

"समय न लगाएँ इसमें कि क्या करना है,  
वरना समय ये तय करेगा कि आपका क्या कराना है।"



## Beyond the Basics

# DSA Launch Pad with JAVA



# Welcome & Vision

Why you started this course.

- Communication

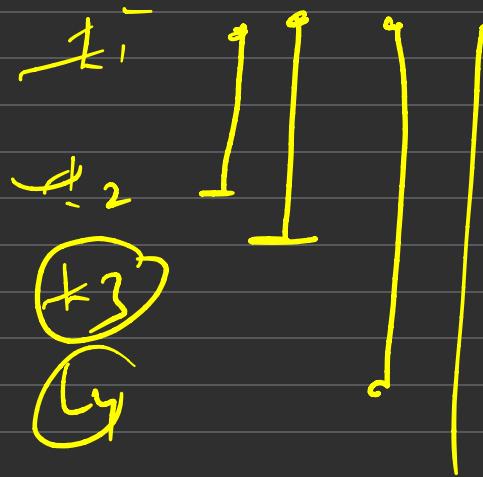
English

Comm.

"I don't just want you to learn coding.....

Don't Mug up - You are Engineer

Change Studying methods



# Course Roadmap

Roadmap - Java - OOPs - Collection Frame - DSA

HomeWork Problems

Class Code

Notes

DSA

OOPs

DB

Project  
Aph

✓✓✓

first sum = DSA / Aph Mp  
project React JS

- -

# Let's Start the JAVA 😊

## What is Programming ?

Programming means giving instructions to a computer to do something for us.

## What is JAVA Programming ?

- OOP → mainly used to build  
Enterprise Application
- 1995 — James Gosling

Banking

90's

# PROGRAMMING LANGUAGES AND THEIR USES

## PYTHON

- 1) Data Science
- 2) Machine Learning
- 3) Web Development
- 4) Automation
- 5) Game Development
- 6) Data analysis
- 7) Data visualization
- 8) Artificial intelligence

## JAVA

- 1) Android Apps
- 2) Server-Side Apps
- 3) Enterprise Apps
- 4) Web Based Apps
- 5) Big data
- 6) Game Development
- 7) Internet of things
- 8) Cloud computing

## C++

- 1) Games Development
- 2) GUI Apps
- 3) OS
- 4) Database Systems
- 5) Embedded
- 6) Networking
- 7) Virtual Reality
- 8) Computer Vision

## JAVASCRIPT

- 1) Server-side Dev
- 2) Web Dev and Apps
- 3) Mobile Apps
- 4) Machine Learning
- 5) IoT
- 6) Automation
- 7) Embedded system
- 8) Chatbot Development

## SWIFT

- 1) IOS App Dev
- 2) Deep Learning
- 3) IOT
- 4) Server-side Dev
- 5) Open-source Dev
- 6) MacOS App Dev
- 7) Machine Learning
- 8) Automation

## C#

- 1) Games Development
- 2) Web Dev and Apps
- 3) IOT
- 4) Backend Services
- 5) Windows App Dev
- 6) Robotics
- 7) Cloud computing
- 8) Database program

Apple → Swift

Windows → C#

frameworks → Spring / Hib

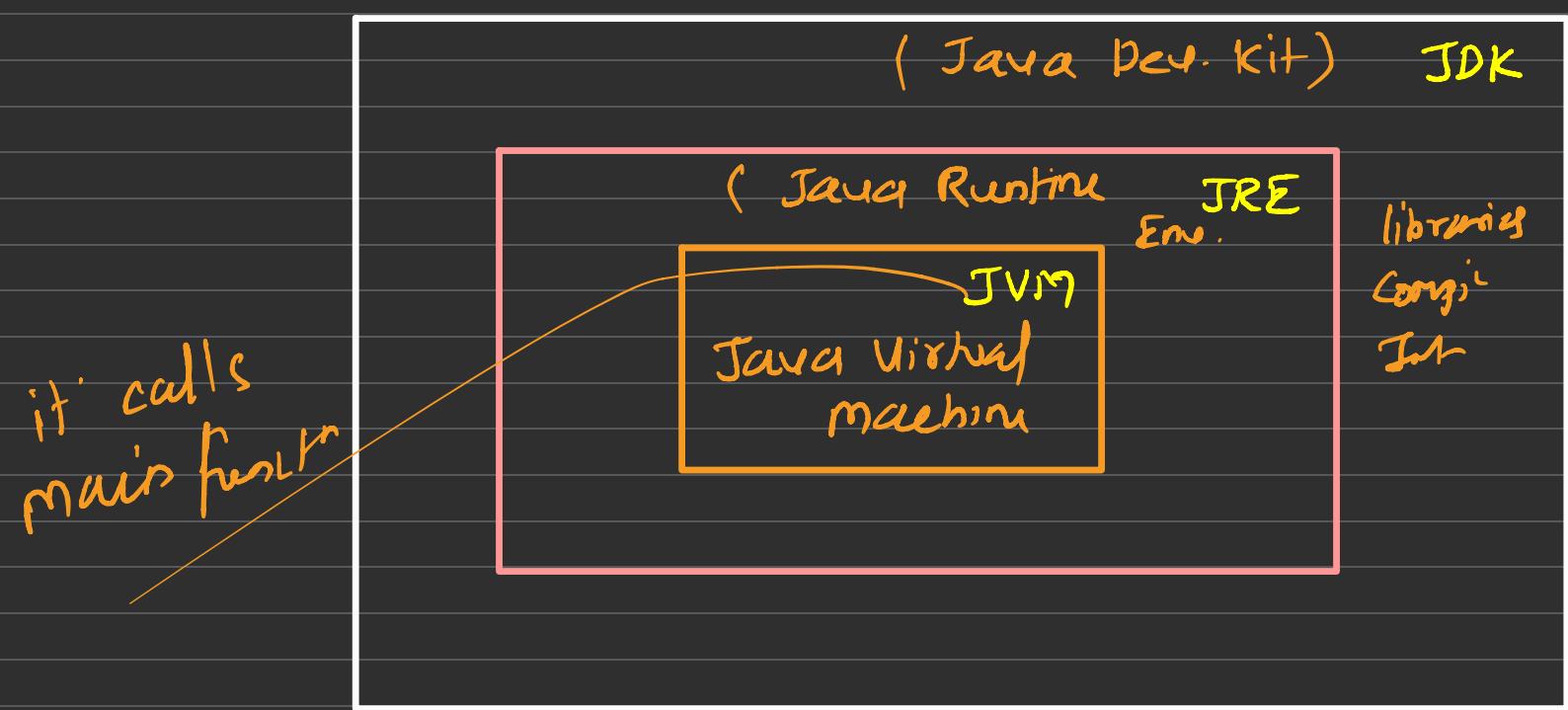
Assembly  
machine  
level

fast

0

JDK JRE JVM

Kitchen + Chef + Recipe

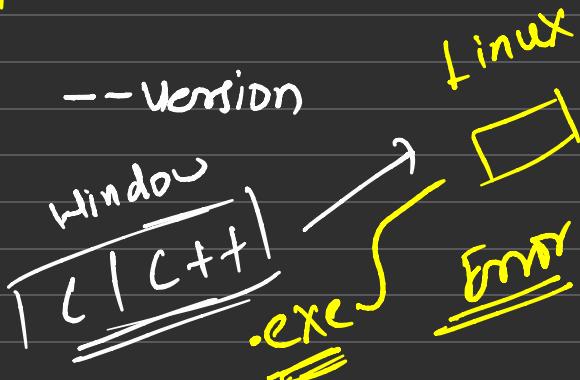


## Setting Up Java Environment

Window = Wind + { R = cmd

java --version

UVIM



## Features of Java Programming

\* OOP \* Platform Independent \* Secure

\* Portable — Window — Linux — Mac

AB

int

4 B (32 bit)  
2 B (16 bit)

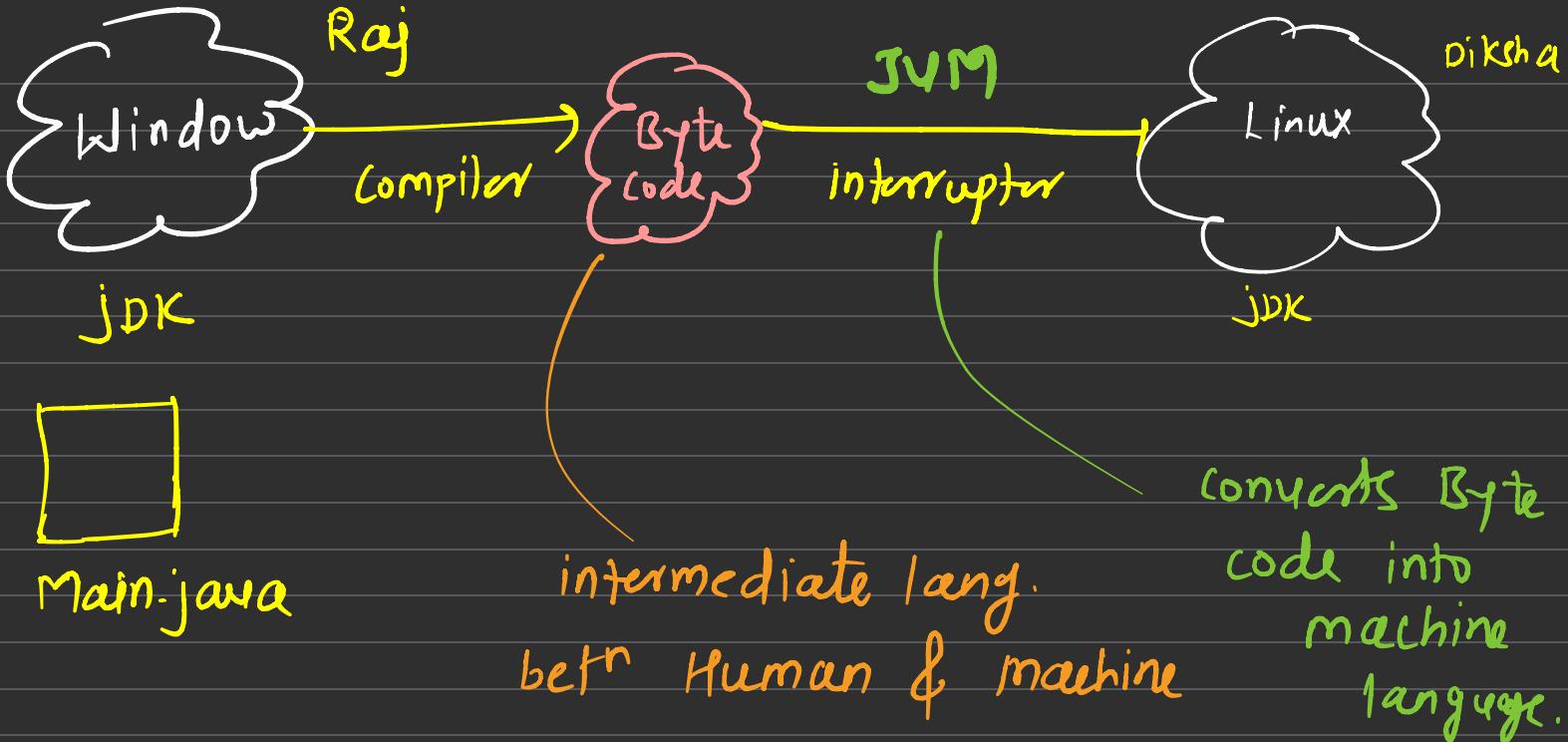
## Structure of JAVA Programming

## OOP ( class & object)

```
public class Main {  
    public static void main(String[] args) {  
        }  
}
```

Class Name and File Name should be same

class which contains main function → must  
be public & class Name = fileName.java



public class Main  
}

PSVM()  
}  
}  
}

javac Main.java (compiles)

Main.class

Hello.class

class Hello

}

{  
}  
}

java Main (run)

add()  
}

$x + y$   
l

main()

add()

y

jym

## *Writing First “Hello World” Program*

*How to Print ?*



*What is System.out.println*

# **System.out.println**



## Variables & Data Types

What is Variable

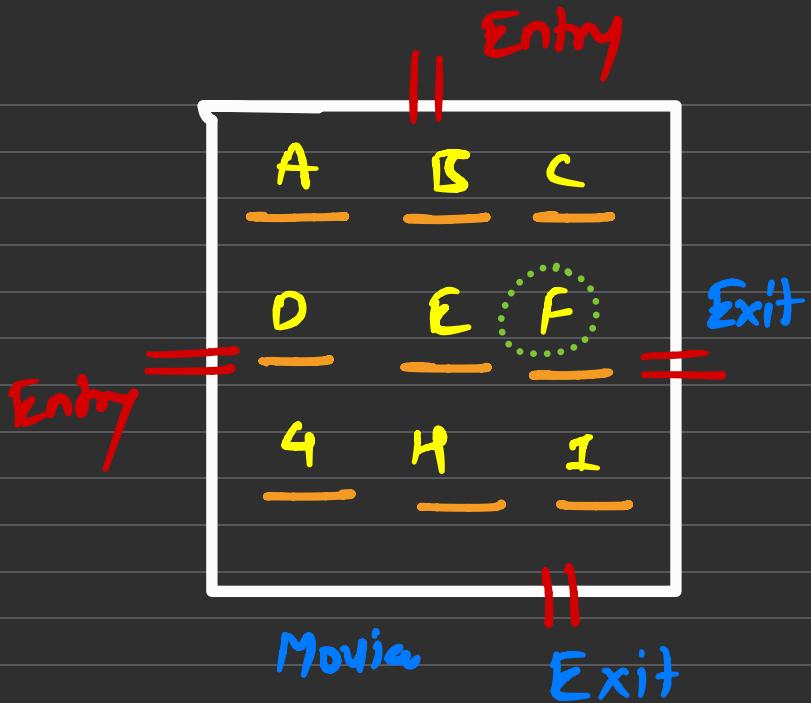
Pramod



Yash  
○

Selling ticket

xyz

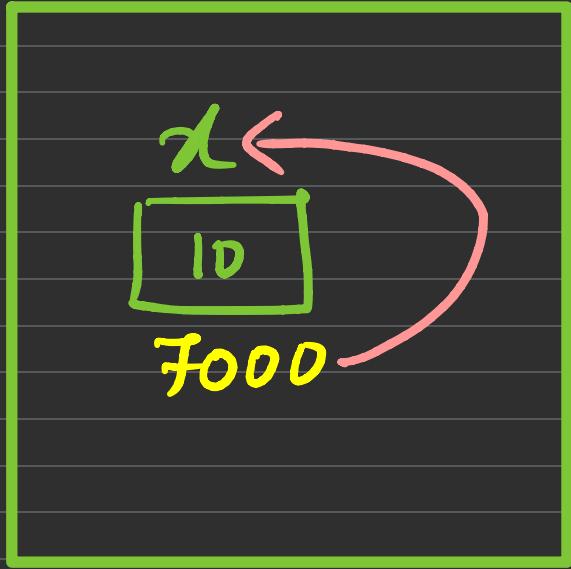


int  $x = 10$

print ( $x$ )

Name given to memory

location



RAM

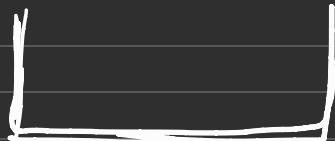
## What is Data Types



water



Milk



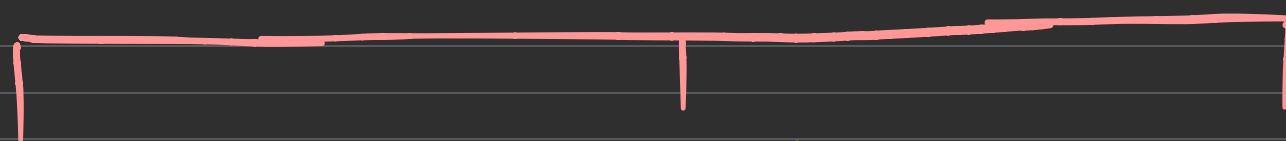
chocolates

Bowl

thermas

- Mainly tells what type of data we store.
- Also tells us, what type of operations we can perform on them

## Types of Data Types



### Primitive

- ✓ - int
- ✓ - short
- ✓ - char
- ✓ - Byte
- ✓ - boolean
- ✓ - float
- ✓ - double

### Derived

- Array
- String

### User Defined

- class

(int) = mainly stores decimal values

size = 4B      1B = 8 bits

int x {  
    Pos  
    Neg}

4B = 32 bits

$$\frac{2^{32}}{2^1} = 2^{32} \times 2^{-1}$$
$$2^{31}$$

-2147483648

$-2^{31}$

$2^{32}$   
 $+ 2^{31}$

2147483647

$$\text{Range} = -2^{n-1} - 2^{n-1} - 1$$

Data Type

(int/char) short

Byte long

( $n$  = No. of bits)

- Short (int)

$$\text{size} = 2B \quad 1B = 8 \text{ bits} \quad = 16 \text{ bits}$$

$$\text{Range} = -2^{15} - 2^{-1} = -32768 \text{ to } 32767$$

- Byte (int)

$$\text{size} = 1B \quad 1B = \text{bits}$$

$$\text{Range} = -2^7 - 2^7 - 1 = -128 \text{ to } 127$$

long (int)

size = 8B      1B = 8 bits



- boolean

{ True  
False

boolean x =

- char
  - char are shown / declared in single quote

Eg: 'x' '+' '/' '\z' '?'

size = 2B

(

unicode

C / C++ = ASCII values

(-128 to 127)

(0 to 255)

Size = 2B

1B = 8 bits

Range = 0 → 65535

(

(0 - 255) = ASCII

(256 - 65535) = Unicode

java

float | double = floating points  
( 2.16 | 3.09 )

Java

float y = 90.8F

double x = 90.6

float x = 90.90

( Cpp )

double y = 90.8

How to take input from the user

import java.util.Scanner

Scanner = mainly scans the input given by  
User through Keyboard

Scanner sc = new Scanner(System.in)

(  
Object

Scanner sc = new Scanner(System.in)

\* int

int x = sc.nextInt()

\* boolean

boolean x = sc.nextBoolean()

\* char

char x = sc.next()

\* double  $x = sc.\text{nextDouble}()$

\*  $\text{nextLine}()$

(

Reads multiple words

with Space

(String)

\*  $\text{next}()$

(Single word)

(

String

Method

nextInt()

nextBoolean()

nextDouble()

nextFloat()

nextLine()

next()

work

int

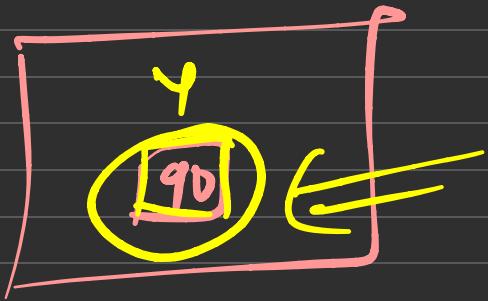
Boolean

Double

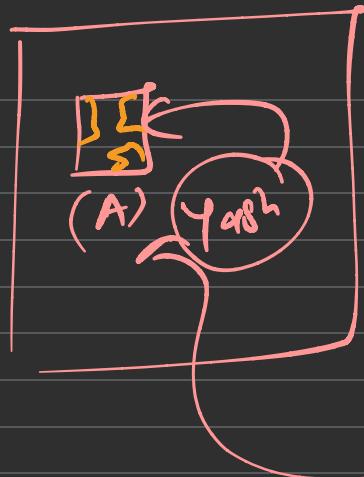
Float

String with multi word

single word



Ram



~~982~~  
12

Yash  
(1 - 4)

1 1 1

(30 min)

# Garbag Collector



MM (Ram)

## *Operators*

### *Arithmetic Operator*









