# CSE - 5330 - 003
# CAB Booking Company
# Domain: TRANSPORTATION

**NOTE: This document has been used to draw EER-Diagram.**

As students, we don't have access to private transportation facilities, hence we rely on cab services provided by various companies. This inspired us to do a project which will have a database system for a typical cab booking service. A cab booking company transports hundreds of passengers on a daily basis, connecting different locations in thecity, which leads to the generation of a large amount of data. In this project, we are designing a database that will capture all the relevant information a cab booking companywill need in order to run its business successfully. This includes information collected fromprevious years, like the customers' and drivers' personal details, vehicle details, locationdetails, and bookings. All the participants are discussed in detail in the following article.

## Limitations:

Since a typically popular cab booking company can run its business covering a lot of cities and countries, we are limiting the scope of our project to cover the city of Arlingtonalone. We are also adding the following limitations:

- A day is divided into 5 sections (1:00AM- 5:59AM, 6AM - 10:59AM, 11AM- 3:59PM,4PM - 8:59PM, 9PM - 12:59AM).
- 1 Passenger can book only 1 cab at a time, but he/she can book the same cab repeatedly over a period of time.
- Prices are fixed for each category of vehicle regardless of the duration of the ride and destination. The rates are:
    - Compact: $4
    - Compact Premium: $9
    - Sedan: $6
    - Sedan Premium: $11
    - SUV: $10
    - SUV Premium: $15
- Rides cannot be scheduled beforehand. Customers can only book a ride at time ofneed.
- Rides cannot be cancelled once the booking is made therefore there are no cancelled rides. Money will be charge to the customer whether or not she/he sites in the vehicle and goes to destination.
- The total number of zip codes the cab services will be functional in are 20.

# Participants:

## Customer:
- The Database system will keep a note of the customer details. The database system will capture following:
    - Customer Name (First Name, Last Name)
    - Date of Birth
    - Phone Number (Can add multiple phone numbers)
    - Account Creation Date
- For each booking of the customer, following details will be captured:
    - Start time and the end time for each ride will becaptured.
    - Date of rides will be saved by the database
    - Price for each booking will be captured.
    - Pick-up location and drop location will be saved by the zip codes.

## Driver:
- The database system will keep a note of the driver details. The database system will capture following:
    - Driver Name
    - Date of Birth
    - Phone number
    - Driver's license number
- Every Driver is assigned to one same vehicle at all points of time.

## Vehicle:
- Each Vehicle has a unique vehicle ID
- There are 6 categories of vehicles. Any vehicle can only fall under these 6 categories: Compact, Compact Premium, Sedan, Sedan Premium, SUV, and SUV Premium.
- Every vehicle has one same driver, regardless of whether the vehicle is in a in a ride or not.
- There might be a vehicle which has not been booked a single time yet.

## Travel Pass:
- Each customer will hold his/her unique pass. Each customer's pass will therefore have a unique pass ID.
- For the pass, the start date and end date of the pass will be noted. Based on the start date and end date payment plans will be derived.
- Types of payment plans are: Monthly plan, bi-yearly plan, and yearly plan.

## Location:
- Each location will be uniquely identified by its zip code
- Locations are divided among the 4 types (commercial, residential, Industrial, University area)
- For each ride, a vehicle goes from a particular pick-up location to a particular drop location.
- Vehicles go to different locations. The number of times a vehicle (with its specific vehicle ID) goes from a particular pick-up location to a particular drop location will be derived.
- There might be a location which has not had any rides to it.


## Business Goals:
- What number of customers preferred to buy a pass in a year?
- Which pass payment method has maximum number of purchases in a year: monthly, bi-yearly, yearly?
- For eg) Number of pass purchases for montly:10, bi-yearly:18, yearly:14. This shows that bi-yearly plans are purchased most.
- Which month of the year has the maximum number of new accounts created?
- Which section (time section) of the day has the maximum number of bookings recorded? (A booking falls under which section of the day is decided based on the start time of the ride)
- Which category of car (SUV, SUV Premium, Sedan, Sedan Premium, Compact, Compact Premium) has the highest demand (based on total number of rides) in the entire city for a year?
- For eg) In the city, total number of successful rides for different category of cars are SUV: 8 bookings, Sedan: 14 bookings, Compact: 25 bookings, SUV Premium: 9 bookings, Sedan Premium: 4 bookings, Compact Premium: 2 bookings. This shows that Compact cars are most popular.
- Which category of vehicle has the maximum number of bookings for each type of location?
- Location
- Which type of pick-up location has the maximum number of bookings?
- Which pick-up zip codes are getting more than 20 premium rides in a year?
- Which types of pick-up location type are getting more than 20 premium rides in ayear?
- Which drop zip code is getting maximum number of rides in a year?

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