Arithmetic Operators (5)

- These are used to perform common mathematical operations.

Operator	Name	Description	Example
+	Addition	Adds together two values	x+y
-	Subtraction	Subtracts one value from another	x-y
*	Multiplication	Multiplies two values	x*y
/	Division	Divides one value from another	x/y
%	Modulus	Returns the division remainder	x%y

Relational Operators (6):

- Relational Operators are used to compare two values

Operator	Name	Example
==	Equal to	x == y
!=	Not equal	x != y
>	Greater than	x > y
<	Less than	x < y
>=	Greater than or equal to	x >= y
<=	Less than or equal to	x <= y

Logical Operators (3)

- These are used to determine the logic between variables.

Operator	Name	Description	Example
&&	Logical and	Returns true if both statements are true	x < 5 && x < 10
||	Logical or	Returns true if one of the statements is true	x < 5 || x < 4
!	Logical not	Reverse the result, returns false if the result is true	!(x < 5 && x < 10)

TASK

void meth1(3 parameters) ⇨ Addition (2)

void meth2(2 parameters) ⇨ Substraction (4)

1default constructor ⇨ Division (3)

1 parameterized constructor ⇨ Multiplication (1)

Multiplication : ???
Addition : ???
Division : ???
Substraction : ???

⇨ 1) with the help of parameterized constructor call meth1

⇨ 2) from meth1 call default constructor and meth2

```java
public class ClassA
{
    void meth1(int a, int b, int c)
    {
        System.out.println("Addition : "+(a+b+c));
        new ClassA().meth2(100, 99);
    }
    void meth2(int x, int y)
    {
        System.out.println("Substraction : "+(x-y));
    }
    ClassA()
    {
        System.out.println("Division : "+(10/5));
    }
    ClassA(int num)
    {
        System.out.println("Multiplication : "+(num*2));
    }
    public static void main(String[] args)
    {
        new ClassA(5).meth1(5, 10, 15);;
    }
}
```

```
Multiplication : 10
Addition : 30
Division : 2
Substraction : 1
```

```java
package com.pack1 ;

public class ClassA
{
    void meth1(int i)
    {
        System.out.println("meth1() called");
        if(i<=10)
        {
            System.out.println("if block executed");
        }
        else
        {
            System.out.println("else block executed");
        }
    }
    public static void main(String[] args)
    {
        ClassA aobj=new ClassA();
        aobj.meth1(10);
    }
}
```

```
meth1() called
if block executed
```

```java
package com.pack1 ;

public class ClassA
{
    void meth1(int i)
    {
        System.out.println("meth1() called");
        if(i>=10)
        {
            System.out.println("if block executed");
        }
        else
        {
            System.out.println("else block executed");
        }
    }
    public static void main(String[] args)
    {
        ClassA aobj=new ClassA();
        aobj.meth1(10);
    }
}
```

```
meth1() called
if block executed
```

```java
package com.pack1 ;

public class ClassA
{
    void meth1(int i)
    {
        System.out.println("meth1() called");
        if(i<10)
        {
            System.out.println("if block executed");
        }
        else
        {
            System.out.println("else block executed");
        }
    }
    public static void main(String[] args)
    {
        ClassA aobj=new ClassA();
        aobj.meth1(10);
    }
}
```

```
meth1() called
else block executed
```

```java
package com.pack1 ;

public class ClassA
{
    void meth1(int i)
    {
        System.out.println("meth1() called");
        if(i==10)
        {
            System.out.println("if block executed");
        }
        else
        {
            System.out.println("else block executed");
        }
    }
    public static void main(String[] args)
    {
        ClassA aobj=new ClassA();
        aobj.meth1(10);
    }
}
```

```
meth1() called
if block executed
```

```java
package com.pack1 ;

public class ClassA
{
    void meth1(int i)
    {
        System.out.println("meth1() called");
        if(i!=10)
        {
            System.out.println("if block executed");
        }
        else
        {
            System.out.println("else block executed");
        }
    }
    public static void main(String[] args)
    {
        ClassA aobj=new ClassA();
        aobj.meth1(10);
    }
}
```

```
meth1() called
else block executed
```

```java
package com.pack1 ;

public class ClassA
{
    void meth1(int i)
    {
        System.out.println("meth1() called");
        if(i<10)
        {
            System.out.println("if block executed");
        }
        else
        {
            System.out.println("else block executed");
        }
    }
    public static void main(String[] args)
    {
        ClassA aobj=new ClassA();
        aobj.meth1(10);
    }
}
```

```
meth1() called
else block executed
```

```java
package com.pack1 ;

public class ClassA
{
    void meth1(int i)
    {
        System.out.println("meth1() called");
        if(i>10)
        {
            System.out.println("if block executed");
        }
        else
        {
            System.out.println("else block executed");
        }
    }
    public static void main(String[] args)
    {
        ClassA aobj=new ClassA();
        aobj.meth1(10);
    }
}
```

```
meth1() called
else block executed
```

```java
public class ClassA
{
    void meth1(int i)
    {
        System.out.println("meth1() called");
        if(i>=10)
        {
            System.out.println("if block executed");
        }
        else
        {
            System.out.println("else block executed");
        }
    }
    void checkEligibility(String name, int age)
    {
        System.out.println("Checking the eligibity for vote");
        if(age>=18)
        {
            System.out.println(name+" you are eligible to vote");
        }
        else
        {
            System.out.println(name+" you are eligible to vote after "+(18-age)+" years");
        }
    }
    void checkExamEligibility(String name, int age)   // 21 to 35
    {
        System.out.println("Checking the eligibility for Hallticket");
        if (!(age>=21|| age<=35))  // [T && F ===> F] //  [T || ??? ===> T] //  [T  ||  ??? ===> !(T)===>F]
        {
            System.out.println(name+ " you can download the hallticket");
        }
        else
        {
            System.out.println(name+ " you are not eligible for exam");
        }
    }
    void meth2(int i)
    {
        System.out.println("meth2() called");
        if(!(i<=10 && !(i>=5)))
        {
            System.out.println("hi");
        }
        else
        {
            System.out.println("hello");
        }
    }
    public static void main(String[] args)
    {
        ClassA aobj=new ClassA();
        //aobj.meth1(10);
        //aobj.checkEligibility("Kishan", 16);
        //aobj.checkExamEligibility("Kishan", 36);
        aobj.meth2(6);
    }
}
```

```java
public class ClassB
{
    void meth1()
    {
        System.out.println("meth1() called");
        int x = 7, y = 3;
        boolean isEqual = x == y;
        boolean isGreaterThan = x > y;
        boolean isLessThan = x < y;
        boolean isNotEqual = x != y;

        System.out.println("Is Equal: " + isEqual);
        System.out.println("Is Greater Than: " + isGreaterThan);
        System.out.println("Is Less Than: " + isLessThan);
        System.out.println("Is Not Equal: " + isNotEqual);
    }
    void meth2()
    {
        System.out.println("meth2() called");
        boolean p = true, q = false;
        boolean logicalAnd = p && q;
        boolean logicalOr = p || q;
        boolean logicalNotP = !p;
        boolean logicalNotQ = !q;

        System.out.println("Logical AND: " + logicalAnd);
        System.out.println("Logical OR: " + logicalOr);
        System.out.println("Logical NOT of P: " + logicalNotP);
        System.out.println("Logical NOT of Q: " + logicalNotQ);
    }
    void meth3()
    {
        System.out.println("meth3() called");
        int a = 10;
        int b = 5;

        // Assignment Operators
        int equalAssignment = a;
        int additionAssignment = a += b; // Equivalent to: a = a + b;
        int subtractionAssignment = a -= b; // Equivalent to: a = a - b;
        int multiplicationAssignment = a *= b; // Equivalent to: a = a * b;
        int divisionAssignment = a /= b; // Equivalent to: a = a / b;

        System.out.println("Equal Assignment: " + equalAssignment);
        System.out.println("Addition Assignment: " + additionAssignment);
        System.out.println("Subtraction Assignment: " + subtractionAssignment);
        System.out.println("Multiplication Assignment: " + multiplicationAssignment);
        System.out.println("Division Assignment: " + divisionAssignment);
    }
```

```
52    void meth4()
53    {
54        System.out.println("meth4() called");
55
56        boolean a = true, b = false, c = true, d = false;
57
58        boolean flag1 = (a && b) && (c || d);
59        boolean flag2 = (a || b) && (c || d);
60        boolean flag3 = !(a && b) || !(c && d);
61
62        boolean flag4 = a && (b || (c && d));
63        boolean flag5 = (a && b) || (c && d);
64
65        System.out.println("flag1: " + flag1);
66        System.out.println("flag2: " + flag2);
67        System.out.println("flag3: " + flag3);
68        System.out.println("flag4: " + flag4);
69        System.out.println("flag5: " + flag5);
70    }
71    public static void main(String[] args)
72    {
73        ClassB bobj=new ClassB();
74        bobj.meth1();
75        System.out.println("--------------");
76        bobj.meth2();
77        System.out.println("--------------");
78        bobj.meth3();
79        System.out.println("--------------");
80        bobj.meth4();
81    }
82 }
```

```
47          System.out.println("Addition Assignment: " + additionAssignment);
48          System.out.println("Subtraction Assignment: " + subtractionAssignment);
49          System.out.println("Multiplication Assignment: " + multiplicationAssignme
50          System.out.println("Division Assignment: " + divisionAssignment);
51      }
52      void meth4()
53      {
54          System.out.println("meth4() called");
55
56          boolean a = true, b = false, c = true, d = false;
57
58          boolean flag1 = (a && b) && (c || d);
59          boolean flag2 = (a || b) && (c || d);
60          boolean flag3 = !(a && b) || !(c && d);
61
62          boolean flag4 = a && (b || (c && d));
63          boolean flag5 = (a && b) || (c && d);
64
65          System.out.println("flag1: " + flag1);
66          System.out.println("flag2: " + flag2);
67          System.out.println("flag3: " + flag3);
68          System.out.println("flag4: " + flag4);
69          System.out.println("flag5: " + flag5);
70      }
71      public static void main(String[] args)
```

```
meth1() called
Is Equal: false
Is Greater Than: true
Is Less Than: false
Is Not Equal: true
--------------
meth2() called
Logical AND: false
Logical OR: true
Logical NOT of P: false
Logical NOT of Q: true
--------------
meth3() called
Equal Assignment: 10
Addition Assignment: 15
Subtraction Assignment: 10
Multiplication Assignment: 50
Division Assignment: 10
--------------
meth4() called
flag1: false
flag2: true
flag3: true
flag4: false
flag5: false
```