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Class:- AIML B1

Experiment 2

Aim:- Create a Vehicle class with different data members that have public or private access modifiers. Define getters and setters for the private members. Define default and parameterized constructors. Define member methods to start, stop, accelerate vehicles and to calculate mileage.
Print the Vehicle details in a tabular format to compare the mileage of vehicles with different fuel types.

Code:

```
public class Vehicle {
    public String brandName;
    public String model;
    public java.time.Year year;
    public String color;
    public char fuelType; //E=Electric, D=Diesel, P=Petrol, C=CNG
    public double price;
    private String MfgCode;
    private int NoOfServices;
    public int seatingCapacity;
    public void setNoOfServices(int nos){
        NoOfServices=nos;
    }
    public int getNoOfServices(){
        return NoOfServices;
    }
    public void setMfgCode(String mcode){
        MfgCode=mcode;
    }
```

```
    public String getMfgCode(){
        return MfgCode;
    }

    public Vehicle(String bName, String mdl, String clr, double prc){
        brandName=bName;
        model=mdl;
        color=clr;
        price=prc;
    }

    public Vehicle(char fType, double prc, String mcode){
       fuelType=fType;
       price=prc;
       MfgCode=mcode;
    }
    public void started(){
        System.out.println("Start the vehicle using the key");
        System.out.println("Vehicle Started");
    }

    public void stopped(){
        System.out.println("Stop the vehicle using the key");
        System.out.println("Vehicle Stopped");
    }

    public void Drive(){
        System.out.println("Use the steering wheel to drive the vehicle");
        System.out.println("Drive Carefully");
    }

    public int accelerate(int initSpeed, int finalSpeed, int time){
        int acceleration=(finalSpeed - initSpeed)/time;
        return acceleration;
    }

    public float CalcMileage(char fuelType, float distance, float
fuelConsumed){
        if(fuelType=='E'){
            System.out.println("Electric vehicles do not consume fuel.");
```

```
            return 0;
        }else if(fuelType=='D'){
            float mileage=(distance/fuelConsumed)*1.1f; //Diesel vehicles
have 10% more efficiency
            return mileage;
        }else if(fuelType=='C'){
            float mileage=(distance/fuelConsumed)*1.2f; //CNG vehicles
have 20% more efficiency
            return mileage;
        }else{
            float mileage=distance/fuelConsumed;
            return mileage;
        }
    }

    public void display_deets(Vehicle newV){
        System.out.println("---------------------------------");
        System.out.println("Vehicle Details:");
        System.out.println("Brand Name: "+newV.brandName);
        System.out.println("Model: "+newV.model);
        System.out.println("Year of Manufacture: "+newV.year);
        System.out.println("Color: "+newV.color);
        System.out.println("Fuel Type: "+newV.fuelType);
        System.out.println("Price: "+newV.price);
        System.out.println("Seating Capacity: "+newV.seatingCapacity);
        System.out.println("Number of Services: "+newV.getNoOfServices());
        System.out.println("---------------------------------");
    }
    /*public static void main(String[] args) {
        Vehicle v = new Vehicle();
        v.brandName="Lamborghini";
        v.model="Aventador";
        v.color="Yellow";
        v.year=java.time.Year.of(2020);
        v.fuelType='P';
        v.seatingCapacity=2;
        v.price=15000000.00;
        v.display_deets(v);
        v.started();
        v.Drive();
```

```
        int acc=v.accelerate(0,100,10);
        System.out.println("Acceleration is: "+acc+" m/s^2");
        float mileage=v.CalcMileage(v.fuelType, 500,25);
        System.out.println("Mileage is: "+mileage+" km/l");
        v.stopped();

    }*/

    public Vehicle(){
        brandName="Toyota";
        model="Camry";
        year=java.time.Year.of(2020);
        color="Blue";
        fuelType='P';
        seatingCapacity=5;
        price=24000000.75;
    }
}
```

Output:

```
┌──────────────────────────────────────────┐
│    VEHICLE DETAILS          │
├──────────────────────────────────────────┤
│ Brand Name              │ Toyota │
│ Model                   │ Camry  │
│ Year                    │ 2020   │
│ Color                   │ Blue   │
│ Fuel Type               │ P      │
│ Price                   │ 24000000.75 │
│ Seating Capacity        │ 5      │
│ Mfg Code                │ null   │
│ No. of Services         │ 0      │
└──────────────────────────────────────────┘
```

VEHICLE DETAILS	
Brand Name	Honda
Model	Civic
Year	null
Color	Red
Fuel Type	
Price	250000.00
Seating Capacity	0
Mfg Code	null
No. of Services	0

VEHICLE DETAILS	
Brand Name	null
Model	null
Year	null
Color	null
Fuel Type	D
Price	180000.00
Seating Capacity	0
Mfg Code	MFG12345
No. of Services	0

Start the vehicle using the key
Vehicle Started
Use the steering wheel to drive the vehicle
Drive Carefully
Mileage of Vehicle 1: 5.0 km/l
Stop the vehicle using the key
Vehicle Stopped
Start the vehicle using the key
Vehicle Started
Use the steering wheel to drive the vehicle
Drive Carefully
Mileage of Vehicle 2: 8.0 km/l
Stop the vehicle using the key
Vehicle Stopped

VEHICLE DETAILS	
Brand Name	Toyota
Model	Camry
Year	2020
Color	Blue
Fuel Type	P
Price	24000000.75
Seating Capacity	4
Mfg Code	MFG2024001
No. of Services	0

Start the vehicle using the key
Vehicle Started
Use the steering wheel to drive the vehicle
Drive Carefully
Mileage: 7.5 km/l
Stop the vehicle using the key
Vehicle Stopped

VEHICLE DETAILS	
Brand Name	Honda
Model	Civic
Year	null
Color	Red
Fuel Type	
Price	250000.00
Seating Capacity	0
Mfg Code	null
No. of Services	0

Start the vehicle using the key
Vehicle Started
Use the steering wheel to drive the vehicle
Drive Carefully
Mileage: 7.5 km/l
Stop the vehicle using the key
Vehicle Stopped

VEHICLE DETAILS	
Brand Name	null
Model	null
Year	null
Color	null
Fuel Type	D
Price	180000.00
Seating Capacity	0
Mfg Code	MFG12345
No. of Services	0

Start the vehicle using the key
Vehicle Started
Use the steering wheel to drive the vehicle
Drive Carefully
Mileage: 8.25 km/l
Stop the vehicle using the key
Vehicle Stopped