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Java Stream forEach()

Last Updated: March 15, 2022 By: Lokesh Gupta Java 8 Java Stream Basics, Java Stream Methods

Java Stream *forEach()* method is used to **iterate over all the elements of the given Stream and to perform an `Consumer` *action* on each element of the Stream**.

The *forEach()* is a more concise way to write the for-each loop statements.

1. Stream forEach() Method

1.1. Method Syntax

The `forEach()` method syntax is as follows:

Syntax

```
void forEach(Consumer<? super T> action)
```

`Consumer` is a functional interface and `action` represents a non-interfering action to be performed on each element in the Stream. It accepts an input and returns no result.

1.2. Description

- The `forEach()` method is a **terminal operation**. It means that it does not return an output of type `Stream`.

- After **forEach()** is performed, the stream pipeline is considered consumed, and Stream can no longer be used.
- If we need to traverse the same data source again (the collection backing the Stream), we must return to the data source to get a new stream.
- For *parallel streams*, the `forEach()` operation does not guarantee the order of elements in the stream, as doing so would sacrifice the benefit of parallelism.
- If the provided Consumer `action` accesses the shared state between the Stream elements the `action` is responsible for providing the required synchronization.

2. Stream forEach() Examples

Example 1: Traversing the elements of a Stream and printing them

In this Java example, we are iterating over a `Stream` of Integers and printing all the integers to the standard output.

Stream forEach() Example

```
List<Integer> list = Arrays.asList(2, 4, 6, 8, 10);
Consumer<Integer> action = System.out::println;

list.stream()
    .forEach( action );
```

Note that we can write the above iteration using the *enhanced for-loop* as well.

Same iteration Using enhanced for loop

```
for (Integer i : list) {
  System.out.println(i);
}
```

Example 2: Traversing the elements in reverse order and printing them

Java example to iterate over stream elements and print them in reverse order.

Stream forEach() in Reverse Order

```
List<Integer> list = Arrays.asList(2, 4, 6, 8, 10);

list.stream()
    .sorted(Comparator.reverseOrder())
    .forEach(System.out::println);
```

Program output.

```
10
8
6
4
2
```

3. Conclusion

In this tutorial, we learned to use the *forEach()* method to iterate through all the elements of a *Stream*.

Though we can use the *enhanced for-each loop* for the iteration, the primary **difference between the forEach() method and for-each loop** is that the ***for-each loop* is an external iterator**, whereas the new ***forEach()* method is an internal iterator**.

Drop me your questions related to **Stream forEach()** method in Java Stream API.

Happy Learning !!

Sourcecode on Github

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Recommended Reading:

1. Java 8 forEach()
2. ArrayList forEach() example – Java 8
3. Java Stream reuse – traverse stream multiple times?
4. Java Stream forEachOrdered()
5. Java Stream min()
6. Java Stream map()
7. Java Stream skip()
8. Java Stream toArray()
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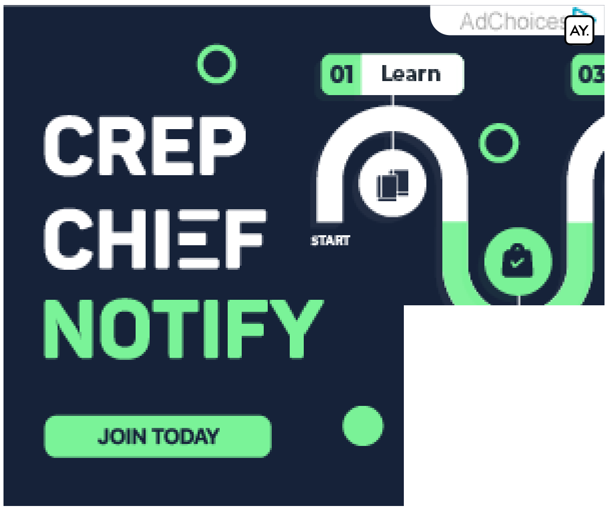
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