



# **SNS COLLEGE OF TECHNOLOGY**

(An Autonomous Institution)

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COIMBATORE-641 035, TAMIL NADU



## **DEPARTMENT OF COMPUTER SCIENCE ENGINEERING**

**COURSE CODE & NAME : 23CST205 - Object Oriented Programming Using Java**

## **II YEAR/ III SEMESTER**

### **UNIT-I : INTRODUCTION TO OOP**

#### **Topic:Java Virtual Machine, JDK**

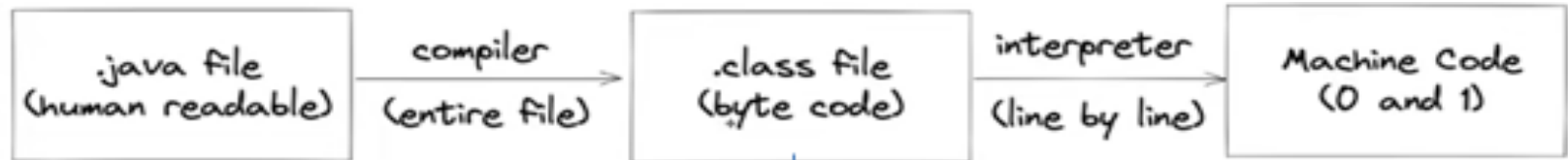


## Java virtual Machine

- 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



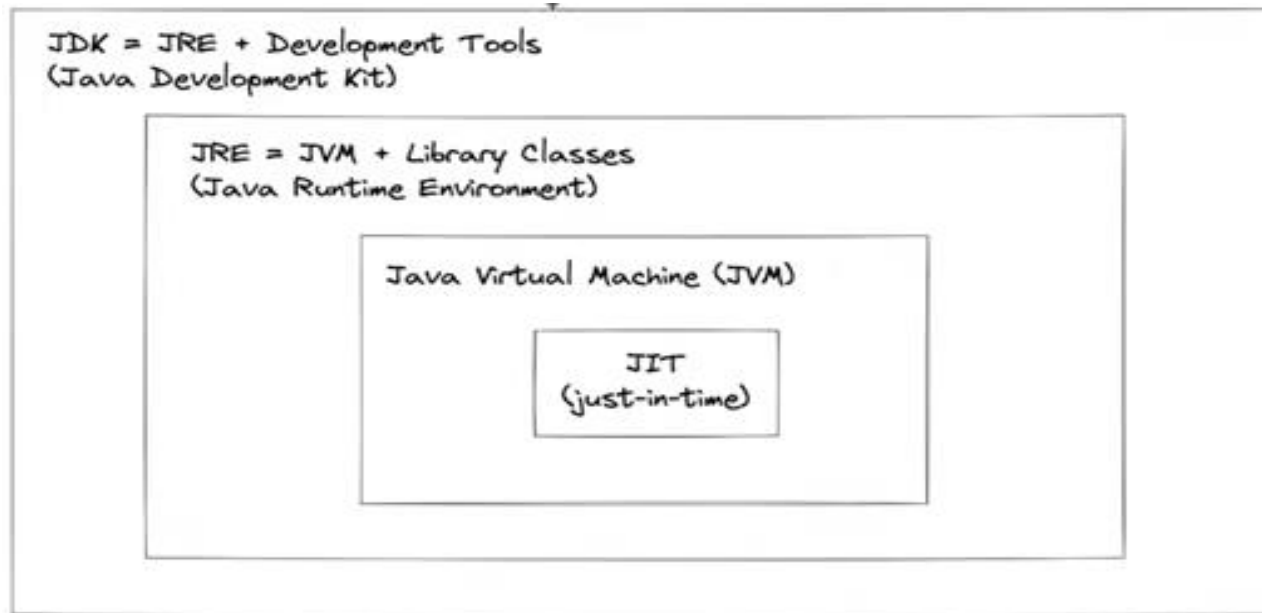
this is the source code

JVM – Platform independence

- 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

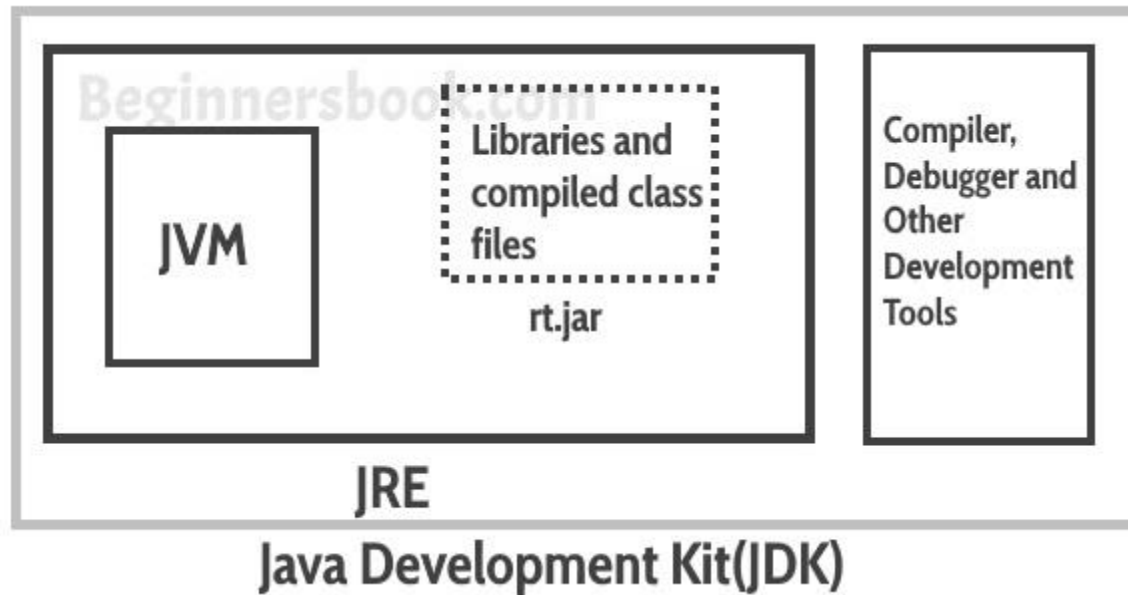


JDK (Java Development Kit) – package

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



# Java Development Kit(JDK) Architecture





# The Java Development Kit (JDK)

- 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.

