Design Document: **FunCarSim**

**1. Introduction**

The FunCarSim application is designed to simulate a fun driving experience where users can interact with different car models, perform actions like driving, braking, honking, and more. The application is built using Java and utilizes sound effects to enhance the user experience.

**2. Purpose**

The purpose of FunCarSim is to provide users with an entertaining and interactive simulation of driving various car models. Users can explore different features of the cars and simulate driving scenarios in a virtual environment.

**3. Components**

*3.1 CarDescription Class*

- Attributes:

- model (String): Represents the model of the car.

- make (String): Represents the make of the car.

- color (String): Represents the color of the car.

- doors (int): Represents the number of doors in the car.

- isEmpty (boolean): Indicates whether the gas tank is empty or not.

*3.2 CarActions Class*

- Attributes:

- clip (Clip): Represents the audio clip for playing sound effects.

- Methods:

- carHorn(): Plays the car horn sound effect.

- pressGas(): Plays the sound effect when pressing the gas pedal.

- pressBrakes(): Plays the sound effect when pressing the brakes.

- fillGas(): Plays the sound effect when filling the gas tank.

- crankUp(): Plays the sound effect when starting the car.

- playSound(String filename): Plays a specified sound file.

- stopSound(): Stops any ongoing sound playback.

*3.3 Main Class*

- Purpose:

- Acts as the entry point for the FunCarSim application.

- Allows users to interact with different car models and perform actions.

**4. User Interaction Flow**

1. Initialization:

- The Main class initializes instances of CarDescription, CarActions, and Scanner.

- Car descriptions are provided for different models, including the color, make, model, and number of doors.

- The user is prompted to choose a car model (Corolla or Mustang) using numeric options.

2. Car Selection:

- Based on the user's choice, the corresponding car description is displayed.

3. Gas Filling:

- The user is asked if they need to fill the gas tank.

- If yes, the gas filling sound effect is played.

4. Driving Simulation:

- The user enters a loop to simulate driving actions until they choose to stop.

- Options include driving, braking, honking, stopping, and turning off the car.

- Corresponding sound effects are played for each action.

**5. Sound Effects**

- Sound effects are utilized to enhance the realism and engagement of the driving simulation.

- Different sound files are played based on user actions, such as pressing the gas pedal, honking the horn, etc.

**6. Conclusion**

The FunCarSim application provides users with an entertaining and interactive driving simulation experience. By interacting with different car models and performing driving actions, users can enjoy a virtual driving experience enhanced by sound effects. The application aims to provide a fun and engaging way for users to explore various car features and simulate driving scenarios.