<BEGINNERS PROGRAMMING GUIDE>

JAVA

<33 BEST JAVA TIPS AND TRICKS>

2021

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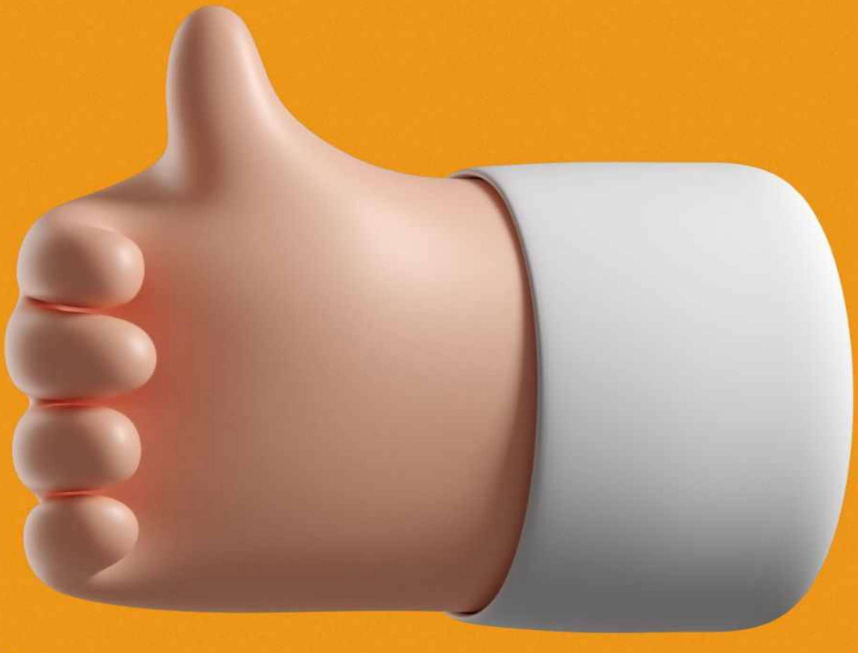

2021

Java: 2021 Beginners Programming Guide. 33 Best Java Tips and Tricks

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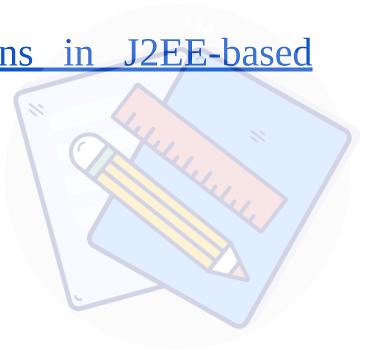

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Introduction

What is the Java language?

Java is a high-level, compiled, procedural language that's most often used as the underlying engine behind the Java virtual machine (JVM) and as the basis for the Java standard libraries.

Java is one of several programming languages that compile down to machine code and run on IBM mainframes and Intel x86 processors, as well as numerous other architectures.

Since Java is a scripting language, it is considered a dynamic programming language, meaning that it's easy to automate tasks with many steps and little or no boilerplate.

Java runs on many different platforms: It runs on the Unix, Linux, and macOS operating systems; on Microsoft Windows; and it's the language of choice for Android. You can also run Java on servers, in containerized environments, and on embedded systems, such as the Raspberry Pi.

Java is a developer-centric programming language, meaning it's designed for programmers who want to write code for a variety of systems, from the command line to the web browser. It's also a language that's quite friendly to extensibility and customization.

Java has traditionally been thought of as a "server-side" language, which means it's ideal for writing server applications. But over time, its potential for creating desktop applications grew. That's partly due to the presence of its Cordova software development kit, which allows Java code to be used as the basis for mobile apps.

Why is Java such a popular programming language?

Java is a mature, popular language that has a very friendly developer community. Over the past few years, a large community of Java software developers has sprung up around the platforms it supports.

While many traditional programming languages have enjoyed a strong following due to their productivity, which allows for rapid development, Java has evolved into a "server-side" language that's ideal for making robust web applications, web services, and enterprise software. Because of its popularity and excellent documentation, Java is quite popular in the marketplace, with many businesses that use Java systems choosing to keep it around in part because of its long-term commitment to its developer community.
Java also is an exceptional language for writing low-level programming for parallel computing. Because it compiles down to machine code, it's a popular choice for supercomputers, where performance is paramount.

What is the Java programming language?

Java is a popular object-oriented programming (OOP) language that's designed to be "interactive." That means that instead of the developers writing applications directly, in Java, all of the software elements are encapsulated in objects. Thus, all of the coding is done in Java code and object code, and the interface (i.e. application) is coded in a developer-friendly language, such as Java.

The main characteristic of object-oriented programming is that an object's state—whether it's "downloaded," "updated," or "disposed of"—is visible to other objects. Therefore, a single object in an object-oriented program doesn't need to know the details of how to do anything. When a developer has to code that out, that's what a "method call" is, and that's what Java is about.

A "method call" is a very powerful feature of object-oriented programming, because it allows a developer to instantiate and destroy an object, and thus to change the object's state. That allows a developer to build up a business logic with values for the object's state—for example, a file name in a web service—and then to make a "method call" to that file name to make that value readable to the other objects in the system.

In most programming languages, a method call uses the runtime library to create and return values from the method. But because the main function of Java is to be used on the operating system, which doesn't contain a runtime library, a method call can be made directly from within the Java code.

This is a very powerful feature for the developer since the code to implement the method call, and the methods that can be made to return from that method can be created in Java code itself.

Another main feature of Java is that it allows developers to make copies of objects, instead of creating objects on the fly. So if an object (in Java, a class) has a lot of children, for example, this makes the developer's life easier because she doesn't need to worry about keeping up with objects and their changes—she only has to worry about the one "owner" of the object (in the case of the class).

This approach also allows the developer to encapsulate common behavior into objects that can be shared across the system. The benefit here is that the class is the main value store of the system, and each piece of software needs to be able to access this value store to manipulate the underlying functionality. This shared data is referred to as an "interface" for the class, and you can get that with a method call.

The biggest thing to note about Java is that, for the most part, it's designed for running on the OS and CPU and nothing more—it doesn't have any dependency on other operating systems or operating systems. This means that it's much easier to update Java when something new is available. It also means that it's easier to integrate new features into the language.