

Exp no:1

Operators in java

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1) Arithmetic Operators:

A. Sum (+):-

input:

```
class sum
{
    public static void main(String args[])
    {
        int a=10;
        int b=12;
        int c=a+b;
        System.out.println(c);
    }
}
```

Output:

22

B. Difference (-):

Input:

```
class diff
{
    public static void main(String args[])
    {
        int a=12;
        int b=10;
        int c=a-b;
        System.out.println(c);
    }
}
```

Output:

2

C.Product(*):

Input:

```

        class mul
    {
        public static void main(String args[])
        {
            int a=12;
            int b=10;
            int c=a*b;
            System.out.println(c);
        }
    }

```

Output:
120

D. Division:

Input:

```

        class div
        {
            public static void main(String args[])
            {
                int a=12;
                int b=6;
                int c=a/b;
                System.out.println(c);
            }
        }

```

Output:
2

E.Modulo:

Input:

```

        class div
        {
            public static void main(String args[])
            {
                int a=12;
                int b=10;
                int c=a%b;
                System.out.println(c);
            }
        }

```

```
    }  
Output:  
    2
```

2) Logical operators and relational operator :

AND operators (&&):

Input:

```
class Logical {  
    public static void main(String[] args)  
    {  
        int a = 10, b = 20, c = 20, d = 0;  
        System.out.println("Var1 = " + a);  
        System.out.println("Var2 = " + b);  
        System.out.println("Var3 = " + c);  
        if ((a < b) && (b == c)) {  
            d = a + b + c;  
            System.out.println("The sum is: " + d);  
        }  
        else  
            System.out.println("False conditions");  
    }  
}
```

Output:

```
Var1 = 10  
Var2 = 1  
Var3 = 10  
Var4 = 30  
One or both + the conditions are true
```

OR operators(||):

Input:

```
import java.io.*;  
  
class ShortCircuitingInOR {
```

```

public static void main (String[] args) {

    int a = 10, b = 20, c = 15;

    System.out.println("Value of b: " +b);

    if((a < c) || (++b < c))
        System.out.println("Inside if");

    System.out.println("Value of b: " +b);

}
}

```

```

Value of b: 20
Inside if
Value of b: 20

```

NOT operator:

```

    Input:
class Logical {
    public static void main(String[] args)
    {

        int a = 10, b = 1;

        System.out.println("Var1 = " + a);
        System.out.println("Var2 = " + b);

        System.out.println("!(a < b) = " + !(a < b));
        System.out.println("!(a > b) = " + !(a > b));

    }
}

```

Output:

```
Var1 = 10
Var2 = 1
!(a < b) = true
!(a > b) = false
```

Equal to operator :

Input:

```
class ET {

    public static void main(String[] args)
    {

        int var1 = 5, var2 = 10, var3 = 5;
        System.out.println("Var1 = " + var1);
        System.out.println("Var2 = " + var2);
        System.out.println("Var3 = " + var3);
        System.out.println("var1 == var2: "+ (var1 == var2));

        System.out.println("var1 == var3: "
                           + (var1 == var3));

    }
}
```

Output:

```
Var1 = 5
Var2 = 10
Var3 = 5
var1 == var2: false
var1 == var3: true
```

Not Equal to:

Input:

```
class notE {  
  
    public static void main(String[] args)  
    {  
        int var1 = 5, var2 = 10, var3 = 5;  
        System.out.println("Var1 = " + var1);  
        System.out.println("Var2 = " + var2);  
        System.out.println("Var3 = " + var3);  
        System.out.println("var1 != var3" + (var1 != var2));  
        System.out.println("var1 != var3" + (var1 != var3));  
    }  
}
```

Output :

```
Var1 = 5  
Var2 = 10  
Var3 = 5  
var1 != var2: true  
var1 != var3: false
```

3)Bitwise operators:

Input:

```
import java.util.Scanner;  
  
public class BitwiseOperators {  
    public static void main(String[] args) {  
        Scanner input = new Scanner(System.in);  
  
        System.out.print("Enter first number: ");  
        int num1 = input.nextInt();  
  
        System.out.print("Enter second number: ");  
        int num2 = input.nextInt();  
  
        System.out.println("Bitwise AND: " + (num1 & num2));  
        System.out.println("Bitwise OR: " + (num1 | num2));  
        System.out.println("Bitwise XOR: " + (num1 ^ num2));  
        System.out.println("Bitwise NOT: " + (~num1));  
    }  
}
```

```

        System.out.println("Bitwise Left Shift: " + (num1 << 2));
        System.out.println("Bitwise Right Shift: " + (num1 >> 2));
        System.out.println("Bitwise Unsigned Right Shift: " + (num1 >>> 2));

        input.close();
    }
}

```

Output:

```

Enter first number: 4
Enter second number: 8

Bitwise AND: 0
Bitwise OR: 12
Bitwise XOR: 12
Bitwise NOT: -5
Bitwise Left Shift: 16
Bitwise Right Shift: 1
Bitwise Unsigned Right Shift: 1

```

4) Ternary operator:

Input:

```

public class TernaryOperator {

    public static void main(String[] args)
    {
        boolean condition = true;
        String result = (condition) ? "True" : "False";

        System.out.println(result);
    }
}

```

Output:

```

True

```

5) Instance operator:

```
class Simple1{  
    public static void main(String args[]){  
        Simple1 s=new Simple1();  
        System.out.println(s instanceof Simple1);  
    }  
}
```

Output:

true.