

Variable Types

There are three types of variables:

- Local Variable
- Class Variable
- Instance Variable

Local Variable:

Variables that are declared inside the scope of any method or constructor is called local variables. Local variables are also declared inside conditional blocks, loops and try-catch blocks. Local variables does not have any existence outside the block where it was declared.

Class Variable:

Class variables are declared outside the scope of any method or constructor. They are declared inside the scope of a class with an additional keyword static.

Instance Variable:

Instance variables are declared outside the scope of any method or constructor. They are declared inside the scope of a class. Basically they are the attributes of a class.

Instance Variables VS. Class Variables:

- Class variables have a keyword static. Any variable of method with the keyword static, belongs to the class.
- We can access class variables with object names and class names. (CONVENTION is using Class Name)
- All the objects holds the same value for class variables. It means that if we change the value of a class variable for one object, it will be changed for all the other objects.

```
public class MyClass{
    int m1;           //instance variable (declared outside of method, inside of class, no static keyword)
    static int m2;    //class variable (declared outside of method, inside of class, with static keyword)

    public MyClass(){
        System.out.println("Empty MyClass");
    }
    public MyClass(int m1, int m2){    //local variable (declared inside of a constructor)
        System.out.println("Parameterized MyClass");
        this.m1 = m1;
        this.m2 = m2;
    }
    public void setAll(int m1, int m2){    //local variable (declared inside of a method)
        System.out.println("SetAll MyClass");
        this.m1 = m1;
        this.m2 = m2;
    }
    public void printAll(){
        System.out.println("M1 : "+m1);
        System.out.println("M2 : "+m2);
    }
}

public class Start{
    public static void main(String [] args){    //args[] a local variable (declared inside of a method)
        MyClass o1 = new MyClass();
        o1.setAll(1,2);
        o1.printAll();
        MyClass o2 = new MyClass(10, 20);
        o2.printAll();
        o1.m1 = 100;    //accessing instance variable using object name.
        o1.m2 = 200;    //accessing class variable using object name.
        o1.printAll();
        o2.printAll();
        MyClass.m2 = 300;    //accessing class variable using class name.
        o1.printAll();
        o2.printAll();
    }
}
```

See the uploaded code