

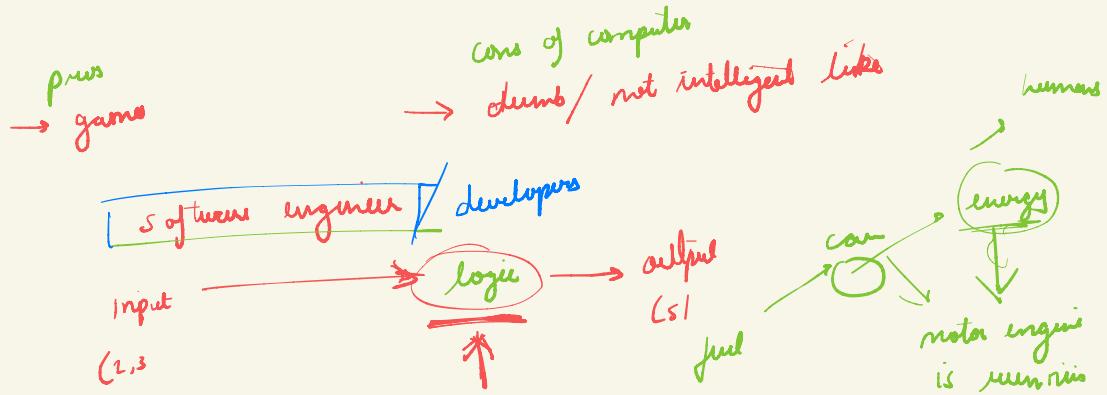
- focus 80% in the class
- review everything after the class (30-40) —
- after 1 month (start giving 3-4 hours of self learning) 1-2 hours

do this for 7-8 months
(4-5)

40k

Ques what is a computer

what is a machine?

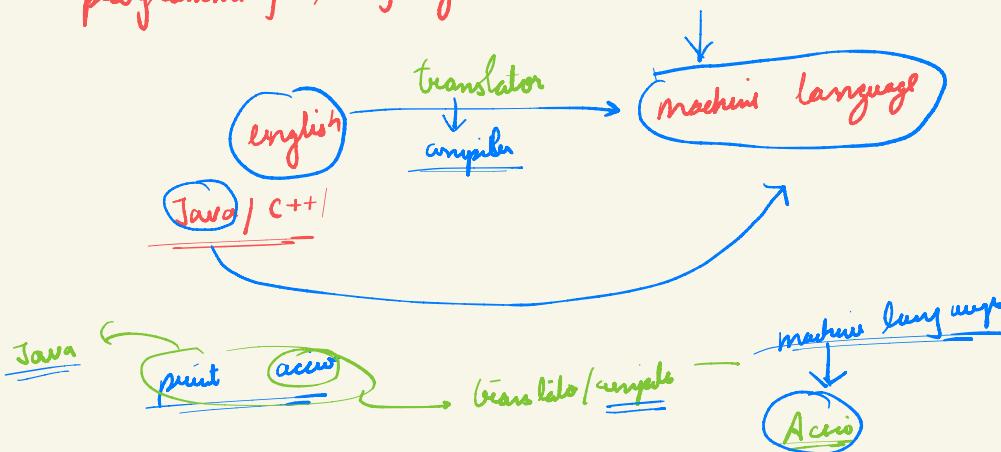


Computer only understands 0's and 1's

↳ machine language

→ 0's and 1's

programming languages



Java → secure, stable, environment-independent

```
public static void main(String[] args) {  
    // how to print in java  
    → System.out.println("Anything here");  
    → System.out.println("Something else");  
}
```

Compiler

Anything here
Something else

comment

lines which are not executed

not translated to machine language

RAM (temporary)

random access memory

{ for every program to run, it needs some space

provided by RAM

System.out.println("Hello World");

9:45

computer → machine language

```
public static void main(String args[]) {  
    1) // your code here  
    2) System.out.println("Hello, World.");  
    3) System.out.println("Hello, Java.");  
}
```

Hello, World. Hello, Java

Java → translate → machine language.

```

⇒ System.out.println("Hello, world");
⇒ System.out.println("Acies");
⇒ System.out.print("Job");
⇒ System.out.print("Hello");
⇒ System.out.println("Okay");
⇒ System.out.println("JobHelloOkay")

```

output area

1	Hello, world
2	Acies
3	JobHelloOkay

In ⇒ cursor will move to the next line

Ques 2

```

System.out.println("*");
System.out.println("****");
System.out.println("*****");

```

output console

```

*
****
*****

```

```

public static void main(String args[]) {
    System.out.println("*");
    System.out.println("****");
    System.out.println("*****");
}

```

```

*
* * .
* * * *
* * * * *
!
```

Variables

↳ that varies.

let $x=5;$ → integer
let $y=10;$

$x=y+1$

let $x=\underline{5.12};$ decimal

{ x, y }

their values can vary.

x will int value

int $\underline{x=5};$
int $\underline{y=10};$
→ y is an integer

$x=y+1;$

Declaration = $x \rightarrow \text{int}$

int $x;$

int $x;$

int $x;$

Initialisation

$x = 5;$

int $x = 5;$

$x = 10;$

$n = 11;$

$x \rightarrow \text{int}$

datatype variableName

$x = 5, 12;$

int $x;$

x will store integer values

declaring x to be an integer.

```
public static void main(String[] args) {
    // declaration
    1 int x;
    // initialisation
    2 x = 10;
    System.out.println(x);
```

int $x;$

declaring x to be an integer.

initialised

$x = 10$

Container

x \rightarrow integer
name

```
public static void main(String[] args) {
    // declaration
    1 int x;
    // initialisation
    2 x = 10;
    int y = 15;
    System.out.println(x+y);
```

int $x;$

$x = 10$

$y = 15$

$x + y$

\checkmark \checkmark

$10 + 15$

25

System.out.println("Hi " + "Hello");

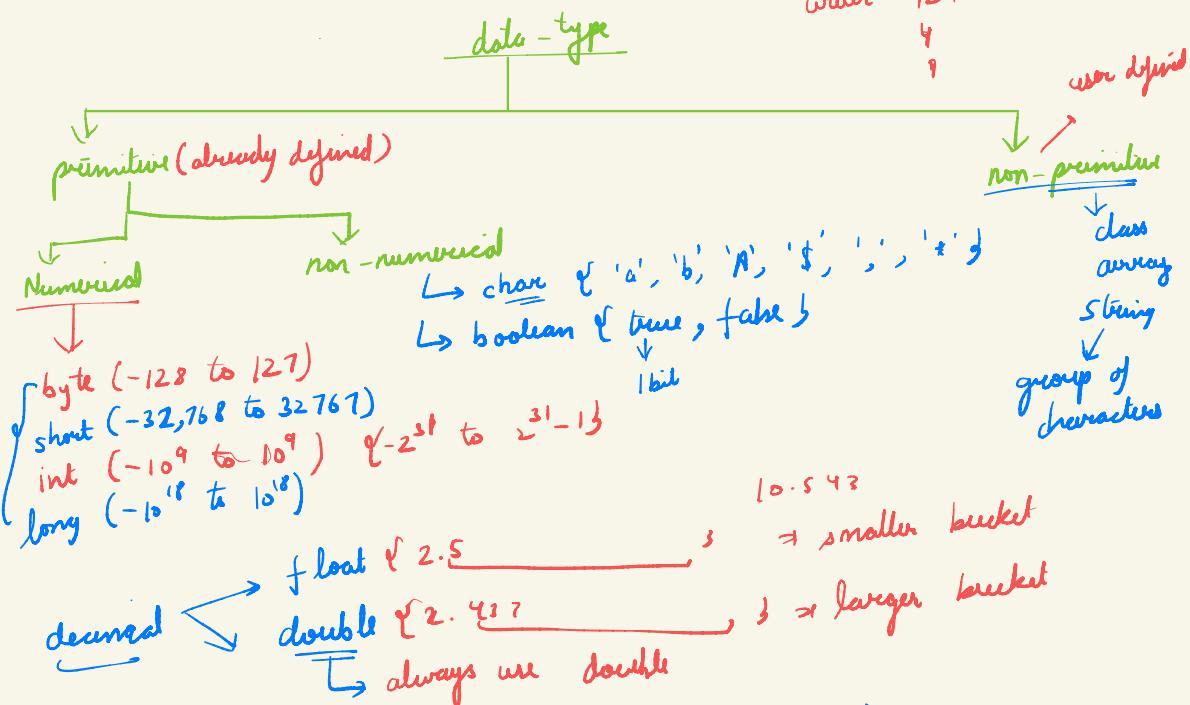
```
public static void main(String args[]) {  
    1) int var;  
    2) var = 10;  
    3)  
    4) System.out.println("My num is "+var);  
}
```

⇒ var is declared to be
an integer.

Var = 10;

int
Var = 10

data-types ↳ type of data



long x = 1234567L; integer values

```

public static void main(String args[]) {
    1) float var = 10.45f;
    2) System.out.println(var);
    3)
    4) var = 20.55f;
    5) System.out.println(var);
}

```

10.45
20.55

```

public static void main(String args[]) {
    int a = 10;
    int b = 20;
    int c = a + b;
    System.out.println(c);
}

```

30

'Var' will have
float value

30.
c

10
a
=
int

20
b
int

modulo

int a=5;
int b=2;

%

int c=a/b;

6/1.4
 $\Rightarrow 2$

System.out.println(c);

int num=a%b;

1042%7

$$c = \frac{5}{2} = 2$$

9/.3

$$\frac{6}{3} \Rightarrow 2$$

9/0.3

$$\text{double } c = \frac{6}{4} \Rightarrow 1$$

9/.5

$$\Rightarrow 4$$

$$c = 1.$$

$$\frac{1042}{7} = 148$$

```

int a = 1042;
int b = 7;
=
int quo = a/b;
int rem = a%b;

System.out.println(quo+" "+rem);

```

148 6

1042
a
=
num

7
b

148
quo
=

a/b

$1042 \cdot 7 \Rightarrow$

$$\begin{array}{r}
 1042 \\
 \times 7 \\
 \hline
 7 \\
 342 \\
 \hline
 62 \\
 \hline
 56 \\
 \hline
 6
 \end{array}$$

(148)

$$\begin{array}{r}
 1042 \\
 \times 7 \\
 \hline
 148
 \end{array}
 \Rightarrow 148$$

$$1042 \cdot 7 \Rightarrow 6$$

string + int \Rightarrow string

System.out.println ("Hello" + 5 + "Hi");

string + char \Rightarrow string

"Hello" + 'A'
 \Rightarrow HelloA

5 + 5 + "Hello"

↓
int ↓
string
10 + "Hello"
↓
10Hello

"Hello" + 5 + 5
↓ ↓
string int
"Hello5" + 5 \Rightarrow "Hello55"
↓ ↓
int int

↓
char
" " ↓
string
" "char

int a = 10;

int b = 13;

- System.out.print(a);
- System.out.print(" ");
- System.out.print(b);

case 1:

10 13.

System.out.println (a + " " + b);

↓ ↓ ↓
int string int
↓
string ↓
string

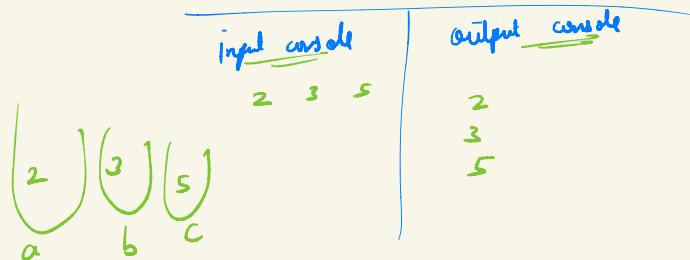
How to take user input

Scanner sc = new Scanner (System.in);

```
int a = sc.nextInt();  
long b = sc.nextLong();  
float c = sc.nextFloat();  
double d = sc.nextDouble();  
boolean f = sc.nextBoolean();
```

```
int a=5;  
int b=10;  
int c=a+b;  
print c  
15
```

```
✓ int a = sc.nextInt();  
✓ int b = sc.nextInt();  
✓ int c = sc.nextInt();  
  
✓ System.out.println(a);  
✓ System.out.println(b);  
✓ System.out.println(c);
```



```
int radius = sc.nextInt();  
  
int area = radius * radius * 3;  
int perimeter = radius * 2 * 3;  
  
✓ System.out.println(area);  
✓ System.out.println(perimeter);
```

$$\begin{aligned} \text{radius} &= 4 \\ \text{area} &= 48 \\ \text{perimeter} &= 24 \end{aligned}$$

input console output console

4	48	$2\pi r^2$
---	----	------------

$$\begin{aligned} \text{area} &= \text{radius} \times \text{radius} \times 3 \\ &\Rightarrow 4 \times 4 \times 3 \\ &\Rightarrow 48 \\ \text{per} &\Rightarrow \text{radius} \times 2 \times 3 \\ &\Rightarrow 4 \times 2 \times 3 \Rightarrow 24 \end{aligned}$$

double $x = 12.89953$;

int $a = (\text{int})(x)$; \Rightarrow type casting

$a = 12$

```
1 Scanner sc = new Scanner(System.in);  
2 String agentName = sc.nextLine();  
System.out.println("Hi my name is Agent "+agentName);
```

agentName = "Binod";

int $x = 12$;

double $y = (\text{double})(x)$;
 $y = 12.0$;

Input console

Binod

Output console

Hi my name is Binod