**FULL-STACK JAVA COURSE**

**What is Java :**

* Java is a **programming language** and a **platform**.
* Java is a high level, robust, object-oriented and secure programming language

**Advatages :**

* Java is Open Source which means its available free of cost.
* Java is simple and so easy to learn
* Java is much in demand and ensures high salary
* Java has a large vibrant community
* Java has powerful development tools
* Java is platform independent

**History of Java :**

The history of Java starts with the Green Team. Java team members (also known as Green Team), initiated this project to develop a language for digital devices such as set-top boxes, televisions, etc. However, it was best suited for internet programming. Later, Java technology was incorporated by Netscape.

The principles for creating Java programming were "Simple, Robust, Portable, Platform-independent, Secured, High Performance, Multithreaded, Architecture Neutral, Object-Oriented, Interpreted, and Dynamic". [Java](https://www.javatpoint.com/java-tutorial) was developed by James Gosling, who is known as the father of Java, in 1995. James Gosling and his team members started the project in the early '90s.

**Applications Of Java :**

## ****Mobile Application********s****

## Java is considered as the official programming language for mobile app development. It is compatible with software such as Android Studio and [Kotlin](https://www.edureka.co/blog/what-is-kotlin/). Now you must be wondering why only Java? The reason is that it can run on [Java Virtual Machine(JVM)](https://www.edureka.co/blog/java-virtual-machine/), whereas Android uses DVK(Dalvik Virtual Machine) to execute class files. These files are further bundled as Android application Package(APK). With Java and its OOPs principles, it provides better security and ease of simplicity with Android.

## ****Desktop GUI Applications****

All desktop applications can easily be developed in Java. Java also provides GUI development capability through various means mainly Abstract Windowing Toolkit (AWT), [Swing](https://www.edureka.co/blog/java-swing/) and JavaFX. While [AWT](https://www.edureka.co/blog/java-awt-tutorial/) holds a number of pre-assembled components like menu, list, button. Swing is a GUI widget toolkit, it provides certain advanced elements like trees, scroll panes, tables, tabbed panel, and lists.

## ****Enterprise Applications****

Java is the first choice of many software developers for writing applications and Java Enterprise Edition (Java EE) is a very popular platform that provides API and runtime environment for scripting. It also includes network applications and web-services. JavaEE is also considered as the backbone for a variety of banking applications which have [Java](https://www.edureka.co/blog/java-tutorial/) running on the UI to back server end.

## ****Scientific Applications****

Sofware developers see Java is the weapon of choice when it comes to coding the scientific calculations and mathematical operations. These programs are designed to be highly secure and lighting fast. they support a higher degree of portability and offer low maintenance. Some of the most powerful applications like the MATLAB use Java for interacting user interface as well as part of the core system.

## ****Gaming Applications****

Java has the support of the open-source most powerful 3D-Engine, the jMonkeyEngine that has the unparalleled capability when it comes to the designing of 3D games. However, it does cause an occasional latency issue for games as [garbage collection](https://www.edureka.co/blog/garbage-collection-in-java/) cycles can cause noticeable pauses. This issue will be solved in the newer versions of [JVMs](https://www.edureka.co/blog/java-virtual-machine/).

**Data Types :**

* data type is an attribute associated with a piece of data that tells a computer system how to interpret its value. Understanding data types ensures that data is collected in the preferred format and that the value of each property is as expected.
* An attribute that identifies a piece of data and instructs a computer system on how to interpret its value is called a data type.
* The term “data type” in software programming describes the kind of value a variable possesses and the kinds of mathematical, relational, or logical operations that can be performed on it without leading to an error

**Types of Data Types in java**

1. **Primitive data type**

* Primitive data types in Java are predefined by the Java language and named as the reserved keywords

1. **Non-Primitive data type**

* NonPrimitive data types in java are user define data type

Ex class,intefaces,etc

|  |  |  |
| --- | --- | --- |
| Data Type | Size | Description |
| byte | 1 byte | Stores whole numbers from -128 to 127 |
| short | 2 bytes | Stores whole numbers from -32,768 to 32,767 |
| int | 4 bytes | Stores whole numbers from -2,147,483,648 to 2,147,483,647 |
| long | 8 bytes | Stores whole numbers from -9,223,372,036,854,775,808 to 9,223,372,036,854,775,807 |
| float | 4 bytes | Stores fractional numbers. Sufficient for storing 6 to 7 decimal digits |
| double | 8 bytes | Stores fractional numbers. Sufficient for storing 15 decimal digits |
| boolean | 1 bit | Stores true or false values |
| char | 2 bytes | Stores a single character/letter or ASCII values |