

DAY-7

19 June 2023 16:17

DATA TYPES

TYPE CONTAINERS

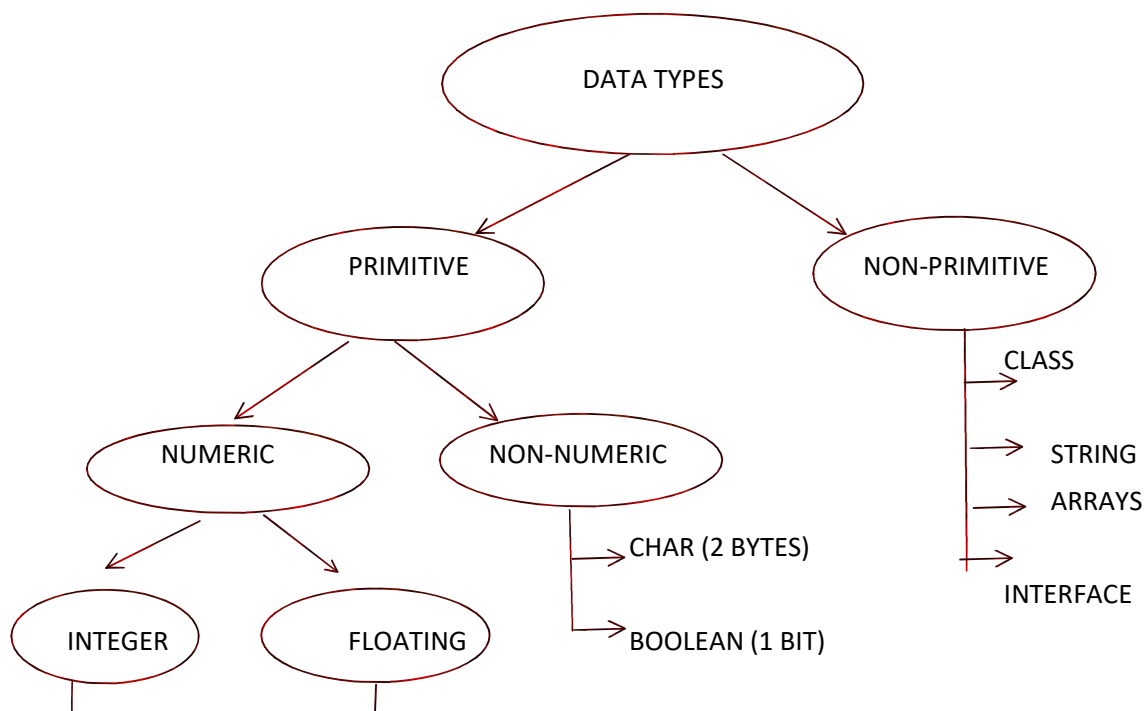


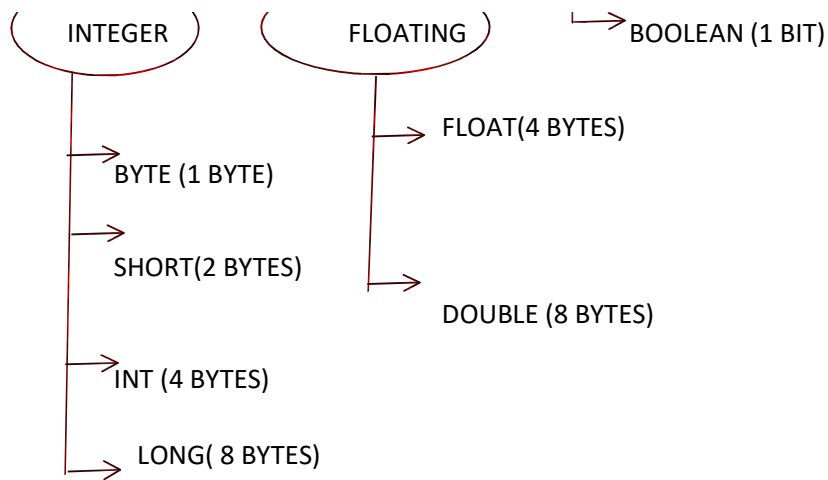
BOTTLE - WATER
BAG - BOOKS
LUNCH BOX - LUNCH
SNACKS

TYPE CONTAINER (VARIABLES) - DATA

DATA TYPES OF JAVA ARE

- DATA TYPES SPECIFY THE DIFFERENT SIZES AND VALUES THAN CAN BE STORED IN THE VARIABLE.
- THERE ARE TWO TYPE OF DATA TYPES ARE IN JAVA :
- **PRIMITIVE DATA TYPE** : THE PRIMITIVE DATA TYPES INCLUDE BOOLEAN, CHAR, BYTE, SHORT, INT, LONG, FLOAT AND DOUBLE
- **NON PRIMITIVE DATA TYPES** : THE NON PRIMITIVE DATA TYPES INCLUDE CLASSES , INTERFACES AND ARRAYS





BYTE DATA TYPE

- THE BYTE DATA TYPE IS AN EXAMPLE OF PRIMITIVE DATA TYPES
- IT IS AN 8-BIT SIGNED INTEGER OR CALLED 1 BYTE
- ITS VALUE-RANGES LIES BETWEEN -128 TO 127 (INCLUSIVE)
- ITS MINIMUM VALUE IS -128 AND MAXIMUM VALUE IS 127
- THIS CAN BE USED TO SAVE MEMORY WHEN YOU ARE CERTAIN THAT THE VALUE WILL BE WITHIN -128 AND 127

EXAMPLE :

Byte a = 10
Byte b = -20;

Formula : $2^{(n-1)}$ to $2^{(n-1)}-1$

Here, n = no of bits

$2^{(8-1)} = 128$
 $2^{(8-1)} - 1 = 127$

SHORT DATA TYPES

- THE SHORT DATA TYPES IS A 16-BIT SINGED INTERGER OR 2 BYTES
- ITS VALUE LIES BETWEEN -32, 768 TO 32, 767 (INCLUSIVE)
- ITS MINIMUM VALUES IS -32,768 AND MAXIMUM VALUE IS 32,767

EXAMPLE :

short s = 1000;

Short r = -5000

INT DATA TYPE

- THE DATA TYPE IS A 32-BIT SIGNED INTEGER OR 4 BYTE
- ITS VALUE RANGE LIES BETWEEN -2,147, 483, 648 TO 2, 147, 483, 647
- THE INT DATA TYPE IS GENERALLY USED AS A DEFAULT DATA TYPE FOR INTEGER VALUES UNLES IF THERE IS NO

PROBLEM ABOUT MEMORY

EXAMPLE :

```
Int a = 10000;
```

```
Int b = 20000;
```

LONG DATA TYPE

- THE LONG DATA TYPE IS A 64-BIT SIGNED INTEGER OR 8 BYTES
- ITS VALUE-RANGE LIES BETWEEN -9,223,372,036,854,775,808 TO 9,223,372,036,854,775,807
- ITS MINIMUM VALUE -9,223,372,036,854,775,808 AD MAXIMUM VALUE 9,223,372,036,854,775,807
- THE LONG DATA TYPE IS USED WHEN YOU NEED A RANGE OF VALUES MORE THAN THOSE PROVIDED BY INT
- THIS IS USED WHEN INT IS NOT LARGE ENOUGH TO STORE THE VALUE
- NOTE THAT YOU SHOULD END THE VALUE WITH AN "L"

Example :

```
Long a = 1000000 L
```

```
Long b = -200000 L;
```

