Task 4 Inheritance Based Application

Aim: To design and implement a simple vehicle Rental System using inheritance in Java, where different vehicle types calculate their rental cost based on a base rent.

Algorithm:

1. Start the program
2. Create a base class Vehicle with the following data members:
   * vehicleId
   * modelName
   * baseRent
3. Define a constructor in the vehicle class to initialize the values.
4. Create a method display() in the base class to display vehicle details.
5. Create a derived class Car that inherits from Vehicle.
   * Add a method calculateRent() that adds ₹ 500 to base rent.
6. Create another derived class Bike that inherits from Vehicle.
   * Add a method calculateRent() that adds ₹ 200 to base rent.
7. In the main() method:
   * Create an Object of Car and display its details and total Rent.
   * Create an Object of Bike and display its details and total Rent.
8. Stop the program.

Program:

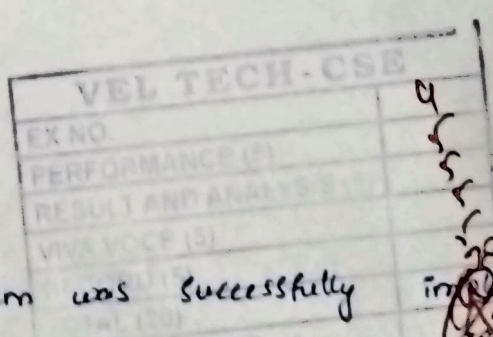
```
class vehicle{
   int vehicleId;
    string modelName;
    double baseRent;
  vehicle(int vehicleId, string modelName, double baseRent){
     this. vehicleId = VehicleId;
     this. modelName = modelName;
     this. baseRent = baseRent;
   }
   void display(){
     System. out. println("vehicle ID :" + vehicleId);
     System. out. println("Model Name :" + modelName);
     System out. println("BaseRent :" + baseRent);
   }
}
   class Car extends vehicle{
```

Output:

```
--- Car Details ---
Vehicle ID : 101
Model Name : Honda city
Base Rent : 2000.0
Total Rent : 2500.0

--- Bike Details ---
Vehicle ID : 201
Model Name : yamaha R 15
Base Rent : 800.0
Total Rent : 1000.0
```

```
Car(int vehicleId, String modelName, double baseRent){
  super(vehicleId, modelName, baseRent);
}
double calculateRent(){
  return baseRent + 500;
}
}
class Bike extends Vehicle{
Bike(int vehicleId, String modelName, double baseRent){
  super(vehicleId, modelName, baseRent);
}
double calculateRent(){
  return baseRent + 200;
}
}
public class VehicleRental{
  Public static void main(String[]args){
    Car car = new Car(101, "Honda city", 2000);
    System.out.println("---- car Details---");
    car.display();
    System.out.println("Total Rent:" + car.calculateRent());
    System.out.println();
    Bike bike = new Bike(201, "yamaha R15", 800);
    System.out.println("---Bike Details---");
    bike.display();
    System.out.println("Total Rent:" + bike.calculateRent());
  }
}
```



Result:

Thus, a vehicle Rental System was successfully implemented using inheritance in Java, and the rental cost for Car and Bike was calculated correctly.