



Module - 01

↳ Basic of Java

→ 2 - 3

→ that section

→ Printing in Java

* `System.out.println();` → String

* `System.out.print();`

O/P

✓ `System.out.println("Hello everyone");` → Hello everyone

✓ `System.out.print("Hello everyone");` → Hello everyone

System.out.println("Hello"); → *in a separate line*
System.out.println("everyone");

Hello
everyone.

Hello.
→ everyone.

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

HelloEveryone

+ "\n"

System.out.print("Hello \n");
System.out.print ("everyone");

→ Hello.

→ Everyone

```
System.out.println = System.out.print + "\n";
```

✓

Sample Output 0

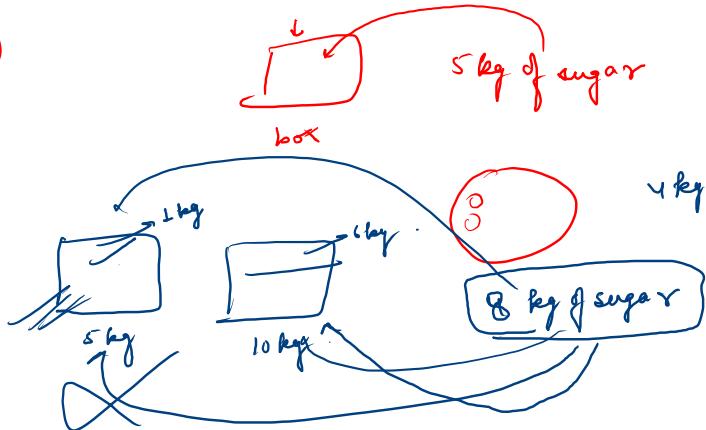
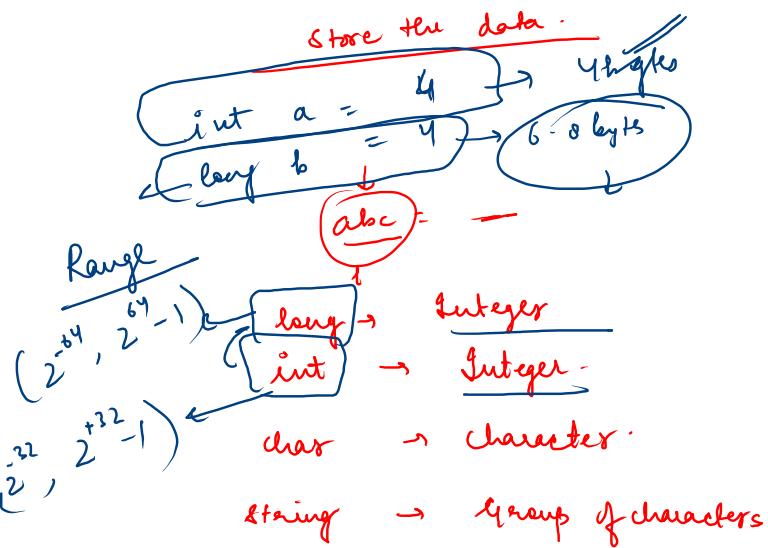
	space	star
	0	5
*****	0	5
---*	3	1
-- *	2	1
-*	1	1
*****	0	5

```
import java.io.*;
import java.util.*;

public class Solution {

    public static void main(String[] args) {
        /* Enter your code here. Read input from STDIN.
        System.out.println("*****");
        System.out.println("    *");
        System.out.print("    *\n");
        System.out.print("    *\n");
        System.out.println("*****");
    }
}
```

Variables And Datatype



boolean = true | false

float = decimal

double = decimal

Variable Syntax

datatype variable-name ;

short - $(2^{-8} - 2^{-1}) \times 2^{15}$

long - $(2^{-14} - 2^{-1}) \times 2^{63}$

integer

String = "str" ↓ = " " " "

single ch → character

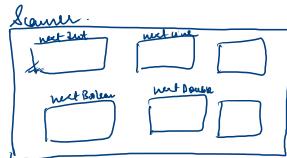
```
int a = 23;
long b = 12324124;
String str = "qweqwe";
char ch = 'a';
boolean e = true;
float f = 12.34f;
double d = 12.345324;
```

```
System.out.println(a);
System.out.println(b);
System.out.println(str);
System.out.println(ch);
System.out.println(e);
System.out.println(f);
System.out.println(d);
```

"Now Guided Book"

Taking input from user :-

↳ Scanner class



Nau Gurukul Boot camp

→ `Scanner *scn = new Scanner (System.in);`

int num = scn. nextInt();

boolean flag = scn. nextBoolean();

↳ char ch = (scn.next()). charAt(0); → N
 ↳ char ch = (scn.nextLine()). charAt(0); → N
 ↳

String str1 = scn.next();

String str2 = scn.nextLine();

scn.next(); charAt(0)
 scn.nextLine(); charAt(0)

" 0 1 2 3 4 5 6 7 8 9
 Nau Gurukul Boot camp"

scn. nextCharacter()

→ string
 ↳ scanner
 ↳

char ch1 = (scn.next()). charAt(0);

0 1 2 3 4 5 6 7 8 9
 Nau Gurukul

error
 error
 N

char ch2 = (scn.nextLine()). charAt(0);

0 1 2 3 4 5 6 7 8 9 10
 Nau Gurukul Boot camp

↳ Nau Gurukul
 ↳ string

str.length()

char = (string) → character '0' index:

"A b c"

next nextline

st.charAt(0)
 st.next()

↳ simple character

String
 ↓
 Group of characters

```
Scanner scn = new Scanner(System.in);
int a = scn.nextInt();
boolean b = scn.nextBoolean();
double d =scn.nextDouble();

        ↴
System.out.println("Integer value is: " + a);
System.out.println("Boolean value is: " + b);
System.out.println("Decimal value is: " + d);
}
```

```
Integer value is: 12321
Boolean value is: false
Decimal value is: 123.45342
```

11:45 - 11:55 am

for (int i=0; i<n; i++)
 j = scn.nextInt();
 n++

char ch = scn.next().charAt(0);

or

for (int i=0; i<n; i++)

 String(0)

single character



```

Scanner scn = new Scanner(System.in);
String str2 = scn.nextLine();
String str1 = scn.next();
System.out.println(str1);
System.out.println(str2);

```

Compilation Successful

Input (stdin)

```

NavGurukul0Bootcamp = - DSA
NavGurukul_Bootcamp -

```

Your Output

```

NavGurukul
NavGurukul_Bootcamp

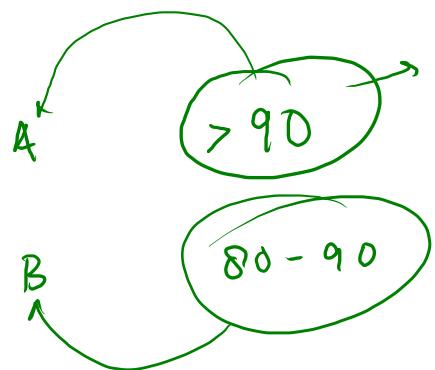
```

`next()` → It stops reading I/P when it encounters space.

`nextLine()` → Reads the complete line -

Conditional Statements

- ① if
 - ② elif
 - ③ else
 - ④ switch
- nested



四

→ Tend

if (expansion / tend) {
 }
 }
 }
 }

A series of five horizontal black lines of varying lengths and thicknesses, drawn with a pen or marker. The lines are positioned at different heights from the bottom of the page.

② else .

18

S

~~option~~ else {

3

① If :-

single condition

age > 18 → eligible for voting

$18 > 18 \rightarrow \text{False}$
 $15 > 18 \rightarrow \text{False}$

② else

age = 12

if (age > 18) →

{

← Sys ("Eligible for voting");

} else {

Sys ("Not eligible for voting");

}

- ① age = 18 → Not eligible for voting
" "
② age = 15 → "
" "
③ age = 21 → eligible for voting

Grading system:-

- ↳ marks > 90 → A
- ↳ 80 - 90 → B
- ↳ 70 - 80 → C
- ↳ 60 - 70 → D
- ↳ < 60 → Fail

one "if word"

[elseif]

(marks > 80 & marks < 90)
→ more
than
1 cond

if (marks > 90) → > 91
 sys("A");
else if (marks > 80) → 81-90
 sys("B");
 B
 else if (marks > 70) → 71-80
 sys("C");
 else if (marks > 60) → 61-70
 sys("D");
 else sys("Fail") → < 60

marks = 75

75 > 90 X
75 > 80 X
75 > 70 X

marks = 55

55 > 90 X
55 > 80 X
55 > 70 X
55 > 60 X

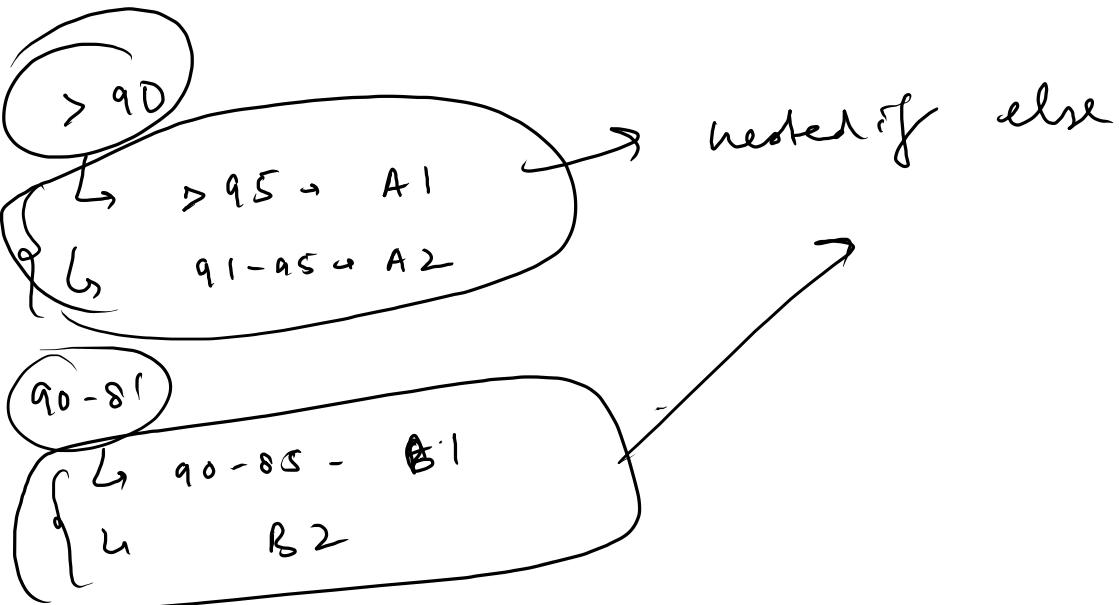
marks = 90

90 > 90 (F)
90 > 80

```
int marks = 70;

if (marks>90){
    System.out.println("A");
}
else if(marks> 80){
    System.out.println("B");
}
else if(marks>70){
    System.out.println("C");
}
else if(marks>60){
    System.out.println("D");
}
else{
    System.out.println("Fail");
}

}
```



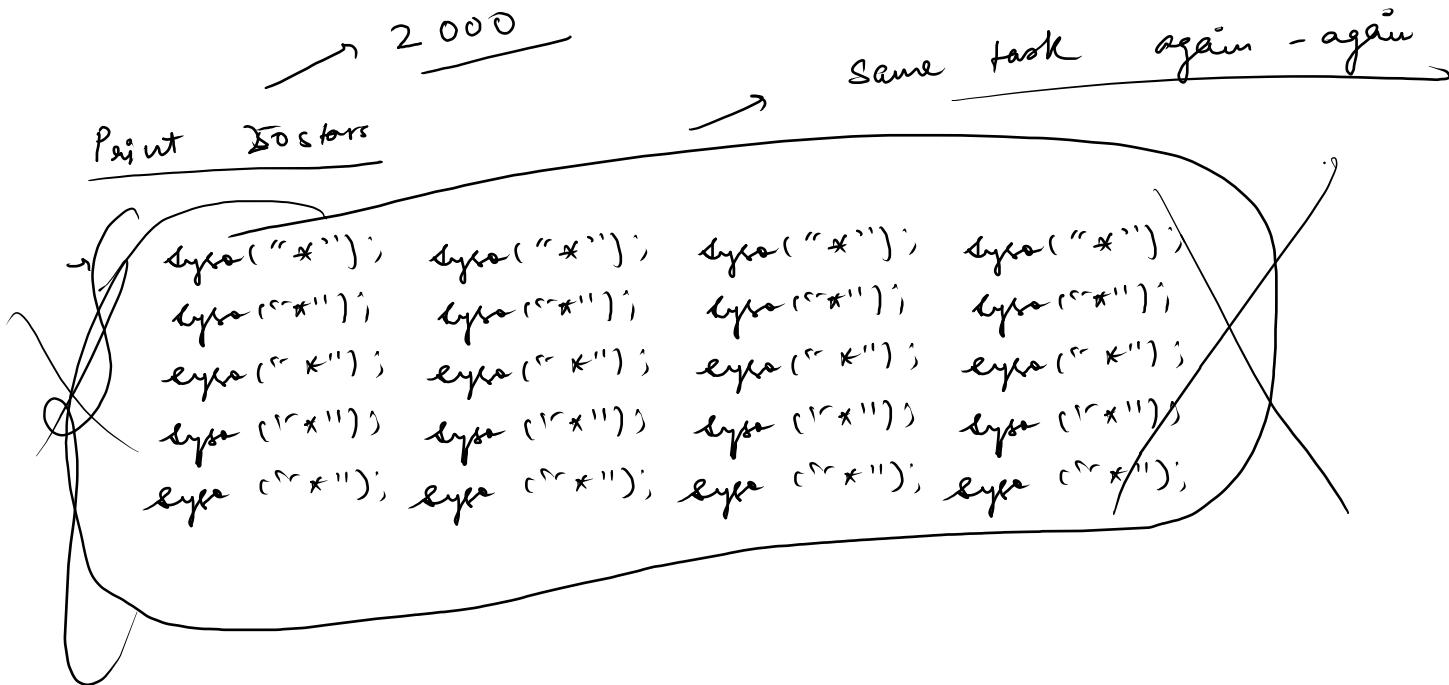
if else if inside another if else if else

end

nesting

```
int marks = 87;  
  
if (marks>90){  
    if(marks>95)  
        System.out.println("A1");  
    else  
        System.out.println("A2");  
}  
  
else if(marks> 80){  
    if(marks>85)  
        System.out.println("B1");  
    else  
        System.out.println("B2");  
}  
else if(marks>70){  
    System.out.println("C");  
}  
else if(marks>60){  
    System.out.println("D");  
}  
else{  
    System.out.println("Fail");  
}
```

Loops :-



- Loops:-
- ① for loop
 - ② while loop
 - ③ do-while loop

① For loop:-

$\text{++ } i \rightarrow \text{pre inc}$ $\text{-- } i \rightarrow \text{post dec}$
 $i++ \rightarrow \text{Post}$ $i-- \rightarrow \text{postdec}$

```
for ( initialization ; conditions ; increment/ decrement ) {  
    body  
}
```

Print after 10 times

```
for ( int i=1 ; i<=10 ; i++ ) {  
    sys( "x" );  
}
```

$i = 1 \leftarrow 10 (T)$

$i = 2 \leftarrow 10 (T)$

$i = 3 \leftarrow 10 (T)$

$i = 4 \leftarrow 10 (T)$

$i = 5 \leftarrow 10 (T)$

$i = 6 \leftarrow 10 (T)$

$i = 7 \leftarrow 10 (T)$

$i = 8 \leftarrow 10 (T)$

$i = 9 \leftarrow 10 (T)$

$i = 10 \leftarrow 10 (T)$

$i = 11 \leftarrow 10 (F)$

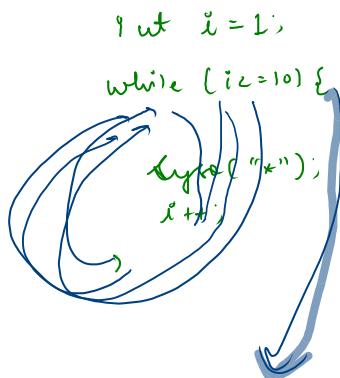
```
for(int i=1;i<=2000;i++){
    System.out.println("★");
}
```

while loop:-

Syntax

```
initialization;
while ( condition ) {
    inc
    *inc / dec;
}
```

Print 10 stars



$i = 1 \leftarrow 10(T)$
 $i = 2 \leftarrow 10(T)$
 $i = 3 \leftarrow 10(T)$
 $i = 4 \leftarrow 10(T)$
 $i = 5 \leftarrow 10(T)$
 $i = 6 \leftarrow 10(T)$
 $i = 7 \leftarrow 10(T)$
 $i = 8 \leftarrow 10(T)$
 $i = 9 \leftarrow 10(T)$
 $i = 10 \leftarrow 10(F)$
 $i = 11 \leftarrow 10(F)$

```
int i=1;  
while(i<=10){  
    System.out.println("*");  
    i++;  
}
```

What is the diff b/w for loop & while loop

No diff

Any problem

↳ for

↳ while

```
int i=1;
```

```
for (           ;   ; )
```

)
→ infinite
no of times

```
int i=1;
```

```
while (i<=10){
```

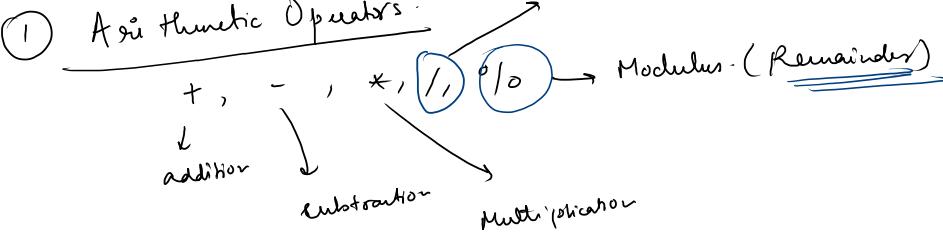
i++;

 >

i++

>

Operators



$\wedge \rightarrow \underline{\text{XOR}}$

int a $15/10; = \underline{1}$

double d $15/10 = \underline{1.5}$

② Assignment Operator :-

$(=)$ → used to assign a value to a variable.

int a = 10 → we are assigning value 10 to a variable 'a'

③ Relational operators:-

> , \geq , < , \leq ,

= =

↓
equal

↑

if (age ≥ 18)
↓ Relational operator

↓

④ Logical Operators:-

logical Operators:-

&& → AND

→ True O/P → when all the expression are true.

|| → OR → True O/P → when any condⁿ is true.

! → NOT → Negation True → False , False → True

Bit Manipulation

Bitwise Operator :-

| → OR Bitwise

& → AND "

~ → NOT.

^ → XOR

leftshift, rightshift → Shifting the bits by some position

Increment / Decrement Operator

↳ Post

$i =$

↳ Pre

① $(++i)$
Pre increment
↳

② $(i++)$
Post increment

③ $(--i)$
Pre decrement

④ $(i--)$
Post decrement

Pre increment ($++i$)

- ↳ first increase the value.
- ↳ Then assign / print.

Post increment ($i++$)

- ↳ First assign (Print)
- ↳ then increase the value

$$i = 10$$

Decrement

$$\begin{aligned} i &= ++i + \cancel{i++} \\ &= 11 + \cancel{11} \\ &= 22 \end{aligned}$$

12

~~23~~

while ()

↳

↳ do (e)

Function → Left

st