**Java Tutorial**

**Introduction to Java**

Java is a general-purpose, class-based, object-oriented programming language designed.

**Features of Java**

Some features of Java include:

1. Simple
2. Object-oriented
3. Robust
4. Platform Independent
5. Secure
6. Multi-threading
7. Architectural neutral
8. Portable

**Components of Java**

1. Java Virtual Machine (JVM) - The JVM is a Java platform component that provides an environment for executing Java programs. JVM interprets the bytecode into machine code which is executed in the machine in which the Java program runs.

* Loads the code
* Verifies the code
* Execute the code
* Provides runtime environment

1. Java Runtime Environment (JRE) - The JRE software builds a runtime environment in which Java programs can be executed. The JRE is the on-disk system that takes your Java code, combines it with the needed libraries, and starts the JVM to execute it. The JRE contains libraries and software needed by your Java programs to run.
2. Java Development Kit (JDK) - The Java Development Kit (JDK) is a software development environment used to develop Java applications and applets. It contains JRE and several development tools, an interpreter/loader (java), a compiler (javac), an archiver (jar), a documentation generator (javadoc).

**Difference between C, C++ and Java**

1. The languages are based on each other, but still, they are different in design and philosophy.
2. The C language is based on BCPL, while C++ is based on C (which is a superset of C) and Java is based both on C and C++.
3. C is a procedural language while both C++ and Java are object-oriented programming language.
4. C and C++ are static type language while Java is dynamic type language.

**Compiler vs Interpreter**

Compiler - Compiler scans the entire program and translates the whole of it into machine code at once. Languages that use compiler are C, C++, Erlang, Haskell, Rust, and Go.

Interpreter - Interpreter translates just one statement of the program at a time into machine code. Languages that use interpreter are PHP, Ruby, Python, and JavaScript.