

/\* java program to demonstrate operators precedence & associativity \*/

## Class Operators

```
{
    public static void main(String args[])
    {
        //Arithmetic Operators (+, -, *, /, %)
        double res = 2 * 6 / 4 - 5;
        System.out.println("Arithmetic expression :" + res);

        // Relational Operator (<, >, ==)
        boolean b = (3 > 6); // stores true or false based on condition
        System.out.println("Relational Expression :" + b);

        // Logical Operator ( &&, ||, ! )
        boolean bool1 = (3 < 2) && (4 == 4);
        boolean bool2 = (3 > 2) && (4 == 4);
        boolean bool3 = (3 < 2) || (4 == 4);

        System.out.println("Logical Expression (bool1) :" + bool1);
        System.out.println("Logical Expression (bool2) :" + bool2);
        System.out.println("Logical Expression (bool3) :" + bool3);

        // Bitwise Operator ( &, |, <<, >>, ... )
        int bit1 = 3 & 4 | 2;
        System.out.println("Bitwise AND :" + bit1);

        int bit2 = 8 << 2;
        int bit3 = 8 >> 2;
    }
}
```

Output :-

Arithmetic expression: 2.0

Relational expression: false

Logical expression (bool1): ~~false~~

Logical expression (bool2): true

Logical expression (bool3): true

Bitwise AND: 2

Left Shift: 32

Right Shift: 2

Increment and Decrement Exp: 4

Assignment Op: 10

Assignment Op: 10

conditional Op: 20

Mis Op: true

Title :

Date :

Page No.: 2

```
System.out.println(" Left Shift :" + bit_2);
```

```
System.out.println (" Right Shift :" + bit_3);
```

```
// Increment and Decrement Operator (++, --)
```

```
int x1 = 5, x2 = 6, x3 = 2;
```

```
int x = x1++ + --x2 - x1--;
```

```
System.out.println(" Increment & Decrement Exp :" + x);
```

```
// Assignment Operator ( =, +=, -=, ... )
```

```
int y1 = 10, y2;
```

```
int a0 = y1;
```

```
System.out.println(" Assignment Op :" + a0);
```

```
int a01 = y2 = y1;
```

```
System.out.println (" Assignment Op :" + a01);
```

```
// conditional Op ( Ternary Op ) ( ?, : )
```

```
int n1 = 10, n2 = 20;
```

```
System.out.println(" conditional Op :" + (n1 > n2) ? n1 : n2));
```

```
// Mis Op (instance of)
```

```
Operator op = new Operator();
```

```
boolean opb = op instanceof Operator;
```

```
System.out.println(" Mis Op :" + opb);
```

}

R  
12/2

Output :-

10 20 30

Output :-

10 40 50

Title: 2) write a java program to illustrate the Date :  
concepts of array. Page No.: 3

### 1 D Array :-

Method - 1

```
/* program */  
class OneArray1  
{  
    public static void main(String args[])  
{  
        int a[] = new int[3];  
        a[0] = 10;  
        a[1] = 20;  
        a[2] = 30;  
        for (int i=0; i<3; i++)  
            System.out.println(a[i] + " ");  
    }  
}
```

Method - 2

```
class OneArray2  
{  
    public static void main(String args[])  
{  
        int a[] = {10, 40, 50};  
        System.out.println("Array elements are:");  
        for (int i=0; i<4; i++)  
        {  
            System.out.println(a[i] + " ");  
        }  
    }  
}
```

Title :

Output :-

10  
20

30  
40



2D Array :-

Method -1

class TwoArray1

```
{ public static void main(String args[])
{ int i,j;
int a[][]=new int[2][2];
a[0][0]=10;
a[0][1]=20;
a[1][0]=30;
a[1][1]=40;
System.out.println ("elements are");
for ( i=0 ; i<2 ; i++)
{
    for (j=0 ; j<2 ; j++)
    {
        System.out .println ( a[i][j] );
    }
}
System.out .println ();
}
```

A red arrow points from the closing brace of the outer for loop in the code back to the opening brace of the inner for loop.

Output :-

10

20

30

40

Title :

Date :  
Page No.: 05

Method 2  
class TwoArray2

```
{ public static void main (String args[])
{
    int a[][] = {{10,20},{30,40}};
    System.out.println ("elements are :");
    for (int i=0; i<2; i++)
    {
        for (int j=0; j<2; j++)
        {
            System.out.println (a[i][j]);
        }
    }
}
```

~~RP  
12/12~~

3) write a java program to define a class, define instance methods for setting and returning values of instance variables and instance its objects.

Program:-

```
Class Emp
{
    String name;
    int id;
    String address;
    void getData (String name, int id, String address)
    {
        this.name = name;
        this.id = id;
        this.address = address;
    }
    void putData()
    {
        System.out.println("Employee details are : ");
        System.out.println(" Name: " + name);
        System.out.println(" ID :" + id);
        System.out.println(" Address :" + address);
    }
}
```

Title :

```
class EmpDemo  
{  
    public static void main(String args[])  
    {  
        Emp e=new Emp();  
        e.getData("James Gosling", 1995, "HYD");  
        e.putData();  
    }  
}
```

Output :-

- James Anurag University
- Girasingh Anurag University.

Date :  
Page No.: 08

Title :

Q) Demonstrate the use of static keyword & this keyword.

Static Keyword:

Program :-

class Student

{ int rollno; // instance variable

String name;

static String college = "AU" // static variable

Student (int r, String n) // constructor

{

rollno = r;

name = n;

}

void display () // method to display the values

{

System.out.println(rollno + " " + name + " " + college);

} public class TestStatic {

public static void main (String args[]) {

Student S1 = new Student (101, "James");

Student S2 = new Student (102, "Girasingh");

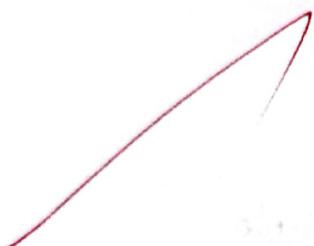
Student.college = "Anurag University";

S1.display();

S2.display();

Output :-

Value of x = 5



Title :

Date :

Page No.: 09

This Keyword:

Program:-

```
public class Main  
{  
    int x;  
    public Main(int x)  
    {  
        this.x=x;  
    }  
    public static void main(String args[])  
    {  
        Main obj=new Main(5);  
        System.out.println("Value of x = "+obj.x);  
    }  
}
```

~~R 18/7~~

Output:-

In Constructor...

name: Raul

id : 31

Date : 24/07/25  
Page No.: 10

### Title: WEEK -3

5] Demonstrate the constructor and its types, constructor Overloading.

Program 1:-

// Default constructor

class Constructor

{

String name;

int id;

Constructor()

{

System.out.println("In Constructor...");

name = "Raul";

id = 31;

}

class ConstructorMain

{

public static void main(String args[])

{

Constructor c = new Constructor();

System.out.println("name:" + c.name);

System.out.println("id :" + c.id);

}

}

Output:-

In paramConstructor...

mani and 3

Title :

Program 2:-

// Parameterized Constructor

class ConstructorParam

{

String name;

int id;

ConstructorParam( String n, int ID)

{

System.out.println("In paramConstructor...");

name = n;

id = ID;

}

}

{

public static void main( String args[] )

{

ConstructorParam obj = new ConstructorParam("mani", 03)

System.out.println( obj.name + " and " + obj.id );

}

Program - 3:-

## // Constructor Overloading

class ConsOverL

{

String name;

int id;

ConsOverL()

{

name = "Rahul";

id = 31;

}

ConsOverL(String n, int ID)

{

System.out.println("Constructor Overloading...");

~~name=n;~~

~~id = ID;~~

void getDetails()

{

System.out.println("name: "+name);

System.out.println("id: "+id);

}

}

Output:-

Name: Fahad

id : 31

Constructor Overloading...

Name: mario

id : 3

class ConsOverLM  
{ public static void main(String args[])  
{ ConsOver obj1 = new ConsOverLM();  
obj1.getDetails();  
ConsOver obj2 = new ConsOverLM();  
obj2.getDetails();  
}}

Output :

Length of welcome is : 7

Character at 0th index : w

Index of character o is : 4

Upper case of welcome is : WELCOME

Lower case of welcome is : welcome

String s1: ANURAG UNIVERSITY

ANURAG COLLEGE

Comparison of two strings is : 54

anurag.

trim spaces: anurag

Concatenation of 2 strings: ANURAG UNIVERSITY

anurag.

Title :

Date :  
Page No.: 14

Q] Demonstrate the String class and its Methods.

```
import java.lang.*;  
class StringMethods  
{  
    public static void main(String args[])  
    {  
        String S = "Welcome";  
        System.out.println("Length of "+S+" is :" + S.length());  
        System.out.println("Character at 0th index :" + S.charAt(0));  
        System.out.println("Index of character o is :" + S.indexOf("o"));  
        System.out.println("Upper case of "+S+" is :" + S.toUpperCase());  
        System.out.println("Lower case of "+S+" is :" + S.toLowerCase());  
        String s1 = new String("ANURAG UNIVERSITY");  
        System.out.println("String s1 :" + s1);  
        System.out.println(s1.replace("UNIVERSITY", "COLLEGE"));  
        System.out.println("Comparison of two strings is :" + s1.compareTo(s2));  
        String s2 = "anurag";  
        System.out.println(s2);  
        System.out.println("Trim spaces :" + s2.trim());  
        System.out.println("Concatenation of 2 strings :" + s1.concat(s2));  
    }  
}
```