

Disclosure: This article may contain affiliate links. When you purchase, we may earn a small commission.

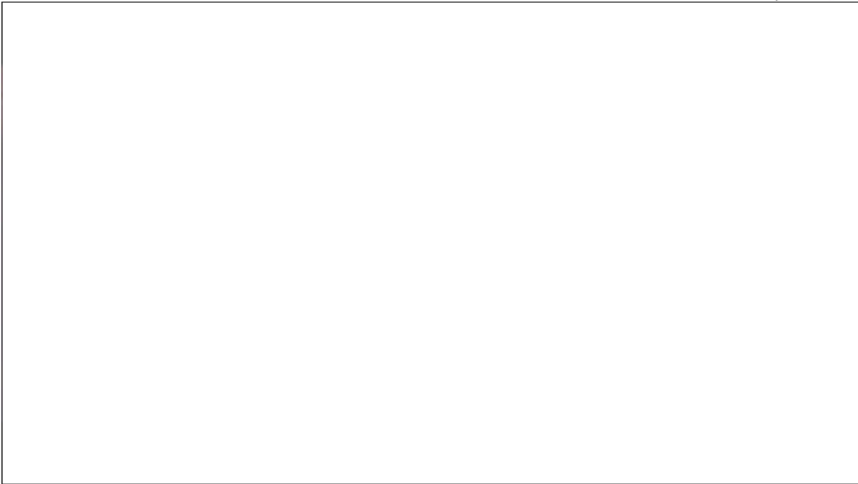
### How to Convert a Lambda Expression to Method Reference in Java 8?

If you have been coding in Java 8 then you may know that using [method reference](#) in place of lambda expression makes your code more readable, hence it is advised to replace lambda expression with method reference wherever possible. But, the big question is, how do you find whether you can replace a lambda with method reference? Yes, it's not that easy, especially if you have been using [Java 8](#) only for a couple of months and struggling to get the functional programming concepts and idioms sorted in your head. Sometimes, IDEs like IntelliJ IDEA and Eclipse does offer some hints to convert lambda expression to method reference but it does make sense to learn the logic behind it, otherwise, it won't make sense.

ANTHE 2022



Powered By **VDO.AI**



The simple rule to replace lambda expression with method reference is built on common sense, which you will learn in this article.

If you look closely, lambda is nothing but a code block which you pass to a function to execute. If you **already have that code** in form of a method then instead of passing the new code as [lambda](#) you can pass the name of the method and that's known as method reference.

That's it, but I know, it's easier said than done, hence I have provided a couple of examples to explain method reference concept in Java 8.

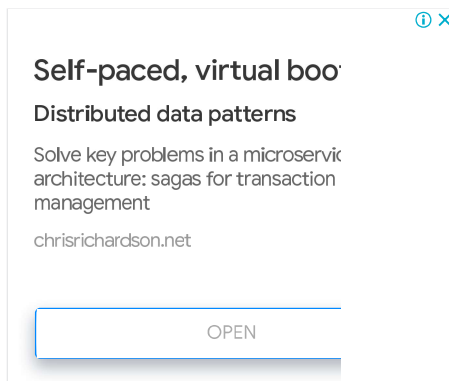
Btw, if you are just starting with lambda expression and Java 8 in general, I suggest you to first go through a comprehensive course like [The Complete Java MasterClass](#), which covers the topic in much more detail. It's also one of the best course to learn Java in general and also recently updated to cover the Java 11 features.

Search This Blog

Search

Subscribe for Discounts and Updates

Follow



## How to replace lambda expression with method reference in Java 8

If you are using a lambda expression as an anonymous function but not doing anything with the argument passed, you can replace lambda expression with method reference.

Below code is a good example to replace lambdas with method reference

```
listOfNumbers.stream().sorted().forEach(number -> {
    System.out.println(number);
});
```

Since we are not modifying the number argument here, we can replace the [lambda expression](#):

```
number -> {
    System.out.println(number);
}
```

with method reference as shown below:

```
listOfNumbers.stream().sorted().forEach(System.out::println);
```

but, if you modify the argument before passing it to another method then you cannot replace lambdas with method reference e.g. in the following case we cannot do that:

```
listOfNumbers.stream().sorted().forEach(number -> {
    System.out.println(String.valueOf(number));
});
```

The **double colon (::) operator** is used for method reference and there are actually three main cases to use it:

```
object::instanceMethod
Class::staticMethod
Class::instanceMethod
```

In the first two cases, the method reference is equivalent to lambda expression that supplies the parameters of the method e.g. `System.out::println` is equivalent to `x ->`

FACEBOOK.COM

অনলাইনে  
নতুন গ্রাহক  
খুঁজুন

5 বছরে Meta-র সাহায্যে  
The Souled Store 30  
লক্ষেরও বেশি  
কাস্টমারকে সন্তুষ্ট  
করেছে

[Learn More](#)

Interview Questions

[core java interview question \(177\)](#)

[interview questions \(104\)](#)

[data structure and algorithm \(85\)](#)

[Coding Interview Question \(78\)](#)

[object oriented programming \(37\)](#)

[design patterns \(36\)](#)

[SQL Interview Questions \(35\)](#)

[spring interview questions \(32\)](#)

[thread interview questions \(30\)](#)

[collections interview questions \(25\)](#)

[database interview questions \(16\)](#)

[servlet interview questions \(15\)](#)

[Programming interview question \(6\)](#)

[hibernate interview questions \(6\)](#)

Best of Javarevisited

[How Spring MVC works internally?](#)

[How to design a vending machine in Java?](#)

[How HashMap works in Java?](#)

[Why String is Immutable in Java?](#)

[10 Articles Every Programmer Must Read](#)

[How to convert lambda expression to method reference in Java 8?](#)

[10 Tips to improve Programming Skill](#)

[10 OOP design principles programmer should know](#)

[How Synchronization works in Java?](#)

[10 tips to work fast in Linux](#)

[5 Books to improve Coding Skills](#)

`System.out.println(x)` and `Math::pow` is equivalent to `(x, y) -> Math.pow(x, y)`.

In this case, the first parameter becomes the target of the method.

For example, `String::compareToIgnoreCase` is the same as

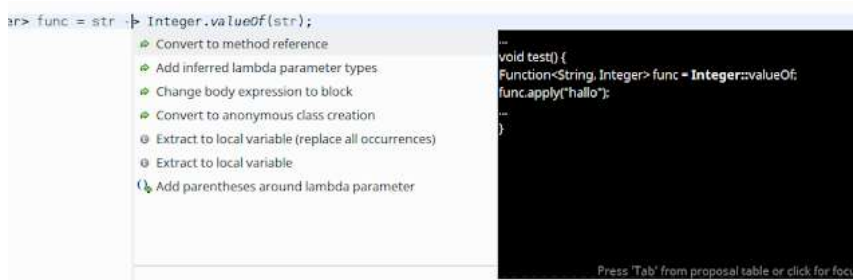
```
(x, y) -> x.compareToIgnoreCase(y)
```

or

`this::equals` is the same as

```
(x -> this.equals(x))
```

You can read more about converting this type of lambda expression into method reference in [What's New in Java 8](#), it has got a little bit more explanation and examples on this topic.



Btw, you would need a Pluralsight membership to access this course, which costs around \$29 monthly or [\\$299 annually](#) (14% saving). I have one and I also suggest all developers have that plan because **Pluralsight is like Netflix for Software developers**.

It has more than 5000+ good quality courses on all latest topics. Since we programmers have to learn new things every day, an investment of \$299 USD is not bad.

Btw, it also offers a 10-day free trial without any obligation which allows you to watch 200 hours of content. You can watch this course for free by signing for that [10-day free trial](#).

Anyway, another good example of replacing lambda expression with method reference is the following code of [sorting a map by values in Java 8](#):

```
Map sortByValue = map.entrySet()
    .stream()
    .sorted(Map.Entry.<String, Integer>comparingByValue())
    .collect(Collectors.toMap(e -> e.getKey(), e -> e.getValue()));
```

can be rewritten as following using method reference :

```
Map sortByValue = map.entrySet()
    .stream()
    .sorted(Map.Entry.<String, Integer>comparingByValue())
    .collect(toMap(Map.Entry::getKey,
        Map.Entry::getValue, (e1, e2) -> e1, LinkedHashMap::new));
```

if you look closely, we have replaced `e -> e.getKey()` with `Map.Entry::getKey` and `e ->`

#### Java Tutorials

[date and time tutorial \(24\)](#)

[FIX protocol tutorial \(15\)](#)

[Java Certification OCPJP SCJP \(33\)](#)

[java collection tutorial \(81\)](#)

[java IO tutorial \(29\)](#)

[Java JSON tutorial \(15\)](#)

[Java multithreading Tutorials \(61\)](#)

[Java Programming Tutorials \(19\)](#)

[Java xml tutorial \(16\)](#)

[JDBC \(34\)](#)

[jsp-servlet \(37\)](#)

[online resources \(227\)](#)

Get New Blog Posts on Your Email

Get new posts by email:

Enter your email

Subscribe

Followers

g.getValue() to Map.Entry::getValue because we want to know what those lambda expressions were doing in form of getKey() and get



Don't show again

That's all about when and **how to replace lambda expression with method reference in Java 8**. You can replace only if you are not doing any modification, otherwise, you cannot replace. Why you want to do that? Well, because method reference is more succinct and readable than lambda expression.

### Further Learning

[What's New in Java 8](#)

[The Complete Java MasterClass - Updated for Java 11](#)

[Java SE 8 for Really Impatient](#)

[Refactoring to Java 8 Streams and Lambdas Self- Study Workshop](#)

### Related Java 8 Tutorials

If you are interested in learning more about new features of Java 8, here are my earlier articles covering some of the important concepts of Java 8:

- 20 Examples of Date and Time in Java 8 ([tutorial](#))
- 5 Books to Learn Java 8 from Scratch ([books](#))
- How to join String in Java 8 ([example](#))
- How to use filter() method in Java 8 ([tutorial](#))
- How to format/parse the date with LocalDateTime in Java 8? ([tutorial](#))
- How to use Stream class in Java 8 ([tutorial](#))
- How to use forEach() method in Java 8 ([example](#))
- How to convert List to Map in Java 8 ([solution](#))
- How to use peek() method in Java 8 ([example](#))
- How to sort the map by keys in Java 8? ([example](#))
- 10 examples of Optionals in Java 8? ([example](#))
- Top 5 Java 8 Courses for Programmers ([courses](#))

Thanks for reading this article so far. If you like this article then please share with your friends and colleagues. If you have any question or feedback then please drop a comment.

**P. S. -** If you don't mind learning from free resources then you can also check out this list of [free Java 8 and Java 9 courses](#) to learn better.

Taneira A Tata Product

Buy unique sarees from T  
Explore a fine curation of sarees  
perfect for all festivals

Store info

Directions

### Categories

[courses \(395\)](#)

[SQL \(68\)](#)

[linux \(50\)](#)

[database \(49\)](#)

[Java Certification OCPJP SCJP \(33\)](#)

[Eclipse \(30\)](#)

[REST \(28\)](#)

[JVM Internals \(24\)](#)

[jQuery \(21\)](#)

[Testing \(19\)](#)

[general \(18\)](#)

[Maven \(16\)](#)

### Blog Archive

► 2022 (689)

► 2021 (962)

► 2020 (95)

▼ 2019 (24)

► December (3)

► November (6)

▼ October (4)

What is the best Book to Learn Java for C and C++ ...

How to Convert a Lambda Expression to Method Refer...

The OCAJP 1Z0-808 - Best Books and Mock Exams for ...

How to Compare Date in SQL Server Query? Finding A...

► August (1)

► July (2)

► June (2)

► May (1)

► April (2)

► February (1)

► January (2)

► 2018 (5)

► 2017 (22)

### Translate This Blog

Select Language

Powered by Google Transla

### References

Taneira A Tata Product

Buy unique sarees from Taneira

Explore a fine curation of sarees, perfect for all festivals

Store info

Directions

## Preparing for Java Developer Interviews?

Email Address

Download Free Questions

We respect your privacy. Unsubscribe at any time.

1. [Oracle's Java Tech Network](#)
2. [jQuery Documentation](#)
3. [Microsoft SQL Server Documentation](#)
4. [Java SE 8 API Documentation](#)
5. [Spring Documentation](#)
6. [Oracle's Java Certification](#)
7. [Spring Security 5 Documentation](#)

By javin paul 

Labels: [Java 8](#), [Lambda expression](#), [method reference](#)

#### 1 comment :

[Tomtom](#) said...

Hi,  
SonarLint helps finding where a lambda expression can be replaced by method reference.

October 31, 2018 at 2:31 PM

#### Post a Comment



Enter Comment

#### Pages

[Privacy Policy](#)

[Terms and Conditions](#)

Copyright by Javin Paul 2010-2021. Powered by  
[Blogger](#).

[Newer Post](#)

[Home](#)

[Older Post](#)

Subscribe to: [Post Comments \( Atom \)](#)