**====================================================================================**

**//PROBLEM STATEMENT :**

**/\***

**\* Name: Mauli Pralhad Bondare**

**\* Roll no.: 68**

**\* Batch: D**

**\* Assignment No: 10**

**Implement a factory design pattern for the given context . Consider Car building process ,**

**\* which requires many steps from allocating accessories to final makeup. These steps should**

**\* be written as methods and should be called while creating an instance of specific car type.**

**\* Hatchback, Sedan, SUV , could be the subclasses Car class. Car class and Car class its subclasses**

**\* , CarFactory and Test Factory Pattern should be implemented \*/**

**====================================================================================**

**//package assignment;**

**import java.util.Scanner;**

**// ============================= ABSTRACT CLASS Car\_Factory =============================//**

**abstract class Car\_Factory{**

**//declaration of data member**

**String compnay,car\_name;**

**double budget;**

**//declaration of abstract methods**

**abstract void getprice(double price);**

**abstract void detail(String company\_name,String car\_name);**

**abstract void accessories();**

**//declaration and implentation of input method**

**void input() {**

**Scanner scan =new Scanner (System.in);//creating object of scanner class**

**System.out.print("Company- ");**

**compnay=scan.next();//taking input from user**

**System.out.print("Car- ");**

**car\_name=scan.next();//taking input from user**

**System.out.print("Rough Budget(in Lakhs)- ");**

**budget=scan.nextDouble();//taking input from user**

**}**

**void display(Car\_Factory obj1) {**

**//calling the methods//**

**obj1.getprice(budget);//calling getprice method**

**System.out.println("\n-----------------------------------");**

**obj1.detail(compnay, car\_name);//calling detail method**

**System.out.println("\n-----------------------------------");**

**obj1.accessories();//calling accessories method**

**System.out.println("\n-----------------------------------");**

**}**

**}**

**//============================= CLASS Small\_car =============================//**

**class Small\_car extends Car\_Factory{**

**String Ans;//declaration of data member**

**//method for getprice**

**public void getprice(double price) {**

**if(price>2&&price<5)**

**Ans="No"; //modify Ans**

**else**

**Ans="Yes"; //modify Ans**

**}**

**//method for displaying car detail//**

**public void detail(String company\_name,String car\_name) {**

**System.out.println("Company- "+company\_name);**

**System.out.println("Name of Car- "+car\_name);**

**System.out.println("Color- Black/White/Orange/Red");**

**System.out.println("Fuel- Petrol");**

**System.out.println("Gears- Manual");**

**}**

**//method to display accessories of car//**

**public void accessories() {**

**System.out.println("Types of Tyres- Alloy Wheels");**

**System.out.println("Airbags- "+Ans);**

**System.out.println("Back Wiper- "+Ans);**

**System.out.println("Side Mirror- Two");**

**System.out.println("Touch Screen Music Player- "+Ans);**

**}**

**}**

**//============================= CLASS Sedan =============================//**

**class Sedan extends Car\_Factory{**

**String Ans;//declaration of data member**

**//method for getprice**

**public void getprice(double price) {**

**if(price>6&&price<10)**

**Ans="No"; //modify Ans**

**else**

**Ans="Yes"; //modify Ans**

**}**

**//method for displaying car detail//**

**public void detail(String company\_name,String car\_name) {**

**System.out.println("Company- "+company\_name);**

**System.out.println("Name of Car- "+car\_name);**

**System.out.println("Color- Black/White/Orange/Red");**

**System.out.println("Fuel- Petrol/Diesel");**

**System.out.println("Gears- Auto/Manual");**

**}**

**//method to display accessories of car//**

**public void accessories() {**

**System.out.println("Types of Tyres- Alloy Wheels");**

**System.out.println("Airbags- YES");**

**System.out.println("Back Wiper- YES");**

**System.out.println("Side Mirror- Two");**

**System.out.println("Touch Screen Music Player- YES");**

**System.out.println("Roof Window- "+Ans);**

**}**

**}**

**//============================= CLASS Small\_car =============================//**

**class Luxary extends Car\_Factory{**

**String Ans;//declaration of data member**

**//method for getprice**

**public void getprice(double price) {**

**if(price>10&&price<14)**

**Ans="No"; //modify Ans**

**else**

**Ans="Yes"; //modify Ans**

**}**

**//method for displaying car detail//**

**public void detail(String company\_name,String car\_name) {**

**System.out.println("Company- "+company\_name);**

**System.out.println("Name of Car- "+car\_name);**

**System.out.println("Color- Black/White/Orange/Red");**

**System.out.println("Fuel- Diesel");**

**System.out.println("Gears- Auto");**

**}**

**//method to display accessories of car//**

**public void accessories() {**

**System.out.println("Types of Tyres- Alloy Wheels");**

**System.out.println("Airbags- YES");**

**System.out.println("Back Wiper- YES");**

**System.out.println("Side Mirror- Two");**

**System.out.println("Touch Screen Music Player- YES");**

**System.out.println("Roof Window- YES");**

**System.out.println("Automotive Garbage Cans- "+Ans);**

**System.out.println("Automotice Air Freshner- "+Ans);**

**System.out.println("Button Start- "+Ans);**

**}**

**}**

**//============================= MAIN CLASS =============================//**

**public class MauliDemofactorydesignpattern {**

**//ststic main method**

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

**// TODO Auto-generated method stub**

**Scanner scan = new Scanner(System.in);//creating object of scanner class**

**int ch;**

**//double price;**

**Car\_Factory obj;// object of reference Car\_Factory**

**while(true){**

**//menu driven**

**System.out.println("Which Car you want to See?- ");**

**System.out.println("\n\t1.Small Car\n\t2.Sedan Car\n\t3.Luxary Car\n\t4.Exit");**

**System.out.println("========================================================");**

**System.out.println("Enter your choice:");**

**ch=scan.nextInt();//taking input from user**

**System.out.println();**

**//switch case**

**switch(ch) {**

**case 1:**

**obj= new Small\_car(); //creating object of Small\_car**

**obj.input();//calling input method**

**obj.display(obj);//calling display method**

**break;**

**case 2:**

**obj= new Sedan();//creating object of Sedan**

**obj.input();//calling input method**

**obj.display(obj);//calling display method**

**break;**

**case 3:**

**obj= new Luxary();//creating object of Luxary**

**obj.input();//calling input method**

**obj.display(obj);//calling display method**

**break;**

**case 4:**

**System.out.println("\n-----------------------------------");**

**return;//stop execution of program**

**default:**

**System.out.println("INVALID CHOICE !!");//default**

**System.out.println("\n-----------------------------------");**

**break;**

**}**

**}**

**}**

**}**

**OUTPUT:**

**Which Car you want to See?-**

**1.Small Car**

**2.Sedan Car**

**3.Luxary Car**

**4.Exit**

**========================================================**

**Enter your choice:**

**1**

**Company- tata**

**Car- nano**

**Rough Budget(in Lakhs)- 1**

**-----------------------------------**

**Company- tata**

**Name of Car- nano**

**Color- Black/White/Orange/Red**

**Fuel- Petrol**

**Gears- Manual**

**-----------------------------------**

**Types of Tyres- Alloy Wheels**

**Airbags- Yes**

**Back Wiper- Yes**

**Side Mirror- Two**

**Touch Screen Music Player- Yes**

**-----------------------------------**

**Which Car you want to See?-**

**1.Small Car**

**2.Sedan Car**

**3.Luxary Car**

**4.Exit**

**========================================================**

**Enter your choice:**

**2**

**Company- mahindra**

**Car- bolero**

**Rough Budget(in Lakhs)- 8**

**-----------------------------------**

**Company- mahindra**

**Name of Car- bolero**

**Color- Black/White/Orange/Red**

**Fuel- Petrol/Diesel**

**Gears- Auto/Manual**

**-----------------------------------**

**Types of Tyres- Alloy Wheels**

**Airbags- YES**

**Back Wiper- YES**

**Side Mirror- Two**

**Touch Screen Music Player- YES**

**Roof Window- No**

**-----------------------------------**

**Which Car you want to See?-**

**1.Small Car**

**2.Sedan Car**

**3.Luxary Car**

**4.Exit**

**========================================================**

**Enter your choice:**

**3**

**Company- fortuner**

**Car- s10**

**Rough Budget(in Lakhs)- 25**

**-----------------------------------**

**Company- fortuner**

**Name of Car- s10**

**Color- Black/White/Orange/Red**

**Fuel- Diesel**

**Gears- Auto**

**-----------------------------------**

**Types of Tyres- Alloy Wheels**

**Airbags- YES**

**Back Wiper- YES**

**Side Mirror- Two**

**Touch Screen Music Player- YES**

**Roof Window- YES**

**Automotive Garbage Cans- Yes**

**Automotice Air Freshner- Yes**

**Button Start- Yes**

**-----------------------------------**

**Which Car you want to See?-**

**1.Small Car**

**2.Sedan Car**

**3.Luxary Car**

**4.Exit**

**========================================================**

**Enter your choice:**

**3**

**Company- tata**

**Car- ford**

**Rough Budget(in Lakhs)- 30**

**-----------------------------------**

**Company- tata**

**Name of Car- ford**

**Color- Black/White/Orange/Red**

**Fuel- Diesel**

**Gears- Auto**

**-----------------------------------**

**Types of Tyres- Alloy Wheels**

**Airbags- YES**

**Back Wiper- YES**

**Side Mirror- Two**

**Touch Screen Music Player- YES**

**Roof Window- YES**

**Automotive Garbage Cans- Yes**

**Automotice Air Freshner- Yes**

**Button Start- Yes**

**-----------------------------------**

**Which Car you want to See?-**

**1.Small Car**

**2.Sedan Car**

**3.Luxary Car**

**4.Exit**

**========================================================**

**Enter your choice:**

**4**

**-----------------------------------**