```
//PROBLEM STATEMENT :
/* 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
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                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 Practi10{

	//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");
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

1

Company- Maruti

Car- Baleno

Rough Budget(in Lakhs)- 1000000

Company- Maruti

Name of Car- Baleno

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

2

Company- Hyundai

Car- Verna

Rough Budget(in Lakhs)- 1500000

Company- Hyundai

Name of Car- Verna

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- Yes

Which Car you want to See?-

1.Small Car

2.Sedan Car

3.Luxary Car

4.Exit

3

Company- BMW

Car- Q7

Rough Budget(in Lakhs)- 4000000

Company- BMW

Name of Car- Q7

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

4
