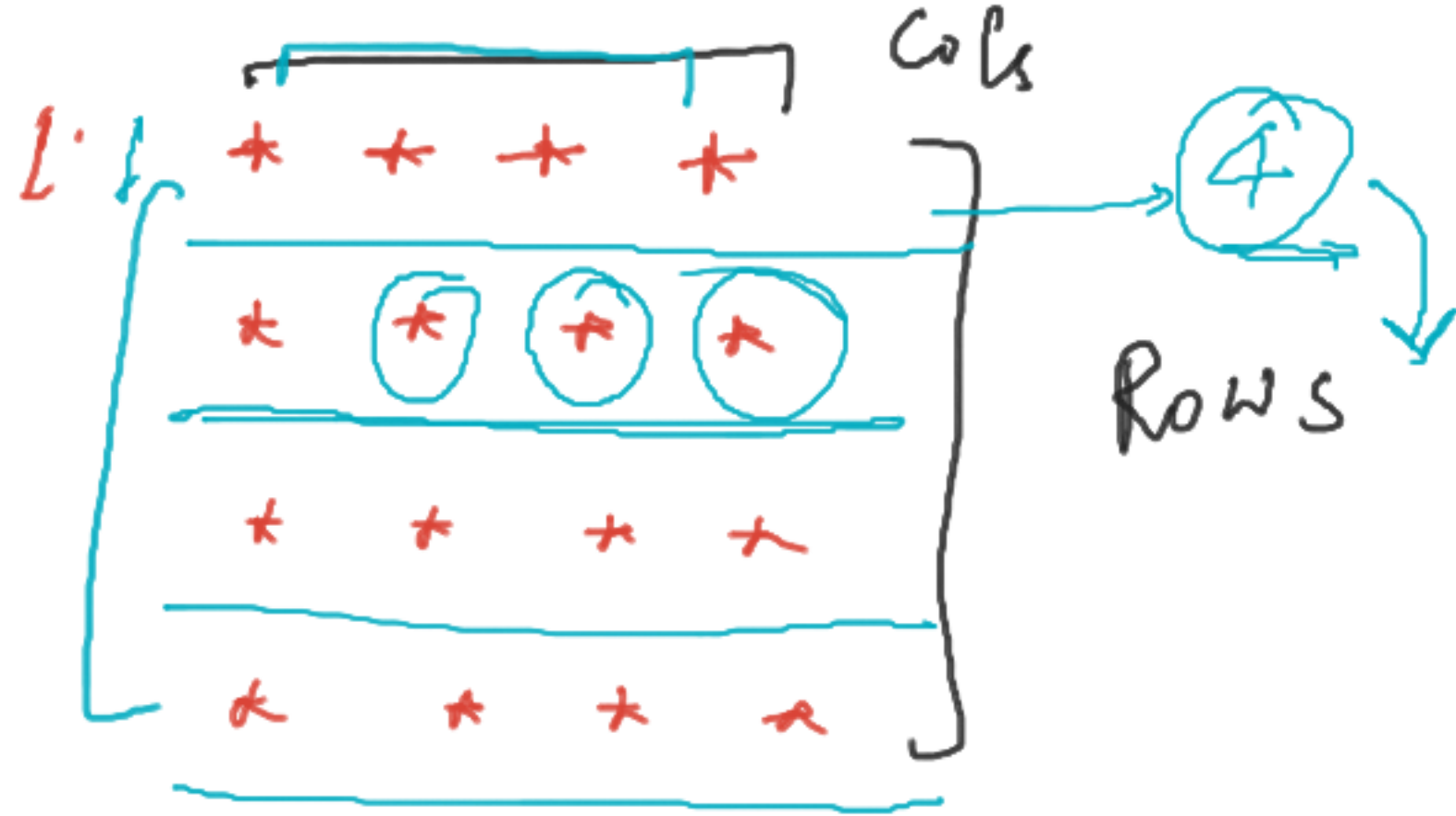


[ - Stars Pattern  
→ Numeric  
→ Alphabetic

[max - 3]  
↓



Nested loop

Loop

loop

Print ( )  
Print ln ( )

nextline

outer loop → Rows

```
for(init; condition; inc/dec){
  for(init; condition; inc/dec){
  }
}
```

inner loop - Cols

for(int i=1; i<=4; i++){

for(int j=1; j<=4; j++){

Syso("\*")

4

}

}

1, 2,

```
int n=5;
for(int i=1;i<=n;i++) {
    for(int j=1;j<= ;j++) {
        System.out.print("*");
    }
    System.out.println();
}
```

Total No. of Rows

Single Row

Single Col

printing in one single line

next line

```
* * * *
* * * *
* * * *
* * * *
```

```

int n=3;
for(int i=1; i<=n; i++) {
    for(int j=1; j<=n; j++) {
        System.out.print("* ");
    }
    System.out.println();
}

```

① ② ③ ④

① ② ③ ④

③

Row Change

Go to j 1 2 3 4

for ✓ 1	*	*	*	*
2	*	*	*	*
3	*	*	*	*
4	*	*	*	*

$i=1, 1 \leq 5 \rightarrow \text{true}$

$j=1, 1 \leq 3 \rightarrow \text{true} \rightarrow *$

4  
j=1 → 2  
2 → 3

$2 \leq 3 \rightarrow \text{true} \rightarrow *$

$3 \leq 3 \rightarrow \text{true} \rightarrow *$

$4 \leq 4 \rightarrow \text{true} \rightarrow *$

$5 \leq 4 \rightarrow \text{false}$

$i=1$

$i=2$

$2 \leq 5 \rightarrow \text{true}$

$j=1, 1 \leq 4 \rightarrow \text{true} \rightarrow *$

$i=3$

$i=4$

$i=5$

$j=5 \leq 4 \rightarrow \text{false}$

$5 \leq 4$   
false

```
Scanner scn = new Scanner(System.in);
System.out.println("Please enter no of Rows:");
int n=scn.nextInt();
for(int row=1;row<=n;row++) {
    for(int col=1;col<=n ; col++) {
        if(row==1 || row==n || col==1 || col==n) {
            System.out.print("* ");
        }else {
            System.out.print("  ");
        }
    }
    System.out.println();
}
```

output

Please enter no of Rows:

5

\* \* \* \* \*

\* \*

\* \*

\* \*

\* \* \* \* \*



```

Scanner scn = new Scanner(System.in);
System.out.println("Please enter no of Rows:");
int n=scn.nextInt();
for(int row=1;row<=n;row++) {
    for(int col=1;col<=n;col++) {
        if(row==1 || row==n || col==1 || col==n) {
            System.out.print("*");
        }
        else {
            System.out.print(" ");
        }
    }
    System.out.println();
}

```

row = 1

row = 2

	1	2	3	4	5
i=1	*	*	*	*	*
i=2	*				*

n = 5

row = 1, row <= 5 → true

col = 1, 1 <= 5 → true

if (1 == 1 || 1 == 5 || 1 == 1 || 1 == 5)

true - 1 == 5 ||

true - 1 == 1

false - 1 == 5

col = 2, 2 <= 5 → true

if (1 == 1 || 1 == 5 || 2 == 1 || 2 == 5)

2 == 1 || 2 == 5

false

false

col 3, 3 <= 5

col 4, col 5, col 6 <= 5 X

row = 2

i/j	1	2	3	4	5
1	*				
2	*	*			
3	*	*	*		
4	*	*	*	*	
5	*	*	*	*	*

execution time max  
 $5 \times 5 = 25$  times  
 $i = 1 \rightarrow 5$  } 5 times

15 times  
 $i = 1$        $j = 1 \rightarrow 5$   
 $i = 2$        $j \rightarrow 5$  times  
 $i = 3$        $j = 5$  times

if ( \_ : ) {

[\*]  
 1 Row of  $j = 1$        $i =$   
 2 Row  $\rightarrow$  Col  $\rightarrow 2$   
 3 else {  
 space  $\checkmark$   
 }

i\j	1	2	3	4	5
1	*				
2	*	*			
3	*	*	*		
4	*	*	*	*	
5	*	*	*	*	*

Row  $\rightarrow 1-5$

$\downarrow$   $\nearrow$

for (int  $i=1$ ;  $i \leq 5$ ;  $i++$ )

Col loop

for (int  $j=1$ ;  $j \leq$  5;  $j++$ ) {

    sysout("\*");

}

sysoutln();



i/j	1	2	3	4	5
1	1				
2	2	2			
3	3	3	3		
4	4	4	4	4	
5	5	5	5	5	5

$i \rightarrow 1 \rightarrow 5$  (Total No. of Rows)  
 $i \rightarrow 1 \rightarrow 1$

row  $\leq 5$

row = 1,  $1 \leq 3$

print  $\rightarrow$  (1)

Col = 1,  $1 \leq 1 \rightarrow \text{true} \rightarrow 1$

Col = 2,  $2 \leq 1 \rightarrow \text{false}$

```

int n = scn.nextInt();
for (int row = 1; row <= n; row++) {
    for (int col = 1; col <= row; col++) {
        System.out.print(row);
    }
    System.out.println();
}

```

line 2 row = 2,  $2 \leq 3$

Col = 1,  $1 \leq 2 \rightarrow \text{true} \rightarrow 2$

Col = 2,  $2 \leq 2 \rightarrow \text{true} = 2$

Col = 3,  $3 \leq 2 \rightarrow \text{false}$

line 3 row = 3

i/j 1 2 3 4 5

1 1 2 3

2 1 2

3 1 2 3

4 1 2 3 4

5 1 2 3 4 5

i = 1, 1 <= 5 → true

Col = 1, j <= i

1 <= 1, true → 1

Col = 2, 2 <= 1 - false

print(col / j)

line 2 i = 2, 2 <= 5

col = 1, 1 <= 2 → true 1

col 2, 2 <= 2 → true 2

col 3, 3 <= 2 → false

line 3 i = 3, j = 1, 2, 3

```
int n = scn.nextInt();
```

```
for (int row = 1; row <= n; row++) {
```

```
    for (int col = 1; col <= row; col++) {
```

```
        System.out.print(row);
```

```
    }
```

```
    System.out.println();
```

```
}
```

I

i/j	1	2	3	4
1	1			
2	2	3		
3	4	5	6	
4	7	8	9	10

Row X  
Col X  
n → Total No Row X

Need to take a new variable

Value is getting changed on Row & Col changes.

II

i/j	1	2	3	4
1	1			
2	2	2		
3	3	3	3	
4	4	4	4	4

Value is getting changed on Row changes.

OR print (Row);  
using new var.

i/j	1	2	3	4
1	1			
2	1	2		
3	1	2	3	
4	1	2	3	4

Value is getting changed on Col changes.