Assignment 10

```
//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 */

import java.util.*;
// ============================= 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
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	}
	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");
```

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		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");
```

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		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 Main {

	//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?- ");
```

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                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
```

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

                                }
                        }
                }
}

/*

 ##OUTPUT##



---------------------------------------
 Constructing Hatchback Car
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Types of Tyres- Alloy Wheels
Airbags- YES
Back Wiper- YES
Side Mirror- one
Touch Screen Music Player- NO
Roof Window- YES
Automotive Garbage Cans- YES
Automotice Air Freshner- NO
Button Start- YES
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 Constructing sedan car
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Types of Tyres- Alloy Wheels

Airbags- YES

Back Wiper- NO

Side Mirror- ONE

Touch Screen Music Player- YES

Roof Window- YES

Automotive Garbage Cans- YES

Automotice Air Freshner- NO

Button Start- YES

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Constructing SUV Car

Types of Tyres- Alloy Wheels

Airbags- YES

Back Wiper- YES

Side Mirror- Two

Touch Screen Music Player- YES

Roof Window- YES

Automotive Garbage Cans- NO

Automotice Air Freshner- YES

Button Start- YES

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*/