CS 202 Lab Assignment 9 (Total Marks= 10)

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Q. Design a **Vehicle Management System** that contains **three classes**: Vehicle, Car, and Bike, implementing **inheritance** in Java.

The classes should contain the following fields (or similar):

- **Vehicle**
  → registrationNumber, ownerName, contactNumber, addressPIN
- **Car** (derived from Vehicle)
  → carModel, chassisNumber
- **Bike** (derived from Vehicle)
  → bikeModel, engineNumber

Each class must have a **validate()** method that checks all the fields for correctness. This method should be automatically invoked when creating objects of the respective class. Inputs are to be entered by the user from the keyboard.

Validation Rules:

1. **Registration Number:**
   Must follow the pattern — two uppercase letters followed by two digits, a space, and four digits (e.g., AS09 2345).
2. **Contact Number:**
   Must be a **10-digit** number starting with 6, 7, 8, or 9.
3. **PIN Code:**
   Must be a **6-digit** valid Indian postal PIN.
4. **Chassis Number:**
   Must start with prefix **"CAR"** followed by **5 digits** (e.g., CAR12345).
5. **Engine Number:**
   Must start with prefix **"BIKE"** followed by **4 digits** (e.g., BIKE4567).

If any of the validations fail, your program should **throw custom exceptions** specific to each invalid field. Create **custom exception classes** for:

- InvalidRegistrationNumberException
- InvalidContactNumberException
- InvalidPINException
- InvalidChassisNumberException
- InvalidEngineNumberException

When a validation fails, the corresponding exception should be thrown, and an **appropriate error message** must be printed on the console.