Basic types

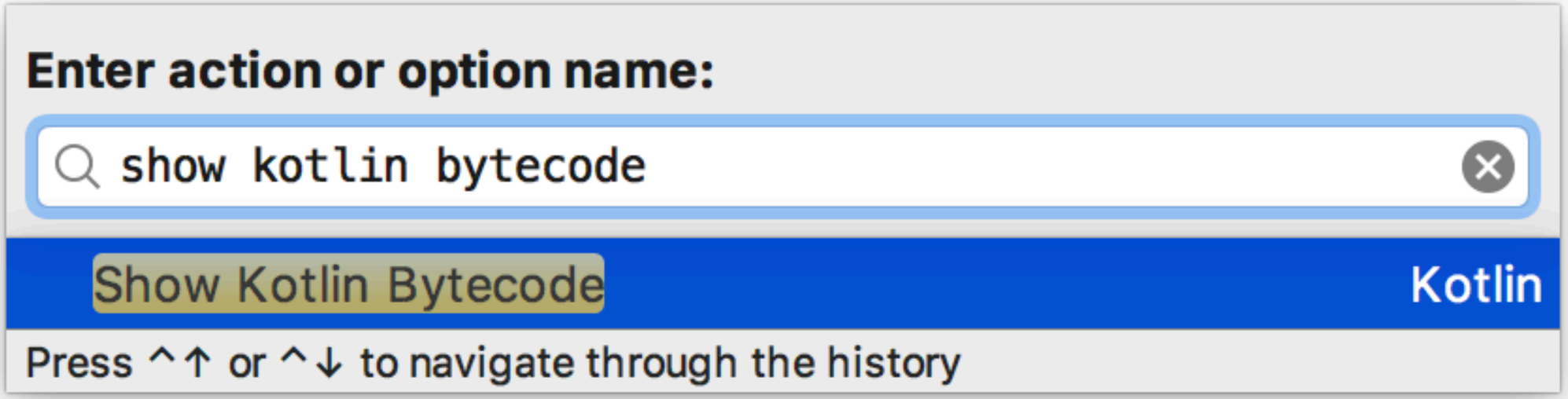
&

Types under the hood

```
fun foo(): Int = 1

fun bar(): Int? = 1
```

Under the hood?



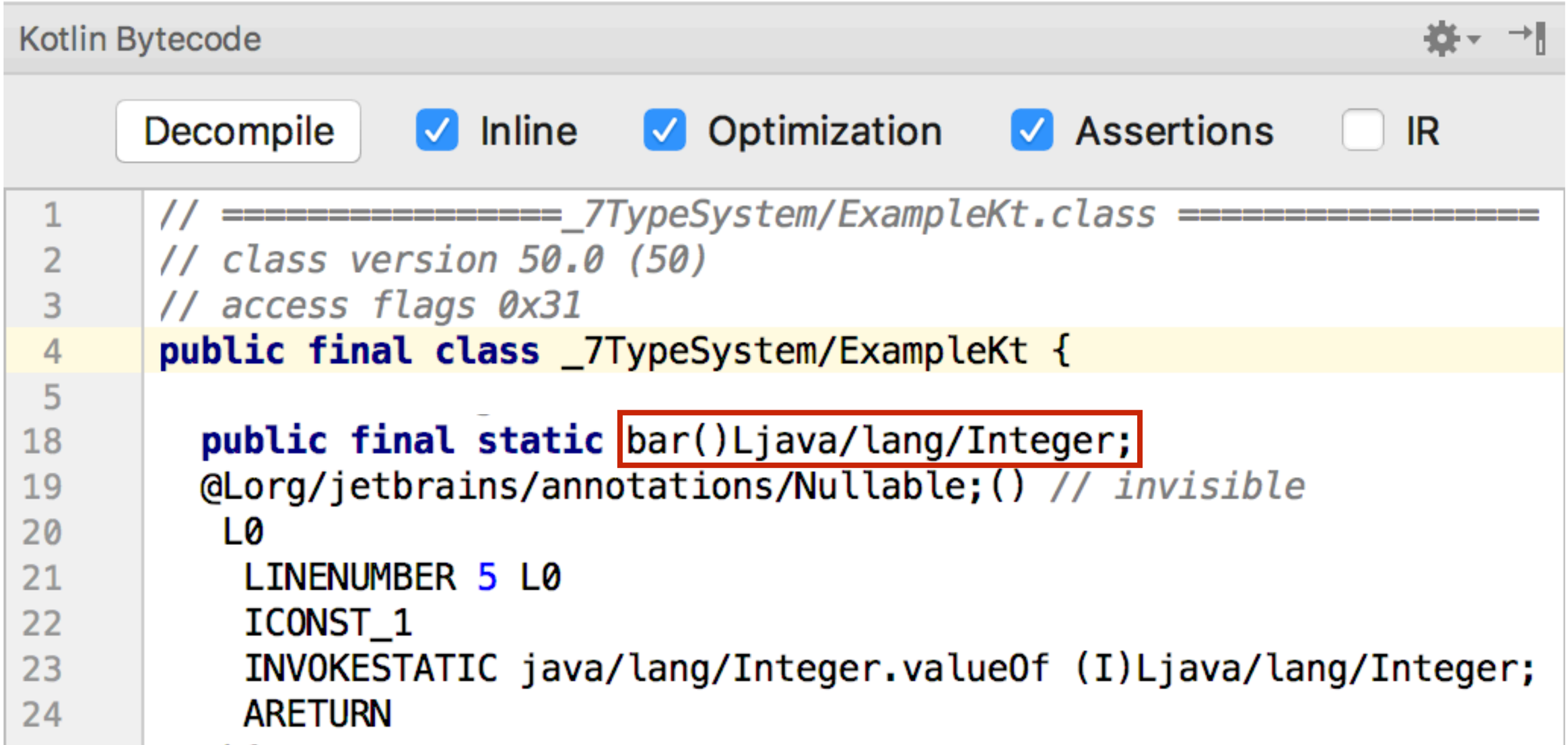
Kotlin Bytecode

Kotlin Bytecode

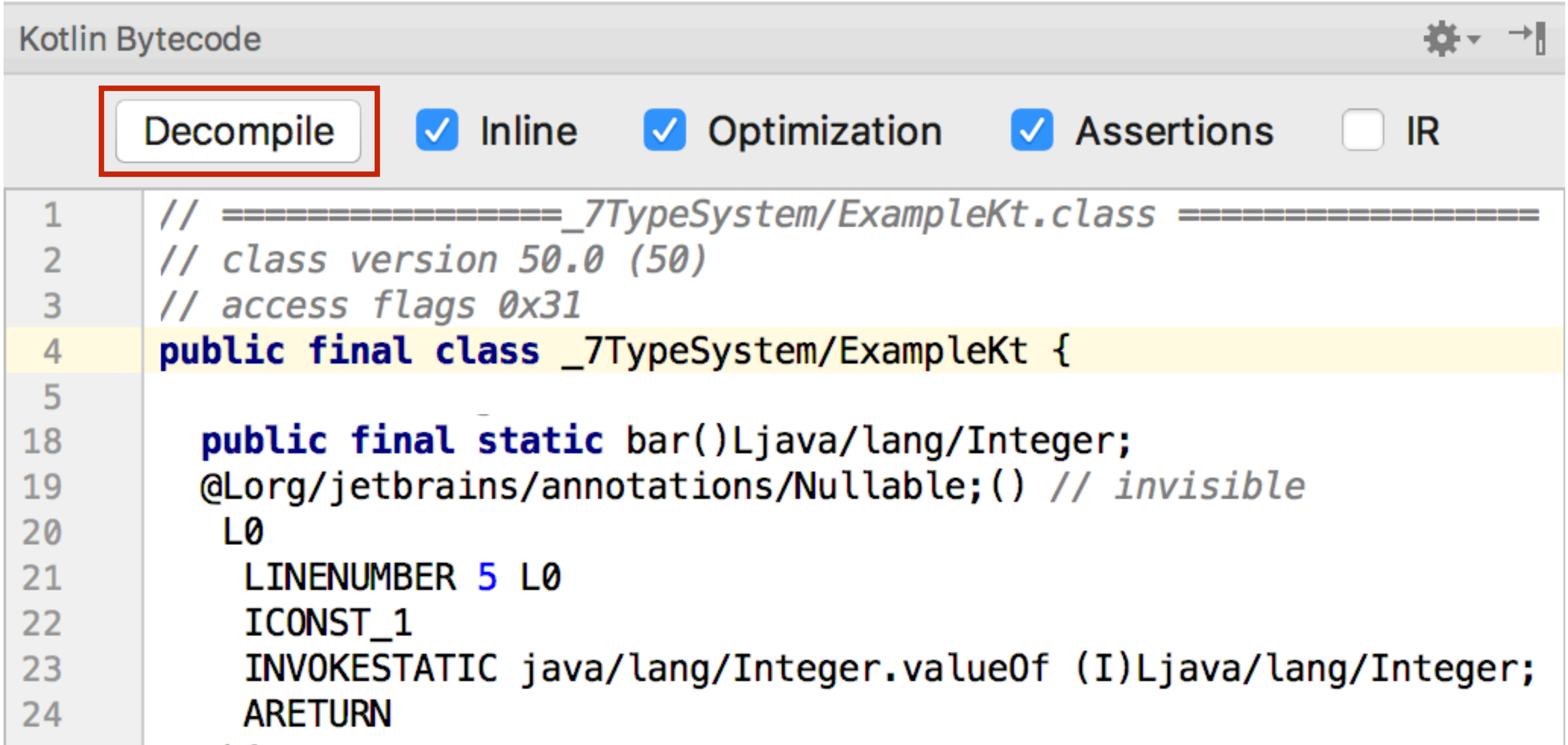
Decompile | Inline | Optimization | Assertions | IR

```
1   // ================_7TypeSystem/ExampleKt.class ==================
2   // class version 50.0 (50)
3   // access flags 0x31
4   public final class _7TypeSystem/ExampleKt {
5
8     public final static foo()I
9      L0
10      LINENUMBER 3 L0
11      ICONST_1
12      IRETURN
13     L1
14      MAXSTACK = 1
```

Kotlin Bytecode



Kotlin Bytecode



Decompiled Java code

```java
public static final int foo() {
    return 1;
}

@Nullable
public static final Integer bar() {
    return Integer.valueOf(1);
}
```

Correspondence between Kotlin and Java types

Kotlin code:

```
fun foo(): Int = 1
```

Decompiled Java code:

```
public static final int foo() {
   return 1;
}
```

Correspondence between Kotlin and Java types

Kotlin code:

```
fun bar(): Int? = 1
```

Decompiled Java code:

```
public static final Integer bar() {
   return 1;
}
```

Correspondence between Kotlin and Java types

Kotlin	Java
Int	int
Int?	java.lang.Integer

Primitive & wrapper types

Kotlin	Java
Int	int
Double	double
Boolean	boolean

Kotlin	Java
Int?	java.lang.Integer
Double?	java.lang.Double
Boolean?	java.lang.Boolean

Generic arguments

Kotlin	**Java**
List<Int>	List<Integer>

Arrays

Kotlin	**Java**
Array<Int>	Integer[]

Arrays of primitive types

Kotlin	Java
Array<Int>	Integer[]
IntArray	int[]

String

Kotlin	Java
kotlin.String	java.lang.String

kotlin.String

hides some confusing methods

```
"one.two.".replaceAll(".", "*")
```


```
********
```

```
"one.two.".replace(".", "*")
```


```
one*two*
```

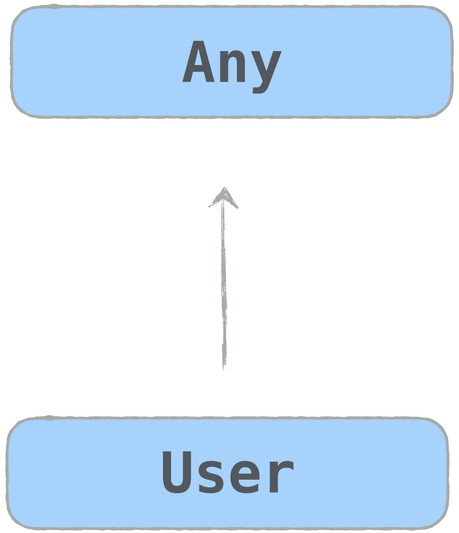
```
"one.two.".replace(".".toRegex(), "*")
```


```
********
```

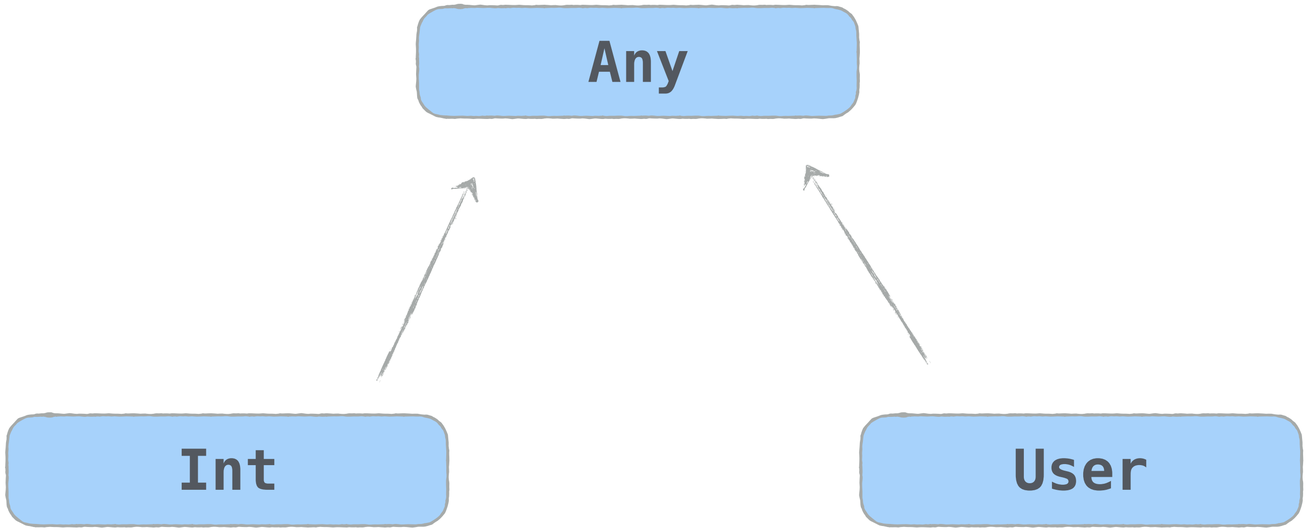
Any

Kotlin	Java
Any	java.lang.Object

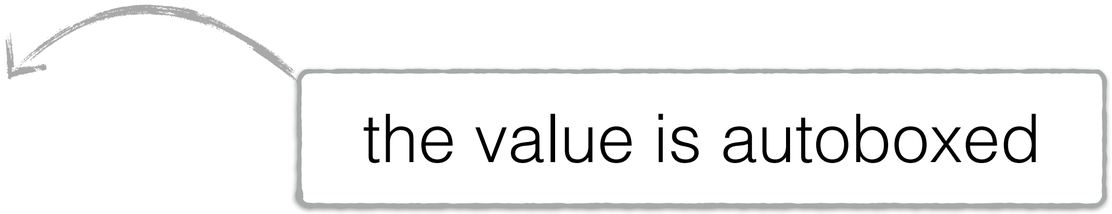
Any



Any



Boxing under the hood




```
log(2017)

fun log(any: Any) {
    println("Value: $any")
}
```

No boxing now

```
log(2017)

fun log(any: Any) {
    println("Value: $any")
}

fun log(i: Int) {
    println("Value: $i")
}
```

What will be printed?

```
println(arrayOf(1, 2) == arrayOf(1, 2))
```

1. `true`
2. `false`

What will be printed?

```
println(arrayOf(1, 2) == arrayOf(1, 2))
```

1. `true`
2. `false`

Arrays

Kotlin	Java
Array<Int>	Integer[]
IntArray	int[]

Array comparison in Java

```java
int[] ints1 = { 1, 2 };
int[] ints2 = { 1, 2 };
System.out.println(ints1.equals(ints2));          // false
System.out.println(Arrays.equals(ints1, ints2)); // true
```

Array comparison in Kotlin

```kotlin
val ints1 = intArrayOf(1, 2)
val ints2 = intArrayOf(1, 2)
println(ints1 == ints2)                 // false
println(ints1.contentEquals(ints2))     // true
```