Intra-City Public Transportation Database (Uber) Revised

Uber is an American transportation conglomerate that provides taxi services to people and is one of the most popular modes of public transport within a city. It employs people who have a valid driving license and own a vehicle to join as Uber Drivers and provide rides from their required source location to their destination. As Uber's popularity keeps increasing every year, the data generated by Uber has grown exponentially. A database management system is our only viable option to manage such a huge volume of data.

Hence, we are designing a database management system that will capture the details of the participants involved in the operations of Uber Service like customer details, driver's details, and ride information among other things.

Designing a database for a public transportation conglomerate can become overly complex and therefore we have applied some limitations to make the database design more feasible which are as follows:

- A driver can at once accept only one trip at a time.
- There is no stop in between the source location and destination selected by the customer.
- The ride gets automatically assigned to a Driver. (It is not up to the driver to accept the trip).
- The rides are not intercity. The service is only operational within the city.

Data Requirements:
- **Driver Details**
  - Capturing basic driver details such as Name, DOB, Nationality, etc.
  - Each Driver is given a unique driver ID for identification.
  - Each Driver must complete at least one ride per month to stay active in the system.

    - Driver Name
    - Driver ID
    - Address
    - DOB
    - Place of Birth
    - Gender

- **Driver Identification details**

  ▪ Capturing identification details of each driver employed in Uber by obtaining details like Passport number, SSN (Social Security Number), Driving License Number, etc.

    - Driver id
    - Passport Number
    - SSN (Social Security Number)
    - Driving License Number

- **Customer Details**

  ▪ Customers are users who book Rides in the system.
  ▪ Each Customer is uniquely identified based on a generated ID and email ID.
  ▪ Customers have the option to create an account within the system without the requirement of booking a ride every month to maintain their active status in the system.
  ▪ Each Customer can be of two types: Students and Non- Students.
  ▪ Students have unique university Email-IDs and Non- Students have unique personal Email-IDs.
  ▪ Other basic details of customers such as Name, DOB Gender, and Address are obtained.

    - Customer Name
    - Customer ID
    - DOB
    - Gender
    - Address
    - Phone number
        - o Non-Students:
            - ▪ Email ID
        - o Students:
            - ▪ University Email ID

- **Ride Details**

  - Each Ride is given a unique ID (Ride ID)
  - Any customer can request only one ride at a given time. A new request can only be made once the current request is completed or cancelled.
  - Ride details include Date, Time, Driver, Location, etc.
  - The customer's rating and tips for the trip are also captured.

    - Ride ID/number
    - customer ID
    - Date
    - Time
    - Driver id
    - Source Location
    - Destination
    - Fare of the ride
    - Type of Vehicle (mini/sedan/SUV)
    - Ratings
    - Coupon Code

- **Vehicle owned by Driver**
  - Every driver employed by Uber must own a Vehicle.
  - Basic Vehicle details like Manufactured year, Model, Insurance, etc. are captured.

    - Driver Id
    - Vehicle Manufacturer
    - Vehicle name and model
    - Insurance number
    - Manufactured year
    - Type of Vehicle (mini/sedan/SUV)
    - Vehicle Number (License plate number)

- **Monthly Trip Record of the Driver**

  - Each driver is assigned multiple rides per month. Some may get cancelled and some may get completed. Some trips may be short while some may be long.

- Capturing details like fare earned, KMs driven, and trips completed for each driver.
- Essential details such as trips received by a driver, trips competed, trip cancelled are captured.

  - Driver id
  - Total Fare obtained
  - KMs driven in a month
  - Date (Month and Year)
  - Trips Received
  - Trips completed
  - Trips cancelled

- **Payment Details**

  - Every ride is paid either via cash or card totally.
  - Some customers might use coupon codes as well.
  - Details such as ride ID, Payment method, and coupons used or not are captured in the system.
    - Customer ID
    - Ride number/ID
    - Tips
    - Payment method (cash/card)

- **Coupon Details**

  - Customers have the discretion to decide whether they wish to use the coupon, based on their personal preferences.
  - Student coupon begins with code: STUD and can be used by students only.
  - Other coupons can be used by both students as well as non-student customers
  - A customer can avail minimum of 10% and a maximum of 40 % discount
  - A customer can use at most one coupon per ride.
    - Coupons Code
    - Discount percent

Business Goals:

1. Which Driver completed the most trips per month?

2. Which Driver earn the highest fares per month?

3. Which driver drove the most kms in a month?

4. Which Driver got the highest average rating per trip (minimum 10 trips per trip)?

5. Who are the top 10 customers who completed most trips in a month?

6. Out of the frequent users (question 5), which customer used the coupons more?

7. Among all the coupons available, which is the most used coupon?

8. Which driver has the highest number of cancelled trips?

9. Which driver has the lowest average rating (Minimum 10 rides in a month)?

10. Which driver drives the least km in a month?

11. For the driver who drives the least Kms, what is age of the driver and what is the manufacturing year of the car?

12. Which driver had the highest number of trips?

13. Which location (Source) had the highest number of bookings?

14. What is the average age group of customers who use Uber more?

15. Which age group corresponds to the higher percentage of drivers?

17. During which time, the requests for trips were higher?

18. Which source location produces maximum revenue?

19. What percentage of our customer base consists of students?

20. Among our student customers, what percentage actively redeem the student-specific offers we provide?

21. Who are top 5 highest tipped drivers?

22. Do the highest tipped drivers also have the highest rating?