**1.Examples for increment and decrement operator**

Increment operator

Post-increment:

Example,

int a=3;

int b= a++;

System.out.println(a);

System.out.println(b);

**OUTPUT**

a=4

b=3

Pre-increment:

int a=3;

int b= ++a;

System.out.println(a);

System.out.println(b);

**OUTPUT**

a=4

b=4

Decrement operator

Post-decrement:

Example,

int a=3;

int b= a--;

System.out.println(a);

System.out.println(b);

**OUTPUT**

a=2

b=3

Pre-decrement:

int a=3;

int b= --a;

System.out.println(a);

System.out.println(b);

**OUTPUT**

a=2

b=2

**2. Java code**

**(i) to find factorial of a number:**

package mypackage;

public class MyClass

{

public static int factorial(int n)

{

int i=1;

int fact=1;

for(i=1;i<=n;i++)

fact=fact\*1;

return fact;

}

public static void main(String[] args)

{

System.out,println(factorial(3));

}

}

**(ii) to find multiplication table of a given number:**

package mypackage;

public class MyClass

{

public static int multiplication(int n)

{

for(int i = 1; i <= 10; ++i)

System.out.printf("%d \* %d = %d \n", n, i, n \* i);

}

public static void main(String args[])

{

multiplication(3);

}

}

**(iii) to find nCr and nPr values”**

package mypackage;

public class MyClass

{

public static int nCr(int n, int r)

{

int result=factorial(n)/(factorial(n-r)\*factorial(r));

return result;

}

public static int nPr(int n, int r)

{

int result=factorial(n)/factorial(n-r);

return result;

}

public static void main(String[] args)

{

System.out.println(nCr(3,2));

System.out.println(nPr(3,2)) ;

}

**3. String concepts:**

Strings are used for storing text in java. A String in Java is actually an object, which contain methods that can perform certain operations on strings. Some of the string methods are:

charAt() – returns character at specified index.

compareTo() – compares lexicographically.

compareToIgnoreCase() – compares lexicographically ignores case sensitive.

concat() – appends

contains() – checks if string contains sequence of characters.

contentEquals() – checks string contains exact same sequence of characters or specified character sequence or string buffer.

String is immutable. Primitive datatype is stored in stack memory and strings are stored in heap memory.

**String pool** is a pool of strings stored in java heap memory.

String Pool is possible only because [String is immutable in Java](https://www.journaldev.com/802/string-immutable-final-java) and its implementation of [String interning](https://en.wikipedia.org/wiki/String_interning) concept. String pool is also example of [Flyweight design pattern](https://www.journaldev.com/1562/flyweight-design-pattern-java).

String pool helps in saving a lot of space for Java Runtime although it takes more time to create the String.

When we use double quotes to create a String, it first looks for String with the same value in the String pool, if found it just returns the reference else it creates a new String in the pool and then returns the reference.