

Introduction to Java

Java Introduction

Java was developed by James Gosling, Mike Sheridan, and Patrick Naughton, starting in 1991, with Java 1.0 released in 1996. There have been 15 version of Java up to 2020.

Java was designed as a general-purpose programming language intended to let developers *write once, run anywhere* (WORA) meaning that compiled Java code can run on all platforms without the need for recompilation.

The Java “Hello, World!” Program

Here’s how to we say hellow world, we have the `print` statement inside a method called `main`, and that method is inside a `class`:

```
public class HelloWorld {

    public static void main(String []args) {

        System.out.print("Hello World\n");

    }

}
```

Here’s what each of those statements mean:

The Class	The Method	The Print
<p><code>public</code>: Public is an access modifier for classes and methods, and means they are accessible by any other class.</p> <p><code>class</code>: Used to create a class.</p> <p><code>HelloWorld</code>: This can be whatever name you want (except for keywords and built-in function names).</p>	<p><code>public</code>: Public is an access modifier for classes and methods, and means they are accessible by any other class.</p> <p><code>static</code>: There won’t be an object created from the class that this method is in.</p> <p><code>void</code>: means that this method doesn’t return anything.</p> <p><code>main</code>: This is the first method Java will visit, the main method.</p> <p><code>String []args</code>: Any command line arguments are put into the argument-string, like parameters that go into the program.</p>	<p><code>System</code>: A class that contains several useful Input/Output attributes and methods. It cannot be instantiated.</p> <p><code>out</code>: An output class that helps write content to the screen.</p> <p><code>print</code>: Prints the string enclosed in double quotes.</p>

The class and the method will be the same for most Java programs we are going to write, so you can cut-and-paste it when you are writing new code (just change the classname).

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Java Comments

```
// A Single Line Comment
/* This is a multi-line
Comment */
```

Java Arithmetic Operators

+	Addition, 7 + 3
-	Subtraction, 7 - 3
*	Multiplication, 7 * 3
/	Integer Division, 7 / 3
/	Real Division, 7.0 / 3.0
%	Division Remainder, 7 % 3

Java Variable Types

```
int x;
x = 15;
int x = 15;

double x;
x = 15.0;
double x = 15.0;

char x;
x = 's';
char x = 's';

String x;
x = "Hello, World!";
String x = "Hello World!";

boolean x;
x = false;
boolean x = false;
```

Java Conditional Operators

!=	Is not equal to
==	Is equal to
>	Is greater than
<	Is less than
>=	Is greater than or equal to
<=	Is less than or equal to

Java Logical Operators

&&	Logical AND
	Logical OR
!	Logical NOT

These can be used in conditions.

Java String Formatting

length()	Length of string
toUpperCase()	Make upper case
toLowerCase()	Make lower case
indexOf(Str)	Find Str

Java IF Statement

```
if (condition) {
    // if condition is true
} else {
    // if condition is false
}
```

Java SWITCH Statement

```
switch(expression) {
    case x:
        // code block
        break;
    case y:
        // code block
        break;
    default:
        // code block
}
```

Java WHILE Statement

```
while (condition) {
    // code to be executed
}
```

Java FOR Statement

```
for (initial; cond; inc) {
    // code to be executed
}
```

Java Methods

```
public class Main {
    static void METHOD () {
        // code to be executed
    }
}
```

All methods are generally enclosed within a class, and the method called `main()` is executed first.