CECS 524 UNIT 12 ASSIGNMENT

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Code:

Client.java

```
import java.util.*;
public class Client {
   public static  void main(String [] args)
   {
      System.out.println("Enter input:    ");
      Scanner sc=new Scanner(System.in);
      String input=sc.nextLine();
      Context context=new Context();
      for(int i=0;i<input.length();i++)
      {
         switch (input.charAt(i))
         {
            case 'a':
               context.onA(context);
               break;

            case 'b':
               context.onB(context);
               break;

            default:
               System.out.println("input "+input.charAt(i));
```

```
                System.out.println("input not accepted");
                System.exit(0);
                break;
            }
        }
        System.out.println("Input Accepted");
    }
}
```

Context.java

```
public class Context {
    AbstractState abs;
    public Context()
    {
        this.abs = ConcreteState1.getInstance();

    }

    public void onA(Context c)
    {
        abs.OnA(c);
    }

    public void onB(Context c)
    {

        abs.OnB(c);

    }
```

```
    public void setState(final AbstractState state)
    {
        this.abs = state;
        System.out.println("state: "+abs.getClass().getName());
    }



}
```

AbstractState.java

```
public interface AbstractState {
    void OnA(Context c);
    void OnB(Context c);
}
```

ConcreteState1.java

```
public class ConcreteState1 implements AbstractState{
    private final static ConcreteState1 in = new ConcreteState1();
    private ConcreteState1(){}
    public static ConcreteState1 getInstance()
    {
        return in;
    }
    public void OnA(Context c)
    {
        System.out.println("input a");
        c.setState(ConcreteState2.getInstance());


    }
    public void OnB(Context c)
    {
```

```
        System.out.println("input b");
        c.setState(ConcreteState3.getInstance());
    }
}
```

ConcreteState2.java

```
public class ConcreteState2 implements AbstractState{
    private final static ConcreteState2 in = new ConcreteState2();
    private ConcreteState2(){}
    public static ConcreteState2 getInstance()
    {
        return in;
    }
    public void OnA(Context c)
    {
        System.out.println("input a");
        c.setState(ConcreteState1.getInstance());

    }
    public void OnB(Context c)
    {
        System.out.println("input b");
        c.setState(ConcreteState4.getInstance());
    }
}
```

ConcreteState3.java

```
public class ConcreteState3 implements AbstractState
{
    private final static ConcreteState3 in = new ConcreteState3();
    private ConcreteState3(){}
```

```
    public static ConcreteState3 getInstance()
    {
        return in;
    }
    public void OnA(Context c)
    {
        System.out.println("input a");
        c.setState(ConcreteState4.getInstance());
    }
    public void OnB(Context c)
    {
        System.out.println("input b");
        c.setState(ConcreteState1.getInstance());
    }
}
```

ConcreteState4.java

```
public class ConcreteState4 implements AbstractState {
    private final static ConcreteState4 in = new ConcreteState4();
    private ConcreteState4(){}
    public static ConcreteState4 getInstance()
    {
        return in;
    }
    public void OnA(Context c)
    {
        System.out.println("input a");
        c.setState(ConcreteState3.getInstance());

    }
```

```
    public void OnB(Context c)
    {
        System.out.println("input b");
        c.setState(ConcreteState2.getInstance());
    }
}
```

Output:

Testcase 1:

```
PS C:\Users\mspur\IdeaProjects\Unit 12> java Client
Enter input:
aaba
input a
state: ConcreteState2
input a
state: ConcreteState1
input b
state: ConcreteState3
input a
state: ConcreteState4
Input Accepted
```

Testcase 2:

```
PS C:\Users\mspur\IdeaProjects\Unit 12> java Client
Enter input:
aca
input a
state: ConcreteState2
input c
input not accepted
```