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1. **What are the types of variables in JAVA? Explain with examples please.**

Ans: There are three types of variables in Java:

* + local variable
  + instance variable
  + static variable

**Local variable:**

A variable declared inside the body of the method is called local variable. You can use this variable only within that method and the other methods in the class aren't even aware that the variable exists. A local variable cannot be defined with "static" keyword.

public class A

{

void method()

{

int n=90;//local variable

}

}

#### **Instance Variable:**

A variable declared inside the class but outside the body of the method, is called an instance variable. It is not declared as [static](https://www.javatpoint.com/static-keyword-in-java)It is called an instance variable because its value is instance-specific and is not shared among instances.

public class A

{

public static void main(String args[])

{

int data=50;//instance variable

}

}

#### **Static variable:**

A variable that is declared as static is called a static variable. It cannot be local. You can create a single copy of the static variable and share it among all the instances of the class. Memory allocation for static variables happens only once when the class is loaded in the memory.

public class A

{

static int m=100;//static variable

}

1. **What is the benefits of a Static method in JAVA?**

Ans: We don’t need to create object of a class to use static method we can use it directly by its class name.

**Code:**

**public class HelloWorld {**

**public static void main(String[] args) {**

**HelloWorld h = new HelloWorld();**

**h.show(); // calling non static method using class object**

**HelloWorld.disp(); //calling static method using class name**

**h.disp(); // we can also use class object for calling static method**

**}**

**static void disp(){**

**System.out.println("I am static method");**

**}**

**void show(){**

**System.out.println("I am non-static method");**

**}**

**}**

1. **What are the purposes of Constructor in JAVA?**

**Ans:** Constructor is a method that used to instantiate and initialize objects.

* A constructor must have the same name as the class.
* Constructor do not have return type.
* Constructor are invoked using the new operator.
* Constructor play the role to initializing the object.
* A default constructor is a zero-argument constructor with an empty body.

There are two types of constructor:

* Default constructor
* Parameterized constructor.

**Default constructor:**

**class Bike{**

**//creating a default constructor**

**Bike(){System.out.println("Bike is created");}**

**//main method**

**public static void main(String args[]){**

**//calling a default constructor**

**Bike b=new Bike();**

**}**

**}**

**//output: Bike is created**

**Parameterized constructor:**

**class Student{**

**int id;**

**String name;**

**//creating a parameterized constructor**

**Student(int i,String n){**

**this.id = i;**

**this.name = n;**

**}**

**//method to display the values**

**void display(){System.out.println(id+" "+name);}**

**public static void main(String args[]){**

**//creating objects and passing values**

**Student s1 = new Student(111,"Shariar");**

**Student s2 = new Student(222,"Shuvo");**

**//calling method to display the values of object**

**s1.display();**

**s2.display();**

**}**

**}**

**//output:**

**// 111 Shariar**

**// 222 Shuvo**

1. **Write a code in JAVA to compare three integer values and show which one is the largest number.**

**import java.util.Scanner;**

**public class LargestNumber**

**{**

**public static void main(String[] args)**

**{**

**int x, y, z;**

**Scanner s = new Scanner(System.in);**

**System.out.print("Enter the first number:");**

**x = s.nextInt();**

**System.out.print("Enter the second number:");**

**y = s.nextInt();**

**System.out.print("Enter the third number:");**

**z = s.nextInt();**

**if(x > y && x > z)**

**{**

**System.out.println("Largest number is:"+x);**

**}**

**else if(y > z)**

**{**

**System.out.println("Largest number is:"+y);**

**}**

**else**

**{**

**System.out.println("Largest number is:"+z);**

**}**

**}**

**}**