**Case Study 2**

**New York City Taxi Questions**

**Due May 2 by 11:59 PM**

**Note: There are two tables in this database; trips_sep & trips_octs**

*For each question, include a short explanation (about 2-3 sentences) about how you solved it. This should describe the approach taken and key steps in your solution.*

*Example SQL Code:*

```
SELECT customer_id, COUNT(*) AS total_rentals
        FROM rental
GROUP BY customer_id;
```

*Explanation: I solved this by using a GROUP BY clause to count the number of rentals for each customer, allowing me to summarize the data based on customer_id. COUNT(*) function returns the total number of rentals per customer.*

1)

a) Find the third-most expensive trip (Total Amount column) in September.

b) Find the most expensive trip per mile (Total Amount/Mile) in October.

c) Find the most generous trip in September (highest tip).

d) Find the longest trip duration in September.

e) Find the average tip amount by the hour in September.

2) Find the number of trips by day of the week in October. (Create a "Day of Week" column, e.g., Monday, Tuesday, ..., Sunday).

3) Determine which airport welcomes more customers: JFK or EWR. Note: Use a CASE expression to retrieve the names as "JFK," "Group Ride," or "Newark" from the ***ratecodeid column***. Refer to the Data Dictionary file.

4) Create buckets or price ranges for the total amount and find the number of trips in each price range for each driver in September.

   Use the following price ranges:

   - 0 <= Total Amount < 10
   - 10 <= Total Amount < 20
   - 20 <= Total Amount < 30
   - 30 <= Total Amount < 40
   - Total Amount >= 40; ELSE

5) Write a query to find the top three highest total amounts for each driver in October.
6) Find the 10 lowest total amounts for Driver 1 in October.
7) Write a query to track the cumulative earnings of Driver 1 after each trip in October. (Hint: Running total, Window functions).
8) Is there any new driver in October? (Hint: Find drivers who exist in the October table but not in the September table)

   Note: Return unique driver IDs.
9) Find the total amount difference between September and October. In the output, display the total amount for September, the total amount for October, and the difference between the two.
10) Find the total revenue (Total Amount) for each driver in both September and October. Ensure the output displays the total revenue for September, the total revenue for October, and the difference between the two. Sort the total revenue in descending order.
11) Find the total revenue (Total Amount) by day of the week (Monday, Tuesday, ..., Sunday) for both September and October. Ensure the output displays the total revenue for each day of the week in September, the total revenue for each day of the week in October, and the difference between the two. Sort the total revenue in descending order.