



## Unit - 3: Fundamentals of Java Programming

I told you previous class data types and variables. Now I taught to depth and all point to variables. Let's see

### Variables

To store the program data we will use variables. A variable is a place holder for data that can change its value during program execution. Technically, a variable is the name for a storage location in the computer's internal memory. The value of the variable is the contents at that location, we will use three variables named `marks` `obtained`, `total` `marks` and `percentage` (Variable names have to be a single word, that's we have added an underscore between the words "marks" and "obtained", "total" and "marks").

All data variables in Java have to be declared and initialized before they are used. When declaring variables, we have to specify the **data type** of information that the member will hold – integer, fractional, alphanumeric, and so on. The type of a variable tells the compiler, how much memory to reserve when storing a variable of that type. In our percentage calculator program, the variable `total_marks` can have only integer values. So we declare it to be of type `int` – a keyword in Java that indicates an integer data type. The variables `marks_obtained` and `percentage` are declared of type `double`, since they can have fractional values (floating point numbers). Inside the main method, we declare these variables, we also assign them values using the = operator as shown below:

```
int total_marks = 400;  
double marks_obtained = 346;  
double percentage = 0.0;
```

To calculate the percentage, we construct an expression using the `total_marks` and `marks_obtained` variables and assign the value to the `percentage` variable. The \* operator is used for multiplication and the / operator for division.

```
percentage = (marks_obtained/total_marks)*100;
```

To display the percentage in the IDE output window, we use our old friend – the `System.out.println()` method.

```
System.out.println("Student1's Percentage"+percentage);
```

You have Notice that the variable to be displayed is not put within the double quotes. To print the word "Percentage", we put it inside double quotes, to display the value stored in the `percentage` variable, we put it outside the double quotes. The + operator within the `System.out.println` statement, concatenates the string given in double quotes

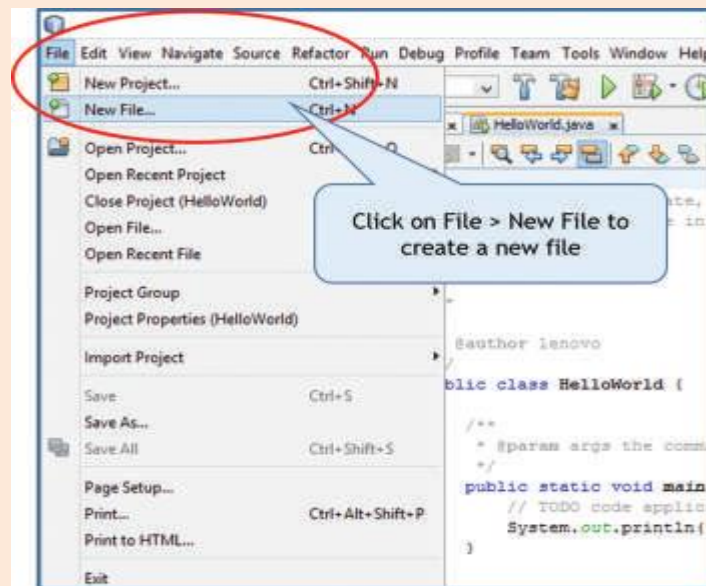
and the value of the variable.

To calculate the percentage for another student, we reuse the variables. We change the value of the variable **marks\_obtained** and calculate the percentage again. There is no need to change the total\_marks because its value remains the same as before.

```
marks_obtained = 144;  
percentage = (marks_obtained/total_marks)*100;  
System.out.println("Student2's Percentage = "+percentage);
```

To write the percentage calculator program in Netbeans, follow the steps given below.

**Step 1:** First you will create a new Class file with in the package Hello world (that was created in previous section). Click on File>New file(ctrl+N)to create a new file



**Creating a New File**