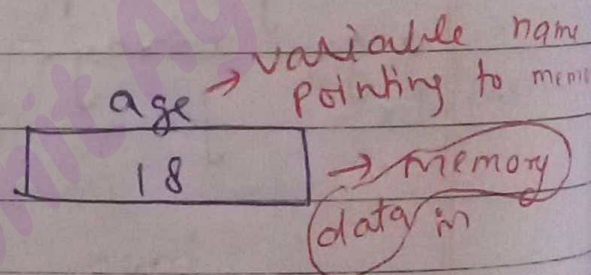
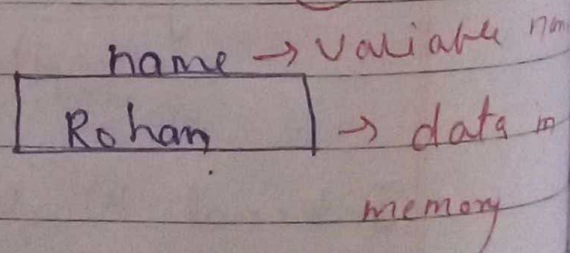


* Variables

```
int age = 18;
```



```
String name = "Rohan";
```



A variable is the name of memory allocated reserved area. It may be thought of as the name of memory location.

only \$ and - (under score) is used for in names.
Ex. int no-of-students; - name;
Ex. string dollar\$; , \$age;

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While the java program is running, the value is held in a container.

To identify the storage location, each variable needs to have a special name.

A data type is assigned to a variable (we will learn about it after this topic).

Syntax For Declaring a Variable

data-type name = value;

Some wrong format and Rules.

X int 2age = 10; (wrong format) can't initialize with number (Variable name).

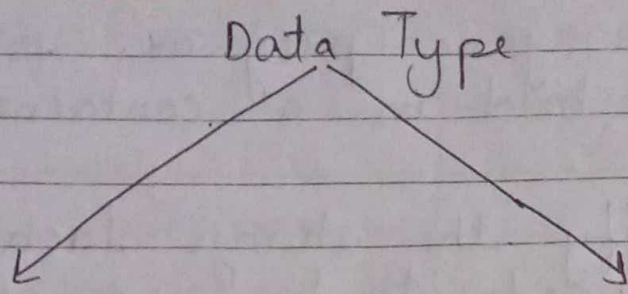
X int 2age = 20; (can't initialize same name variable again)

✓ int age1 = 20; (number can be further used except beginning).

X int first Name; ~~Not~~ (can't give space b/w variable names).

Use Camel Case

Ex. firstName, totalNoOfStudents.



Primitive Data types

Non-Primitive Data ty

- 1 Primitive data types: The primitive data type include boolean, char, byte, short, int long, float and double.
- 2 Non-primitive data type: The non-primitive data types include classes, String, Interfaces and Arrays.

Primitive Data TYPES

1. Byte: **1 Byte** (8 bits)
 Range -2^{n-1} to $2^{n-1} - 1$
 -2^{8-1} to $2^{8-1} - 1$
 $-2^7 - 2^7 - 1$

Range $\Rightarrow -128 - 127$

int byte data = 28;

vary in this range

X

byte data = 130; not possible out of range

Short : 2 Bytes (16 bits)
Range :- -2^{16-1} to $2^{16-1} - 1$
 - 32768 to 32767

3. int : 4 bytes (32 bits)
Range : 2^{32-1} to $2^{32-1} - 1$
 - 2147483648 to 2147483647

4. long : 8 bytes (64 bits)
 : -2^{64-1} to $2^{64-1} - 1$

(put l/L after literal to use long)
Ex

long num = 4674255l; or long num = 467L;

5. Float : 4 bytes (4 x 8 bits)

Range : 2^{32-1} to $2^{32-1} - 1$

(put 'f' at the end of literal, because by default compiler consider decimal value as double.)

Ex

Float data = 46.7f

6. double : 8 bytes

Range : 2^{63} to $2^{63} - 1$

(It can store upto 14 digits after '.')

128 characters means $2^8 = 256$ bits = 32 bytes

7 boolean data type : It hold only true & false.

Ex → boolean data = false;
boolean data1 = true;

8 char : 2 bytes.

In ASCII (American standard code for Information Interchange), there are 128 symbols including numbers, small alphabets, large alphabets & special characters.

a - z

97

122

A - Z

65

90

In UTF (Unicode Transformation Format) it has 65536 characters which in language characters as well.

Ex → Characters of Hindi, Marathi, Chinese, Bengali, Japanese etc.

Java follow * UTF.

65536 characters means 2^{16}

16 bits = 2 bytes.

So, char size is 2 bytes.