**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:**

**Text

Description automatically generated**

**Testcase 2:**

**Text

Description automatically generated**