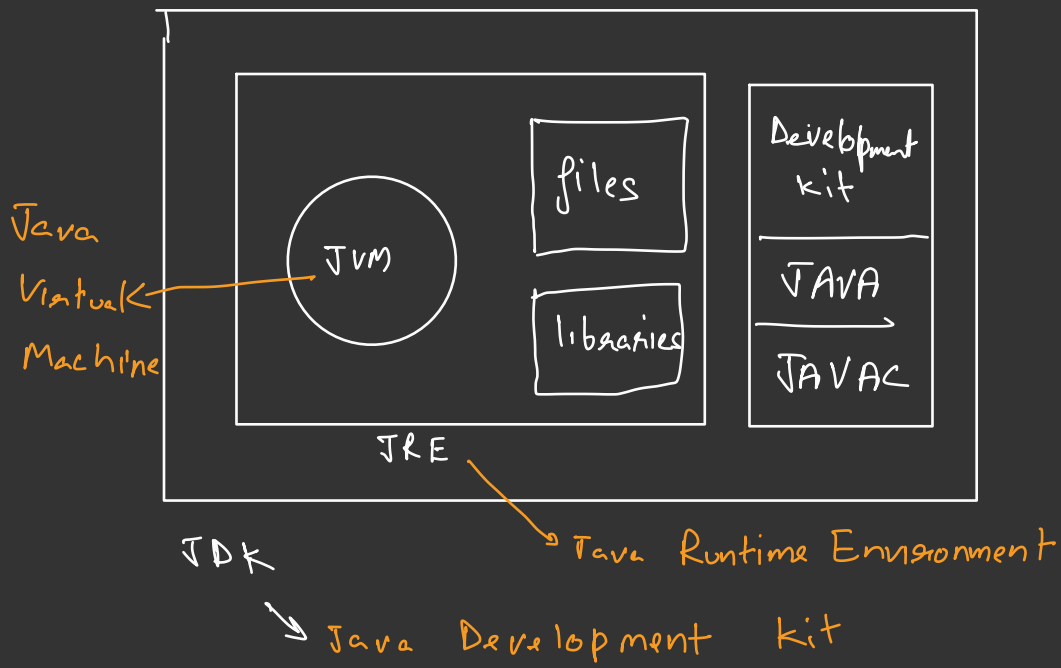
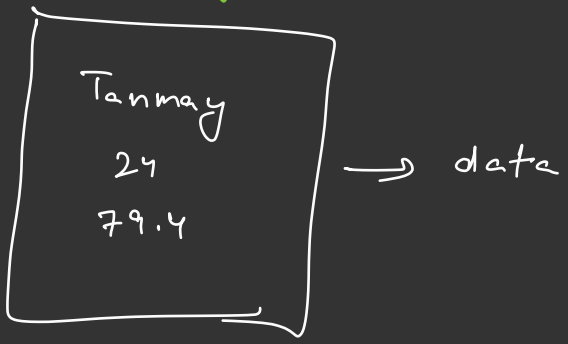

Java
Virtual
Machine
JVM
files
libraries
Development
kit
JAVA
JAVAC
JRE
JDK
Java Runtime Environment
Java Development kit

Data types


Tanmay
24
79.4
data

Primitive

Non Primitive

- byte
- short
- int
- long

] Integer Values

- float
- double

] decimal

- char] character
- boolean] true/false

Computer only understands binary

0 and 1

byte ⇒ 8 bits ⇒ 2^8 ⇒ 256

-2^7 2^7-1

```
byte a = 2;
```

-ve +ve

range −128 127

short ⇒ 2 bytes ⇒ 16 bits 2^{16} ⇒ 32768

```
short a = 2;
```

range -2^{15} $2^{15}-1$

int ⇒ 4 bytes ⇒ 32 bits 2^{32}

```
int a = 2;
```

-2^{31} $2^{31}-1$

long ⇒ 8 bytes ⇒ 64 bits ⇒ 2^{64}

long a = 2;

-2^{63} $\quad$ $2^{63}-1$

$2^{31} \approx 2^{30} \times 2$

$2^{10} \times 2^{10} \times 2$

$2^{10} \approx 10^3$

$\approx 10^3 \times 10^3 \times 10^3$

$\approx 10^9$ ⇒ 1000000000

1024 $\approx 10^3$

if greater use long
else use int

Decimal

float ⇒ 4 bytes ⇒ 1078.94321f

double ⇒ 8 bytes ⇒ 278.96

double a = 45.8

float a = 0.3f; X

char

ASCII → American standards codes for information interchange

↓

256

→ 2 bytes ⇒ 16 bit ⇒ 2^{16}

0 - $2^{16} - 1$

↓

Unicode

0 - 255

ASCII

65

0 Unicode

0 -

'A' - 65

'B' - 66

'0' - 48

'1' - 49

'2' - 50

⋮

'a' - 97

'b' - 98

'c' 99

'd' 100

⋮

```
char var1= 'a';
char var2= 91;

Syso('b' - 'a');
      98 - 97
```

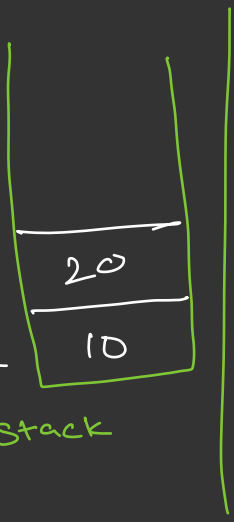
boolean → true / false

↳ default → false

Memory / RAM

```
int a;  //declaration
a = 10; //initialisation

int b = 20;
```



All primitive data types are stored in stack

NP → heap