Department: - BCA

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Subject:- JAVA(5<sup>th</sup> sem) Topic:-Methods in java

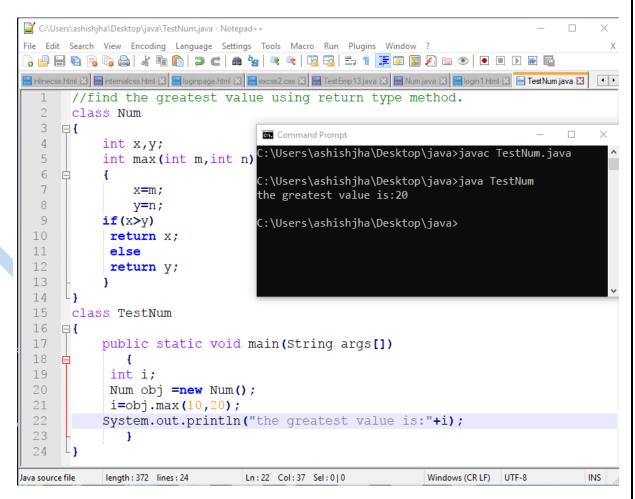
#### **Methods in Java**

A method is a collection of statements that perform some specific task and return the result to the caller. A method can perform some specific task without returning anything. Methods allow us to **reuse** the code without retyping the code. In Java, every method must be part of some class which is different from languages like C, C++, and Python. Methods are **time savers** and help us to **reuse** the code without retyping the code.

- ❖ Modifier-: Defines access type of the method i.e. from where it can be accessed in our application. In Java, there 4 type of the access modifiers.
  - > **public:** accessible in all class in our application.

- protected: accessible within the class in which it is defined and in its subclass(es)
- > **private:** accessible only within the class in which it is defined.
- default: (declared/defined without using any modifier): accessible within same class and package within which its class is defined.
- ❖ The return type: The data type of the value returned by the method or void if does not return a value.
- Method Name: the rules for field names apply to method names as well, but the convention is a little different.
- ❖ Parameter list: Comma separated list of the input parameters are defined, preceded with their data type, within the enclosed parenthesis. If there are no parameters, you must use empty parentheses ().
- **Exception list**: The exceptions we expect by the method can throw, we can specify these exception(s).
- Method body: it is enclosed between braces. The code we need to be executed to perform our intended operations.

#### **Example:-**



#### **Method Overloading in Java**

If a class has multiple methods having same name but different in parameters, it is known as **Method Overloading**. If we have to perform only one operation, having same name of the methods increases the readability of the program.

# There are two ways to overload the method in java

- > By changing number of arguments
- By changing the data type
- By changing number of arguments:-

Example:-

```
C:\Users\ashishjha\Desktop\java\TestAddNum.java - Notepad++
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       class AddNum
                                           Command Prompt
        int add(int a,int b,int c)
   4
          {
                                          C:\Users\ashishjha\Desktop\java>javac TestAddNum.java
   5
          return(a+b+c);
   6
   7
          int add(int a,int b)
                                           C:\Users\ashishjha\Desktop\java>java TestAddNum
   8
                                           sum=60
                                          sum=30
   9
           return (a+b);
  10
           1
                                          C:\Users\ashishjha\Desktop\java>
  11
  12
       class TestAddNum
  13
         public static void main(String args[])
  14
  15
              int x;
  16
  17
              AddNum obj=new AddNum();
  18
              x = obj.add(10,20,30);
  19
              System.out.println("sum="+x);
  20
              x = obj.add(10,20);
  21
              System.out.println("sum="+x);
  23
  24
Java source file
               length: 372 lines: 24
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```

### > By changing the data type

## **Example:-**

```
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                                                                                                            Х
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                                                                                                            4 +
       class AddNum
      □ {
                                                    Command Prompt
        int add(int a,int b)
                                                   sum=60
   4
          {
                                                   sum=30
   5
          return (a+b);
   6
                                                   C:\Users\ashishjha\Desktop\java>javac TestAddDNum.java
   7
          double add(double a, double b)
   8
                                                   C:\Users\ashishjha\Desktop\java>java TestAddDNum
   9
          return (a+b);
  10
           }
                                                   sum=31.2
  11
  12
      class TestAddDNum
                                                   C:\Users\ashishjha\Desktop\java>
  13
  14
         public static void main(String args[])
  15
  16
              int x;
  17
              double y;
  18
              AddNum obj=new AddNum();
  19
              x = obj.add(10,20);
  20
              System.out.println("sum="+x);
  21
              y=obj.add(10.5,20.7);
              System.out.println("sum="+y);
  24
Java source file
                          length: 388 lines: 25
                                                 Ln:18 Col:30 Sel:0|0
                                                                               Windows (CR LF) UTF-8
```

Note:-In java, method overloading is not possible by changing the return type of the method only because of ambiguity.

## Q. Can we overload java main() method?

Ans:- Yes, by method overloading. we can have any number of main methods in a class by method overloading. But **JVM** calls main() method which receives string array as arguments only.

# **Example:-**

