**Java for-each Loop**

In this tutorial, we will learn about the Java for-each loop and its difference with for loop with the help of examples.

In Java, the **for-each** loop is used to iterate through elements of [arrays](https://www.programiz.com/java-programming/arrays) and collections (like [ArrayList](https://www.programiz.com/java-programming/arraylist)). It is also known as the enhanced for loop.

**for-each Loop Sytnax**

The syntax of the Java **for-each** loop is:

for(dataType item : array) {

...

}

Here,

* **array** - an array or a collection
* **item** - each item of array/collection is assigned to this variable
* **dataType** - the data type of the array/collection

**Example 1: Print Array Elements**

// print array elements

class Main {

public static void main(String[] args) {

// create an array

int[] numbers = {3, 9, 5, -5};

// for each loop

for (int number: numbers) {

System.out.println(number);

}

}

}

[Run Code](https://www.programiz.com/java-programming/online-compiler)

**Output**

3

9

5

-5

Here, we have used the **for-each loop** to print each element of the numbers array one by one.

* In the first iteration, item will be 3.
* In the second iteration, item will be 9.
* In the third iteration, item will be 5.
* In the fourth iteration, item will be -5.

**Example 2: Sum of Array Elements**

// Calculate the sum of all elements of an array

class Main {

public static void main(String[] args) {

// an array of numbers

int[] numbers = {3, 4, 5, -5, 0, 12};

int sum = 0;

// iterating through each element of the array

for (int number: numbers) {

sum += number;

}

System.out.println("Sum = " + sum);

}

}

[Run Code](https://www.programiz.com/java-programming/online-compiler)

**Output**:

Sum = 19

In the above program, the execution of the for each loop looks as:

|  |  |
| --- | --- |
| Iteration | Variables |
| 1 | number = 3 sum = 0 + 3 = 3 |
| 2 | number = 4 sum = 3 + 4 = 7 |
| 3 | number = 5 sum = 7 + 5 = 12 |
| 4 | number = -5 sum = 12 + (-5) = 7 |
| 5 | number = 0 sum = 7 + 0 = 7 |
| 6 | number = 12 sum = 7 + 12 = 19 |

As we can see, we have added each element of the numbers array to the sum variable in each iteration of the loop.

**for loop Vs for-each loop**

Let's see how a for-each loop is different from a regular [Java for loop](https://www.programiz.com/java-programming/for-loop).

**1. Using for loop**

class Main {

public static void main(String[] args) {

char[] vowels = {'a', 'e', 'i', 'o', 'u'};

// iterating through an array using a for loop

for (int i = 0; i < vowels.length; ++ i) {

System.out.println(vowels[i]);

}

}

}

[Run Code](https://www.programiz.com/java-programming/online-compiler)

**Output**:

a

e

i

o

u

**2. Using for-each Loop**

class Main {

public static void main(String[] args) {

char[] vowels = {'a', 'e', 'i', 'o', 'u'};

// iterating through an array using the for-each loop

for (char item: vowels) {

System.out.println(item);

}

}

}

[Run Code](https://www.programiz.com/java-programming/online-compiler)

**Output**:

a

e

i

o

u

Here, the output of both programs is the same. However, the **for-each** loop is easier to write and understand.

This is why the **for-each** loop is preferred over the **for** loop when working with arrays and collections.