361 |
|    25260 | Mangaluru       | Palakkad      |             351 |
|    25261 | Palakkad        | Mangaluru     |             351 |
|    25260 | Kannur          | Chennai       |             350 |
|    25261 | Chennai         | Kannur        |             350 |
|    58450 | Subramanya      | Bengaluru     |             309 |
|    58451 | Bengaluru       | Subramanya    |             309 |
|    62621 | Bangarpet       | Chennai       |             291 |
|    62620 | Chennai         | Bangarpet     |             290 |
|    62621 | Bengaluru       | Sholigur      |             272 |
|    62620 | Sholingur       | Chennai       |             271 |
|    62620 | Katpadi         | Chennai       |             232 |
|    62621 | Bengaluru       | Katpadi       |             232 |
|    25260 | Kannur          | Palakkad      |             220 |
|    25261 | Palakkad        | Kannur        |             220 |
|    62621 | Bangarpet       | Sholigur      |             201 |
|    62620 | Sholingur       | Bangarpet     |             200 |
|    58450 | Mangaluru       | Subramanya    |             195 |
|    58451 | Subramanya      | Mangaluru     |             194 |
|    58450 | Subramanya      | Mysore        |             170 |
|    58451 | Mysore          | Subramanya    |             170 |
|    62621 | Bangarpet       | Katpadi       |             161 |
|    62620 | Katpadi         | Bangarpet     |             161 |
|    58450 | Mysore          | Bengaluru     |             139 |
|    58451 | Bengaluru       | Mysore        |             139 |
|    25261 | Kannur          | Mangaluru     |             131 |
|    25260 | Mangaluru       | Kannur        |             131 |
|    62621 | Katpadi         | Chennai       |             130 |
|    25261 | Chennai         | Palakkad      |             130 |
|    25260 | Palakkad        | Chennai       |             130 |
|    62620 | Chennai         | Katpadi       |             129 |
|    62621 | Sholingur       | Chennai       |              90 |
|    62620 | Chennai         | Sholingur     |              90 |
|    62620 | Bangarpet       | Bengaluru     |              71 |
|    62621 | Bengaluru       | Bangarpet     |              71 |
|    62621 | Katpadi         | Sholigur      |              40 |
|    62620 | Sholingur       | Katpadi       |              39 |
```

3. Display the list of train numbers and the distance travelled by each in descending order of the distance travelled.

```
MariaDB [cs634_rrs]> select tr.train_no, sum(ri.distance) AS dist_travl FROM train tr, route_info ri WHERE tr.train_no =
 ri.train_no GROUP BY tr.train_no ORDER BY dist_travl DESC;
+----------+------------+
| train_no | dist_travl |
+----------+------------+
|    62621 |       1850 |
|    62620 |       1844 |
|    58450 |       1682 |
|    58451 |       1679 |
|    25260 |       1663 |
|    25261 |       1663 |
+----------+------------+
6 rows in set (0.001 sec)
```

4. List those trains that have maximum and minimum number compartments as train name and number of compartments.

```
MariaDB [cs634_rrs]> select tr.train_no, max(c.capacity) AS max_no, min(c.capacity) AS min_no FROM train tr, compartment
 c WHERE tr.train_no = train_no GROUP BY tr.train_no;
+----------+--------+--------+
| train_no | max_no | min_no |
+----------+--------+--------+
|    25260 |     60 |     16 |
|    25261 |     60 |     16 |
|    58450 |     60 |     16 |
|    58451 |     60 |     16 |
|    62620 |     60 |     16 |
|    62621 |     60 |     16 |
+----------+--------+--------+
6 rows in set (0.001 sec)

MariaDB [cs634_rrs]>
```

5. Display the number of phone numbers corresponding to the user_id(s) ADM_001, USR_006, USR_010.

```
MariaDB [cs634_rrs]> select user_id, count(*) FROM user_phone GROUP BY user_id HAVING user_id IN ("ADM_001","USR_006","U
SR_010");
+---------+----------+
| user_id | count(*) |
+---------+----------+
| ADM_001 |        2 |
| USR_006 |        2 |
| USR_010 |        2 |
+---------+----------+
3 rows in set (0.010 sec)

MariaDB [cs634_rrs]>
```

6. Find the average fare per km for each train type specified and display the train type and corresponding average fare per km as 'Avg_Fare' in decreasing order of Avg_Fare.

```
MariaDB [cs634_rrs]> select train_type, avg(fare_per_km) AS avg_fare FROM fare GROUP BY train_type ORDER BY avg_fare DES
C;
+------------+----------+
| train_type | avg_fare |
+------------+----------+
| Superfast  |   2.0000 |
| Fast       |   2.0000 |
| Mail       |   1.3333 |
+------------+----------+
3 rows in set (0.020 sec)

MariaDB [cs634_rrs]>
```

7. Retrieve all details of the oldest passenger.

```
MariaDB [cs634_rrs]> select * from ticket_passenger HAVING max(age);
+---------+-----------------+------+---------+
| seat_no | name            | age  | pnr     |
+---------+-----------------+------+---------+
| F01-3   | Saideepak Reddy |   27 | PNR001  |
+---------+-----------------+------+---------+
1 row in set (0.000 sec)

MariaDB [cs634_rrs]>
```

8. **Count the number of passengers whose name consists of ‘Ullal’. (Hint: Use the LIKE operator)**

```
MariaDB [cs634_rrs]> select * from ticket_passenger WHERE name like "%Ullal%";
+---------+------------+------+--------+
| seat_no | name       | age  | pnr    |
+---------+------------+------+--------+
| S01-10  | Hema Ullal |   27 | PNR005 |
| S01-11  | Hima Ullal |   28 | PNR005 |
| S01-12  | Asha Ullal |   21 | PNR005 |
| S01-9   | Ajit Ullal |   31 | PNR005 |
+---------+------------+------+--------+
4 rows in set (0.001 sec)

MariaDB [cs634_rrs]>
```