Variables

Types of variables

There are three types of variables in Java:

- Local Variables
- Instance Variables
- Static Variables

Local Variables

- These variable are created when the block in entered or the function is called and destroyed after exiting from the block or when the call returns from the function.
- The scope of these variables exists only within the block in which the variable is declared. i.e. we can access these variable only within that block.
- Initilisation of Local Variable is Mandatory.

Example

```
public class StudentDetails {
   public void StudentAge()
   {
      // local variable age
      int age = 0;
      age = age + 5;
      System.out.println("Student age is : " + age);
   }
   public static void main(String args[])
   {
      StudentDetails obj = new StudentDetails();
      obj.StudentAge();
   }
```

Instance Variables

- As instance variables are declared in a class, these variables are created when an object of the class is created and destroyed when the object is destroyed.
- Unlike local variables, we may use access specifiers for instance variables. If we do not specify any access specifier then the default access specifier will be used.
- Initilisation of Instance Variable is not Mandatory. Its default value is 0
- Instance Variable can be accessed only by creating objects.

Example

```
import java.io.*;
class Marks {
    // These variables are instance variables.
    // These variables are in a class
    // and are not inside any function
    int engMarks;
    int mathsMarks;
    int phyMarks;
}
```

```
class MarksDemo {
    public static void main(String args[])
    {
        Marks obj1 = new Marks();
        obj1.engMarks = 50;
        obj1.mathsMarks = 80;
        obj1.phyMarks = 90;
        System.out.println("Marks for first object:");
        System.out.println(obj1.engMarks);
        System.out.println(obj1.mathsMarks);
        System.out.println(obj1.phyMarks);
    }
}
```

Static Variables

- These variables are declared similarly as instance variables, the difference is that static variables are declared using the static keyword within a class outside any method constructor or block.
- Unlike instance variables, we can only have one copy of a static variable per class irrespective of how many objects we create.
- Static variables are created at the start of program execution and destroyed automatically when execution ends.
- Initilisation of Static Variable is not Mandatory. Its default value is 0
- If we access the static variable like Instance variable (through an object), the compiler will show the warning message and it won't halt the program. The compiler will replace the object name to class name automatically.
- If we access the static variable without the class name, Compiler will automatically append the class name.

Example

```
import java.io.*;
class Emp {
   // static variable salary
   public static double salary;
   public static String name = "Harsh";
}
public class EmpDemo {
   public static void main(String args[])
   {
      // accessing static variable without object
      Emp.salary = 1000;
      System.out.println(Emp.name + "'s average salary:"
                         + Emp.salary); }
}
```