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## For-each loop in Java

Prerequisite: [Decision making in Java](#)

For-each is another array traversing technique like for loop, while loop, do-while loop introduced in Java5.

- It starts with the keyword **for** like a normal for-loop.
- Instead of declaring and initializing a loop counter variable, you declare a variable that is the same type as the base type of the array, followed by a colon, which is then followed by the array name.
- In the loop body, you can use the loop variable you created rather than using an indexed array element.
- It's commonly used to iterate over an array or a Collections class (eg, ArrayList)

### Syntax:

```
for (type var : array)
{
    statements using var;
}
```

### is equivalent to:

```
for (int i=0; i<arr.length; i++)
{
    type var = arr[i];
    statements using var;
}
```

```
// Java program to illustrate
// for-each loop
class For_Each
{
    public static void main(String[] arg)
    {
        {
            int[] marks = { 125, 132, 95, 116, 110 };

            int highest_marks = maximum(marks);
            System.out.println("The highest score is " + highest_marks);
        }
    }
    public static int maximum(int[] numbers)
    {
```

```
int maxSoFar = numbers[0];

// for each loop
for (int num : numbers)
{
    if (num > maxSoFar)
    {
        maxSoFar = num;
    }
}
return maxSoFar;
}
```

[Run on IDE](#)

Output:

The highest score is 132

## Limitations of for-each loop



### 1. For-each loops are **not appropriate when you want to modify the array**:

```
for (int num : marks)
{
    // only changes num, not the array element
    num = num*2;
}
```

### 2. For-each loops **do not keep track of index**. So we can not obtain array index using For-Each loop

```
for (int num : numbers)
{
    if (num == target)
    {
        return ???; // do not know the index of num
    }
}
```

### 3. For-each **only iterates forward over the array in single steps**

```
// cannot be converted to a for-each loop
for (int i=numbers.length-1; i>0; i--)
{
    System.out.println(numbers[i]);
}
```

### 4. For-each **cannot process two decision making statements** at once

```
// cannot be easily converted to a for-each loop
for (int i=0; i<numbers.length; i++)
{

```

```
if (numbers[i] == arr[i])
{ ...
}
```

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