**What is Java? Explain its significance in modern software development.**

**-** Java is a programming language and computing platform that's used to create applications for many devices, including smartphones, desktops, and servers.

* **Java 8:**
  + Lambda expressions
  + Stream API
  + Default methods in interfaces
* **Java 11:**
  + New HttpClient
  + Removal of Java Web Start (javaws)
  + Local-variable type inference (var keyword)
* **Java 17:**
  + Sealed classes
  + Record types
  + Enhanced switch expressions
  + Improved performance optimizations
* **Java 21:**
  + Virtual threads
  + Structured concurrency
  + Finalized Foreign Function & Memory API
  + Improved string templating

Compiler

* Translates code before the program runs
* Analyzes the source code and breaks it down into instructions that the computer can understand
* Turns human-readable program code into machine code
* The machine code is stored in a file with an extension like .exe, which is directly executed by the computer

Interpreter

* Translates code line-by-line as the code runs
* Reads and executes the code line by line
* Translates each line into machine instructions before executing the following line
* Makes it easier to identify any errors and debug the code