Day-3 08-04-2023.

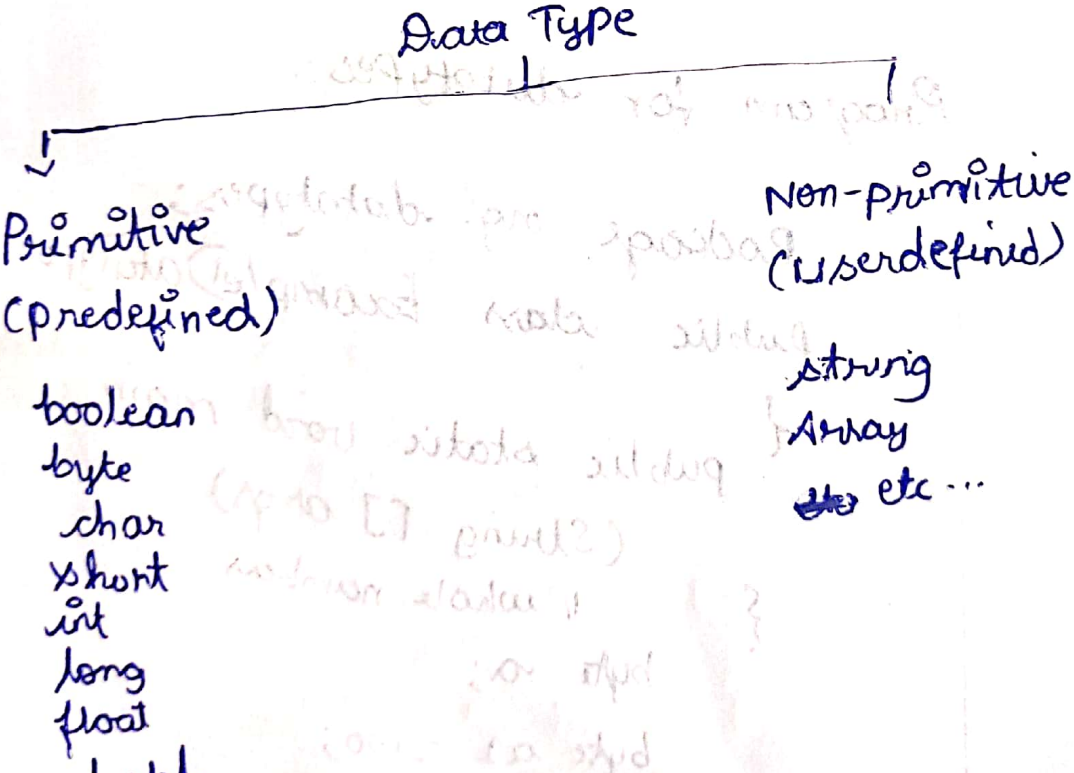
Variable :-

A Variable is a container which holds a value.

- Variable is a name of memory location.

DATA TYPE :-

Data types specify the different sizes and values that can be stored in the variable.



Primitive act as a datatype :
Non-primitive act as a datatype as well as class.

Data type	Default value	Default size
boolean	false	1 bit
char	'\u0000'	2 byte
byte	0	1 byte 1kg
short	0	2 byte 2kg
int	0	4 byte 4kg
long	0L	8 byte 8kg
float	0.0f	4 byte
double	0.0	8 byte

Program for datatypes:-

```
Package org.datatypes;
public class ExampleDatatypes
{
    public static void main
        (String [] args)
    {
        // whole numbers
        byte a;
        byte a1 = 100;
        by a3 = 99;
        short b = 12345;
        short b1 = 8799;
        int c = 111212121212;
        int c1 = 98978987878;
```

```
long d = 56789908764678L;

// Decimal Numbers
float e = 344.67f;
double f = 46777.334444;

boolean h = true;
char g = 'j';
String s = "aiite2task@gmail.com";

System.out.println(a1);
System.out.println(a3);
System.out.println(b);
System.out.println(b1);
System.out.println(c);
System.out.println(c1);
System.out.println(d);
System.out.println(e);
System.out.println(f);
System.out.println(h);
System.out.println(g);
System.out.println(s);

}
}
```

VARIABLE DECLARATION:

```
datatype variable-name;
```

eg:-

```
int a;
float f;
long ph.no;
```

```
double x;
char c;
```

ASSIGN VALUES TO VARIABLE (Initialization)

```
datatype Variable-name = Value;
```

eg.,

```
int a = 100;
float f = 20.38f;
char alphabet = 'a';
```

RE-ASSIGNING OF A VARIABLE:-

```
int a = 10;
    a = 15;
    a = 20;
```

eg. program;

```
Package org.datatypes;

public class DatatypesExamples {

    public static void main (String
    [] args)
    {   int a = 34;
        a = 23;
        a = 6;
        int b = 45;
        b = 78;
    System.out.println (b);
    System.out.println (a);
```

Types of variables:-

There are three types of variables in java

- Local variable.
- Instance Variable / Global Variable
- Static variable.

(i) Local Variable:-

A Variable declared inside the body of the method is called local variable.

you can use this variable only within the method and the other methods in the class or not even aware that the variable exists.

Initialisation must.

A local variable cannot be defined with Static keyword.

2.) Instance variable.

A variable declared the class but outside the body of the method is called instance variable.

If not initialized it will take a default value.

3) Static variable :-

A variable that is declared as static is called static variable.

A single copy to be shared by all instances of class.

Memory allocation for such variables only happens once when the class is loaded in memory.

A static variable can be accessed directly by the class name need any object

Syntax:-

static int b = 100;

Example Program:-

For local and Global Variable:

```
package org.reperance;
public class TypeofVariable
    { int a=10;
      int b=80;
      public void addition()
          { int c;
            int d=60;
            c=a+b;
            System.out.println(c);
            System.out.println(d);
          }
```

```
public static void main (String[] args)
{
    TypesofVariable tv = new TypesofVariable();
    System.out.println (tv.a);
    tv.addition ();
}
}
```

For Static Variable:

```
package org.reference;
public class StaticVariable
{ int a=10;
  static int b=20;
  public static void main(String [] args)
  {
    StaticVariable sv = new StaticVariable();
    b = b+20;
    System.out.println (sv.a);
    System.out.println (b); // 20+20
    Static Variable sv1 = new StaticVariable();
    b=b+50; //
    sv1.a = sv1.a+40;
    System.out.println (sv1.a);
  System.out.println (b);
}
```

Day - 3 : 08 - 04 - 2023 // Taking Notes

Topics:

Data types
Types of variable
Parameterized method
Scanner class
OOPs Intro.

Variable is a container that holds a value.

Data types:

Primitive	Non-primitive
boolean	String
byte	Array
char	etc..
short	
int	
long	
float	
double	

Reserved Keyword
Predefined Keyword

whole numbers stored datatype

byte a = 10; // byte

short b = 12345; // 2 bytes
short b1 = 5199;

int = 4 bytes

long = 8 bytes
long a = 1234567891;

// Decimal:-

float →
double

class level variable → instance variable

Reassigning variable

int a = 10
b = 5;
System.out.println(b);
out : 5

Types of variable:-

Global / Instance → class level
local variable
Static variable → class level

static variable

- ↳ no need to create objects
- ↳ within the package

we have to access by classname.variablename

~~static variable~~

- ↳ static memory cannot be changed.