Exp no:1

Operators in java

date:8/8/2024

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.