

DATA TYPES -VARIABLES AND LITERALS

Data Types:

- Data is an important part of a program which is said as the ingredient of a program
- Variables are meant to store data.
- Data is stored only after the variable is declared.
- Data can be both signed and unsigned.
- Negative numbers are stored in the form of 2's complement

There are Basic built-in datatypes in the compiler of java.

There are four categories of primitive datatypes:

- Integral – they can have any numerical value without decimal point.
 - Float – Have numerical value with decimal point.
 - Char – for storing characters.
 - Boolean – for storing true or false.
 - Integral data type is divided depending on the size
 - byte
 - short
 - int
 - long.
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- Floating point is divided depending on the precision size –
- float -- decimal point is known as float as the decimal point is floated away.

Example: 163.25 is written in the form of mantissa and exponent as
 16325×10^{-2} i.e 16325E-2.

IEEE standard number 754.

- double – for more precise value after decimal.

→ Char values have 2 bytes (*Java uses Unicode).

- ASCII codes are subset of UNICODE

For A-Z = 65-90

a-z = 97-122

0-9 = 48-57

- Boolean – True is represented using 'true'.
False is represented using 'false'.

Variables

- Variables are names given to store data in memory allocation.
- Variables are to be declared and initialised.

➤ Rules to name variables:

- variable names differ in upper and lower cases.
- contains alphabets, numbers and _, \$.
- variables may start with an alphabet or _, \$.
- it should not contain built-in words like int, float, if, while etc.
- it should not contain the built-in class names.
- name can be as long as possible.
- follow camel cases example- Roll Number, Average Marks.

Literals

- constant values(numbers) used in a program.
- there are different types of literals:
 - int literals- representing integer type.
 - float and double literals- representing decimal type.
 - char literals-representing characters in single quotes.
 - string literals-representing characters in double quotes.
- Literals are written based upon the data types:
 - int literal – int, short and byte.
 - int literals can be represented in different number systems:
 - Decimal.
 - Binary.
 - Octal.
 - Hexadecimal.
 - L or l – long.
 - F or f – float.
 - D or d – double.
 - " – char.
 - true/false – Boolean.
- www.unicode.org