HowToDoInJava

Java 8 method reference example

苗 Last Updated: December 26, 2020 \, By: Lokesh Gupta 🖿 Java 8 🕒 Java 8, Lambda Expression

In Java 8, we can refer a method from class or object using **class::methodName** type syntax. Let's learn about different types of available **method references in java 8**.

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1. Types of method references

Java 8 allows four types of method references.

| Method Reference | Reference to static method |
|--------------------------|--------------------------------------------------------------------------------|
| Description | Used to refer static methods from a class |
| Method reference example | Math::max equivalent to Math.max(x,y) |
| Method Reference | Reference to instance method from instance |
| Description | Refer to an instance method using a reference to the supplied object |
| Method reference example | System.out::println equivalent to System.out.println(x) |
| Method Reference | Reference to instance method from class type |
| Description | Invoke the instance method on a reference to an object supplied by the context |
| Method reference example | String::length equivalent to str.length() |
| Method Reference | Reference to constructor |
| Description | Reference to a constructor |
| Method reference example | ArrayList::new equivalent to new ArrayList() |

2. Method reference to static method - Class::staticMethodName

433

An example to use Math.max() which is static method.

```
List<Integer> integers = Arrays.asList(1,12,433,5);
Optional<Integer> max = integers.stream().reduce( Math::max );
max.ifPresent(value -> System.out.println(value));
Output:
433
```

3. Method reference to instance method from instance – ClassInstance::instanceMethodName

In above example, we use System.out.println(value) to print the max value found. We can use System.out::println to print the value.

```
List<Integer> integers = Arrays.asList(1,12,433,5);
Optional<Integer> max = integers.stream().reduce( Math::max );
max.ifPresent( System.out::println );
Output:
```

4. Method reference to instance method from class type - Class::instanceMethodName

In this example, s1.compareTo(s2) is referred as String::compareTo.

```
List<String> strings = Arrays
    .asList("how", "to", "do", "in", "java", "dot", "com");

List<String> sorted = strings
    .stream()
    .sorted((s1, s2) -> s1.compareTo(s2))
    .collect(Collectors.toList());

System.out.println(sorted);

List<String> sortedAlt = strings
    .stream()
    .sorted(String::compareTo)
    .collect(Collectors.toList());

System.out.println(sortedAlt);
```

Output:

```
[com, do, dot, how, in, java, to] [com, do, dot, how, in, java, to]
```

5. Reference to constructor - Class::new

The first method can be updated to create a list of integers from 1 to 100. Using lambda expression is rather easy. To create a new instance of ArrayList, we have use ArrayList::new.

Output:

99

That's 4 type of method references in java 8 lambda enhancements.

Happy Learning!!

Was this post helpful? Let us know if you liked the post. That's the only way we can improve. Yes No

Recommended Reading:

- 1. Java 8 Optionals : Complete Reference
- 2. Java Pass-by-Value vs. Pass-by-Reference
- 3. Java Regex as Predicate using Pattern.compile() Method
- 4. Java Strict Date Validation Java SimpleDateFormat setLenient() Method
- 5. Java String equals() method Java compare strings

- 6. Java Static Variable, Method, Block, Class and Import Statement
- 7. Java String charAt() method example
- 8. Java String concat() method example
- 9. Java String replace() method example
- o. Java String toLowerCase() method example



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6 thoughts on "Java 8 method reference example"

Debraj

March 7, 2019 at 10:51 am

ArrayList::new equivalent to new ArrayList() this is not correct this applicable only if "The target type of this expression must be a functional interface"

Reply

Debraj

March 7, 2019 at 10:57 am

I meant not always correct there is a condition.

Reply

Chetan Patel

April 12, 2018 at 10:10 am

Consumer con = System.out::println; con.accept("Hello");

Reply

thangamma

February 14, 2018 at 11:48 am

How do you come to know about the parameters that are taken by these static methods.

For Example:

If I want to write System.out.println("Hello");

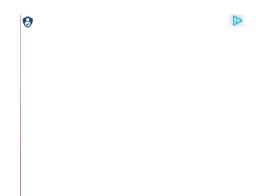
How do i write it using method reference?

Reply

| Chetan Patel | |
|-------------------------------------------------------------|-------------------------------------------------------|
| April 12, 2018 at 10:11 am | |
| Consumer con = System.out: con.accept("Hello"); Reply | println; |
| satak | |
| November 27, 2019 at 5:59 pm | |
| System.out::println | |
| Reply | |
| | |
| Leave a Comment | |
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