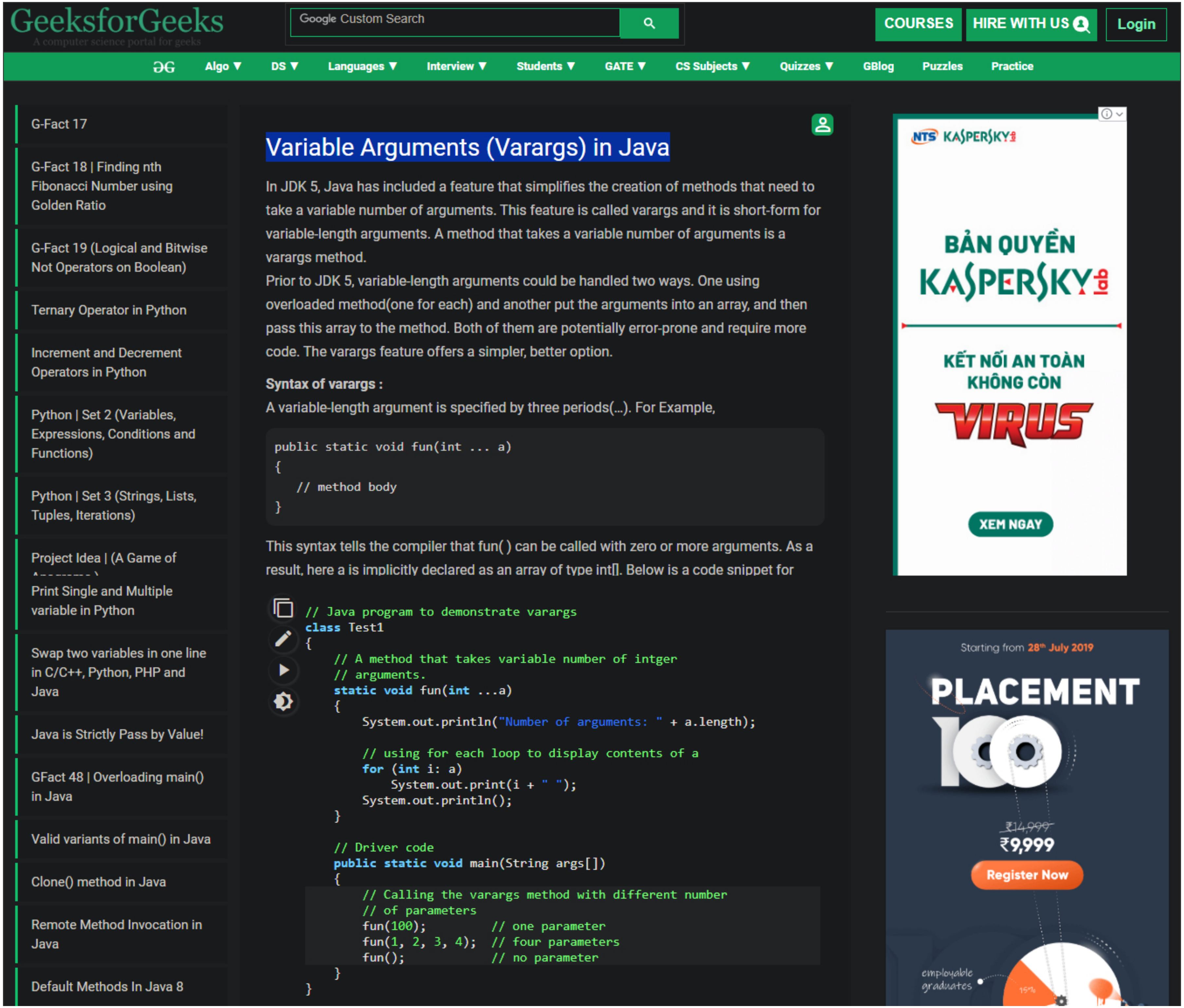

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Variable Arguments (Varargs) in Java

In JDK 5, Java has included a feature that simplifies the creation of methods that need to take a variable number of arguments. This feature is called varargs and it is short-form for variable-length arguments. A method that takes a variable number of arguments is a varargs method.
Prior to JDK 5, variable-length arguments could be handled two ways. One using overloaded method(one for each) and another put the arguments into an array, and then pass this array to the method. Both of them are potentially error-prone and require more code. The varargs feature offers a simpler, better option.

Syntax of varargs :
A variable-length argument is specified by three periods(…). For Example,

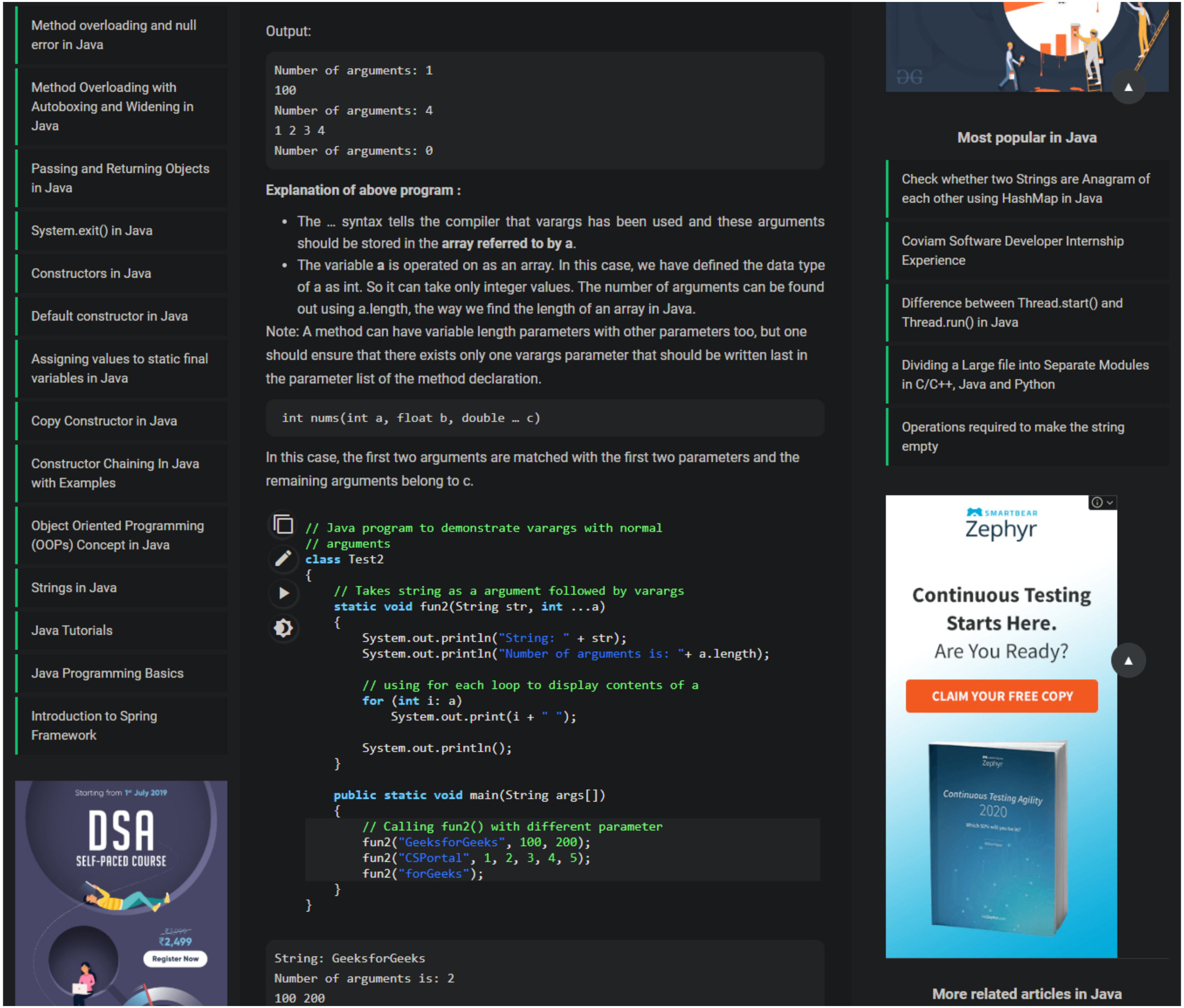
```
public static void fun(int ... a)
{
   // method body
}
```

This syntax tells the compiler that fun( ) can be called with zero or more arguments. As a result, here a is implicitly declared as an array of type int[]. Below is a code snippet for

```
// Java program to demonstrate varargs
class Test1
{
    // A method that takes variable number of intger
    // arguments.
    static void fun(int ...a)
    {
        System.out.println("Number of arguments: " + a.length);

        // using for each loop to display contents of a
        for (int i: a)
            System.out.print(i + " ");
        System.out.println();
    }

    // Driver code
    public static void main(String args[])
    {
        // Calling the varargs method with different number
        // of parameters
        fun(100);         // one parameter
        fun(1, 2, 3, 4);  // four parameters
        fun();            // no parameter
    }
}
```



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Output:

```
Number of arguments: 1
100
Number of arguments: 4
1 2 3 4
Number of arguments: 0
```

Explanation of above program :

- The … syntax tells the compiler that varargs has been used and these arguments should be stored in the **array referred to by a**.
- The variable **a** is operated on as an array. In this case, we have defined the data type of a as int. So it can take only integer values. The number of arguments can be found out using a.length, the way we find the length of an array in Java.

Note: A method can have variable length parameters with other parameters too, but one should ensure that there exists only one varargs parameter that should be written last in the parameter list of the method declaration.

```
int nums(int a, float b, double … c)
```

In this case, the first two arguments are matched with the first two parameters and the remaining arguments belong to c.

```
// Java program to demonstrate varargs with normal
// arguments
class Test2
{
    // Takes string as a argument followed by varargs
    static void fun2(String str, int ...a)
    {
        System.out.println("String: " + str);
        System.out.println("Number of arguments is: "+ a.length);

        // using for each loop to display contents of a
        for (int i: a)
            System.out.print(i + " ");

        System.out.println();
    }

    public static void main(String args[])
    {
        // Calling fun2() with different parameter
        fun2("GeeksforGeeks", 100, 200);
        fun2("CSPortal", 1, 2, 3, 4, 5);
        fun2("forGeeks");
    }
}
```

```
String: GeeksforGeeks
Number of arguments is: 2
100 200
```

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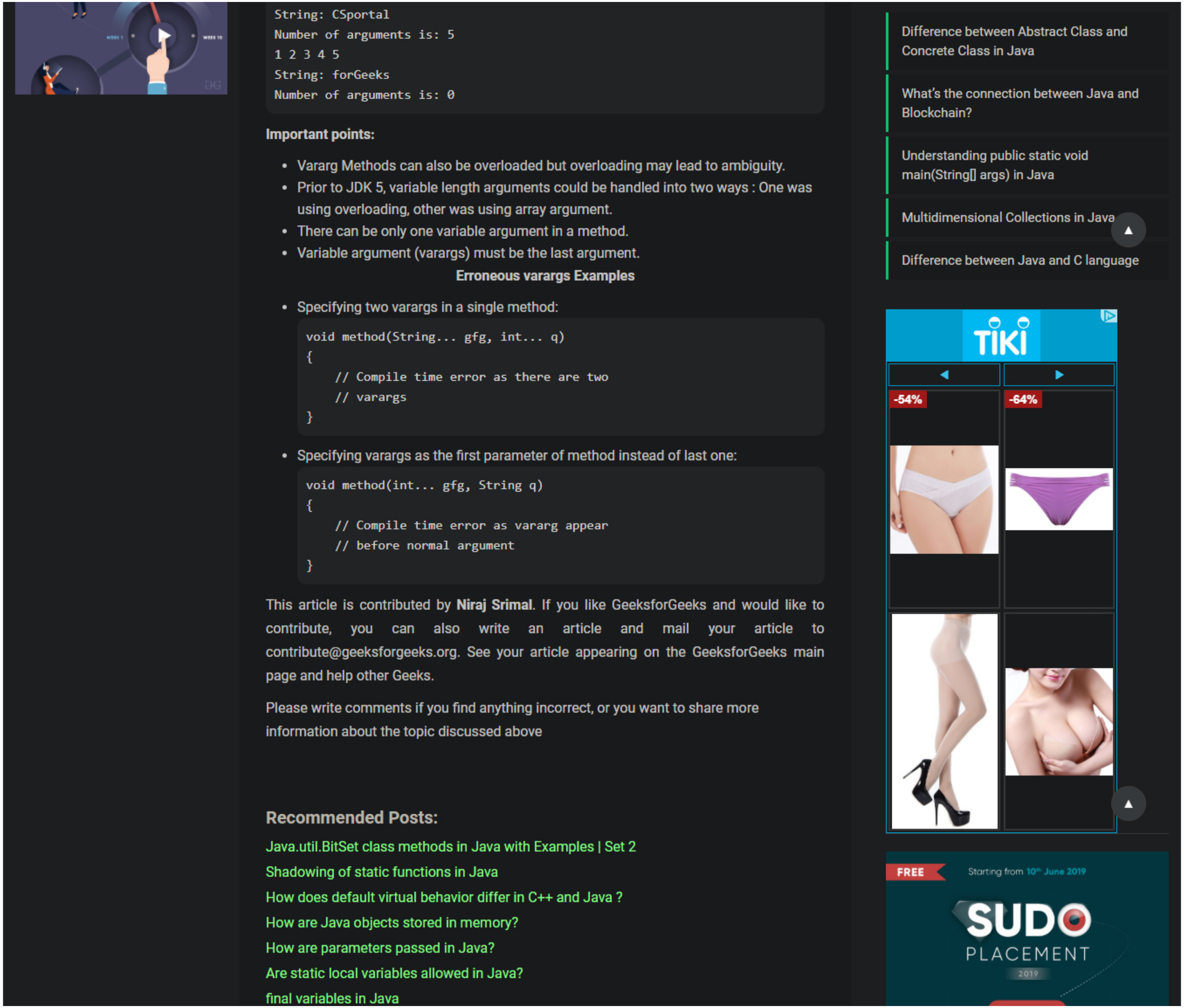

```
String: CSportal
Number of arguments is: 5
1 2 3 4 5
String: forGeeks
Number of arguments is: 0
```

Important points:

- Vararg Methods can also be overloaded but overloading may lead to ambiguity.
- Prior to JDK 5, variable length arguments could be handled into two ways : One was using overloading, other was using array argument.
- There can be only one variable argument in a method.
- Variable argument (varargs) must be the last argument.

Erroneous varargs Examples

- Specifying two varargs in a single method:

```
void method(String... gfg, int... q)
{
    // Compile time error as there are two
    // varargs
}
```

- Specifying varargs as the first parameter of method instead of last one:

```
void method(int... gfg, String q)
{
    // Compile time error as vararg appear
    // before normal argument
}
```

This article is contributed by **Niraj Srimal**. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

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