Traffic Simulation Project

Car Class(extends vehicle)

📅 Due: Saturday, September 27, 2025

Program Design

-vehicle should be parent class for buses and cars

-bus and car classes extends vehicle, and each add their only instance variables
-a road class with methods simulate traffic on a one-lane road

Vehicle Class (Parent)

- **Instance Variables:**
  - `Horsepower` (int): assign random horsepower to vehichels
  -
- **Methods:**
  - `move()` : Update position based on speed and time
  - `getHorsepower():` return the horsepower of the object
  - `addVehicle:` insert a new vehicle to the array

Car Class(extends vehicle)

- **Instance Variables:**
  - `Color` (String)
  - (float): How quickly it responds to traffic conditions
- **Methods:**
  - `overtake(vehicle)` : Logic for passing another vehicle
  - `adjustToTraffic(surroundingVehicles)` : Adjust speed based on nearby vehicles

Bus Class (extends Vehicle)

- **Instance Variables:**
  - `Weight` (int): random weight of buses

methods:

- `equalWeight` :

- `removeVehicle`: remove a vehicle

Road Class(Independent)

- **Instance Variables:**
  - `Road`(Vehicle): create an array of vehicles as if they're on a road
  - `numOfVehicles`(int): to keep track of the vehicles in the array
- **Methods:**
  - `addVehicle` (void, param Vehicle): takes a vehicle object to add some kind of vehicle to the road
  - `removeVehicle`(void, param int index): remove a vehicle from a specific index of the road array
  - `collision`: should compare two
  - car vs bus
  - car vs car
  - bus vs bus

```
public class Traffic

public static void main(String []args){
```

```
}
```