

Template-Method-Pattern

Carsten Gips (HSBI)

Unless otherwise noted, this work is licensed under CC BY-SA 4.0.

Motivation: Syntax-Highlighting im Tokenizer

```
public class Lexer {  
    private final List<Token> allToken; // alle verfügbaren Token-Klassen  
  
    public List<Token> tokenize(String string) {  
        List<Token> result = new ArrayList<>();  
  
        while (string.length() > 0) {  
            for (Token t : allToken) {  
                Token token = t.match(string);  
                if (token != null) {  
                    result.add(token);  
                    string = string.substring(token.getContent().length(), string.length());  
                }  
            }  
        }  
  
        return result;  
    }  
}
```

Token-Klassen mit formatiertem Inhalt

```
public abstract class Token {
    protected String content;

    abstract protected String getHtml();
}

public class KeyWord extends Token {
    @Override
    protected String getHtml() {
        return "<font color=\"red\"><b>" + this.content + "</b></font>";
    }
}

public class StringContent extends Token {
    @Override
    protected String getHtml() {
        return "<font color=\"green\">" + this.content + "</font>";
    }
}

Token t = new KeyWord();
LOG.info(t.getHtml());
```

Don't call us, we'll call you

```
public abstract class Token {
    protected String content;

    public final String getHtml() {
        return htmlStart() + this.content + htmlEnd();
    }

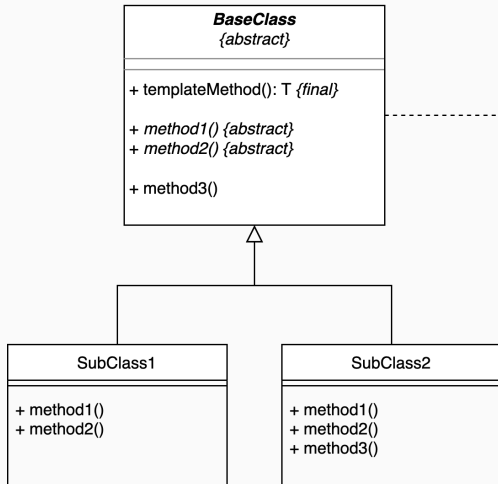
    abstract protected String htmlStart();
    abstract protected String htmlEnd();
}

public class KeyWord extends Token {
    @Override protected String htmlStart() { return "<font color=\"red\"><b>"; }
    @Override protected String htmlEnd() { return "</b></font>"; }
}

public class StringContent extends Token {
    @Override protected String htmlStart() { return "<font color=\"green\">"; }
    @Override protected String htmlEnd() { return "</font>"; }
}

Token t = new KeyWord();
LOG.info(t.getHtml());
```

Template-Method-Pattern



```
final T templateMethod() {
    ...
    method1();
    ...
    method2();
    ...
    method3();
    ...
    return ...;
}

abstract X method1();
abstract Y method2();

Z method3() {
    ...
    return ...;
}
```

Template-Method-Pattern: Verhaltensänderung durch Vererbungsbeziehungen

- Basis-Klasse:
 - Template-Methode, die Verhalten definiert und Hilfsmethoden aufruft
 - Hilfsmethoden: Abstrakte Methoden (oder “Hook”: Basis-Implementierung)
- Ableitende Klassen: Verfeinern Verhalten durch Implementieren der Hilfsmethoden
- Zur Laufzeit: Dynamische Polymorphie: Aufruf der Template-Methode nutzt die im tatsächlichen Typ des Objekts implementierten Hilfsmethoden

LICENSE



Unless otherwise noted, this work is licensed under CC BY-SA 4.0.