**Cab Booking Problem**

* To build a cab booking platform to allow a rider to book a cab.

**Project Requirements:**

\* The location is represented as a (x, y) coordinate.

\* Distance between two points (x1, y1) and(x2, y2) is sqrt((x1-x2)^2 + (y1-y2)^2)

\* Platform has decided upon the maximum distance a driver has to travel to pickup a rider.

\* A cab has only 1 driver.

\* Sharing of cab is not allowed between riders

\* There is a single type of cab

**Project Features**

\* Register a rider.

\* Register a driver/cab

\* Update a cab's location

\* A driver can switch on/off his availability

\* A rider can book a cab

\* Fetch history of all rides taken by a rider.

\* End the Trip

**Brief**

* In this project we will be using CLI where all the above mentioned functionalities can be accessed.

**Modules Used**

* For this project we will be using the inbuilt python modules ***time*** and ***math***.

**Project Overview**

* This project will contain 3 interfaces through with the user can interact with the program,i.e,Rider , Driver and Admin.
* Each interface will have various functionalities associated with it
* Dictionaries have been used to store and access the data for all 3 interfaces.
* Each dictionary and method will have multiple attributes relating to its nature and will store the same to access while using the program.

Let’s see the 3 interfaces individually.

1. **Driver Class**

* The driver class interface takes inputs such as Driver\_Name, Driver\_Contact\_no, Driver\_x\_y\_coordinates, etc.
* The driver class interface has the following methods such as Driver Status Updation, Location Updation,
* The driver can update their current location which will be used to find a rider. The location will be taken as a x,y coordinate.
* The driver can turn on/off their availability so allocating a rider will be based on it.

1. **Rider Class**

* The rider class interface takes inputs such as Customer Name, Customer Contact No, Customer Coordinates,etc
* The rider class interface has the following methods such as Rider Account Login, Driver Availability , Booking, etc
* A new rider can register or if a pre registered driver needs to book a cab, they will need to enter their current position in x,y coordinate.
* Based on the coordinates, the distance between the rider and available driver will be calculated. **If the distance exceeds 10kms, the driver won’t be allotted and a new driver will be searched within a shorter distance.**
* Once a driver is allotted, the driver details like Name, Number, Vehicle No, Trip No, etc will be displayed to the rider for reference
* Riders will have the ability to end a trip on reaching the destination.
* Riders can see the history of all the trips taken.

1. **Admin Class**

* The admin class interface takes inputs such as Admin Name, Admin Contact No
* The admin class interface has the following methods such as Admin Login, All ongoing trips, All riders & driver details, etc
* The admin will be able to check the details of all the registered Rider & Drivers available in the system.
* Current ongoing trip details will also be accessed from the admin interface