CODE  SPITZ

83

OBJECT

1 2 3 4 5 6

합성과 의존성

Template method

```
abstract class DiscountPolicy {
    private Set<DiscountCondition> conditions = new HashSet<>();
    public void addCondition(DiscountCondition condition){conditions.add(condition);}
    public Money calculateFee(Screening screening, int count, Money fee){
        for(DiscountCondition condition:conditions){
            if(condition.isSatisfiedBy(screening, count)) return calculateFee(fee);
        }
        return fee;
    }
    protected abstract Money calculateFee(Money fee);
}
```

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        return fee;
    }
    protected abstract Money calculateFee(Money fee);
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```

Template method

```
public class AmountPolicy extends DiscountPolicy {
    private final Money amount;
    public AmountPolicy(Money amount){
        this.amount = amount;
    }
    @Override
    public Money calculateFee(Money fee) {
        return fee.minus(amount);
    }
}
```

Strategy

```
public class DiscountPolicy {
    private final Set<DiscountCondition> conditions = new HashSet<>();
    private final Calculator calculator;
    public DiscountPolicy(Calculator calculator){this.calculator = calculator;}
    public void addCondition(DiscountCondition condition){conditions.add(condition);}
    public Money calculateFee(Screening screening, int count, Money fee){
        for(DiscountCondition condition:conditions){
            if(condition.isSatisfiedBy(screening, count)) return calculator.calculateFee(fee);
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        return fee;
    }
}
```

Strategy

```
public class AmountCalculator implements Calculator {
    private final Money amount;
    public AmountCalculator(Money amount){
        this.amount = amount;
    }
    @Override
    public Money calculateFee(Money fee) {
        return fee.minus(amount);
    }
}
```

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```

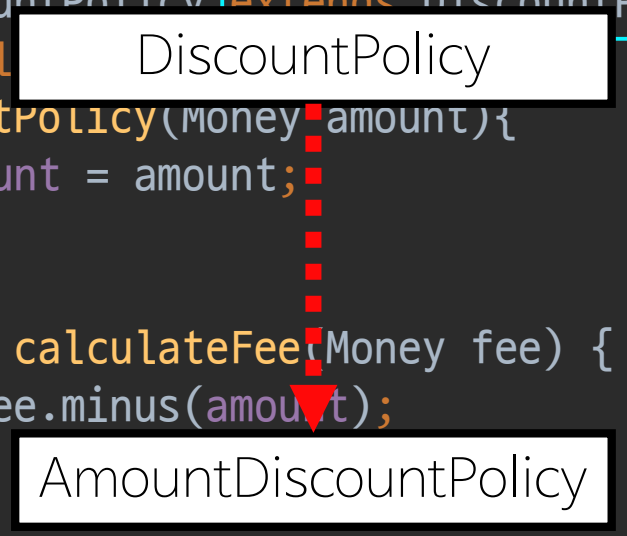

Strategy

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public class AmountCalculator implements Calculator{
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        this.amount = amount;
    }
    @Override
    public Money calculateFee(Money fee) {
        return fee.minus(amount);
    }
}
```

DiscountPolicy

Calculator

AmountCalculator

```
public class AmountPolicy extends DiscountPolicy{
    private final
    public AmountPolicy(Money amount){
        this.amount = amount;
    }
    @Override
    public Money calculateFee(Money fee) {
        return fee.minus(amount);
    }
}
```

DiscountPolicy

AmountDiscountPolicy

Template Method & Strategy

Template Method & Strategy

템플릿 : 런타임에 타입선택(세트)
추상메소드로 의존성 역전

Template Method & Strategy

템플릿 : 런타임에 타입선택(세트)
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전략 : 런타임에 합성(조립)
추가 인터페이스로 의존성 분산

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Template Method & Strategy

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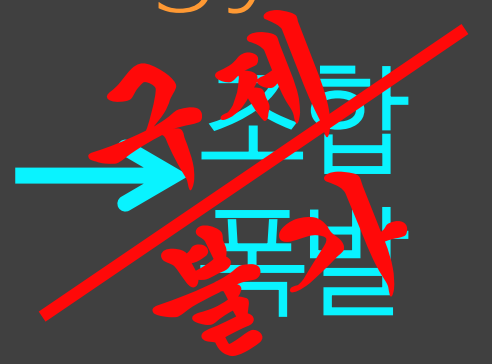

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추가 인터페이스로 의존성 분산

→ 의존성 폭발

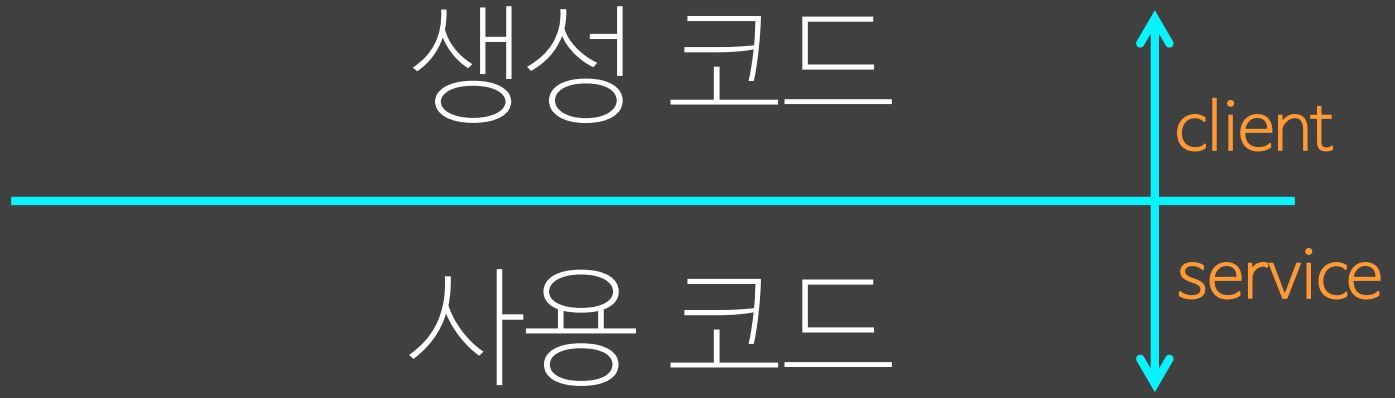
생성사용패턴과 팩토리

생성사용패턴

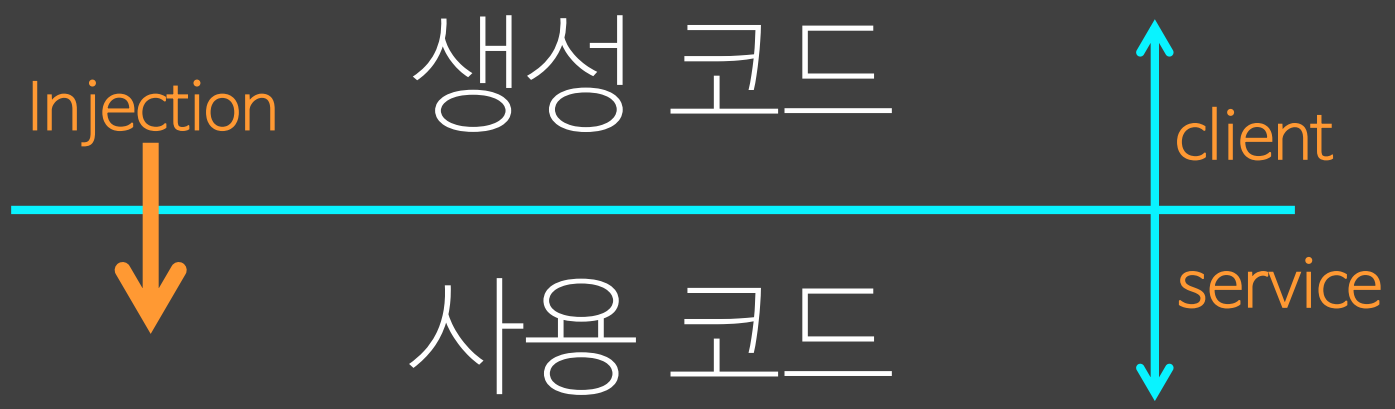
생성 코드

사용 코드

생성사용패턴



생성사용패턴



Injection

Injection

```
public class DiscountPolicy {
    private final Set<DiscountCondition> conditions = new HashSet<>();
    private final Calculator calculator;
    public DiscountPolicy(Calculator calculator){this.calculator = calculator;}
    public void addCondition(DiscountCondition condition){conditions.add(condition);}
    public Money calculateFee(Screening screening, int count, Money fee){
        for(DiscountCondition condition:conditions){
            if(condition.isSatisfiedBy(screening, count)) return calculator.calculateFee(fee);
        }
        return fee;
    }
}
```

Injection

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public class DiscountPolicy {
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        }
        return fee;
    }
}
```

pushed

Factory

```
public interface CalculatorFactory {
    Calculator getCalculator();
}
```

Factory

```
public interface CalculatorFactory {
    Calculator getCalculator();
}

public class AmountCalculatorFactory implements CalculatorFactory {
    private final Money money;
    private AmountCalculator cache;
    public AmountCalculatorFactory(Money money){this.money = money;}
    @Override
    synchronized public Calculator getCalculator(){
        if(cache == null) cache = new AmountCalculator(money);
        return cache;
    }
}
```

Lazy Pull

```
public class DiscountPolicy {
    private final Set<DiscountCondition> conditions = new HashSet<>();
    private final CalculatorFactory supplier;
    public DiscountPolicy(CalculatorFactory supplier){this.supplier = supplier;}
    public void addCondition(DiscountCondition condition){conditions.add(condition);}
    public Money calculateFee(Screening screening, int count, Money fee){
        for(DiscountCondition condition:conditions){
            if(condition.isSatisfiedBy(screening, count)){
                return supplier.getCalculator().calculateFee(fee);
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        }
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Factory pushed

Lazy Pull

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Factory pushed

Lazy pulled

Lazy Pull

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            if(condition.isSatisfiedBy(screening, count)){
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        }
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    }
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Factory pushed

디미터법칙 위반

Lazy pulled

Lazy Pull

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public class DiscountPolicy {
    private final Set<DiscountCondition> conditions = new HashSet<>();
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    public Money calculateFee(Screening screening, int count, Money fee){
        for(DiscountCondition condition:conditions){
            if(condition.isSatisfiedBy(screening, count)){
                return supplier.getCalculator().calculateFee(fee);
            }
        }
        return fee;
    }
}
```

Factory pushed

Lazy pulled

디미터법칙 위반

1. factory와 calculator를 알게
2. factory만 알게

Lazy Pull

```
public class DiscountPolicy {
    private final Set<DiscountCondition> conditions = new HashSet<>();
    private final CalculatorFactory supplier;
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                                (Screening screening, int count, Money fee){
        for(DiscountCondition condition:conditions){
            if(condition.isSatisfiedBy(screening, count)){
                                ier.getCalcu                    ;
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```

Factory pushed

Lazy pulled

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1. factory와 calculator를 알게

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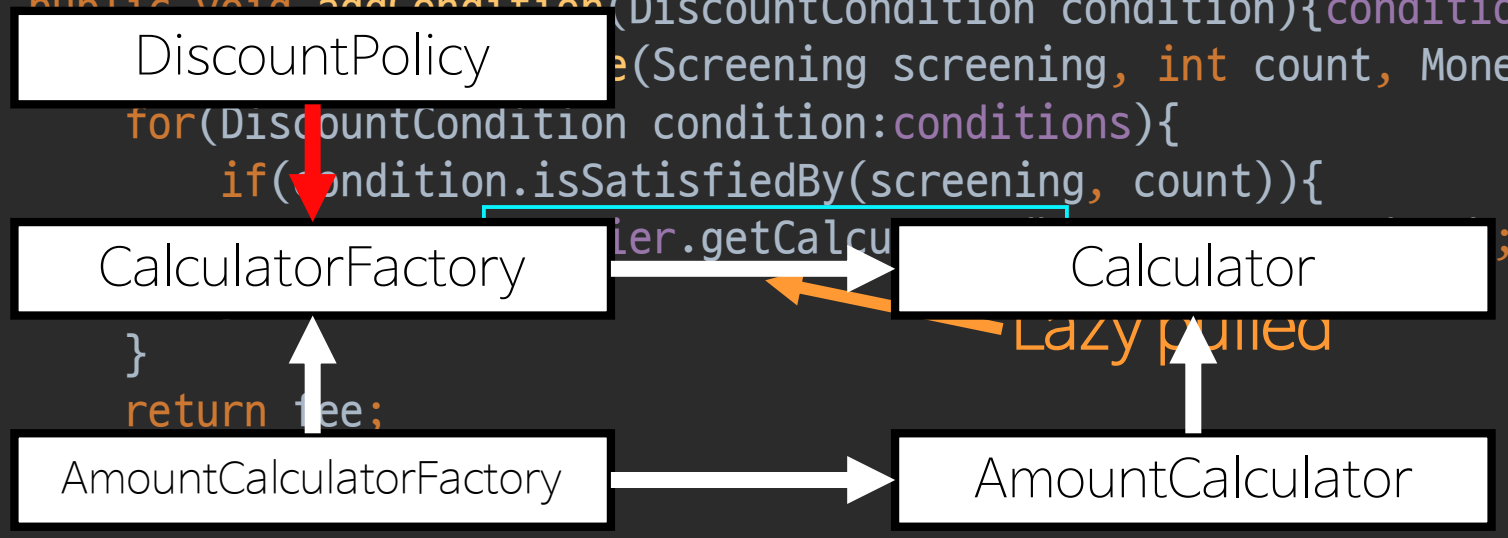
    public Money calculate(Screening screening, int count, Money fee){
        for(DiscountCondition condition:conditions){
            if(condition.isSatisfiedBy(screening, count)){
                fee = supplier.getCalculator(screening).calculate(screening, count, fee);
                break;
            }
        }
        return fee;
    }
}
```

Factory pushed



디미터법칙 위반

1. factory와 calculator를 알게

2. factory만 알게

위임된 팩토리

```
public interface CalculatorFactory {
    Money calculateFee(Money fee);
}
```

위임된 팩토리

```
public interface CalculatorFactory {
    Money calculateFee(Money fee);
}

public class AmountCalculatorFactory implements CalculatorFactory {
    private final Money money;
    private AmountCalculator cache;
    public AmountCalculatorFactory(Money money){this.money = money;}
    synchronized private Calculator getCalculator(){
        if(cache == null) cache = new AmountCalculator(money);
        return cache;
    }
    @Override
    public Money calculateFee(Money fee){return getCalculator().calculateFee(fee);}
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위임된 팩토리

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public class DiscountPolicy {
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        }
        return fee;
    }
}
```

Calculator?

위임된 팩토리

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public interface CalculatorFactory {
    Money calculateFee(Money fee);
}

public class AmountCalculatorFactory implements CalculatorFactory {
    private final Money money;
    private AmountCalculator cache;
    public AmountCalculatorFactory(Money money){this.money = money;}
    synchronized private Calculator getCalculator(){
        if(cache == null) cache = new AmountCalculator(money);
        return cache;
    }
    @Override
    public Money calculateFee(Money fee){return getCalculator().calculateFee(fee);}
}
```

위임된 팩토리

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public class DiscountPolicy {
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                break;
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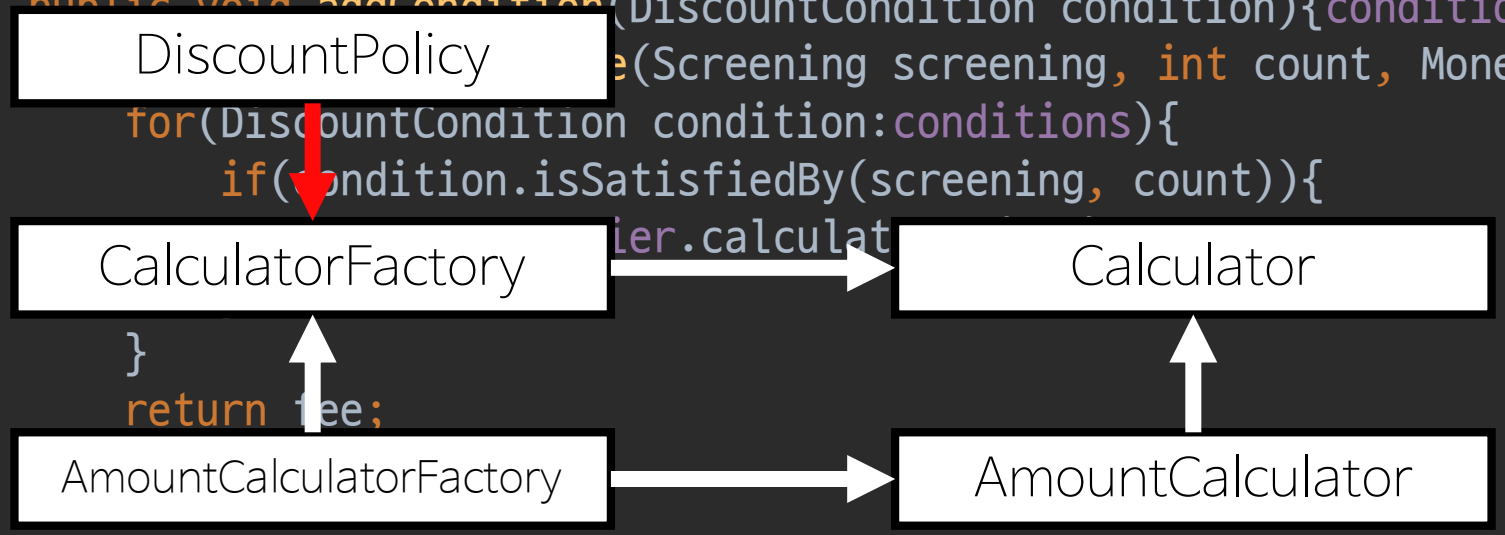

위임된 팩토리

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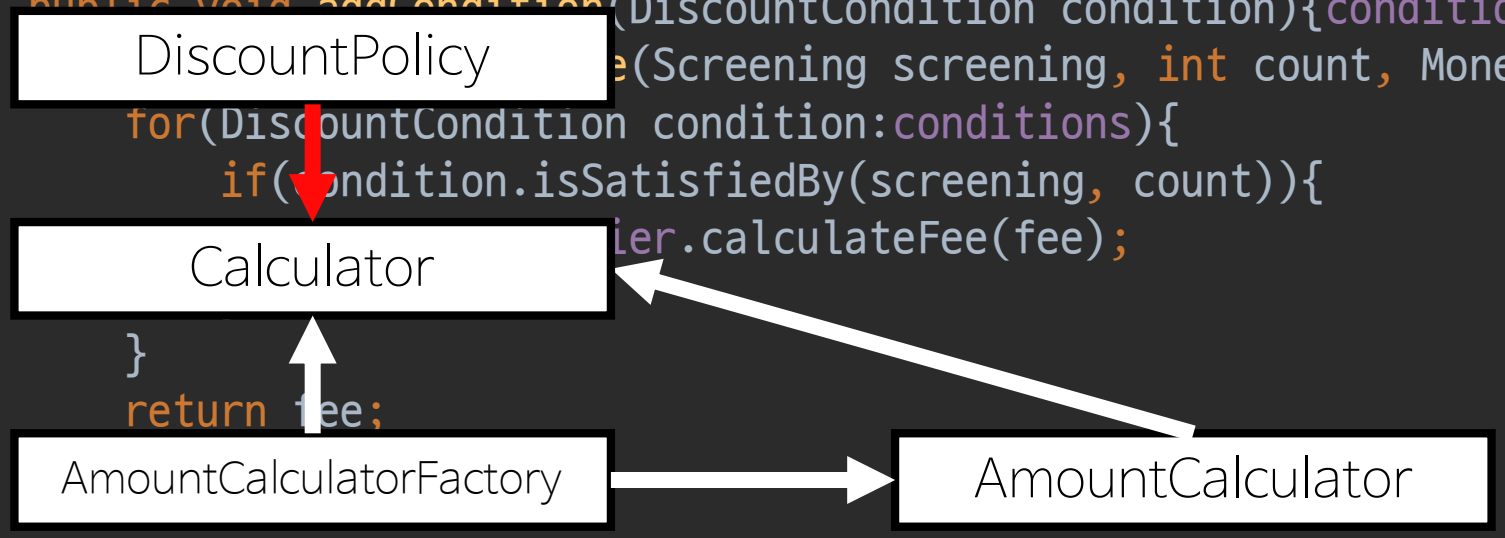

추상 팩토리 메소드 패턴

DiscountCondition 위임

```
public class DiscountPolicy {
    private final Set<DiscountCondition> conditions = new HashSet<>();
    private final Calculator factory;
    public DiscountPolicy(Calculator factory){this.factory = factory;}
    public void addCondition(DiscountCondition condition){conditions.add(condition);}
    public Money calculateFee(Screening screening, int count, Money fee){
        for(DiscountCondition condition:conditions){
            if(condition.isSatisfiedBy(screening, count)){
                return factory.calculateFee(fee);
            }
        }
        return fee;
    }
}
```

DiscountCondition 위임

```
public class DiscountPolicy {
    private final PolicyFactory factory;
    public DiscountPolicy(PolicyFactory factory){this.factory = factory;}
    public Money calculateFee(Screening screening, int count, Money fee){
        for(DiscountCondition condition:factory.getConditions()){
            if(condition.isSatisfiedBy(screening, count)) return factory.calculateFee(fee);
        }
        return fee;
    }
}
```

DiscountCondition 위임

```
public class DiscountPolicy {
    private final PolicyFactory factory;
    public DiscountPolicy(PolicyFactory factory){this.factory = factory;}
    public Money calculateFee(Screening screening, int count, Money fee){
        for(DiscountCondition condition:factory.getConditions()){
            if(condition.isSatisfiedBy(screening, count)) return factory.calculateFee(fee);
        }
        return fee;
    }
}
```

DiscountCondition 위임

```
public interface PolicyFactory extends Calculator{
    Set<DiscountCondition> getConditions();
}

public class AmountCalculatorFactory implements PolicyFactory{
    private final Money money;
    private AmountCalculator cache;
    private final Set<DiscountCondition> conditions = new HashSet<>();
    public AmountCalculatorFactory(Money money){this.money = money;}
    synchronized private Calculator getCalculator(){
        if(cache == null) cache = new AmountCalculator(money);
        return cache;
    }
    public void addCondition(DiscountCondition condition){conditions.add(condition);}
    public void removeCondition(DiscountCondition condition){conditions.remove(condition);}
    @Override public Money calculateFee(Money fee){return getCalculator().calculateFee(fee);}
    @Override public Set<DiscountCondition> getConditions(){return conditions;}
}
```

DiscountCondition 위임

```
public class DiscountPolicy {
    private final PolicyFactory factory;
    public DiscountPolicy(PolicyFactory factory){this.factory = factory;}
    public Money calculateFee(Screening screening, int count, Money fee){
        for(DiscountCondition condition:factory.getConditions()){
            if(condition.isSatisfiedBy(screening, count)) return factory.calculateFee(fee);
        }
        return fee;
    }
}
```

DiscountCondition 위임

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public class DiscountPolicy {
    private final PolicyFactory factory;
    public DiscountPolicy(PolicyFactory factory){this.factory = factory;}
    public Money calculateFee(Screening screening, int count, Money fee){
        for(DiscountCondition condition:factory.getConditions()){
            if(condition.isSatisfiedBy(screening, count)) return factory.calculateFee(fee);
        }
        return fee;
    }
}
```

디미터법칙 위반

DiscountCondition 위임

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public class DiscountPolicy {
    private final PolicyFactory factory;
    public DiscountPolicy(PolicyFactory factory){this.factory = factory;}
    public Money calculateFee(Screening screening, int count, Money fee){
        for(DiscountCondition condition:factory.getConditions()){
            if(condition.isSatisfiedBy(screening, count)) return factory.calculateFee(fee);
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        return fee;
    }
}
```

디미터법칙 위반

디미터법칙 위반

factory만 알게

DiscountCondition 위임

```
public class DiscountPolicy {
    private final PolicyFactory factory;
    public DiscountPolicy(PolicyFactory factory){this.factory = factory;}
    public Money calculateFee(Screening screening, int count, Money fee){
        for(DiscountCondition condition:factory.getConditions()){
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        return fee;
    }
}
```

디미터법칙 위반

디미터법칙 위반

factory만 알게

여러 객체에 대한 의존성 전체를 위임

DiscountCondition 위임

```
public class DiscountPolicy {
    private final PolicyFactory factory;
    public DiscountPolicy(PolicyFactory factory){this.factory = factory;}
    public Money calculateFee(Screening screening, int count, Money fee){
        for(DiscountCondition condition:factory.getConditions()){
            if(condition.isSatisfiedBy(screening, count)) return factory.calculateFee(fee);
        }
        return fee;
    }
}
```

DiscountCondition 위임

```
public interface PolicyFactory extends Calculator{
    default Money calculateFee(Screening screening, int count, Money fee) {
        for(DiscountCondition condition:getConditions()){
            if(condition.isSatisfiedBy(screening, count)) return calculateFee(fee);
        }
        return fee;
    }
    Set<DiscountCondition> getConditions();
}
```

DiscountCondition 위임

```
public interface PolicyFactory extends Calculator{
    default Money calculateFee(Screening screening, int count, Money fee) {
        for(DiscountCondition condition:getConditions()){
            if(condition.isSatisfiedBy(screening, count)) return calculateFee(fee);
        }
        return fee;
    }
    Set<DiscountCondition> getConditions();
}
```

```
public class DiscountPolicy {
    private final PolicyFactory factory;
    public DiscountPolicy(PolicyFactory factory){this.factory = factory;}
    public Money calculateFee(Screening screening, int count, Money fee){
        return factory.calculateFee(screening, count, fee);
    }
}
```