Variables in classes and objects

PREVIEW / RECAP:

In the last chapter we studied the definition of classes and objects. We have also taken real-life entity Dog as an example to understand classes and objects concept.

Variables

There are 2 types of variables.

1. Static Variables -

- Static Variables are also called Class Variables.
- Static variables are shared among all instances of a class.
- Static variable is like a global variable and is available to all methods.
- Static variable gets created when class is initiated
- Static variable can be accessed using class name.

```java
public class VariableExample{

   static int data = 30;

   public static void main(String args[]){

      VariableExample obj = new VariableExample();

      System.out.println("Value of static variable data: "+VariableExample.data);
   }
}
```

Can we modify the value of the static variable?

Yes. We can modify the value of the static variable. However modified value will get reflected in all methods **within that particular class.**

2. Static Variables -

There are two types of non-static variables

a) Local Variables - Variables defined inside methods, constructors or blocks are called local variables. The variable will be declared and initialized within the method and the variable will be destroyed when the method has completed.

E.g

```
public class VariableExample{

   public static void main(String args[]){

      int a = 100;

      VariableExample obj = new VariableExample();

      System.out.println("Value of local variable a: "+a);
   }
}
```

b) Instance Variables - Instance variables are variables within a class but outside any method. These variables are initialized when the class is instantiated. Instance variables can be accessed from inside any method, constructor or blocks of that particular class.

```java
public class VariableExample{

   int myVariable;

   public static void main(String args[]){

     VariableExample obj = new VariableExample();

      System.out.println("Value of instance variable myVariable: "+obj.myVariable);
   }
}
```

Oh great!! U must have understood now the behaviour of different variable types in class.

Let’s take a look at below program

```java
public class VariableExample{
   int myVariable;      //Instance variable or Non static Variable
   static int data = 30;  //Class Variable or Static Variable

  //create method
  public void sam() {
      int k = 5;
      System.out.println(“local variable k = ”+k);
  }

   public static void main(String args[]){
      int a = 100;    //Local Variable or Non static Variable
      VariableExample obj = new VariableExample();

      //below 3 lines won’t give any error
      System.out.println("Value of instance variable myVariable: "+obj.myVariable);
      System.out.println("Value of static variable data: "+VariableExample.data);
      System.out.println("Value of local variable a: "+a);

      //below lines will give error if uncommented.

      //System.out.println(“Value of instance variable myVariable: ”+VariableExample.myVariable);
      //System.out.println(“Value of local variable k: ”+k);
   }
}
```