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#Design Problem: Travel-Reservation Application

Design and implement an application to book bus/taxi based on available source, destination, and Time of Boarding. The application should take care of the following aspects:

- Repository of bus and taxi information containing bus company name, bus number, source, destination, start time, end time, the total number of seats in the bus (capacity), and whether it is AC/Non AC.

- Reserve 'n' number of seats on a particular bus based on the availability of seats.

- Reserve taxi based on source, time of boarding, and the number of hours for which a taxi is required.

- Users should be able to create new accounts, log in to their existing accounts, change the volatile details pertaining to their account, create new bookings from their account, view previous bookings related to their account, and delete bookings in their account.

- Users should also be informed about the fare for their booking based on their preferences.

#Approach:

We designed 6 classes to accommodate all the requirements specified in the design problem, these were Vehicle, Bus, Taxi, Booking, User, and Driver classes. An overview of these classes is given below:

1. Vehicle: An abstract class and parent class for classes Bus and Taxi.
2. Bus: For features and instantiation of Bus objects.
3. Taxi: For features and instantiation of Taxi objects.
4. Booking: For booking operations of busses and taxis by the user.
5. User: For the upkeep of user accounts and other operations.
6. Driver: The driver class for running the application.

More details about the classes are provided in the UML diagram. The basic program flow of the application can be understood from the diagram below: