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# State Design Pattern

📅 Last Updated: August 23, 2021    💡 Behavioral Patterns

ern. According to GoF definition, a state **allows an object to alter its behavior** will appear to change its class.

re shall be a **separate concrete class per possible state of an object**. Each t or reject a state transition request based on it's present state and context is.

in object which can be in different states during it's life-cycle and how it transitions) based on it's present state – we can use the state pattern.

e, we will end up having lots of **if-else** statements which make the code base maintain. State pattern allows the objects to behave differently based on the current iors within different classes.

ere an object should change its behavior when its internal state changes. Also, adding new states should not affect the behavior of existing states.



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## State Design Pattern

Consider a **TV box** operated with remote controller. We can change the state of TV by pressing a button. Whether the state of TV will change or not, it depends on the current state of the TV. If TV is ON, pressing the power button will change its state to OFF. But if TV is OFF, nothing will happen when we press the power button.

The next state can be switch ON.

This is a state machine implementation in complex applications.

**Thread states.** A thread can be one of its five states during its life cycle. Its next state depends on its current state. e.g. we can not start a stopped thread or we cannot make a running thread to be stopped.

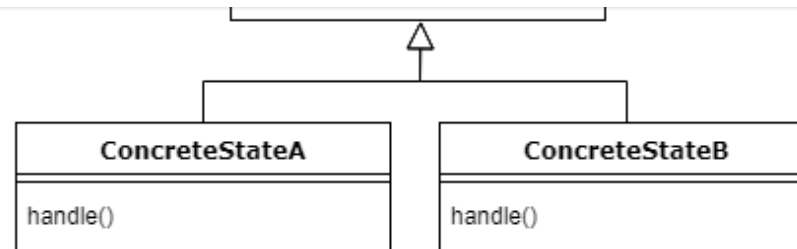
## Implementation

To implement the State Design Pattern, we need to define an interface (state) for each state-specific behavior. That is, define an interface (state) for each state and create classes that implement the interface for each state.

The state transitions will be defined. The choices are two: the “context” object, or



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s which each state must handle.

contain the state specific behavior.

t to interact. It maintains references to concrete state object which may be used  
delegates state-specific behavior to different State objects.

every system where packages can be in different states during transitions.

```
ext ctx);
```



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```
= new Acknowledged();
```

```
) {
```

```
n
```

```
ext ctx)
```

```
cknowledged !!");
```

```
ance());
```

```
tate
```

```
n Shipped();
```

```
public static Shipped instance() {  
    return instance;
```



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```
ext ctx)

hipped !!");
.instance());

kageState

= new InTransition();

) {

n

ext ctx)

n transition !!");
ry.instance());
```



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manageState

```
ce = new OutForDelivery();
```

```
e() {
```

```
n
```

```
ext ctx)
```

```
ut of delivery !!");
stance());
```

eState

```
ew Delivered();
```

```
public static Deliveredinstance() {
    return instance;
```



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```
ext ctx)
```

```
elivered!!");
```

```
currentState, String packageId)
```

```
;
```

```
dged.instance();
```

```
) {
```

```
return currentState;
```

```
}
```



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```
ageId) {
```

```
s)
```

```
ryContext(null, "Test123");
```

```
ctx.update();  
ctx.update();
```





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ern

at the intents are different. The [strategy pattern](#) provides a better alternative to  
is encapsulated in separate classes.

legation over inheritance.

tons?

ons.

----- strategy pattern?



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ng the use of **if-else** statements or **switch/case** conditional logic.

## pattern?

r states. So, we can assume that more states need more codes, and the  
or us.

only way we can improve.



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space is missing between Delivered and instance on both the methods and

round the technology, If somehow I become successful in the near future...

e where you are struggling.

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on matrix? Is there any article on that as well?



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