Variable & dataType

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Variables are nothing but piece of memory use to store information.
one variable can store 1 information at a time.

Variables also used in information reusability.

To utilise variables in java programming language we need to follow below steps:
1. Variable declaration (Allocating/Reserving memory)
2. Variable Initialization (Assigning or Inserting value)
3. Variable Usage

Note: - According to all programming language dealing with information directly is not a good practice to overcome this variable are introduced.

// **dataType**
// String --> multiple characters-> dipak, amol, abc@123 , computer, A+
// int --> numeric + non-decimal -> 101, 112233, 10000
// float --> numeric + decimal ->56.1, 91.5, 60000.5, 3.2
// char --> single character -> A, D, B, @

```
package Variable;
public class Sample2
{
	public static void main(String[] args)
	{
		//1: variable declaration
			String	studentName;			//dataType variableName;
			int	studentRollNum;
			char	studentGrade;
			float studnetPer;


		//2: variable initialization
			studentName="amol";				//variableName="variable info"
			studentRollNum=101;
			studentGrade='A';
			studnetPer=55.1f;


		//3: variable usage
			System.out.println(studentName);
			System.out.println(studentName);	//info reuse
			System.out.println(studentRollNum);
			System.out.println(studentGrade);
			System.out.println(studnetPer);
	}
}
```

Shortcuts in eclipse:
1. **main method**: type "main"+control+space bar
2. **Printing statement**: type "syso"+control+space bar

```
package Variable;
public class Sample3
{
	public static void main(String[] args)
	{
		String	studentName;
		int	studentRollNum;
		char	studentGrade;
		float studnetPer;

		studentName="amol";
		studentRollNum=101;
		studentGrade='A';
		studnetPer=55.1f;

		System.out.println("Student name = "+studentName);
		System.out.println("Student RollNum = "+studentRollNum);
		System.out.println("Student Grade = "+studentGrade);
		System.out.println("Student Percentage = "+studnetPer+" %");
	}
}
```

Data Types

Datatype are used to represent type of data or information which we are going to use in our java program.

In java programming it is mandatory to declare datatype before declaration of variable.

In java datatypes are classified into two types:
1. Primitive datatype. (size fixed)
2. Non-primitive datatype. (size not fixed)

1.Primitive datatype:
There are 8 type of primitive datatypes (byte, short, int, long, float, double, char, boolean).
All the primitive datatypes are keywords (reserved words).
* Memory size of primitive datatype is fix.
The types of primitive datatype are:

Note: - keyword always starts with lower case
Primitive datatype starts with lower case

syntax: datatype variablename;

1.(Numeric + non-decimal): -
Ex: 80,85,10,5, 10000 ..etc

Data Type	Size	range
1. byte	1 byte	-128 to 127
2. short	2 bytes	-32,768 to 32,767
3. int(imp)	4 bytes	
4. long	8 bytes	l

1GB=1024MB
1MB=1024KB
1KB=1024Byte
1Byte= 8bit

2. (Numeric + decimal): -
Ex: 22.5,22.8,6.4....

5.	float(imp)	4 byte	f
6.	double	8 byte	d

3. Single Character :-
Ex: A,B,X,Z.

7.	char	2 byte

4. Conditional: -
Ex: true, false.

8.	boolean	1 bit

2. Non-primitive datatype:
There are 3 types of non-primitive datatypes.
all the Non primitive datatypes are identifiers.
* Memory size of non-primitive datatype is not defined or not fix.

Note: Identifier starts with capital letter.
Non-primitive datatype starts with capital letter.

e.g. String, className, InterfaceName