

Learning to Love the Lambda in the Stream

Introduction to Java 8 Lambda and Functional Interfaces

Speaker Introduction

- ▶ Richard Roda
- ▶ Sr. Technical Lead at DXC Technology
- ▶ Over 15 years of Java development experience
- ▶ OCA Java and Security+ certifications
- ▶ Linked In: <https://www.linkedin.com/in/richardroda>
- ▶ Twitter: @Richard_Roda
- ▶ These slides (pdf):

What is a Lambda Expression?

- ▶ In Java, it is an unnamed function that may be bound to an interface as an object.
- ▶ Example 1
- ▶ `Predicate<Integer> isFive = n -> n == 5;`
`System.out.println(isFive.test(4)); // false`
- ▶ Lambdas may only exist when assigned to a Functional Interface
- ▶ `n -> n == 6; // Does not compile`

Functional Interface (FI) in Java 8

- ▶ “A functional interface is any interface that contains only one abstract method.” -- [Oracle Java Tutorial](#)
- ▶ Example 2- Valid Functional Interface

```
@FunctionalInterface // Optional
public interface Example2 {
    boolean equals(Object other); // In Object
    int hashCode(); // In Object
    int myMethod(); // Abstract.
    default int myMethod2() {return myMethod();}
    static int myMethod3() {return 0;}
}
```

Binding Lambda to Example2 FI vs Anonymous Inner class

- ▶ Both of these implement myMethod defined in Example2.
- ▶ Since there is only 1 abstract method, the lambda may omit specifiers required for method declarations.
- ▶ Method types and return values are inferred from the FI.

```
public class Example3 {  
    static public void main(String[] args) {  
        Example2 lambda = () -> 3; // 8 chars  
        Example2 innerClass = new Example2() {  
            @Override public int myMethod() {  
                return 3;  
            }  
        }; // 5 lines of code  
        System.out.println(lambda.myMethod()); // 3  
        System.out.println(innerClass.myMethod()); // 3  
    }  
}
```

Functional Interface Conventions

- ▶ The following conventions apply for type variables used by Java 8 Fls.
- ▶ T - First argument
- ▶ U - Second argument
- ▶ R - Return Value
- ▶ Any of the above are omitted if not used.