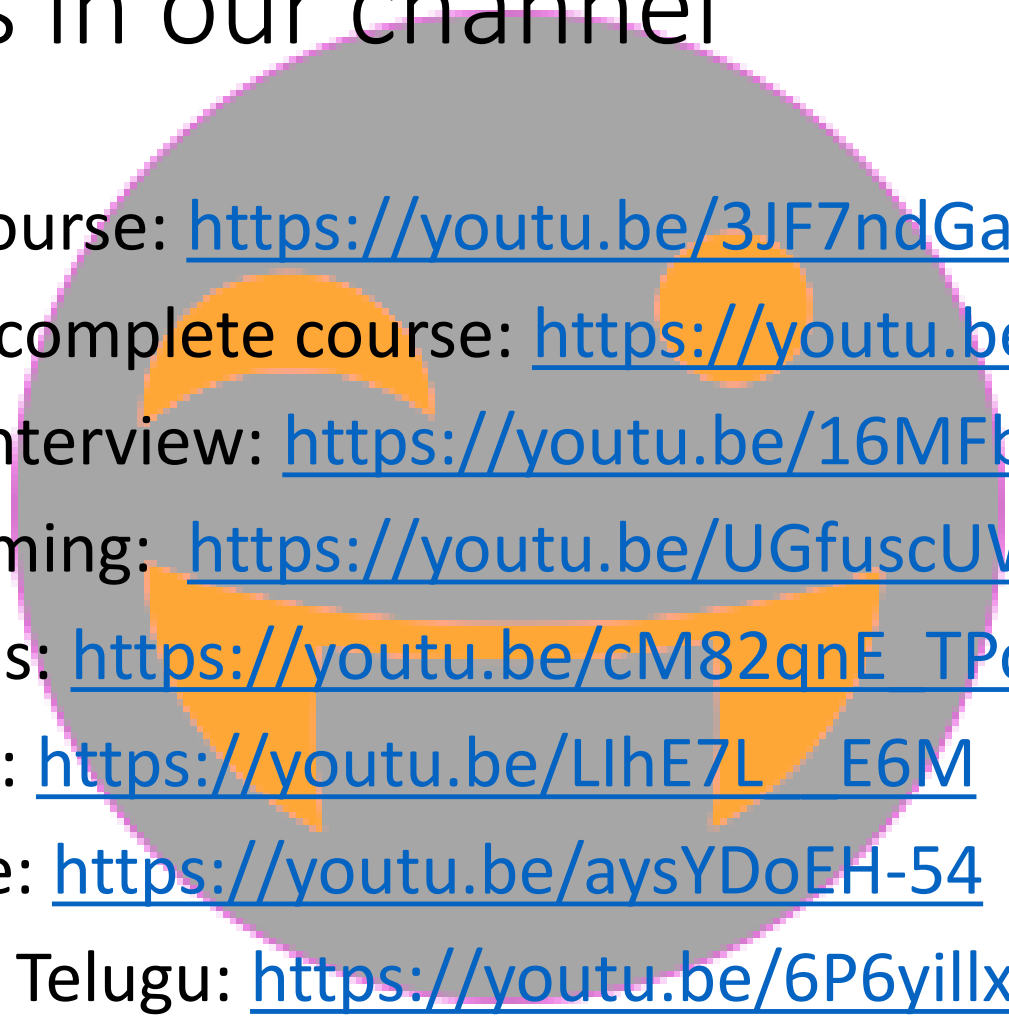
Chapter 5

Steps to execute a Java program

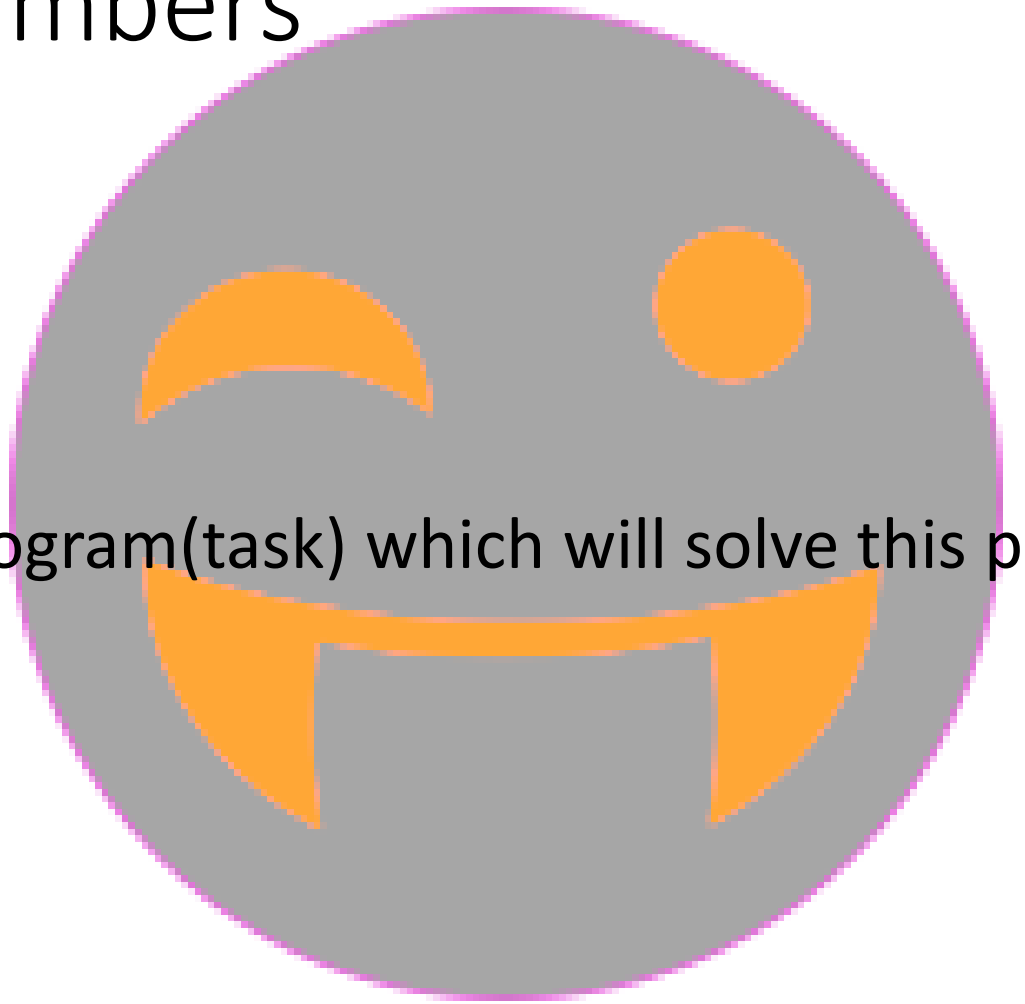
Other courses in our channel



- 👉 C 18 Hours Full course: https://youtu.be/3JF7ndGauZk
- 👉 Python 11 hours complete course: https://youtu.be/hXN0JBWIya8
- 👉 20 Programs for interview: https://youtu.be/16MFbFib7v8
- 👉 What is programming: https://youtu.be/UGfuscUWi-E
- 👉 Java in 10 minutes: https://youtu.be/cM82qnE_TPc
- 👉 Git Telugu course: https://youtu.be/LIhE7L__E6M
- 👉 Git English course: https://youtu.be/aysYDoEH-54
- 👉 HTML Full course Telugu: https://youtu.be/6P6yillxZY4

Add below numbers

- 30+50 **80**
- 89+87 **176**
- 82737+983
- Let’s look at java program(task) which will solve this problem



Task

```
Enter first number
190
Enter second number
1999
Addion is: 2189
```

Program

- Set of instructions used **to perform a task**

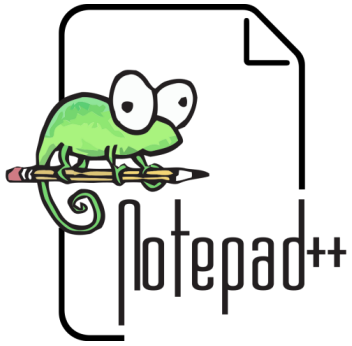
```
import java.util.Scanner;
public class Addition{
public static void main(String args[]){
     Scanner scanner=new Scanner(System.in);
     System.out.println("Enter first number");
     int a = scanner.nextInt();
     System.out.println("Enter second number");
     int b = scanner.nextInt();
     int c = a+b;
     System.out.println("Addition is: "+c);
}
}
```

```
Enter first number
190
Enter second number
1999
Addion is: 2189
```

Tools needed

Computer

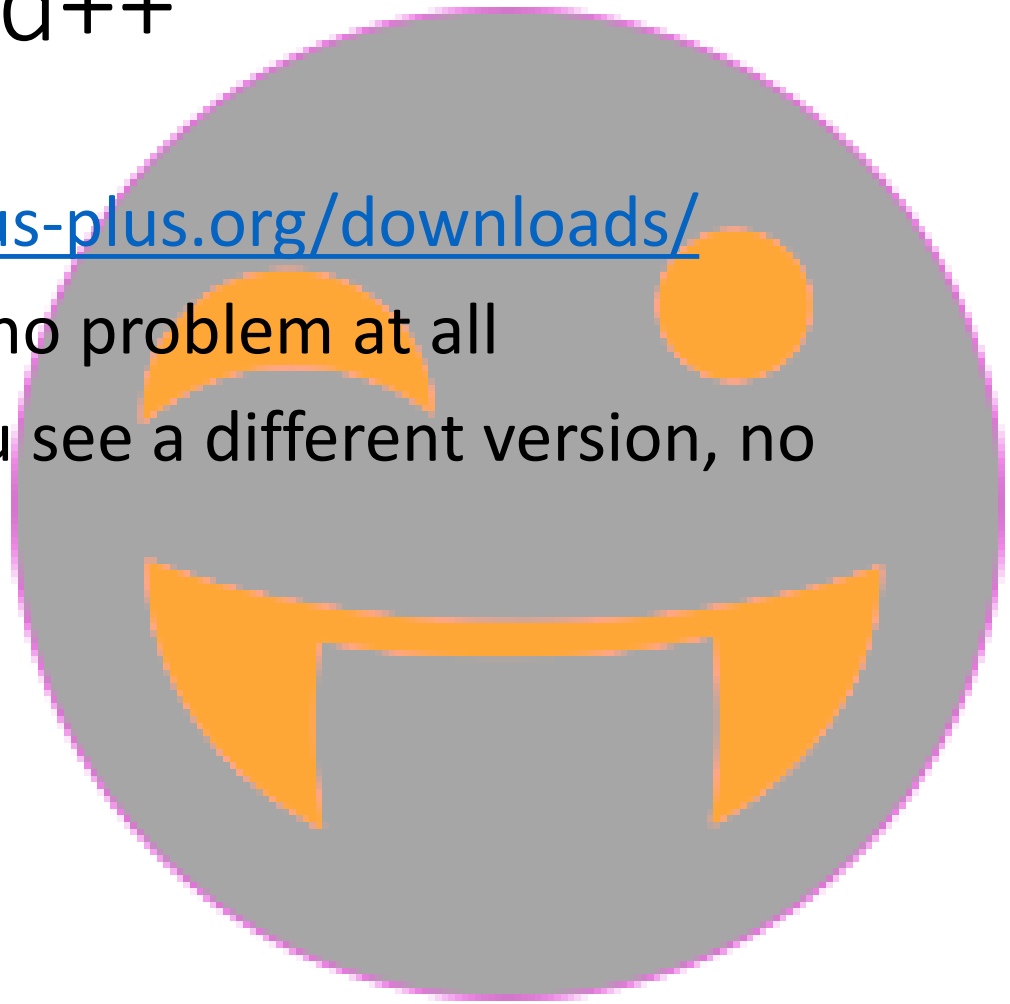
Mobile/Tablet



JDK(Java Development Kit)

Install notepad++

- https://notepad-plus-plus.org/downloads/
- Install any version, no problem at all
- Even in future if you see a different version, no problem at all



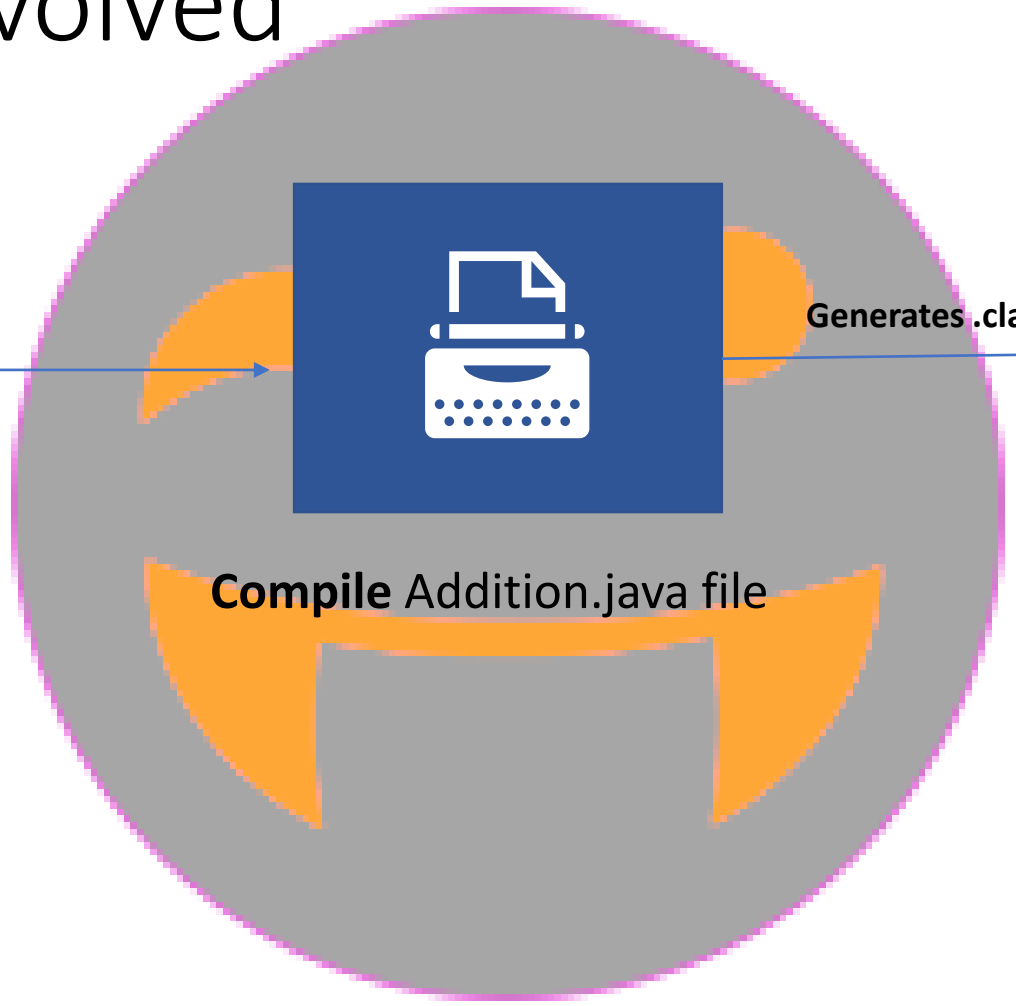
Just Listen Don’t do anything

- I will show how to execute a java program
- Later we will see how to install JDK(**J**ava **D**evelopment **K**it) and write our own program and executes it

Basic steps involved

Create a java file (.java)

Addition.java



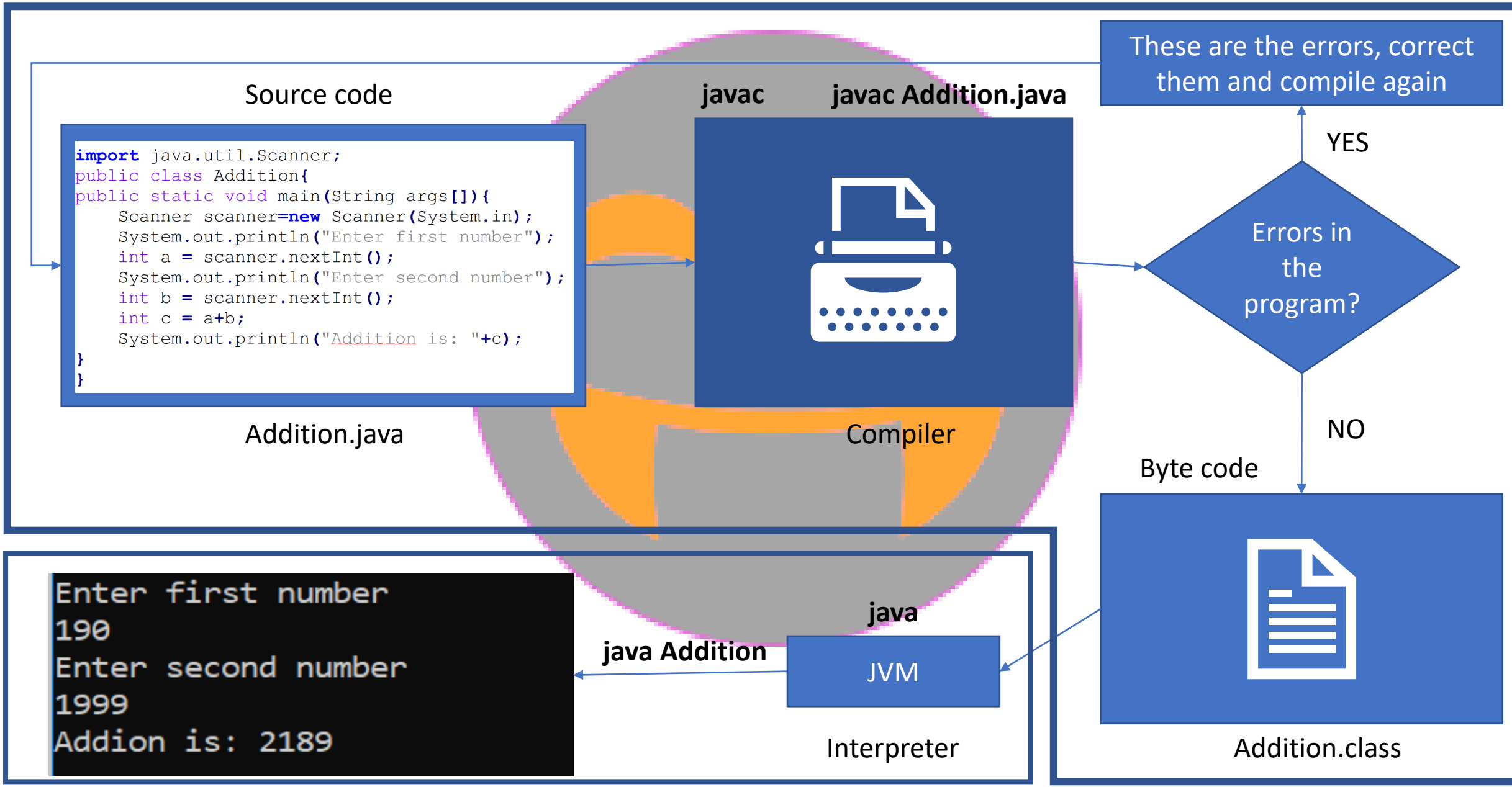
Compile Addition.java file

Generates .class file

Interpreter

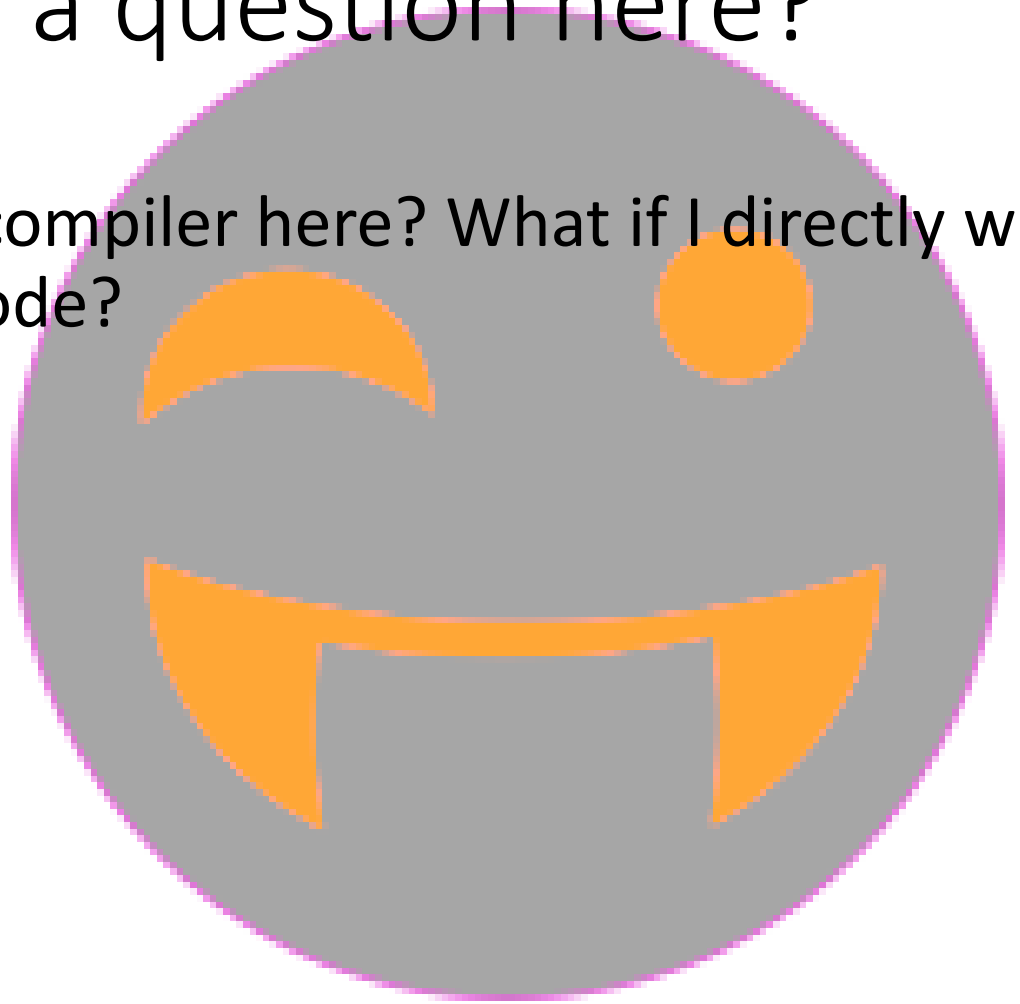
Output

Detailed steps to write and execute java programs?



You might get a question here?

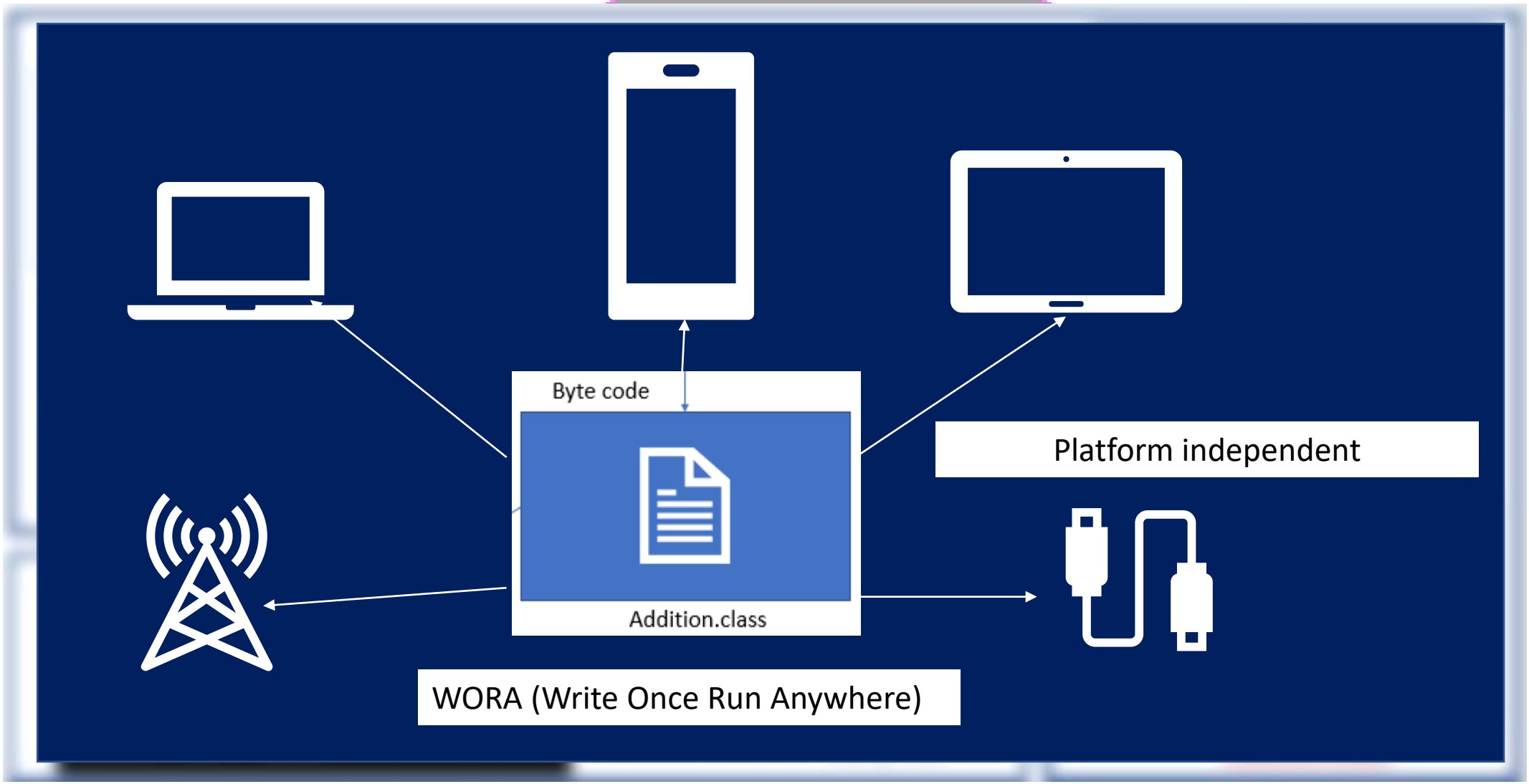
- What is the use of compiler here? What if I directly write a byte code instead of source code?



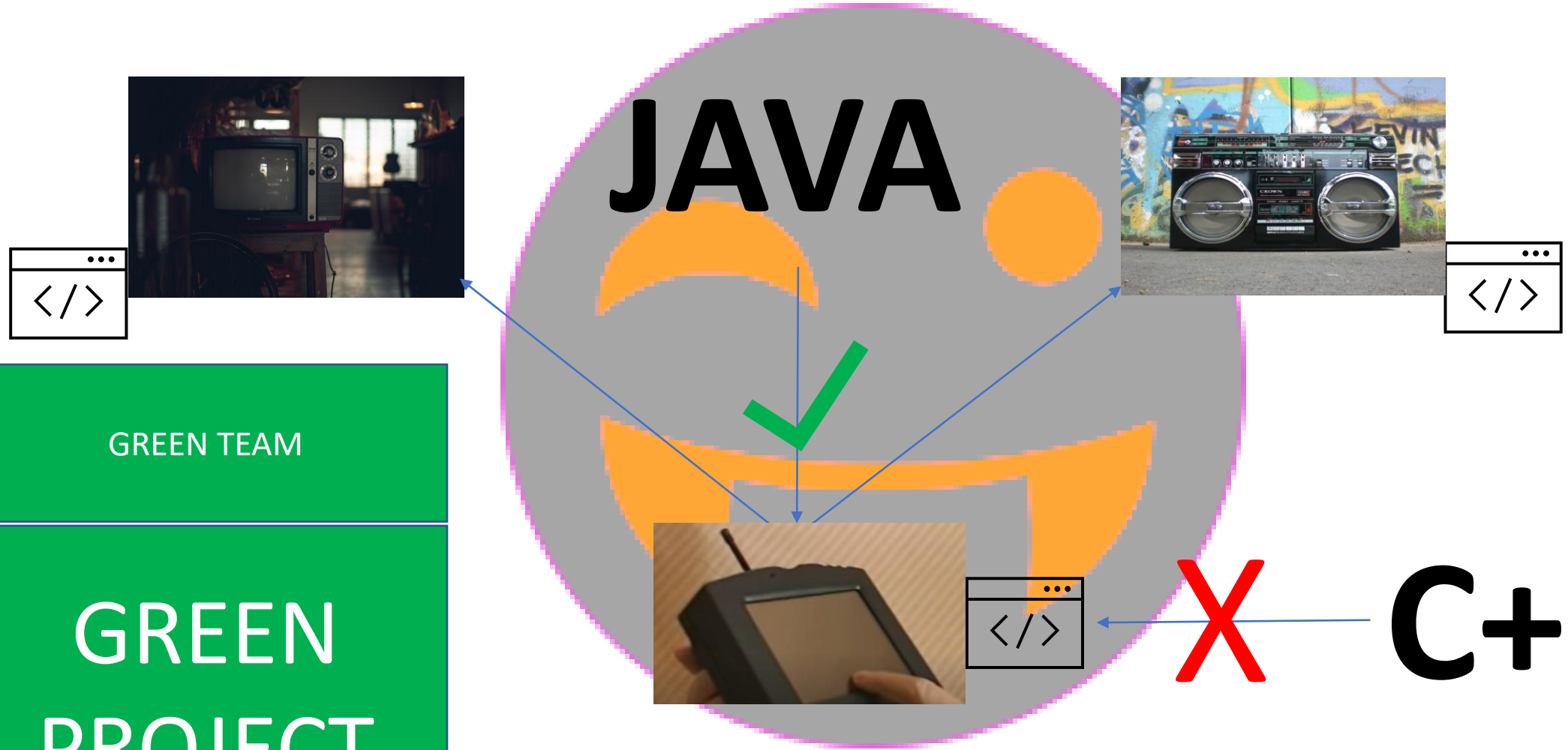
Byte code for Addition.java file

```
Êþº¾NULNULNUL4NUL<
NULDC1NULSUBBELNULESC NULFSNULGS
NULSTXNULRS      NULFSNULUSBSNUL
NUL!NUL"
NULSTXNUL#BSNUL$BELNUL%
NUL
NULSUBBSNUL&
NUL
NUL'
NUL
NUL(
NUL
NUL)BELNUL*BELNUL+SOHNULACK<init>SOHNULETX()VSOHNULEOTCodeSOHNULSILineNumberTableSOHNULEOTmainSOHNULSYN([Ljava/lang/String;)VSOHNUL
SourceFileSOHNUL
Addition.javaFFNULDC2NULDC3SOHNULDC1java/util/ScannerBELNUL,FFNUL-NUL.FFNULDC2NUL/FFNUL0NUL1SOHNULDC2Enter first
numberBELNUL2FFNUL3NUL4FFNUL5NUL6SOHNULDC3Enter second numberSOHNULETBjava/lang/StringBuilderSOHNULVTAddion is:
FFNUL7NUL8FFNUL7NUL9FFNUL:NUL;SOHNULBSAdditionSOHNULDLEjava/lang/ObjectSOHNULDLEjava/lang/SystemSOHNULSTXinSOHNULNAKLjava/io/InputStream;SOHNULCAN(Ljav
a/io/InputStream;)VSOHNULETXoutSOHNULNAKLjava/io/PrintStream;SOHNULDC3java/io/PrintStreamSOHNULBELprintlnSOHNULNAK(Ljava/lang/String;)VSOHNULBELnextIntSOH
NULETX()ISOHNULACKappendSOHNUL-(Ljava/lang/String;)Ljava/lang/StringBuilder;SOHNULFS(I)Ljava/lang/StringBuilder;SOHNULBStoStringSOHNULDC4()Ljava/lang/Strin
g;NUL!NULDLENULDC1NULNULNULNULNULSTXNULSOHNULDC2NULDC3NULSOHNULDC4NULNULNULGSNULSOHNULSOHNULNULNULENQ*·NULSOH±NULNULNULSOHNULNAKNULNULNULACKNUL
SOHNULNULNULSTXNUL      NULSYNNULETBNULSOHNULDC4NULNULNULyNULETXNULENQNULNULNULE»NULSTXYªNULETX·NULEOTLªNULENQDC2ACK¶NULBEL+¶NULBS=ªNULENQDC2
¶NULBEL+¶NULBS>ESGS`6EOTªNULENQ»NUL
Y·NULVTDC2FF¶NUL
NAKEOT¶NULSO¶NULSI¶NULBEL±NULNULNULSOHNULNAKNULNULNUL"NULBSNULNULNULEOTNULVTNULENQNULDC3NULACKNULCANNULBELNUL  NULBSNUL%NUL    NUL*NUL
NULDNULVTNULSOHNULCANNULNULNULSTXNULEM
```

Generated byte code is so powerful that It can run on device which has JVM in it



He wanted to develop something different



GREEN TEAM

GREEN PROJECT

Device which communicates with the home entertainment devices

Addition of two numbers

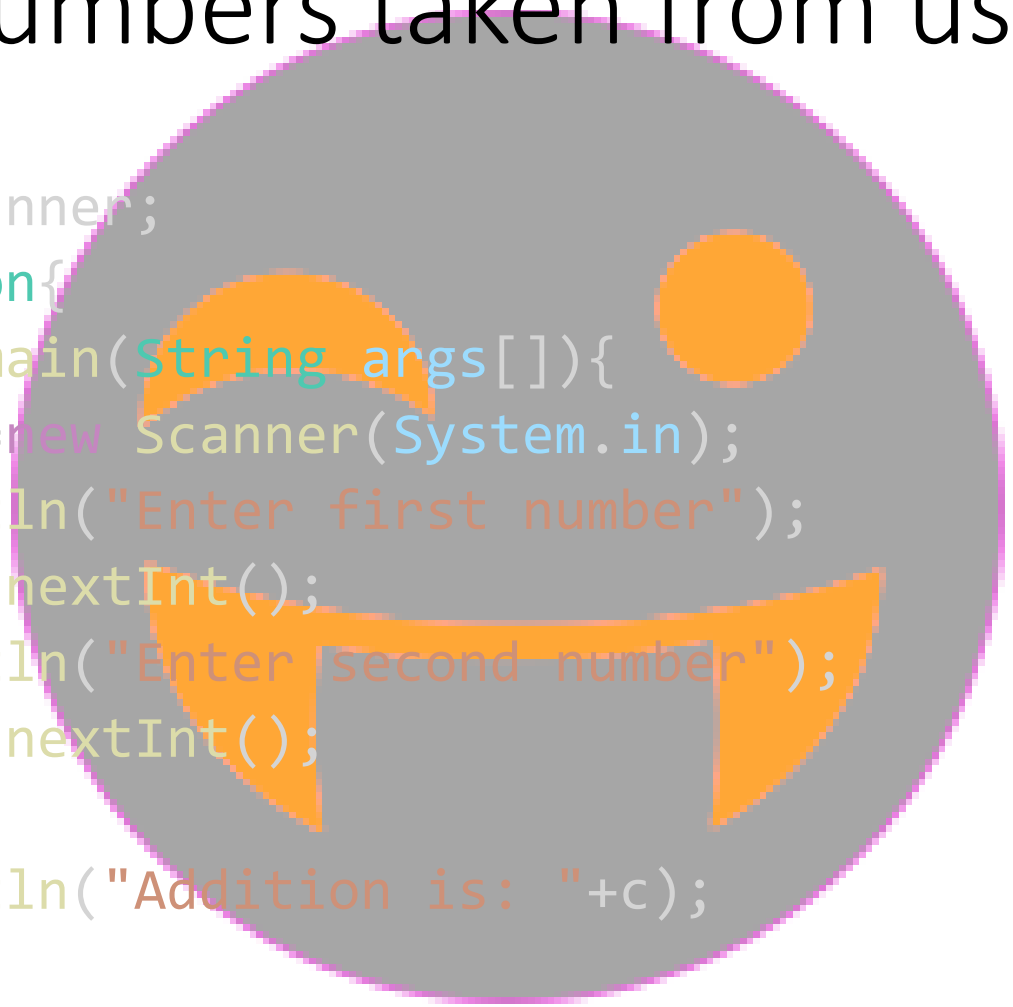
- Let’s run a program and feel java program

Addition.java

```
import java.util.Scanner;
public class Addition{
public static void main(String args[]){
    Scanner scanner=new Scanner(System.in);
    System.out.println("Enter first number");
    int a = scanner.nextInt();
    System.out.println("Enter second number");
    int b = scanner.nextInt();
    int c = a+b;
    System.out.println("Addition is: "+c);
}
}
```

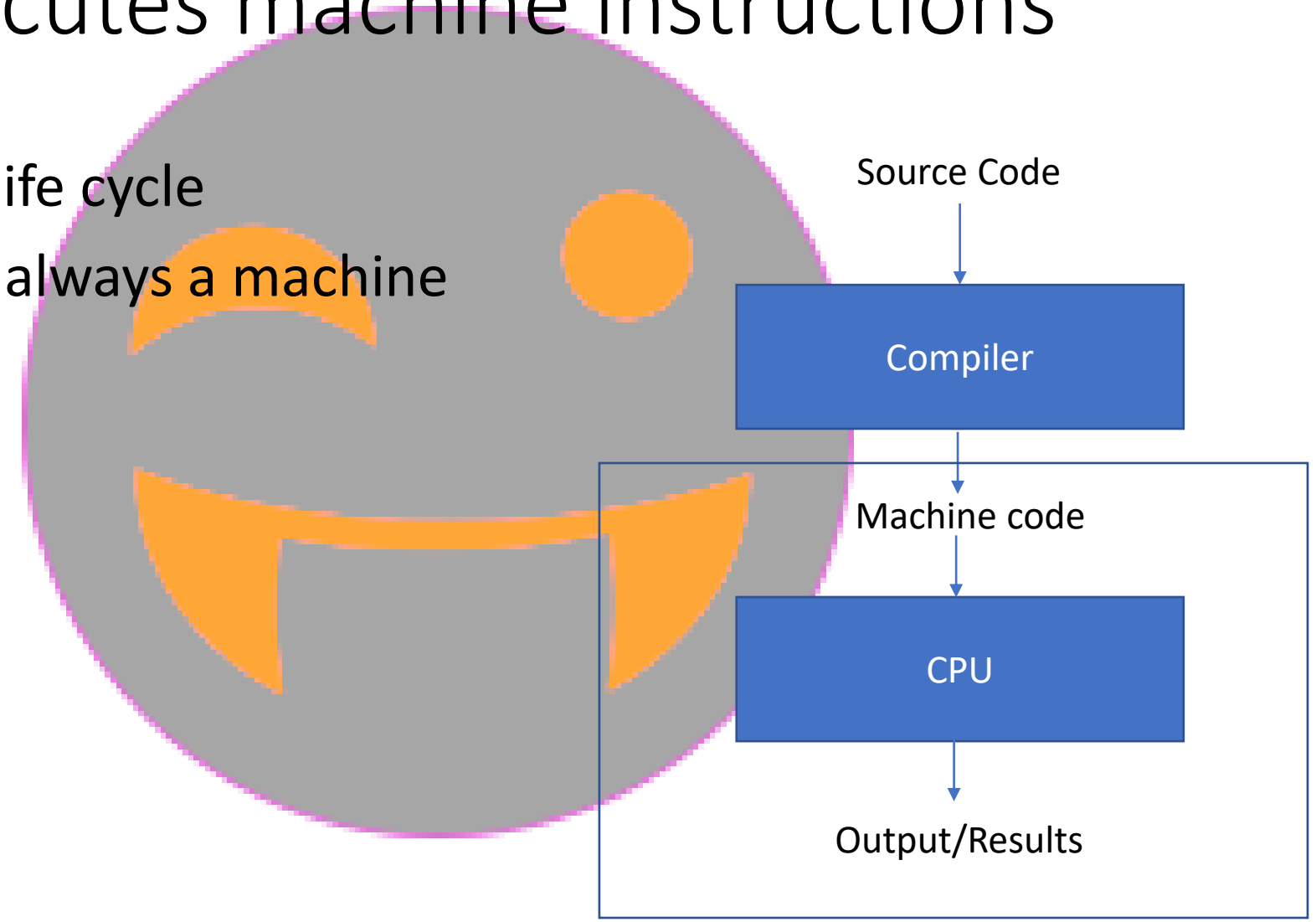
Adding two numbers taken from user

```
import java.util.Scanner;
public class Addition{
public static void main(String args[]){
    Scanner scanner=new Scanner(System.in);
    System.out.println("Enter first number");
    int a = scanner.nextInt();
    System.out.println("Enter second number");
    int b = scanner.nextInt();
    int c = a+b;
    System.out.println("Addition is: "+c);
}
}
```

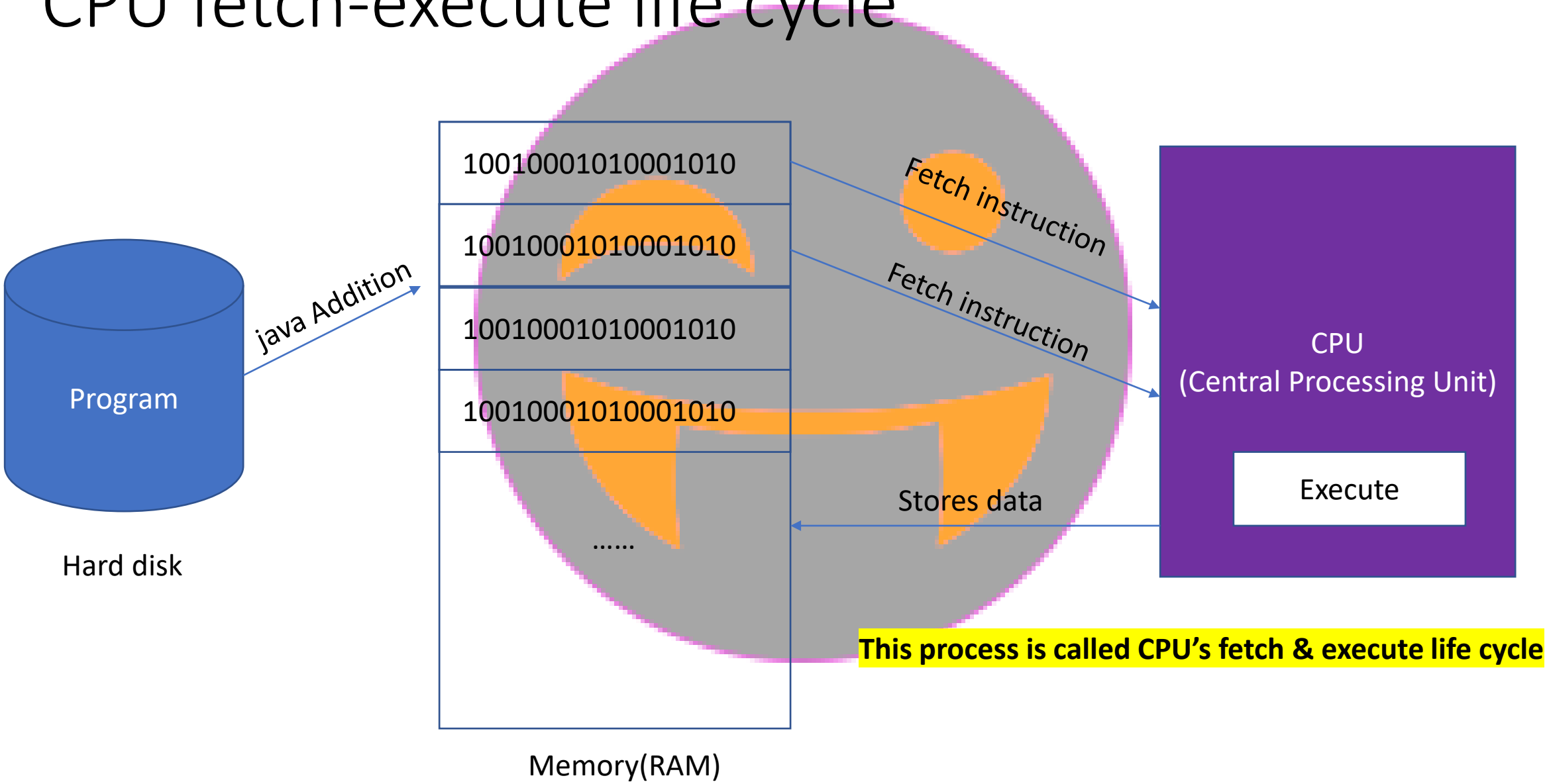


How CPU executes machine instructions

- CPU fetch execute life cycle
- Input to the CPU is always a machine code

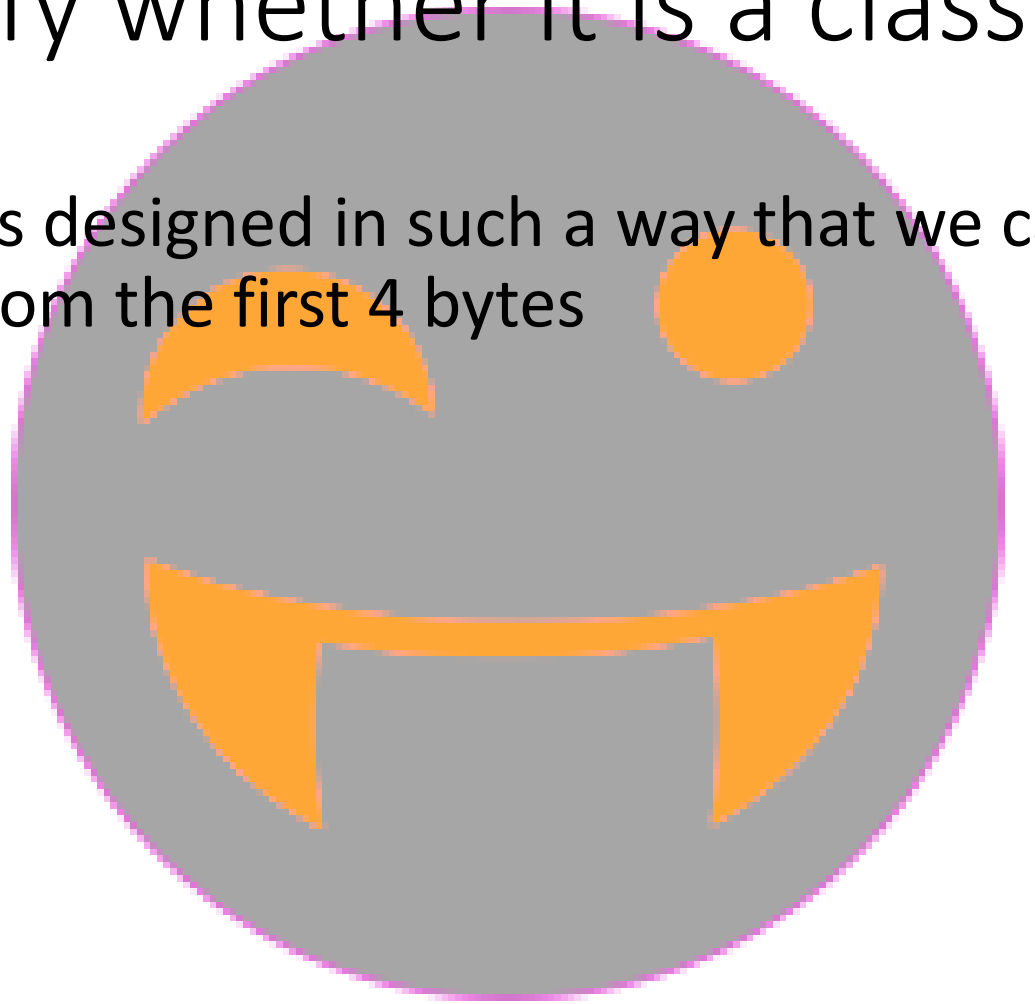


CPU fetch-execute life cycle

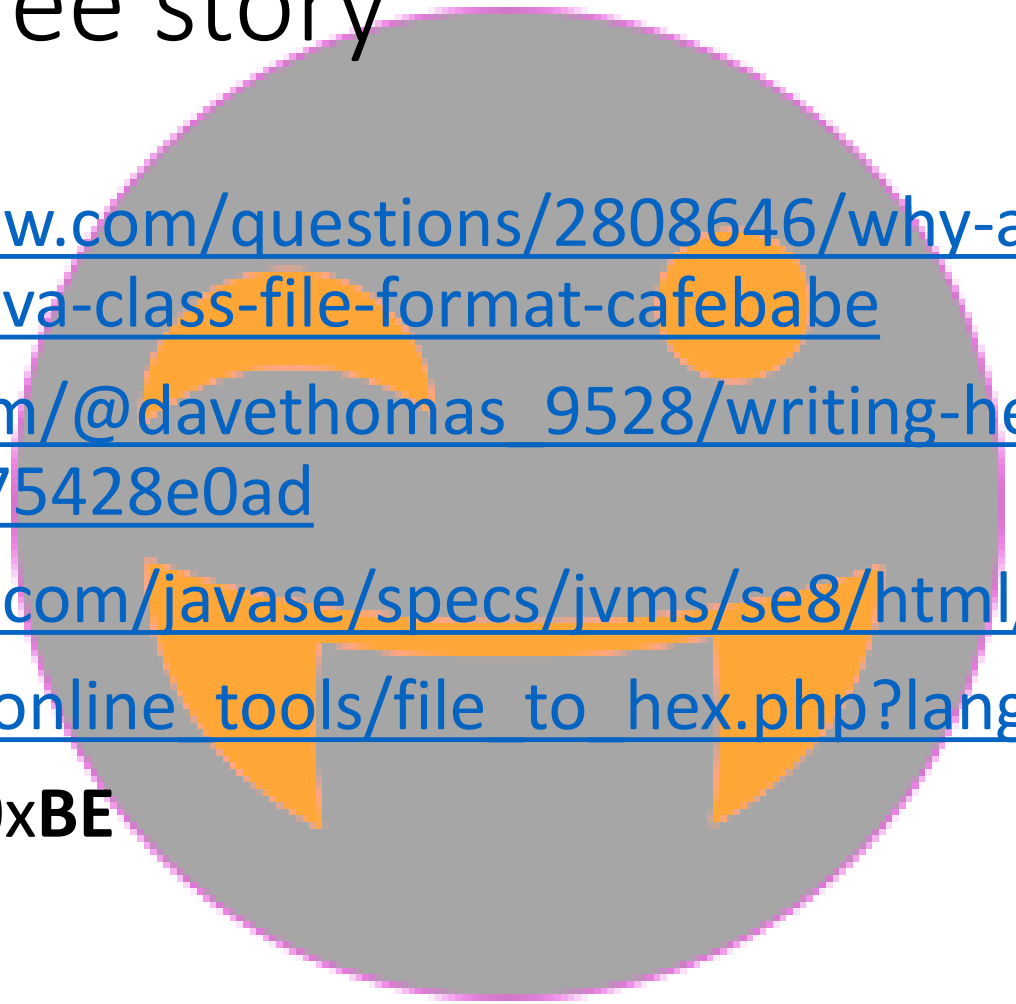


How to identify whether it is a class file?

- Class file format was designed in such a way that we can get to know that this is a class from the first 4 bytes



Justifying Coffee story



- https://stackoverflow.com/questions/2808646/why-are-the-first-four-bytes-of-the-java-class-file-format-cafebabe
- https://medium.com/@davethomas_9528/writing-hello-world-in-java-byte-code-34f75428e0ad
- https://docs.oracle.com/javase/specs/jvms/se8/html/jvms-4.html
- http://tomeko.net/online_tools/file_to_hex.php?lang=en
- 0x**CA**, 0x**FE**, 0x**BA**, 0x**BE**

What have we learned so far?

What is Java?

- Desktop applications
- Mobile applications
- Web applications
- Enterprise applications
- Embedded systems
- Bigdata technologies
- Etc...

2. High level language

4. General-Purpose

- House
- Road
- Shop
- Bus
- Train
- Vehicle

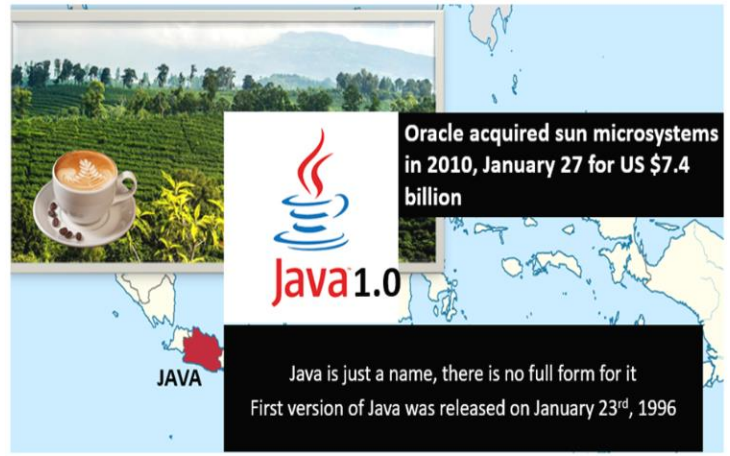
3. Object Oriented (99%)

తెలుగు, English, हिंदी

C, C++, Java, Python

1. Java is a programming language

t is a high level, general-purpose, class-based,
object-oriented programming language.



rogram ?

Program is a set of instructions used to perform a **task**

In order **to develop an application** we need to **create programs**

```
import java.util.Scanner;
public class Addition{
public static void main(String args[]){
    Scanner scanner=new Scanner(System.in);
    System.out.println("Enter first number");
    int a = scanner.nextInt();
    System.out.println("Enter second number");
    int b = scanner.nextInt();
    int c = a+b;
    System.out.println("Addition is: "+c);
}
}
```

Will create a project to develop this application

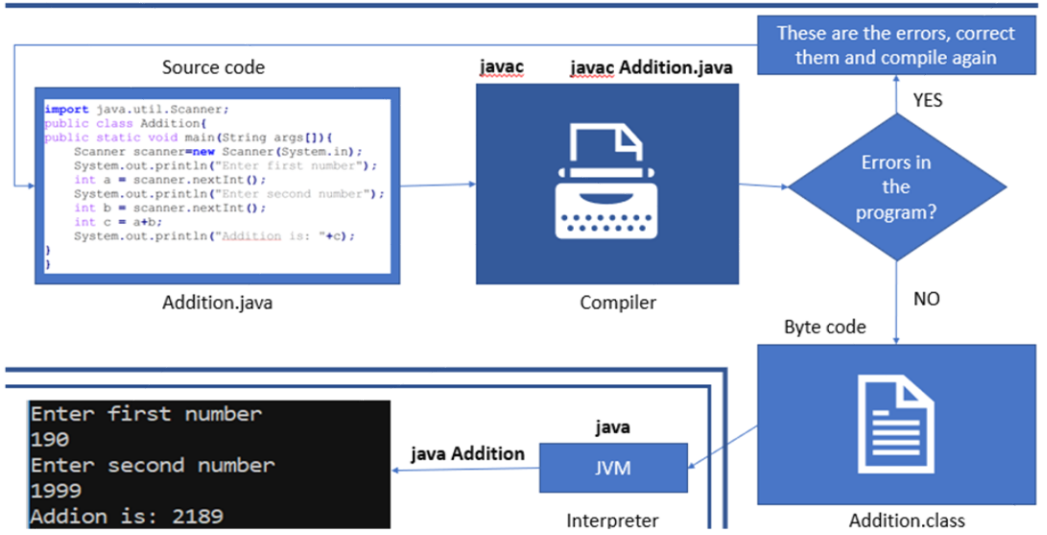
Suresh Techs Software Solutions

Application, is short **app**, is a **software** that **performs specific tasks for an end user**

Software Engineers
Employees

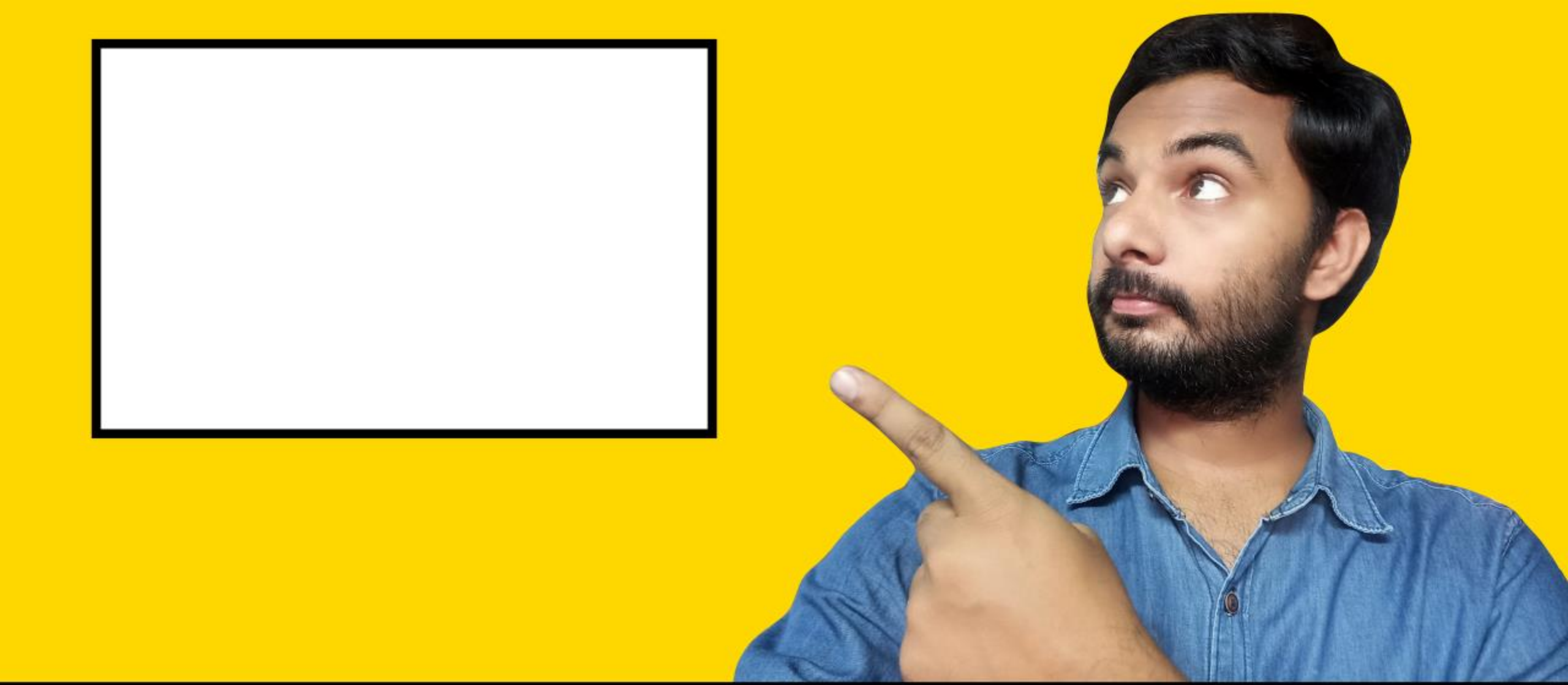
Difference between a program, package, library & application?

Detailed steps to write and execute java programs?



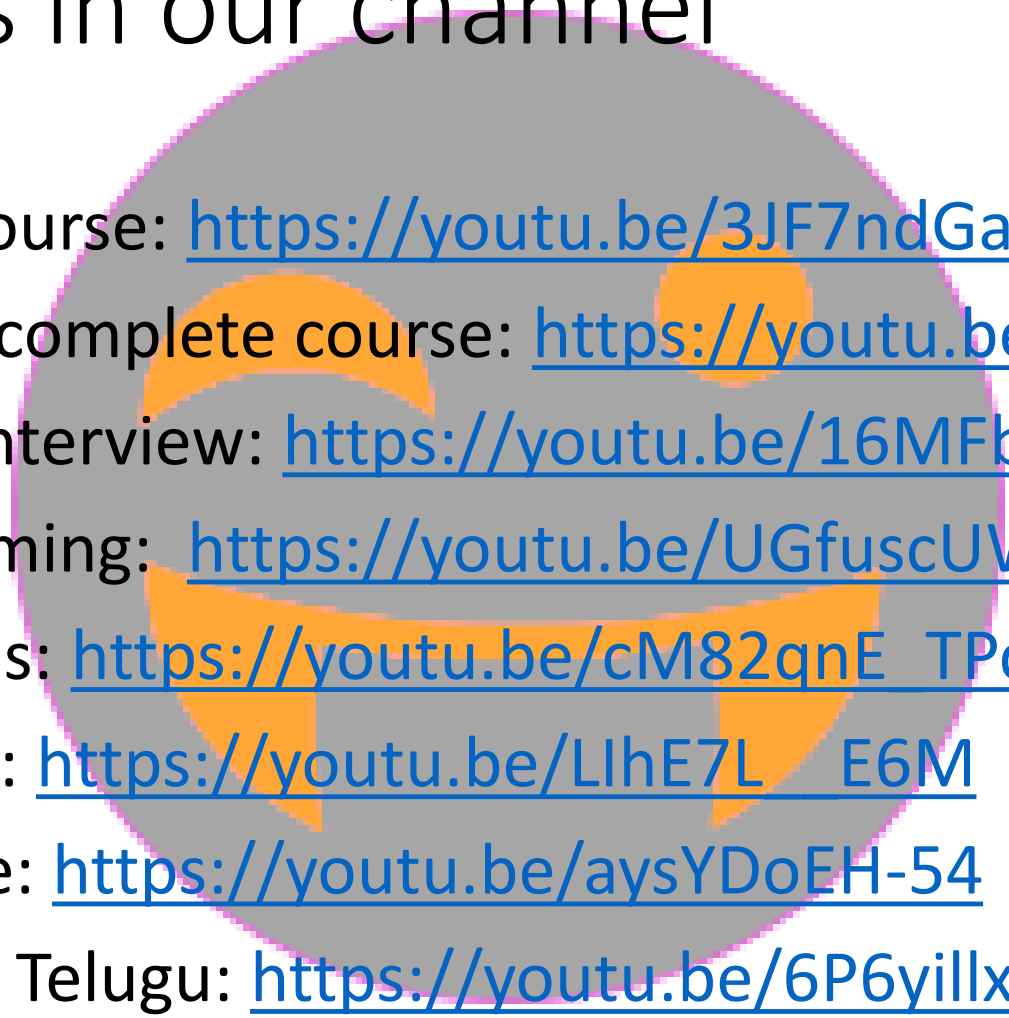
What next?

What is **Platform Independence?**



చిన్న బ్రేక్ చిటికలో వచ్చేస్తా

Other courses in our channel



- 👉 C 18 Hours Full course: https://youtu.be/3JF7ndGauZk
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