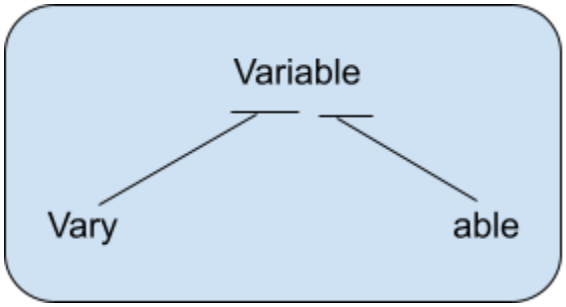
Variables

What are Variables?



Information that can vary

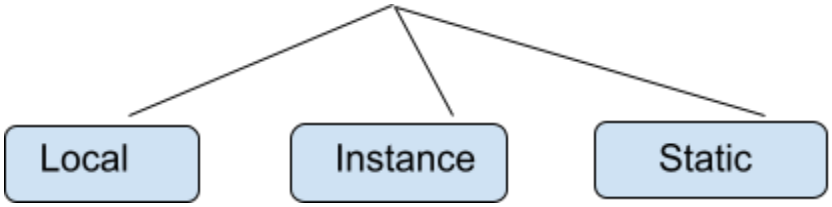
Variable is simply a memory location identified by a name (name of variable), for example (n = 10 : n is memory location where value 10 is stored).

Data types

Data types tell us what type of information is going to be stored in variables.

Data type	Example	Code
int	123	`int a = 123;`
float	10.112	`float b = 10.112f;`
String	“dhoom”	`String str = "dhoom";`
char	‘@’	`char ch = '@';`
boolean	true	`boolean flag = true;`

Three types of Variables in JAVA



Local Variables

Variables which are defined within a block, method or constructor.

Scope is limited to that block or method or constructor

Instance Variables

Instance variables are those variables that are not defined within a block, method or constructor but defined within a class.

Instance variables are declared when an object of that class is created, and when the object gets destroyed the instance variables also get destroyed.

Initialization of instance variables is not mandatory; it is default taken as 0.

Static Variables

Static variables are almost the same as instance variables , they are also defined outside of block, method or constructor and in the class.

But the difference is that it is defined with the ‘static’ keyword.

Note : the static variables have only one copy means if you have defined variable in class and you have created many objects of that class then also the static variable is the only one memory location known by that variable name (only one copy exists.)

```
class static_demo{

   static int n = 10;
}

class temp{
   public static void main(String[] args) {
        static_demo d1 = new static_demo();
        static_demo d2 = new static_demo();

        System.out.println("d1.n = "+d1.n);
        System.out.println("d2.n = "+d2.n);

        System.out.println("after updating..");

        d1.n = 11;
        System.out.println("d1.n = "+d1.n);
        System.out.println("d2.n = "+d2.n);

   }
}
```

```
 ~/Desktop/temp java  cd "/Users/jaybhensdadia/Desktop/temp java/" && javac temp.java && java temp
d1.n = 10
d2.n = 10
after updating..
d1.n = 11
d2.n = 11
 ~/Desktop/temp java
```

Question:

Solution:

```
public class Solution {
        public static int totalSalary(int basic, char grade) {

       double hra = 0.2*basic, da = 0.5*basic, pf = 0.11*basic;
       double allowance,rs;

       if(grade == 'A'){
          allowance = 1700;
       }else if(grade == 'B'){
          allowance = 1500;
       }else{
          allowance = 1300;
       }

       rs = basic + hra + da + allowance - pf;
       double res = Math.round(rs);
       int result = (int)res;
       return result;


        }
}
```