Dt.:
Pg.:

= Start
input n
if n <= 1
output "Prime number"
C = 2
while c * c <= n
if n % c == 0;
output "Not prime"
Exit
c = c + 1
end while
output "prime"
Exit

## How Java Code Executes

| Java file | Compiler | .class file | interpreter | Machine |
|---|---|---|---|---|
| Human Read | (entire file) | (Byte code | (line by line) | code (0 & 1 |

↳ Source code

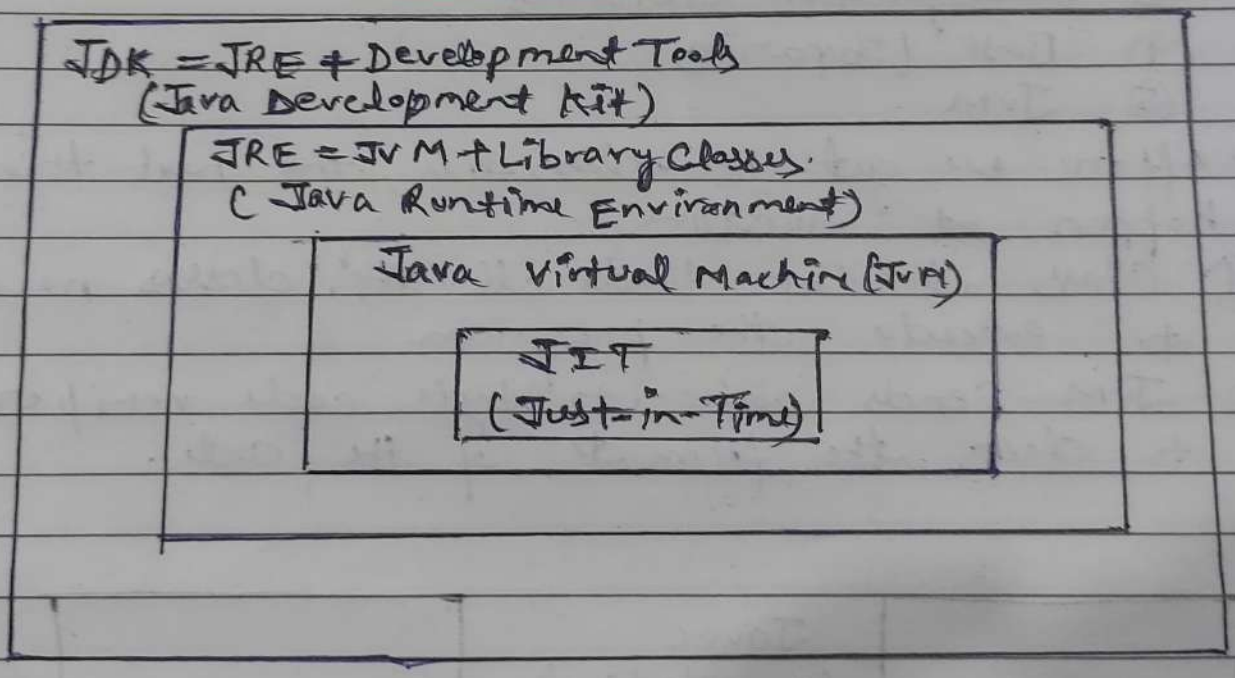
- this code will not directly run on a system
- we need JVM to run this
- Reason why Java is platform independent

## # More about platform independence

- It means that byte code can run on all operating systems.

- we need to convert source code to machine code so computer can understand
- Compiler helps in doing this by turning it into executable code.
- this executable code is a set of instruction for the computer
- After compiling C/C++ code we get .exe file which is platform dependent
- In Java we get byte code, JVM converts this machine code.
- Java is platform-independent but JVM is platform dependent.

## Architecture



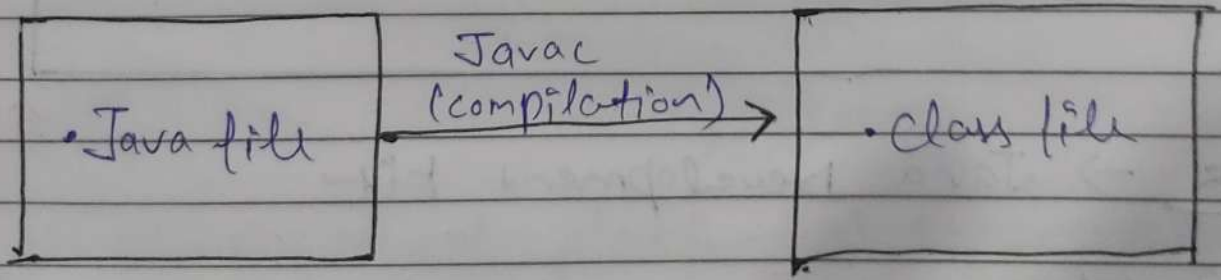

**JDK** → Java Development Kit

- Provides environment to development and run the Java program.
- It is a package that includes:
  (1) Development tools - to provide an environment to develop your program.

② JRE - to execute your program
③ a compiler - Javac
④ archiver - Jar
⑤ docs* generator - javadoc
⑥ Interpretor / loader

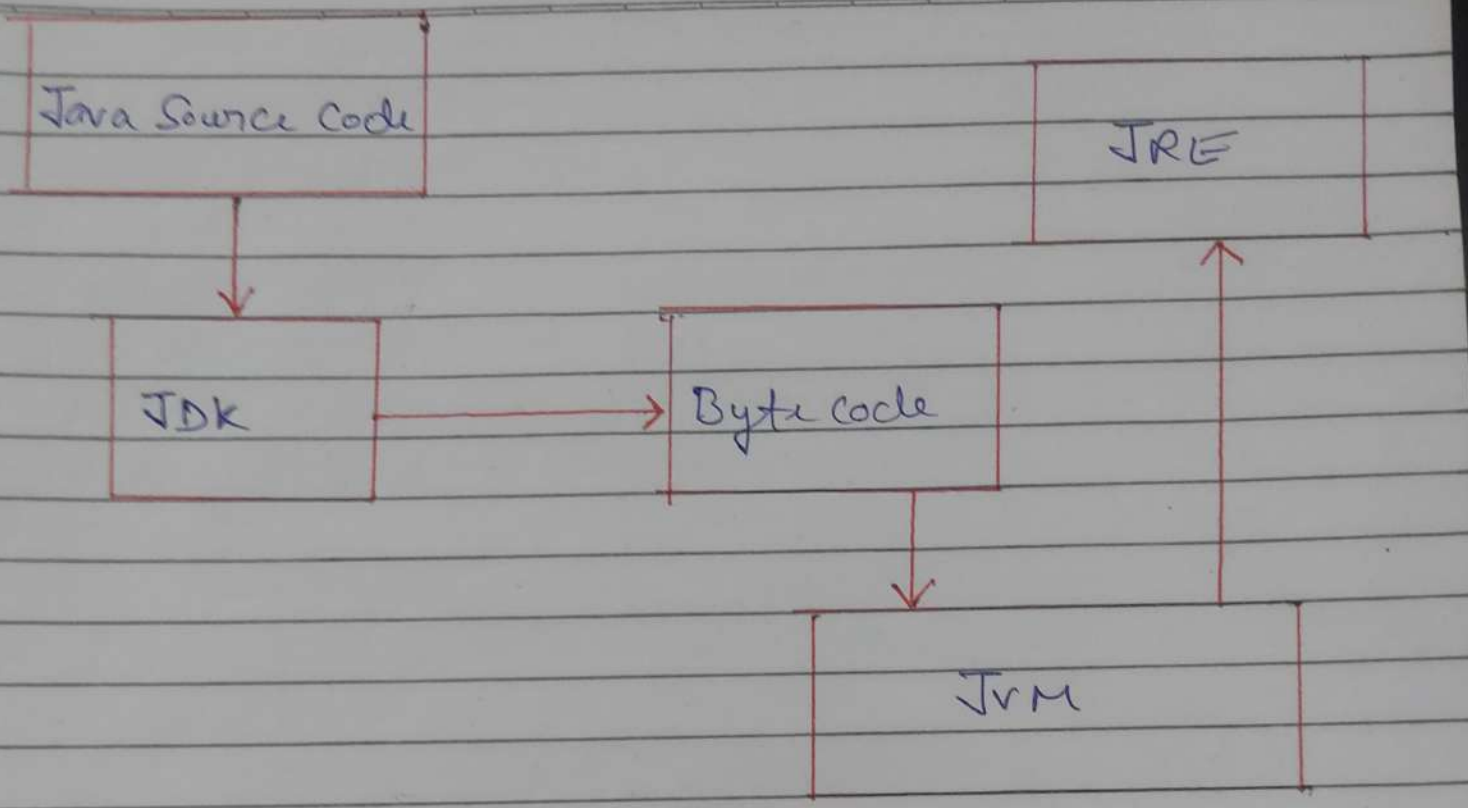
JRE = Java Runtime Environment

- It is an installation package that provide environment to only run the program
- It consist of
  ① Development technologies
  ② User interface toolkits.
  ③ Integration Libraries.
  ④ Base Libraries
  ⑤ JVM.
- After we get the .class file, the next things happen at runtime:
  ① Class loader loads all the classes needed to execute the program
  ② JVM sends code to byte code verifier to check the formats of the code.




JVM Execution
Interpretor
- Line by line execution.
- when one method is called many times it will interpret again & again

JIT
- those method that are repeated JIT provides direct machine code.


Java Source Code
JDK
Byte code
JVM
JRE