EXPERIMENT 7

PART A

A.1 AIM: -

a) WAP using command pattern to turn on and off various items in your home like lights, stereo, AC
b) WAP using iterator pattern for building an application that requires us to maintain a list of notifications

A.2 Prerequisite

C Programming

A.3 Outcome

After successful completion of this experiment students will be able to

1. Incorporate Design Experiences using Design pattern

A.4 Theory

Iterator Pattern:

- Provide a way to access the elements of an aggregate object sequentially without exposing its underlying representation.
- Supports multiple traversals of aggregate objects
- Provides a uniform interface for traversing different aggregate structures (it supports polymorphic iteration).

Command Pattern:

- **Encapsulate a request as an object letting you:**
  - ✓ **Parameterize clients with different requests**
  - ✓ **Queue or log requests**
  - ✓ **Support undo operations**

PART B

(PART B: TO BE COMPLETED BY STUDENTS)

(Students must submit the soft copy as per following segments within two hours of the practical. The soft copy must be uploaded on the Blackboard or emailed to the concerned lab in charge faculties at the end of the practical in case the there is no Black board access available)

Roll No.	Name:
Program:	Division:
Semester:	Batch :
Date of Experiment:	Date of Submission:
Grade :	

B.1 Software Code written by student:

Q1:

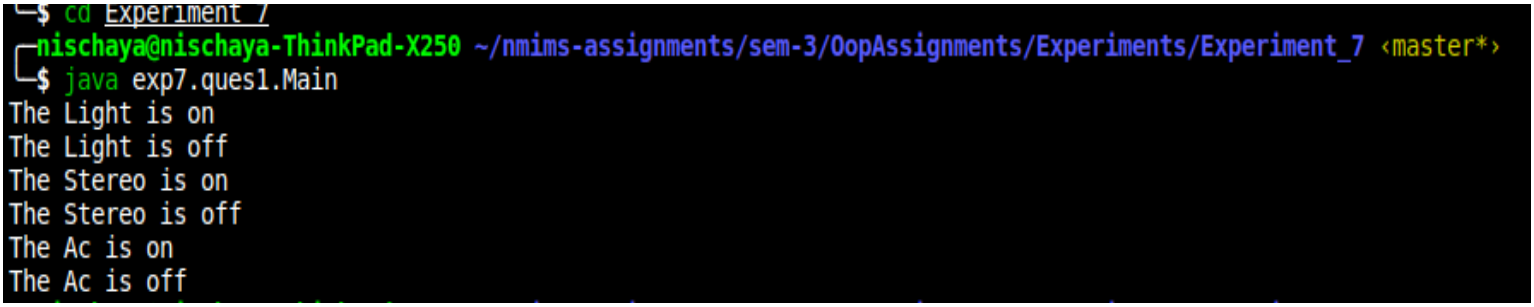
```
package exp7.ques1;

interface Command {
   public void execute();
}

class Stereo {

   public void on() {
      System.out.println("The Stereo is on");
   }

   public void off() {
      System.out.println("The Stereo is off");
   }
}

class StereoOn implements Command {
   private Stereo stereo;

   StereoOn(Stereo stereo) {
      this.stereo = stereo;
   }

   public void execute() {
      stereo.on();
   }
}

class StereoOff implements Command {
   private Stereo stereo;

   StereoOff(Stereo stereo) {
      this.stereo = stereo;
   }

   public void execute() {
      stereo.off();
   }
}
```

```
class Ac {

    public void on() {
        System.out.println("The Ac is on");
    }

    public void off() {
        System.out.println("The Ac is off");
    }
}

class AcOff implements Command {
    private Ac ac;

    AcOff(Ac ac) {
        this.ac = ac;
    }

    public void execute() {
        ac.off();
    }
}

class AcOn implements Command {
    private Ac ac;

    AcOn(Ac ac) {
        this.ac = ac;
    }

    public void execute() {
        ac.on();
    }
}

class Light {

    public void on() {
        System.out.println("The Light is on");
    }

    public void off() {
        System.out.println("The Light is off");
    }
```

```
}

class LightOff implements Command {
    private Light light;

    LightOff(Light light) {
        this.light = light;
    }

    public void execute() {
        light.off();
    }
}

class LightOn implements Command {
    private Light light;

    LightOn(Light light) {
        this.light = light;
    }

    public void execute() {
        light.on();
    }
}

class RemoteControl {
    Command command;

    public void setCommand(Command command) {
        this.command = command;
    }

    public void pressButton() {
        command.execute();
    }
}

public class Main {
    public static void main(String args[]) {
        RemoteControl remote = new RemoteControl();
        Light light = new Light();
        Stereo stereo = new Stereo();
        Ac ac = new Ac();
        remote.setCommand(new LightOn(light));
```

```
        remote.pressButton();
        remote.setCommand(new LightOff(light));
        remote.pressButton();
        remote.setCommand(new StereoOn(stereo));
        remote.pressButton();
        remote.setCommand(new StereoOff(stereo));
        remote.pressButton();
        remote.setCommand(new AcOn(ac));
        remote.pressButton();
        remote.setCommand(new AcOff(ac));
        remote.pressButton();
    }
}
```

B.2 Input and Output:



B.3 Conclusion:

(Students must write the conclusion as per the attainment of individual outcome listed above and learning/observation noted in section B.1)