**Major components of java (JDK, JVM, JRE)**

Compiler -> javac, converts ‘.java’ to ‘.class’. Compiles existing code to the bytecodes.

Launcher -> java, creates and launches virtual machine and runs the code, program. The executable is ‘.class’ files.

**JDK tools**

Archiver -> ‘jar’, packages files together.

API documentation -> ‘javadoc’, generates documentation.

***Note:***

*In Java 11,**JRE is no longer available as a stand-alone download. Instead, developers can supply ‘executable’ that contains the required pieces. The jlink command creates this executable.*

**Benefits of the java**

OO, Encapsulation,

Platform Independent -> Java is an interpreted language that gets compiled to bytecodes. Write once, run everywhere,

Robust -> It prevents memory leaks. Java manages memory on its own and does garbage collection auto.

Simple, Secure, Multithreaded,

Backward Compatibility -> Java ensures that old java applications are capable with newer versions.

**Fields and Methods**

Field, called as state.

Method, called as behavior.

Methods + Fields, called as members of the class.

Method name + parameter types, called as method signatures.

Method returns type, called as method declaration.

**Comments (3 Types)**

Single line ‘//’

/\*Multiple line\*/

/\*\*

\* Javadoc multiple line

\* @author Someone

\*/

**Running a program in a single line**

We can run the program without needing to compile to, this feature is called ‘single file source-code’ programs. This can be happened, only program contains one file.

**Packages**

Wildcards -> \*

‘\*’, only matches class names, not the files.

‘.\*.\*’, two wildcards cannot be used together.

Wildcards does not look at subdirectories.

Package + class name, fully qualified class name.

javac -d folder\_name number\_of\_ ‘. java’s , Creating number of compiled classes under the folder

java -cp/-classpath/--class-path folder\_name package.ClassName , running the class

**Creating jar file**

jar -cvf myNewFile.jar , creates jar

jar --create --verbose --file myNewFile.jar

jar -cvf myNewFile.jar -C <directory> , creates jar under the specific folder

- v, --verbose , prints details when working with jar