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* 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-----------------------------------");
	}

}
```

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//============================  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
	}
```

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	//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");
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                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;
```

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                    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
