

Static

Methods, Attributes, FastJson

YEGOR BUGAYENKO

Lecture #2 out of 8

90 minutes

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Methods

Attributes

FastJson as Example

Read and Watch

Chapter #1: Methods

What static methods are for?

```
1 class Circle {  
2     public float radius;  
3 }  
4 class GeometryUtils {  
5     static float calcSquare(Circle c) {  
6         return c.radius * c.radius * 3.14;  
7     }  
8 }
```

```
1 class Circle {  
2     public float radius;  
3     float square() {  
4         return radius * radius * 3.14;  
5     }  
6 }
```

Most notable Java examples: FileUtils, IOUtils, and StringUtils from Apache Commons; Files from JDK7; Iterators from Google Guava. Read [this](#).

What's wrong with “Utils”?

- 1) They are unbreakable dependencies
- 2) They are eager, not lazy
- 3) They are not cohesive

Tight Coupling

```
1 void paintIt(Circle c) {  
2     float s = GeometryUtils.calcSquare(c);  
3     float p = s * 5.55;  
4     // paint it using the "p"  
5 }
```

```
1 void paintIt(Circle c) {  
2     float s = c.square();  
3     float p = s * 5.55;  
4     // paint it using the "p"  
5 }
```

Which snippet is easier to test? Try to write a test for the first one, expecting `s` to be equal to `42.0`. Read [this](#).

Imperative, not Declarative

```
1 void paintIt(Circle c) {  
2     float s = GeometryUtils.calcSquare(c);  
3     if (t) { return; }  
4     float p = s * 5.55;  
5     // paint it using the "p"  
6 }
```

```
1 void paintIt(Circle c) {  
2     float s = new SquareOf(c);  
3     if (t) { return; }  
4     float p = s * 5.55;  
5     // paint it using the "p"  
6 }
```

Which snippet is more eager to calculate the square of the circle? Which one does it when it's really necessary? Read [this](#).

Low Cohesion

```
1 class GeometryUtils {  
2     static float calcSquare(Circle c);  
3     static float calcPerimeter(Circle c);  
4     static float calcSinus(Angle a);  
5     static float calcCosinus(float s);  
6     // and many more...  
7 }
```

```
1 class Circle {  
2     float square();  
3     float perimeter();  
4 }  
5 class Angle {  
6     float sinus();  
7 }  
8 class Float {  
9     float cosinus();  
10 }
```

Which class looks more cohesive to you, the utility class `GeometryUtils` or the `Circle`?

Chapter #2:

Attributes

Public literals

```
1 class Constants {  
2     public static float PI = 3.1415926;  
3     public static String UTF_8 = "utf-8";  
4     public static String LOCALE = "fr";  
5     // and many more  
6 }  
7 println("S'il vous plaît",  
8     Constants.LOCALE);  
9 printf("It is %see speech!",  
10     Constants.LOCALE);
```

```
1 class Print { }  
2 class TextInFrench { }  
3  
4 new Print(  
5     new TextInFrench(  
6         "S'il vous plaît"  
7     )  
8 )
```

We must solve the problem of functionality duplication, not just data duplication. Read [this](#).

Singletons

```
1 class Canvas {  
2     public static Canvas INSTANCE =  
3         new Canvas();  
4     private Canvas() {}  
5     public void addCircle(Circle c);  
6 }  
7  
8 Canvas.INSTANCE.addCircle(c1);  
9 Canvas.INSTANCE.addCircle(c2);
```

```
1 c = new Canvas();  
2 c.addCircle(c1);  
3 c.addCircle(c2);
```

Read this.

Chapter #3:

FastJson as Example

Chapter #4:

Read and Watch

Utility Classes Have Nothing to Do With Functional Programming

OOP Alternative to Utility Classes

Composable Decorators

Public Static Literals ... Are Not a Solution for Data Duplication