



# SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

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COIMBATORE-641 035, TAMIL NADU



## DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

**COURSE CODE & NAME : 23CSB201 - Object Oriented Programming**

## II YEAR/ III SEMESTER

### UNIT-I : INTRODUCTION TO OOP

**Topic: Java Architecture**



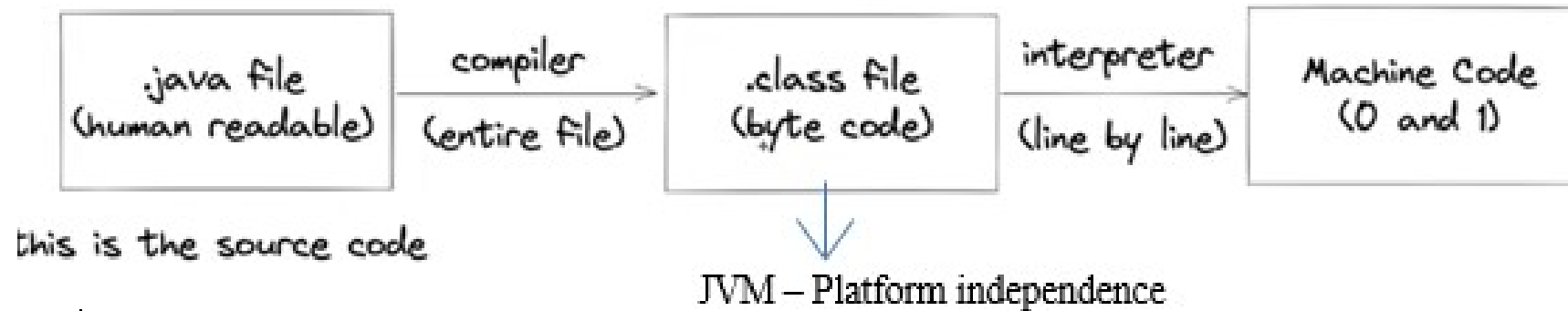
## Java virtual Machine



- When you run the Java program, Java compiler first compiles your Java code to bytecode.
- Then, the JVM translates bytecode into native machine code (set of instructions that a computer's CPU executes directly).
- Java is a platform-independent language. It's because when you write Java code, it's ultimately written for JVM but not your physical machine (computer).
- Since JVM executes the Java bytecode which is platform-independent, Java is platform-independent.



# Java virtual Machine



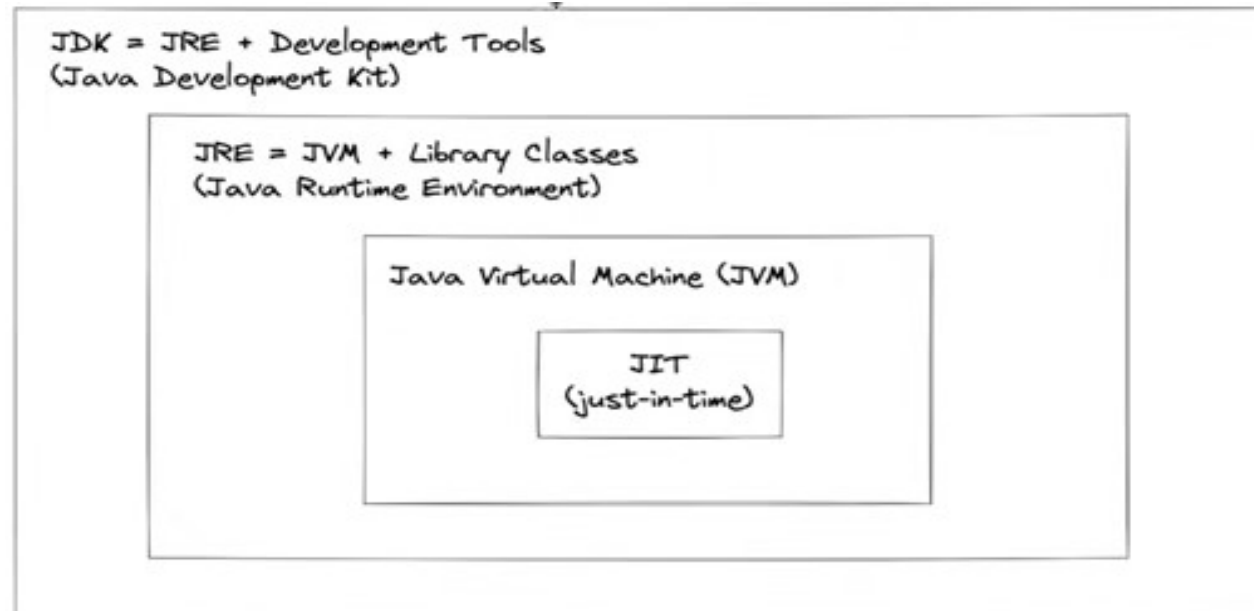
C / C++ → .exe is generated which is platform dependent

Java → Byte code → platform independent

JVM → platform dependent (each OS may internally know how to convert the byte code into machine code)



# How java works

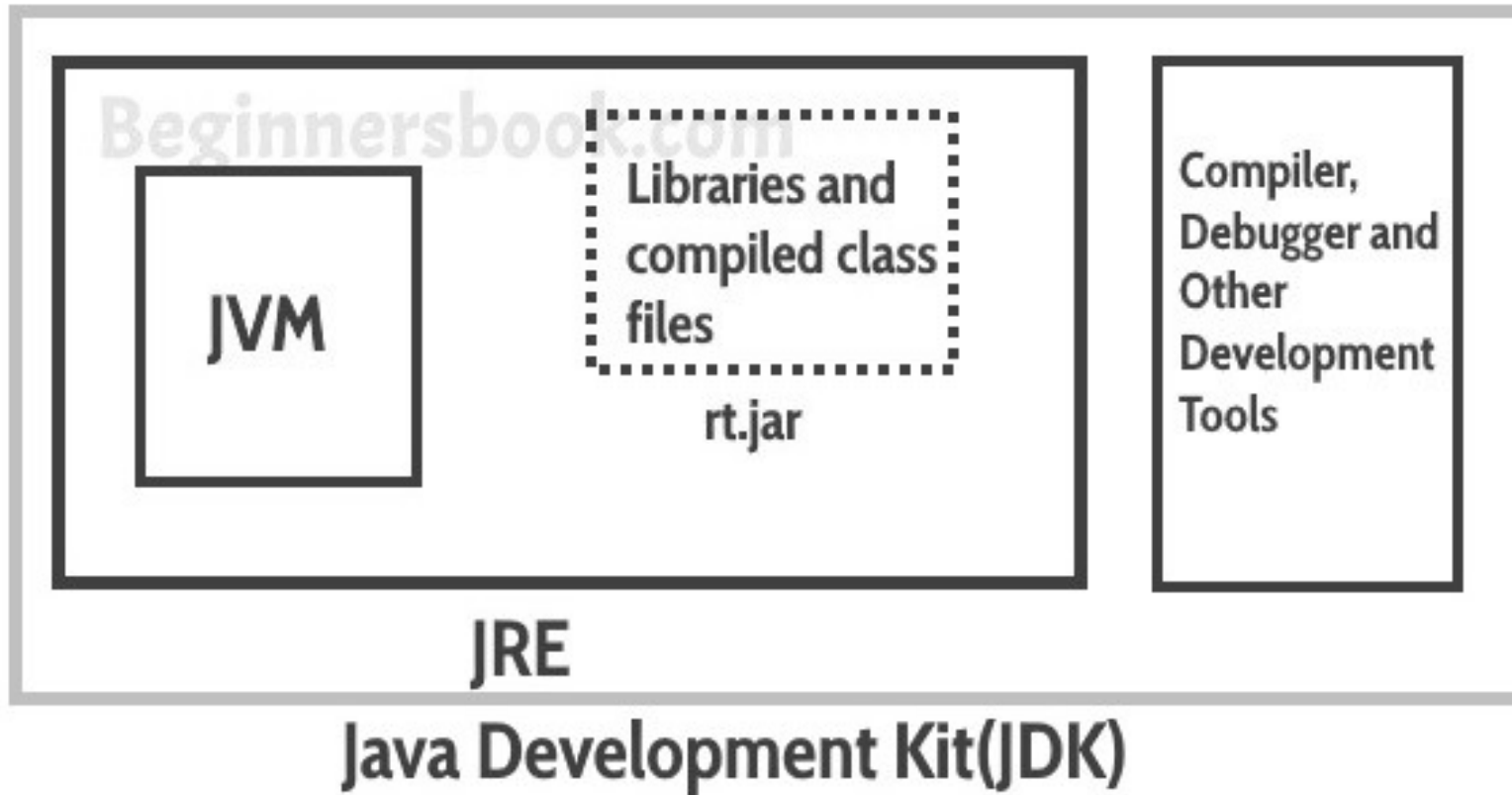


JDK (Java Development Kit) – package

- development environment
- JRE – run the program → JVM (loading + linking+mem)
- compiler (javac)
- archiever – jar
- interpreter / loader



# Java Development Kit (JDK) Architecture





## Java Development Kit (JDK) Architecture



- The Java Development Kit (JDK) contains several essential tools and resources for developing applications using the Java programming language. Some of its key components include:
  - The Java compiler translates Java source code into bytecode that can run on any platform with a Java Virtual Machine (JVM).
  - The Java Virtual Machine (JVM) provides an execution environment for Java bytecode.
  - The Java Class Library is a collection of pre-written code developers can use to build Java applications.
  - The Java Debugger is a tool developers can use to find and fix errors in their code.
  - JavaDoc provides an easy way to generate documentation from Java source code.

