

Output:

Words Accepted:

bcaababcbbaab

abbababcbab

babcbab

babcabbbbaab

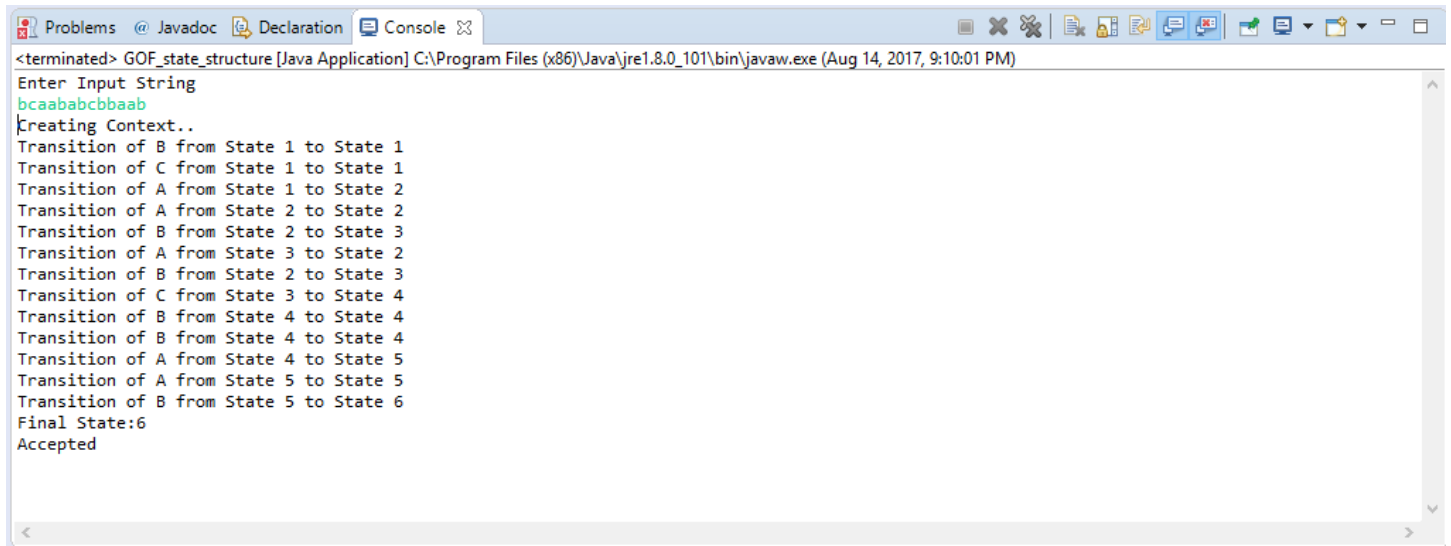
babcb

Not Accepted:

bcbcbcb

bcaabb

bab



```
<terminated> GOF_state_structure [Java Application] C:\Program Files (x86)\Java\jre1.8.0_101\bin\javaw.exe (Aug 14, 2017, 9:10:01 PM)
Enter Input String
bcaababcbbaab
Creating Context..
Transition of B from State 1 to State 1
Transition of C from State 1 to State 1
Transition of A from State 1 to State 2
Transition of A from State 2 to State 2
Transition of B from State 2 to State 3
Transition of A from State 3 to State 2
Transition of B from State 2 to State 3
Transition of C from State 3 to State 4
Transition of B from State 4 to State 4
Transition of B from State 4 to State 4
Transition of A from State 4 to State 5
Transition of A from State 5 to State 5
Transition of B from State 5 to State 6
Final State:6
Accepted
```

```
Problems @ Javadoc Declaration Console
<terminated> GOF_state_structure [Java Application] C:\Program Files (x86)\Java\jre1.8.0_101\bin\javaw.exe (Aug 14, 2017, 9:11:29 PM)
Enter Input String
abbababcbab
Creating Context..
Transition of A from State 1 to State 2
Transition of B from State 2 to State 3
Transition of B from State 3 to State 1
Transition of A from State 1 to State 2
Transition of B from State 2 to State 3
Transition of A from State 3 to State 2
Transition of B from State 2 to State 3
Transition of C from State 3 to State 4
Transition of A from State 4 to State 5
Transition of B from State 5 to State 6
Final State:6
Accepted
```

```
Problems @ Javadoc Declaration Console
<terminated> GOF_state_structure [Java Application] C:\Program Files (x86)\Java\jre1.8.0_101\bin\javaw.exe (Aug 14, 2017, 9:12:13 PM)
Enter Input String
babcbabab
Creating Context..
Transition of B from State 1 to State 1
Transition of A from State 1 to State 2
Transition of B from State 2 to State 3
Transition of C from State 3 to State 4
Transition of B from State 4 to State 4
Transition of A from State 4 to State 5
Transition of B from State 5 to State 6
Final State:6
Accepted
```

```
Problems @ Javadoc Declaration Console
<terminated> GOF_state_structure [Java Application] C:\Program Files (x86)\Java\jre1.8.0_101\bin\javaw.exe (Aug 14, 2017, 9:13:00 PM)
Enter Input String
babcabbbbaab
Creating Context..
Transition of B from State 1 to State 1
Transition of A from State 1 to State 2
Transition of B from State 2 to State 3
Transition of C from State 3 to State 4
Transition of A from State 4 to State 5
Transition of B from State 5 to State 6
Transition of B from State 6 to State 4
Transition of B from State 4 to State 4
Transition of A from State 4 to State 5
Transition of A from State 5 to State 5
Transition of B from State 5 to State 6
Final State:6
Accepted
```

```
Problems @ Javadoc Declaration Console
<terminated> GOF_state_structure [Java Application] C:\Program Files (x86)\Java\jre1.8.0_101\bin\javaw.exe (Aug 14, 2017, 9:13:45 PM)
Enter Input String
babcb
Creating Context..
Transition of B from State 1 to State 1
Transition of A from State 1 to State 2
Transition of B from State 2 to State 3
Transition of C from State 3 to State 4
Final State:4
Accepted
```

```
Problems @ Javadoc Declaration Console
<terminated> GOF_state_structure [Java Application] C:\Program Files (x86)\Java\jre1.8.0_101\bin\javaw.exe (Aug 14, 2017, 9:14:31 PM)
Enter Input String
bcbcbcb
Creating Context..
Transition of B from State 1 to State 1
Transition of C from State 1 to State 1
Transition of B from State 1 to State 1
Transition of C from State 1 to State 1
Transition of B from State 1 to State 1
Transition of C from State 1 to State 1
Final State:1
Not Accepted
```

```
Problems @ Javadoc Declaration Console
<terminated> GOF_state_structure [Java Application] C:\Program Files (x86)\Java\jre1.8.0_101\bin\javaw.exe (Aug 14, 2017, 9:15:10 PM)
Enter Input String
bcaabb
Creating Context..
Transition of B from State 1 to State 1
Transition of C from State 1 to State 1
Transition of A from State 1 to State 2
Transition of A from State 2 to State 2
Transition of B from State 2 to State 3
Transition of B from State 3 to State 1
Final State:1
Not Accepted
```

```
Problems @ Javadoc Declaration Console
<terminated> GOF_state_structure [Java Application] C:\Program Files (x86)\Java\jre1.8.0_101\bin\javaw.exe (Aug 14, 2017, 9:16:30 PM)
Enter Input String
bab
Creating Context..
Transition of B from State 1 to State 1
Transition of A from State 1 to State 2
Transition of B from State 2 to State 3
Final State:3
Not Accepted
```

Code:

// 1. Main.java

```
package ooad_assign7;

import java.util.Scanner;

public class GOF_state_structure {

    public static void main(String[] args) {
        // TODO Auto-generated method stub

        Scanner sc = new Scanner(System.in);
```

```
        System.out.println("Enter Input String");
        String input = sc.nextLine();

        Context c = new Context(input);
        c.Handle();
        System.out.println("Final State:"+c.getFinalState());
        if(c.getFinalState()==4||c.getFinalState()==5||c.getFinalState()==6)
            System.out.println("Accepted");
        else
            System.out.println("Not Accepted");
    }
}
```

// 2. Context.java

```
package ooad_assign7;

public class Context {

    private State state;
    private char[] input;
    public int input_pos = 0;
    public static int final_state;

    public Context(String input){
        this.input=input.toCharArray();
        state = new State1();
        System.out.println("Creating Context..");
    }

    public void setState(State s,int final_state){
        this.final_state=final_state;
        state=s;
    }

    public int getFinalState(){
        return final_state;
    }

    public void setPos(){
        ++input_pos;
    }

    public void Handle(){
        if(input_pos < input.length){
            if(input[input_pos]=='a')
                state.Handler_a(this);
            else if(input[input_pos]=='b')
                state.Handler_b(this);
            else if(input[input_pos]=='c')
                state.Handler_c(this);
            else
                final_state=0;
        }
    }
}
```

```
    }  
}  
  
}
```

// 3. State.java

```
package ooad_assign7;  
  
public interface State {  
  
    public void Handler_a(Context c);  
    public void Handler_b(Context c);  
    public void Handler_c(Context c);  
  
}
```

//4. State1.java

```
package ooad_assign7;  
  
public class State1 implements State{  
  
    @Override  
    public void Handler_a(Context c) {  
        // TODO Auto-generated method stub  
        System.out.println("Transition of A from State 1 to State 2");  
        c.setPos();  
        c.setState(new State2(),2);  
        c.Handle();  
  
    }  
  
    @Override  
    public void Handler_b(Context c) {  
        // TODO Auto-generated method stub  
        System.out.println("Transition of B from State 1 to State 1");  
        c.setPos();  
        c.setState(new State1(),1);  
        c.Handle();  
  
    }  
  
    @Override  
    public void Handler_c(Context c) {  
        // TODO Auto-generated method stub  
        System.out.println("Transition of C from State 1 to State 1");  
        c.setPos();  
        c.setState(new State1(),1);  
        c.Handle();  
    }  
  
}
```

// 5. State2.java

```
package ooad_assign7;

public class State2 implements State {

    @Override
    public void Handler_a(Context c) {
        // TODO Auto-generated method stub
        System.out.println("Transition of A from State 2 to State 2");
        c.setPos();
        c.setState(new State2(),2);
        c.Handle();
    }

    @Override
    public void Handler_b(Context c) {
        // TODO Auto-generated method stub
        System.out.println("Transition of B from State 2 to State 3");
        c.setPos();
        c.setState(new State3(),3);
        c.Handle();
    }

    @Override
    public void Handler_c(Context c) {
        // TODO Auto-generated method stub
        System.out.println("Transition of C from State 2 to State 1");
        c.setPos();
        c.setState(new State1(),1);
        c.Handle();
    }

}
```

// 6. State3.java

```
package ooad_assign7;

public class State3 implements State {

    @Override
    public void Handler_a(Context c) {
        // TODO Auto-generated method stub
        System.out.println("Transition of A from State 3 to State 2");
        c.setPos();
        c.setState(new State2(),2);
        c.Handle();
    }

    @Override
```

```
public void Handler_b(Context c) {
    // TODO Auto-generated method stub
    System.out.println("Transition of B from State 3 to State 1");
    c.setPos();
    c.setState(new State1(),1);
    c.Handle();
}

@Override
public void Handler_c(Context c) {
    // TODO Auto-generated method stub
    System.out.println("Transition of C from State 3 to State 4");
    c.setPos();
    c.setState(new State4(),4);
    c.Handle();
}
}
```

// 7. State4.java

```
package ooad_assign7;

public class State4 implements State{

    @Override
    public void Handler_a(Context c) {
        // TODO Auto-generated method stub
        System.out.println("Transition of A from State 4 to State 5");
        c.setPos();
        c.setState(new State5(),5);
        c.Handle();
    }

    @Override
    public void Handler_b(Context c) {
        // TODO Auto-generated method stub
        System.out.println("Transition of B from State 4 to State 4");
        c.setPos();
        c.setState(new State4(),4);
        c.Handle();
    }

    @Override
    public void Handler_c(Context c) {
        // TODO Auto-generated method stub
        System.out.println("Transition of C from State 4 to State 4");
        c.setPos();
        c.setState(new State4(),4);
        c.Handle();
    }
}
```



```
}
```

// 8. State5.java

```
package ooad_assign7;

public class State5 implements State{

    @Override
    public void Handler_a(Context c) {
        // TODO Auto-generated method stub
        System.out.println("Transition of A from State 5 to State 5");
        c.setPos();
        c.setState(new State5(),5);
        c.Handle();
    }

    @Override
    public void Handler_b(Context c) {
        // TODO Auto-generated method stub
        System.out.println("Transition of B from State 5 to State 6");
        c.setPos();
        c.setState(new State6(),6);
        c.Handle();
    }

    @Override
    public void Handler_c(Context c) {
        // TODO Auto-generated method stub
        System.out.println("Transition of C from State 5 to State 4");
        c.setPos();
        c.setState(new State4(),4);
        c.Handle();
    }
}
```

// 9. State 6.java

```
package ooad_assign7;

public class State6 implements State{

    @Override
    public void Handler_a(Context c) {
        // TODO Auto-generated method stub
        System.out.println("Transition of A from State 6 to State 5");
        c.setPos();
        c.setState(new State5(),5);
        c.Handle();
    }
}
```

```
@Override
public void Handler_b(Context c) {
    // TODO Auto-generated method stub
    System.out.println("Transition of B from State 6 to State 4");
    c.setPos();
    c.setState(new State4(),4);
    c.Handle();
}

@Override
public void Handler_c(Context c) {
    // TODO Auto-generated method stub
    System.out.println("Transition of C from State 6 to State 1");
    c.setPos();
    c.setState(new State1(),1);
    c.Handle();
}

}
```