Module no: 2 Getting Started Date: 13/10/2023

Agenda:

- → Hello world Program
- → Variable and Data Types
- → Ranges of Data Types
- → Typecasting
- → Comments
- → Constants in Java - final
- → Reading input - Scanner

Hello World Program :-

program :-

```
class Main {
    public static void main (String args[]) {
        System.out.println ("Hello World");
        System.out.print ("I love Programming");
        System.out.println ("I love Java");
    }
}
```

① ② ③

① code is wrapped inside a class. Each Java program has to be written inside a class as it is one of the main principles of Object-Oriented programming that java strictly follows ② main function inside the class is the entry point of a java program. all the executables should be written or called from the main method. it is a compulsory part of Java programming. ③ print statements in Java. println is used to print the string or something in a line and adds a new line tag. print is used to print something without a new line character.

Hello World Program :

Program:

```
class Main {
    public static void main(String args[]){
        System.out.println("Hello World");
    }
}
```

Output:

```
[Running] cd "d:\Java_Scaler\" && javac sample.java && java sample
Hello World

[Done] exited with code=0 in 0.723 seconds
```

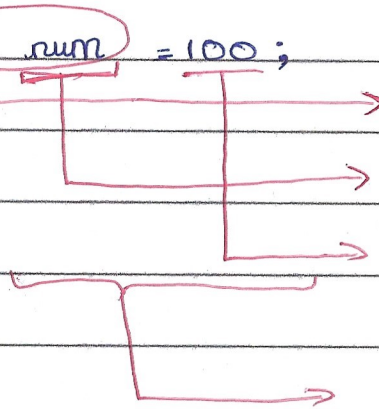
Variables :-

A variable is a container which stores a value in a Java program. Each variable has a type associated with it which is defined at its declaration.

Program :-

```
class Main {
    public static void main (String args[]) {
        int num = 100; → ①
        System.out.println (num);
    }
}
```

① `int num = 100;`



Declaration: Announcing a variable [Eg int id; id = 5].

Variable name: A label for a Memory Location.

Value: Something that would be stored in a variable.

Storage: A place where the data can be stored [RAM].

Assignment: Giving (Setting) a variable a value.

Naming Conventions of a Variable :-

* For variable name we can use uppercase & lowercase letters, digits from 0 to 9 and underscore (_).
* First character must be underscore or letter.
* Java is strongly typed language. So every variable needs to be declare before using it.

Variables:

Program:

```
class sample {
    public static void main(String[] args){
        int num = 10;
        int num_1 = 15;
        int num_2 = 3;
        System.out.println(num);
        System.out.println(num_1);
        System.out.println(num_2);
    }
}
```

Output:

```
[Running] cd "d:\Java_Scaler\" && javac sample.java && java sample
10
15
3

[Done] exited with code=0 in 0.757 seconds
```

Data types & Ranges :-

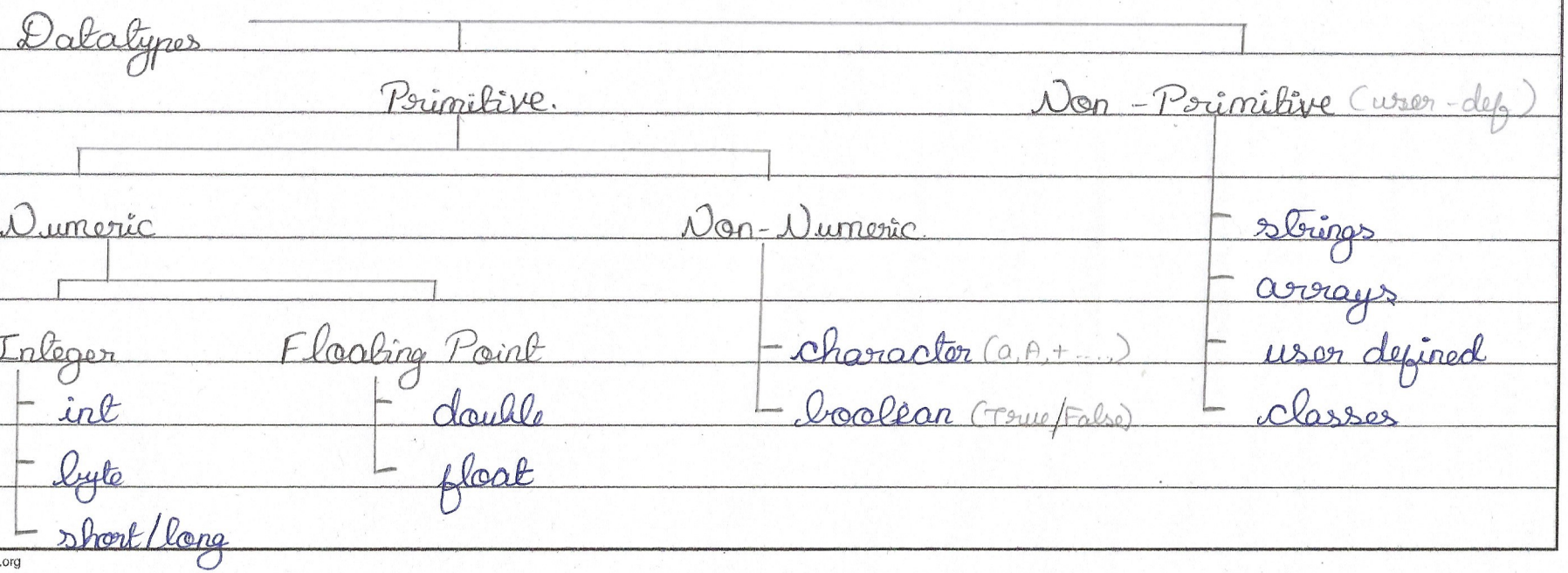
Data types mean to identify the type of the data and associate operations that can be done on the data values. Data types define a value that an variable can take. [Eg: int, string, etc..,]

Data types also tell us information about :

① The size of the Memory Location.

② The maximum and minimum value of the range that can store in the memory location.

③ Different types of operations can be done on the memory location.



Numeric Datatypes and its Range:

Data Type	Range	Size
byte	[-128 : 127]	8 bits
short	[-32,768 : 32767]	16 bits
int	[-2,147,483,648 : 2,147,483,647]	32 bits
long	[-9,223,372,036,854,775,808 : 9,223,372,036,854,775,807]	64 bits
float	[1.40239846 x 10^-45 : 3.40282347 x 10^38]	32 bits
double	[4.9406564584124654 x 10^-324 : 1.7976931348623157 x 10^308]	64 bits

Program:

```
class sample {
    public static void main(String[] args){
        // non-numeric
        char equal = 'a';
        System.out.println(equal);
        boolean bool = true;
        System.out.println(bool);
        // numeric
        int a = 1;
        System.out.println(a);
        byte b = 2;
        System.out.println(b);
        short s = 5;
        System.out.println(s);
        long l = 20;
        System.out.println(l);
    }
}
```

Output:

```
[Running] cd "d:\Java_Scaler\" && javac sample.java && java sample
a
true
1
2
5
20

[Done] exited with code=0 in 0.722 seconds
```

Strings in Java:-

→ A string is a sequence of characters in Java.
→ Single line strings are defined with double quotes. (" ... ")
→ Multiline strings are defined with triple double quotes (""" ..... """)
→ Java Strings have several methods available to them.

code :

```
string s = "I Love Java";
s.charAt(2); => returns the character at the 2nd position
```

Strings:

Program:

```
class sample {
    public static void main(String[] args){
        String s = "I Love Java";
        System.out.println(s);
        System.out.println(s.charAt(5));
        char at_7 = s.charAt(7);
        System.out.println(at_7);
    }
}
```

Output:

```
[Running] cd "d:\Java_Scaler\" && javac sample.java && java sample
I Love Java
e
J

[Done] exited with code=0 in 0.719 seconds
```