**LAB#04**

**Operators in java:**

Java operators are symbols that are used to perform operations on variables and manipulate the values of the operands.

**ASSIGNMENT OPERATOR:**

Assignment operators are used in Java to assign values to variables. For example, int age; age = 5; Here, = is the assignment operator. It assigns the value on its right to the variable on its left.

**Types OF Assignment Operator:**

Java assignment operator are classified into three types.

1. Simple Basic
2. Moderate Operator
3. Complex Operator

|  |  |  |
| --- | --- | --- |
| **1Simple/Basi:**  The simple basic operator is the equal (=) sign.it  Simply Assign the value or variables on the right to the variable on the left.  **2-Moderate:**  In this operator we initialize to the other assign value.  **3-Complex:**  In this operator we can assign value to variable and can find literals. | **Mathematically Description**  x=10;  a=20;  a=10;  x=a;  Z = (x-2)/(2+2) | **CODE#11**  public class code11 {      public static void main(String[] args) {          int a = 10;          System.out.println(a);      }  }  **CODE#12**  public class code12 {      public static void main(String[] args) {          int a = 10;          int x = a;          System.out.println(x);      }  }  **CODE#13**  public class code13 {      public static void main(String[] args) {      int x = 10;    intz=(x+2)/(2+2);     System.out.println(z);   }  } |

**MATHEMATICAL OPERATORS:**

The Java programming language supports various arithmetic operators for all floating-point and integer numbers. These operators are.

1. Addition (+)

2. Subtraction (-)

3. Multiplication (\*)

4. Division (/)

5. Modulus

1. **ADDITION:**

Public class code14{

Public static void main(String[]args){

int a = 10;

int b = 20;

int sum = a + b;

System.out.println(“The sum is :”+(a+b));

}

}

**(Reduction)**

Public class code15{

Public static void main(String[]args)

int a = 10;

int b = 20;

int sum = a + b;

System.out.println(“The Sub is:”+(a+b));

}

}

1. **SUBTRACTION:**

Public class code16{

Public static void main(String[]args)

int a = 10;

int b = 20;

System.out.println(“The sub is:”+(a-b));

}

}

1. **Multiplication:**

public class code17 {

    public static void main(String[] args) {

    int a = 10;

    int b = 20;

    System.out.println( "The multi is :" +(a\*b));

    }

}

1. **Division:**

public class code18 {

    public static void main(String[] args) {

    int a = 10;

    int b = 20;

    System.out.println( "The div is :" +(a/b));

    }

}

1. **Modulus:**

public class code19 {

public static void main(String[] args) {

int a = 10;

int b = 20;

System.out.println( "The mod is :" +(a%b));

}

}

CODE#20

public class code20 {

   public static void main(String[] args) {

    int a = 10;

    int b = 20;

    System.out.println( "The sum is :" +(a+b)+"/n"+"The sub is :"+(a-b)+"/n"+"The multi is : "+(a\*b)+"/n"+"The div is :"+(a/b)+"/n"+"Themod is :"+(a%b));

   }

}

**PRECEDENCE:**

Precedence is the priority for grouping different types of operators with their operands.

**ASSOCIATING:**

Associativity is the left-to-right or Right-to-left grouping operands to operators that have the same precedence.

For example: - (obt\*100)/100

- (2\*3) +5- (2-4)

**RELATIONAL OPERATORS:**

CODE#21

**1.Greater Than:**

public class code21 {

    public static void main(String[] args) {

    int a = 10;

    int b = 20;

    System.out.println("Greater after than of such variable is :" +(a>b));

    }

}

CODE#22

**2.Less Than:**

public class code22 {

   public static void main(String[] args) {

    int a = 10;

    int b = 20;

    System.out.println("Less than of such variable is: "+(a<b));

    }

}

CODE#23

**3.Greater Equal:**

public class code22 {

   public static void main(String[] args) {

    int a = 10;

    int b = 20;

    System.out.println("Greater thanEqual variable is: "+(a>=b));

    }

}

CODE#24

**4.Less Equal:**

public class code24 {

   public static void main(String[] args) {

    int a = 10;

    int b = 20;

    System.out.println("Less than equal of such variable is:"+(a<=b));

    }

}

CODE#25

**5.Equal Equal:**

public class code25 {

   public static void main(String[] args) {

  int a = 10;

  int b = 20

System.out.println("Equal Equal of such variable is:"+(a==b));

    }

}

CODE#26

**6.Not Equal:**

public class code26 {

    public static void main(String[] args) {

    int a = 10;

    int b = 20;

    System.out.println("Not Equal of such variable is:"+(a!=b));

    }

}

**SHORTHAND ARITHMETIC OPERATOR:**

It depends on two or more variable. Value of this operator have same variable on equal to other side.

For example: a = a + b;

a + = b;

It includes:

1) =+

2) =-

3) =\*

4) =/

5) =%

CODE#27

**1.Shorthand Sum:**

public class code27 {

    public static void main(String[] args) {

    int a = 10;

    int b = 20;

    System.out.println("Short hand sum is:"+(a+=b));

    }

}

CODE#28

**2.Shorthand Sub:**

public class code28 {

    public static void main(String[] args) {

        int a = 10;

        int b = 20;

        System.out.println("Short hand sub is:"+(a-=b));

    }

}

CODE#29

**3.Shorthand Multi:**

public class code29 {

    public static void main(String[] args) {

        int a = 10;

        int b = 20;

        System.out.println("short hand multi is:"+(a\*=b));

        }

}

CODE#30

**4.Shorthand Division:**

public class code30 {

    public static void main(String[] args) {

    int a = 10;

    int b = 20;

    System.out.println("Short hand div is:"+(a/=b));

    }

}

CODE#31

**5.Shorthand Modulus:**

public class code31 {

   public static void main(String[] args) {

    int a = 10;

    int b = 20;

    System.out.println("Short hand mod is "+(a%=b));

    }

}

CODE#32

public class code32 {

    public static void main(String[] args) {

    int a = 10;

    int b = 20;

    System.out.println("Short hand sumis:"+(a+=b)+"/n"+"Short hand sub is:"+(a-=b)+"/n"+"Short hand multi is:"+(a\*=b)+"/n"+"Short hand div is:"+(a/=b)+"/n"+"Short hand mod is:"+(a%=b));

    }

}

CODE#33

public class code33 {

    public static void main(String[] args) {

    int a = 10;

    int b = 20;

 System.out.println("Greater than of such variable is:"+(a>b)+"/n"+"Less than of such variable is:"+(a<b)+"/n"+"Greater than equal of such variable is:"+(a>=b)+"/n"+"Less than equal of such variable is:"+(a<=b)+"/n"+"Equal Equal of such variable is:"+(a==b)+"/n"+"Not equal of such variable is:"+(a!=b));

    }

}

**SHORTHAND INCREMENT & DECREMENT OPERATOR**

This operator works on single value. It includes:

1) Increment (++)

2) Decrement (--)

* **Post Increment:**

a++

a--

* **Post Decrement:**

++a

--a

CODE#34

public class code34 {

    public static void main(String[] args) {

        int a = 10;

        a = a+1;

        System.out.println("Enter short hand sum"+a++);

       }

}

CODE#35

public class code35 {

    public static void main(String[] args) {

    int a = 10;

    System.out.println("Enter short hand sub +a-");

    }

}

**LOGICAL OPERATOR**

This operator works on statement. It includes:

1) AND (&)

2) OR (||)

3) NOT (!)

CODE#36

**1) AND:**

public class code36 {

    public static void main(String[] args) {

        int username = 1234;

        int pass = 786;

        if(username == 1234 && pass == 786)

        {

        System.out.println("login successfuly");

        }

    }

}

CODE#37

**2) OR:**

public class code37 {

    public static void main(String[] args) {

        int username = 1234;

        int pass = 786;

        if(username == 1234 || pass == 786)

        {

        System.out.println("login successfully");

        }

    }

}

CODE#38

**3)NOT:**

public class code38 {

    public static void main(String[] args) {

        int username = 1234;

        int pass = 786;

        if(username != 1234 && pass != 786)

        {

        System.out.println("login successfully");

        }

    }

}

**TERNORY OPERATOR**

This operator is also called “Conditional operator”.

* Boolean Expression? (if) TRUE
* Boolean Expression (else) FALSE

CODE#39

public class code39 {

    public static void main(String[] args) {

        int a = 10;

        int b = 20;

        String result = a>b? "a is greater":"b is greater";

        System.out.println(result);

    }

}

CODE#40

public class code40 {

    public static void main(String[] args) {

    boolean t = true;

    boolean f = false;

    System.out.println("t? true:false"+(t ? true: false));

    System.out.println("t? 1:2" +(t ? 1 : 2));

    System.out.println("f?true:false"+(f ? true: false));

    System.out.println("f?1:2" +(f ? 1: 2));

    }

}

CODE#41

import java.util.Scanner;

public class code41 {

    public static void main(String[] args) {

    Scanner sc = new Scanner (System.in);

    System.out.println("enter the value of Ath variable is:");

    int a = sc.nextInt();

    System.out.println("enter the value of Bth variable is:");

    int b = sc.nextInt();

    String result = a>b? "a is greater":"b is greater";

    System.out.println(result);

   }

}

CODE#42

import java.util.Scanner;

public class code42 {

    public static void main(String[] argse) {

    Scanner sc = new Scanner(System.in);

    System.out.println("enter the boolean t variable is:");

    boolean t = sc.nextBoolean();

    System.out.println("enter the boolean f variable is:");

    boolean f = sc.nextBoolean();

    System.out.println("t? true:false"+(t? true: false));

    System.out.println("t? 1 : 2"+(t? true: false));

    System.out.println("f? true: false"+(f? true: false));

    System.out.println("f? 1 : 2"+(f? true: false)):

}

}