

* If-else statement:- [only one statement is run which is True)

Syntax:-

```
if(boolean expression T or F) {
    // body
} else {
    do this
}
System.out.println(salary);

```

ex. int salary = 25400;
if (Salary > 10,000) {
 Salary = salary + 2000;
}
} else {
 Salary = salary + 1000;
}
System.out.println(salary);

o/p=> 27400.

* multiple - if - else statement:-

Syntax:-

```
if (condition 1) {
} else if (condition 2) {
} else {
}
System.out.println(salary);

```

ex. int salary = 25400;
if (salary > 10000) {
 Salary += 2000;
}
} else if (salary > 20000) {
 Salary += 3000;
}
} else {
 Salary += 1000;
}
System.out.println(salary);

o/p=> 28400.

* Loops:-

Syntax:-

print numbers 1 to 5.

S.O.P(1);

S.O.P(2);

S.O.P(3);

S.O.P(4);

S.O.P(5);

Now print 1 to 1000.. it is too long and unconvient to write in S.O.P() that's loops used.

7] For-Loop:-Syntax:-

```
①      ②      ④
for( initialization; condition; increment/decrement ) {
    ③
        body
}
```

Q: Print Numbers from 1 to 5.

```
→ for( int i=1; i<=5; i++ ) {
    System.out.println(i);
}
```

System.out.println();

i=1 i<=5 S.O.P(i) i++

1 1 <= 5 1 2

2 2 <= 5 2 3

3 3 <= 5 3 4

4 4 <= 5 4 5

5 5 <= 5 5 6

6 6 <= 5 X } loop {

Q: print the Numbers from 1 to n.

→ import java.util.Scanner;

class Numbers{

```
public static void main( String[] args ) {
    Scanner sc = new Scanner( System.in );
}
```

System.out.print(" Enter n : ");

int n = sc.nextInt();

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

System.out.print(i + " ");

}

System.out.println();

y y

2) while-Loop

Syntax:

initialization

while (condition) {

// body

 \downarrow increment / decrement.

(optional) ;

q) Print Numbers from 1 to 5:

int num = 1;

while (num <= 5) {

System.out.print(num + " ");

 \downarrow

System.out.println();

When to use "for loop" and "while loop".

- When u don't know the how many times loops run then use while Loop.
- When u know the terminating Condition of loop then use For Loop.

3) do-while loop: [It Run atleast once].

syntax:

do {

// body

 \downarrow while (condition);

int n = 1;

do {

SOP("Hello world");

 \downarrow while (n != 1);

Output: Hello world.

Q: Largest among three number.

```
import java.util.Scanner;
```

```
class LargestNumber {
```

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

```
        Scanner sc = new Scanner(System.in);
```

```
        System.out.print("Enter three Numbers : ");
```

```
        int a = sc.nextInt();
```

```
        int b = sc.nextInt();
```

```
        int c = sc.nextInt();
```

```
        int max = a;
```

```
        if (b > max) {
```

```
            max = b;
```

```
}
```

```
        if (c > max) {
```

```
            max = c;
```

```
}
```

```
        System.out.println("Maximum : " + max);
```

```
}
```

```
}
```

way-2

```
int max = 0;
```

```
if (a > b) {
```

```
    max = a;
```

```
} else {
```

```
    max = b;
```

```
}
```

```
if (c > max) {
```

```
    max = c;
```

```
}
```

```
sop(max);
```

way-3

```
int max = Math.max(a, b);
```

```
int max = Math.max(c, Math.max(a, b));  
System.out.println(max);
```

Q: Alphabet Case Check:

```
import java.util.Scanner;  
class Casecheck {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
        char ch = sc.nextLine().trim().charAt(0);
```

```
        if (ch >= 'a' && ch <= 'z') {  
            System.out.println("Lower Case");
```

```
        } else {  
            System.out.println("Upper Case");
```

Q: Fibonacci Numbers

0, 1, 1, 2, 3, 5, 8, 13, 21 ...

```
import java.util.Scanner;
```

```
class Fibo {
```

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

```
        Scanner sc = new Scanner(System.in);
```

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

```
        int a = 0;
```

```
        int b = 1;
```

```
        int count = 2;
```

```
        while (count <= n) {
```

```
            int temp = b;
```

```
            b = b + a;
```

```
            a = temp;
```

```
            count++;
```

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

Q: Counting Occurrences:

```
import java.util.Scanner;
class CountOcc {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n = sc.nextInt();
        int temp = n;
        int count = 0;
        while (temp != 0) {
            int occNo = sc.nextInt();
            while (temp != 0) {
                int rem = temp % 10;
                if (rem == occNo) {
                    count++;
                }
                temp = temp / 10;
            }
            System.out.println(count);
        }
    }
}
```

Q: Reverse the Number:

```
int n = sc.nextInt();
int rev = 1;
while (n != 0) {
    int rem = n % 10;
    rev = rev * 10 + rem;
    n = n / 10;
}
System.out.println(rev);
```

Calculator Program:-

```

import java.util.Scanner;
class Calculator{
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int ans=0;
        while(true) {
            System.out.println("Enter the operator : ");
            char op = sc.nextLine().trim().charAt(0);
            if (op == '+' || op == '-' || op == '*' || op == '/' || op == '%') {
                System.out.println("Enter two Numbers : ");
                int num1 = sc.nextInt();
                int num2 = sc.nextInt();

                if (op == '+') {
                    ans = num1 + num2;
                }
                if (op == '-') {
                    ans = num1 - num2;
                }
                if (op == '*') {
                    ans = num1 * num2;
                }
                if (op == '/') {
                    if (num2 != 0) {
                        ans = num1 / num2;
                    }
                }
                if (op == '%') {
                    ans = num1 % num2;
                }
            } else if (op == 'x' || op == 'X') {
                break;
            } else {
                System.out.println("Invalid operation");
            }
        }
        System.out.println("ans = " + ans);
    }
}

```

Switch Statement:-

```

import java.util.Scanner;
class Main {
    public static void main (String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter Fruit Name:");
        String fruit = sc.next();
        if(fruit.equals("mango")){
            System.out.println("King of fruit");
        }
        if(fruit.equals("apple")){
            System.out.println("a sweet Red fruit");
        }
    }
}

```

Repeatedly
that's
why
switch
statement
used.

In Switch statements, you can jump to various cases based on your expression.

Syntax:-

```
switch(expression) {
```

// Cases

case one:

// do something - duplicate case values are not allowed

break;

case two;

// do something

Note:-

- Cases have to be the same type as expression, must be a constant or literal.

- break is used to terminate the sequence.

- if break is not used, it will continue to next case.

break;

- default will execute when none of the above does.

default:

// do something

- if default is not at the end, put break after it.

}

Q) Describe Fruit.

```

→ import java.util.Scanner;
class DescribeFruit {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        String fruit = sc.next();
        switch(fruit) {
            case "Mango": System.out.println("king of fruits");
                break;
            case "Apple": System.out.println("A sweet Red fruit");
                break;
            case "Orange": S.O.P("Round fruit");
                break;
            case "Grapes": S.O.P("Small fruit");
                break;
            default: S.O.P("Please enter a valid fruit");
                break;
        }
    }
}
  
```

y y y

using Enhanced Switch:

```

switch(fruit) {
    case "Mango" → S.O.P("king of fruits");
    case "Apple" → S.O.P("A sweet Red fruit");
    case "Orange" → S.O.P("Round fruit");
    case "Grapes" → S.O.P("Small fruit");
    default → S.O.P("Please enter valid fruit");
}
  
```

y

Q: Display Day Name b/w 1 & 7

```
int day = sc.nextInt();
switch(day) {
    case 1 → S.O.P("Monday");
    case 2 → S.O.P("Tuesday");
    case 3 → S.O.P("Wednesday");
    case 4 → S.O.P("Thursday");
    case 5 → S.O.P("Friday");
    case 6 → S.O.P("Saturday");
    case 7 → S.O.P("Sunday");
    default → S.O.P("Please enter valid day No.");
}
```

Q: Weekdays and weekends.

```
int day = sc.nextInt();
switch(day) {
    Case 1:
    Case 2:
    Case 3:
    Case 4:
    Case 5:
    Case 6: S.O.P("Weekday");
    Case 6:
    Case 7:
        S.O.P("Weekend");
        break;
    default → S.O.P("Invalid");
}
```

using enhanced switch.

```
switch(day) {
    case 1,2,3,4,5 → S.O.P("Weekday");
    case 6,7 → S.O.P("Weekend");
}
```

* Nested switch-case:-

```
import java.util.Scanner;
class NestedSwitch {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter Employee Id : ");
        int empID = sc.nextInt();
        System.out.print("Enter Department Name : ");
        String department = sc.next();
        switch(empID) {
            case 1:
                System.out.println("Employee Name : Kunal Kushwaha");
                break;
            case 2:
                System.out.println("Employee Name : Rahul Rana");
                break;
            case 3:
                System.out.println("Employee Name : Jyoti Patel");
                break;
            default:
                switch(department) {
                    case "IT":
                        System.out.println("IT Department");
                        break;
                    case "Management":
                        System.out.println("Management Department");
                        break;
                    default:
                        System.out.println("No department Present");
                }
        }
    }
}
```

Loops Questions:-

Q: Print the numbers from 101 to 200.

→

```
for(int i=101; i<=200; i++) {
    System.out.print(i + " ");
}
```

Q: Print the Alphabet from 'a' to 'z'.

→

```
for(char i='a'; i<='z'; i++) {
    System.out.print(i + " ");
}
```

Q: Print the Numbers from 'N' to 1. Take the N from user.

→

```
import java.util.Scanner;
class NNumbers {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter Value of N: ");
        int n = sc.nextInt();
        for(int i=n; i>=1; i--) {
            System.out.print(i + " ");
        }
    }
}
```

Q: Print the Numbers from 1 to 100 but Pattern is 1,4,7,10,...

→

```
for(int i=1; i<=100; i+=3) {
    System.out.print(i + " ");
}
```

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

Q. Print the Table of 'N'; Take the 'N' from user.

```
→ import java.util.Scanner;
class TableNo {
    p. s. v. main (String [ ] args) {
        Scanner sc = new Scanner (System.in);
        s. o. print ("Enter the Number : ");
        int n = sc.nextInt();
        for (int i = 1; i <= n; i++) {
            s. o. print ((i * n) + " ");
        }
        s. o. println ();
    }
}
```

Q. Calculate the Power of Number.

IIP → n=5 pow=4

OIP → 5⁴ → calculate 5*5*5*5 = 625

way ①

```
→ import java.util.Scanner;
class PowerofNum {
    p. s. v. main (String [ ] args) {
        Scanner sc = new Scanner (System.in);
        s. o. print ("Enter Number : ");
        int n = sc.nextInt();
        s. o. print ("Enter Power Number : ");
        int pow = sc.nextInt();
        int ans = 1;
        for (int i = 1; i <= pow; i++) {
            s. o. print ("ans = " + ans + " n = " + n + " ans * n = " + ans * n + " \n");
            ans = ans * n;
        }
        s. o. print ("power of Number is : " + ans);
    }
}
```

Way-2

$n=5 \quad pow=4$

$num = n$

`for(int i=1; i<pow; i++) { }`

$sum = num * n;$

`y = (int) (random() % 10);`

`S.O.P(num);`

`{ } // (i+1) times addition of num`

Q: Sum of 'N' Natural Number.

Way-1

`int n = sc.nextInt();`

`int sum = 0;`

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

$sum = sum + i;$

`y`

`S.O.P("Sum of Natural Number : " + sum);`

Way-2

`int n = sc.nextInt();`

`int sum = n * (n+1)/2;`

`S.O.P(sum);`

Q: Sum of Square of 'N' Natural Number.

`int n = sc.nextInt();`

`int sum = 0;`

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

$sum = sum + (i*i);$

`y`

`S.O.P("Sum of square of Natural No : " + sum);`

Q: factorial of a Number $n=5 \quad fact=120$.

`int n = sc.nextInt();`

`int fact = 1;`

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

$fact = fact * i;$

`y`

`S.O.P("factorial of " + n + " is :" + fact);`

Q. Check the Number is Prime or Not.

```
→ import java.util.Scanner;
class PrimeNumberCheck {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter Number: ");
        int num = sc.nextInt();
        int flag = 0;
        if (num < 2) {
            System.out.println(num + " is Not Prime Number");
        } else {
            for (int i = 2; i < n; i++) {
                if (n % i == 0) {
                    flag = 1;
                    System.out.println(num + " is not Prime Number");
                }
            }
        }
    }
}
```

Q. Fibonacci Series of Number.

→	0	1	1	2	3	5	8	13	21	34
n →	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

```
int n = sc.nextInt();
int a = 0, b = 1, count = 2;
while (count <= n) {
    int temp = b;
    b = b + a;
    a = temp;
    count++;
}
System.out.println(b);
```