

# Writing Suppliers, Consumers, Predicates, and Functions

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# Agenda



**The `java.util.function` toolbox**

**A set of functional interfaces**

**There are more than 40!**

**It is organized in four categories**

# Creating Standard Lambdas with the JDK

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The JDK provides a toolbox of 40+ types

In the `java.util.function` package

It is organized in 4 categories:

- Supplier
- Consumer
- Predicate
- Function

```
public interface Supplier<T> {  
    T get();  
}
```

```
Supplier<String> supplier =  
    () -> "Hello!";
```

## The Supplier

- does not take any argument
- produces a value



```
public interface Consumer<T> {  
    void accept(T t);  
}
```

```
Consumer<String> consumer =  
    s -> System.out.println(s);
```

## The Consumer

- takes any argument
- does not return anything



```
public interface Predicate<T> {  
    boolean test(T t);  
}
```

```
Predicate<String> isEmpty =  
    s -> s.isEmpty();
```

## The Predicate

- takes any argument
- returns a boolean

Used to filter data



```
public interface Function<T, R> {  
    R apply(T t);  
}
```

```
Function<User, String> getName =  
    user -> user.getName();
```

## The Function

- takes any argument
- returns any type

Used to map data







And there is a bonus one!

- Runnable



```
public interface Runnable {  
    void run();  
}
```

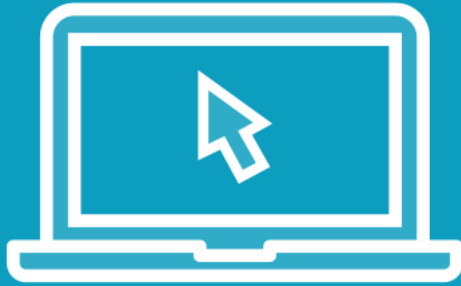
```
Runnable alert =  
    () -> System.out.println("I am Groot");
```

## The Runnable

- does not take anything
- does not return anything



# Demo



Let us write some code!

You will see examples

How to write Predicates and Functions



# Java Functional Interfaces Toolbox

Interface	Method	Example
Runnable	void run()	<pre>() -&gt;     System.out.println(         "I am alive!");</pre>
Supplier<T>	T get()	<pre>() -&gt; "Hello!";</pre>
Consumer<T>	void accept(T t)	<pre>() -&gt;     System.out.println(s);</pre>
Predicate<T>	boolean test(T t)	<pre>string -&gt;     string.isEmpty();</pre>
Function<T, R>	R apply(T t)	<pre>user -&gt;     user.getName();</pre>



# Module Wrap Up



What did you learn?

The standard `java.util.function` toolbox

They are used in many Java API

But you can still create your own!

