

Design Patterns - State Pattern

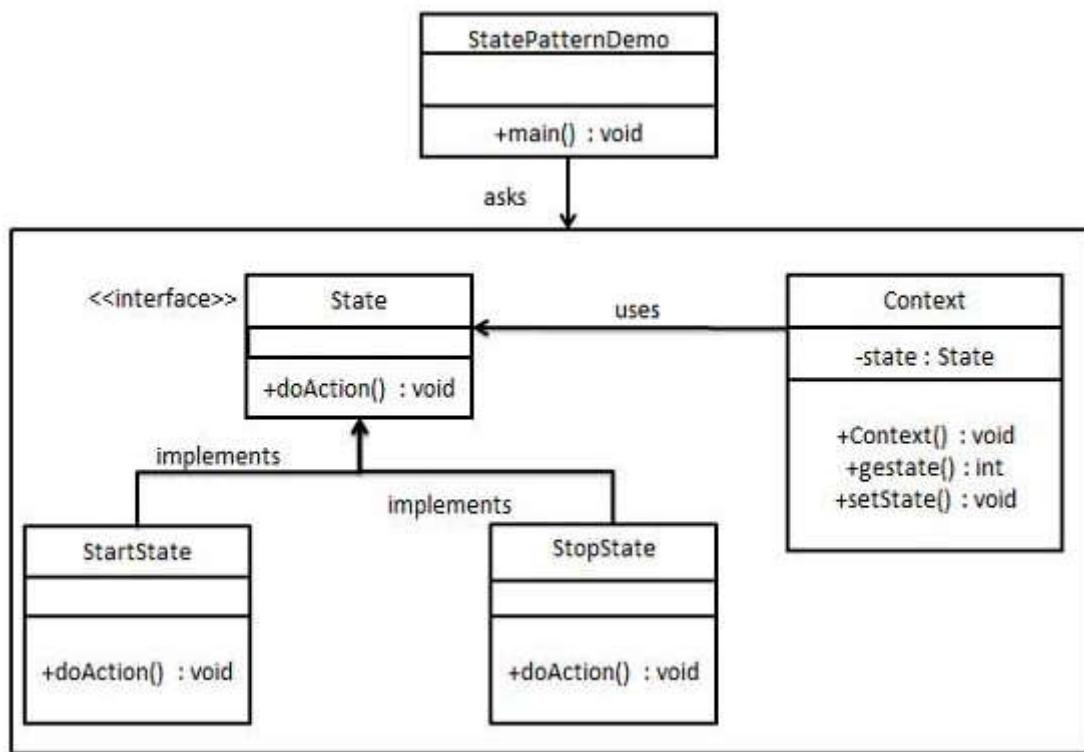
In State pattern a class behavior changes based on its state. This type of design pattern comes under behavior pattern.

In State pattern, we create objects which represent various states and a context object whose behavior varies as its state object changes.

Implementation

We are going to create a *State* interface defining an action and concrete state classes implementing the *State* interface. *Context* is a class which carries a *State*.

StatePatternDemo, our demo class, will use *Context* and state objects to demonstrate change in *Context* behavior based on type of state it is in.



Step 1

Create an interface.

State.java

```

public interface State {
    public void doAction(Context context);
}
  
```

Step 2

Create concrete classes implementing the same interface.

StartState.java

```
public class StartState implements State {

    public void doAction(Context context) {
        System.out.println("Player is in start state");
        context.setState(this);
    }

    public String toString() {
        return "Start State";
    }
}
```

StopState.java

```
public class StopState implements State {

    public void doAction(Context context) {
        System.out.println("Player is in stop state");
        context.setState(this);
    }

    public String toString() {
        return "Stop State";
    }
}
```

Step 3

Create *Context* Class.

Context.java

```
public class Context {
    private State state;

    public Context() {
        state = null;
    }

    public void setState(State state) {
        this.state = state;
    }

    public State getState() {
        return state;
    }
}
```

```
    }  
}
```

Step 4

Use the *Context* to see change in behaviour when *State* changes.

StatePatternDemo.java

```
public class StatePatternDemo {  
    public static void main(String[] args) {  
        Context context = new Context();  
  
        StartState startState = new StartState();  
        startState.doAction(context);  
  
        System.out.println(context.getState().toString());  
  
        StopState stopState = new StopState();  
        stopState.doAction(context);  
  
        System.out.println(context.getState().toString());  
    }  
}
```

Step 5

Verify the output.

```
Player is in start state  
Start State  
Player is in stop state  
Stop State
```