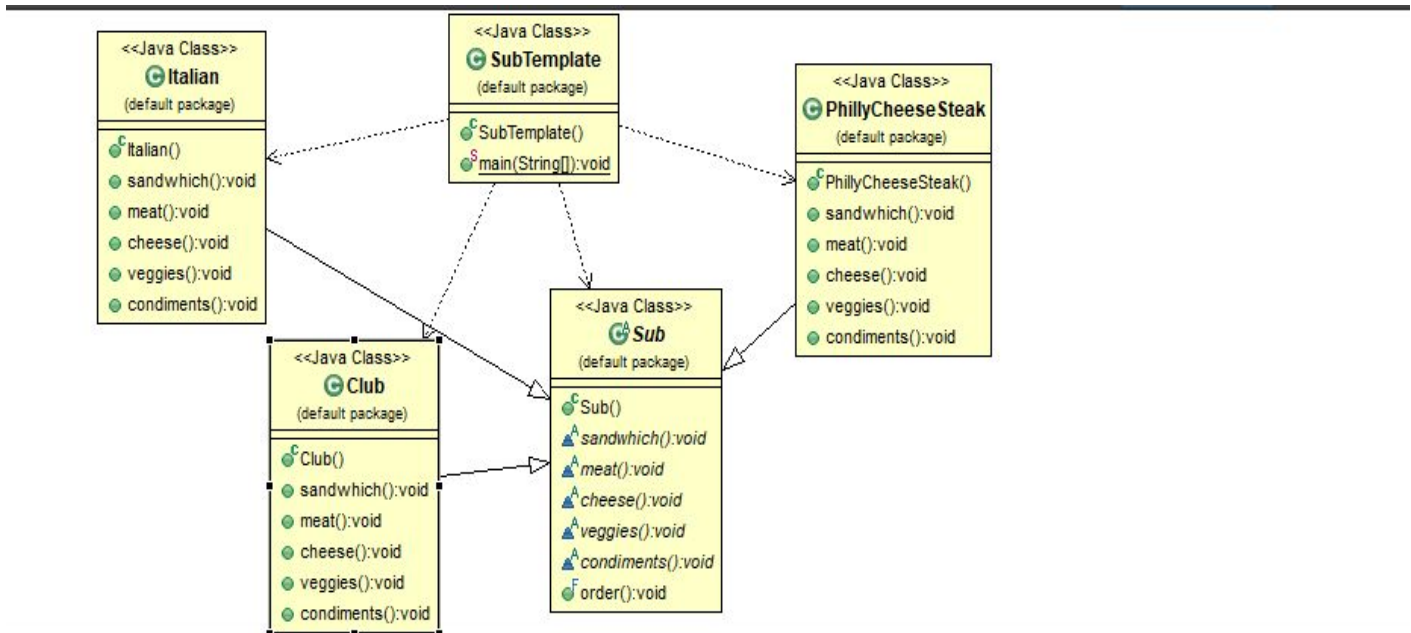


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## UML Diagram:



## Sub Template Pattern Abstract and 3 extensions:

```
public abstract class Sub {  
    abstract void sandwich();  
    abstract void meat();  
    abstract void cheese();  
    abstract void veggies();  
    abstract void condiments();
```

```
    public final void order() {
```

```
        sandwich();
```

```
        meat();
```

```
        cheese();
```

```
        veggies();
```

```
        condiments();
```

```
    }
```

```
}
```

---

```
public class Italian extends Sub {
```

```
    public void sandwich() {  
        System.out.println("Sub: Italian");  
    }
```

```
    public void meat() {  
        System.out.println("Meat(s): Ham, Pepperoni, Salami");  
    }
```

```
    public void cheese() {  
        System.out.println("Cheese: Provolone");  
    }
```

```
public void veggies() {  
    System.out.println("Veggies: Lettuce, Tomatoes, Onion");  
}  
  
public void condiments() {  
    System.out.println("Condiment: Mayo, Deli Mustard, Italian dressing");  
}  
}
```

---

```
public class Club extends Sub {  
  
    public void sandwich() {  
        System.out.println("Sub: Club");  
    }  
  
    public void meat() {  
        System.out.println("Meat(s): Ham, Roast, Bacon");  
    }  
  
    public void cheese() {  
        System.out.println("Cheese: Monterey Jack");  
    }  
  
    public void veggies() {  
        System.out.println("Veggies: Lettuce, Tomatoes, Onion");  
    }  
  
    public void condiments() {  
        System.out.println("Condiments: Mayo, Deli Mustard, Ranch");  
    }  
}
```

---

```
public class PhillyCheeseSteak extends Sub{  
  
    public void sandwich() {  
        System.out.println("Sub: Philly Cheese Steak");  
    }  
  
    public void meat() {  
        System.out.println("Meat(s): Steak");  
    }  
}
```

```
public void cheese() {  
    System.out.println("Cheese: Pepper Jack");  
}  
  
public void veggies() {  
    System.out.println("Veggies: Bell Pepper, Onion");  
}  
  
public void condiments() {  
    System.out.println("Condiments: Mayo, Chipotle");  
}  
}
```

---

### **Test And Compile SubTemplate Class :**

```
public class SubTemplate {  
    public static void main(String[] args) {  
        Sub italian = new Italian();  
        italian.order();  
  
        System.out.println("-----");  
  
        Sub club = new Club();  
        club.order();  
  
        System.out.println("-----");  
  
        Sub phillyCheeseSteak = new PhillyCheeseSteak();  
        phillyCheeseSteak.order();  
    }  
}
```

---

## Working Code #1:

The screenshot shows the Eclipse IDE interface. The Package Explorer on the left displays a project structure with a package named 'Object-Oriented Design' containing several Java files, including 'SubTemplate.java'. The main editor window shows the source code of 'SubTemplate.java', which is a public class with a static main method. The code creates instances of 'Italian', 'Club', and 'PhillyCheeseSteak' classes and calls their 'order()' methods. The Console window at the bottom shows the output of the program, displaying the details for each sub ordered: Italian (Ham, Pepperoni, Salami; Provolone; Lettuce, Tomatoes, Onion; Mayo, Deli Mustard, Italian dressing), Club (Ham, Roast, Bacon; Monterey Jack; Lettuce, Tomatoes, Onion; Mayo, Deli Mustard, Ranch), and PhillyCheeseSteak (Ham, Roast, Bacon; Monterey Jack; Lettuce, Tomatoes, Onion; Mayo, Deli Mustard, Ranch).

```
1 public class SubTemplate {
2
3
4     public static void main(String[] args) {
5         Sub italian = new Italian();
6         italian.order();
7
8         System.out.println("-----");
9
10        Sub club = new Club();
11        club.order();
12
13        System.out.println("-----");
14
15        Sub phillyCheeseSteak = new PhillyCheeseSteak();
16        phillyCheeseSteak.order();
17    }
18 }
19
20
21
```

<terminated> SubTemplate [Java Application] D:\Java\bin\javaw.exe (Oct 28, 2020, 1:14:48 AM - 1:14:55 AM)

Sub: Italian  
Meat(s): Ham, Pepperoni, Salami  
Cheese: Provolone  
Veggies: Lettuce, Tomatoes, Onion  
Condiment: Mayo, Deli Mustard, Italian dressing  
-----  
Sub: Club  
Meat(s): Ham, Roast, Bacon  
Cheese: Monterey Jack  
Veggies: Lettuce, Tomatoes, Onion  
Condiments: Mayo, Deli Mustard, Ranch

## Working Code #2

