

LAMBDA EXPRESSION & FUNCTIONAL INTERFACE

A lambda function is a way to represent an anonymous function. It's a block of code that can be passed around and executed later.

Syntax:

(parameters) → expression | (parameters) → { /multiline }

Example:

Runnable r = (s) → System.out.println(s)

METHOD REFERENCES

It's a shorthand syntax for lambda that simply calls an existing method.

Syntax: ClassName::methodName

Example:

List.forEach(System.out::println)

Reference to a constructor

ArrayList::new | () → new ArrayList<>()

FUNCTIONAL INTERFACE

JAVA.UTIL.FUNCTION

It's an interface with one abstract method, it serves as target for lambda expressions and method references enabling behavior to be passed as parameters.

Example

INTERFACE	ABSTRACT METHOD	DESCRIPTION
Predicate<T>	boolean test(T t)	Tests a condition on a single input
Function<T, R>	R apply(T t)	Transforms a value from T to R
Consumer<T>	void accept(T t)	Performs an action with no return
Supplier<T>	T get()	Provides a value without input
UnaryOperator<T>	T apply(T t)	A function from T to T

Example:

// Bi predicate: Check if two strings are equal
Bi predicate < String, String > equalsIgnoreCaseCase =
(a, b) → 2. equalsIgnoreCaseCase(b);

Custom Functional Interface

```
@FunctionalInterface  
interface MathOperation {  
    int operate(int a, int b);  
}
```

```
MathOperation add = (a, b) → a + b;
```

```
System.out.println(add.operate(5, 3));
```