Project Proposal

Wheelzy

(Peer-to-Peer Car Rental System)

Abdulrahman Alsyami	2236637
Amer Bugshan	2237254

Problem Description:

This project will create a peer-to-peer car rental system where customers can either rent a car or offer their car for rent. Users will be able to list their cars with information such as price, availability, and car details. Renters can search for available cars based on their preferences like location, car type, and rental dates. The goal is to make car rentals more accessible by allowing individuals to share their cars.

Platform:

Java Command-Line Program

Technology Stack:

- Java (Main programming language)
- GitHub (For version control and collaboration)

Anticipated Deliverables:

- Source Code: A Java command-line application shared on GitHub.
- Executable: A .jar file that can be run as a standalone program.
- Documentation: Instructions on how to use the program and diagrams explaining how the system works.

Design Patterns to be Used:

- ### Factory Pattern:

  The system will use the Factory pattern to create different types of vehicles (like SUVs or Sedans) when customers or owners choose the type of car. This will make the process of creating car objects simpler and more organized.

- ### Singleton Pattern:

  We will use the Singleton pattern to manage the data, such as the list of available cars and rentals. This will ensure that there is only one version of this data being used throughout the program, avoiding confusion or errors.

- ### Builder Pattern:

  When a car owner lists their car for rent, they will use the Builder pattern to add details like car make, model, price, and availability step by step. This makes it easier to manage the creation of cars with lots of details.

- ### Observer Pattern:

  The Observer pattern will notify users when certain events happen, like when a car becomes available for rent or when a car gets rented. Car owners will be notified when their car is rented, and renters will be updated when cars they are interested in become available.