Lecture - 03

Programming in C

Tokens in C

a) Identifiers ✓

b) Keywords ✓

c) Constants ⟷ Literal

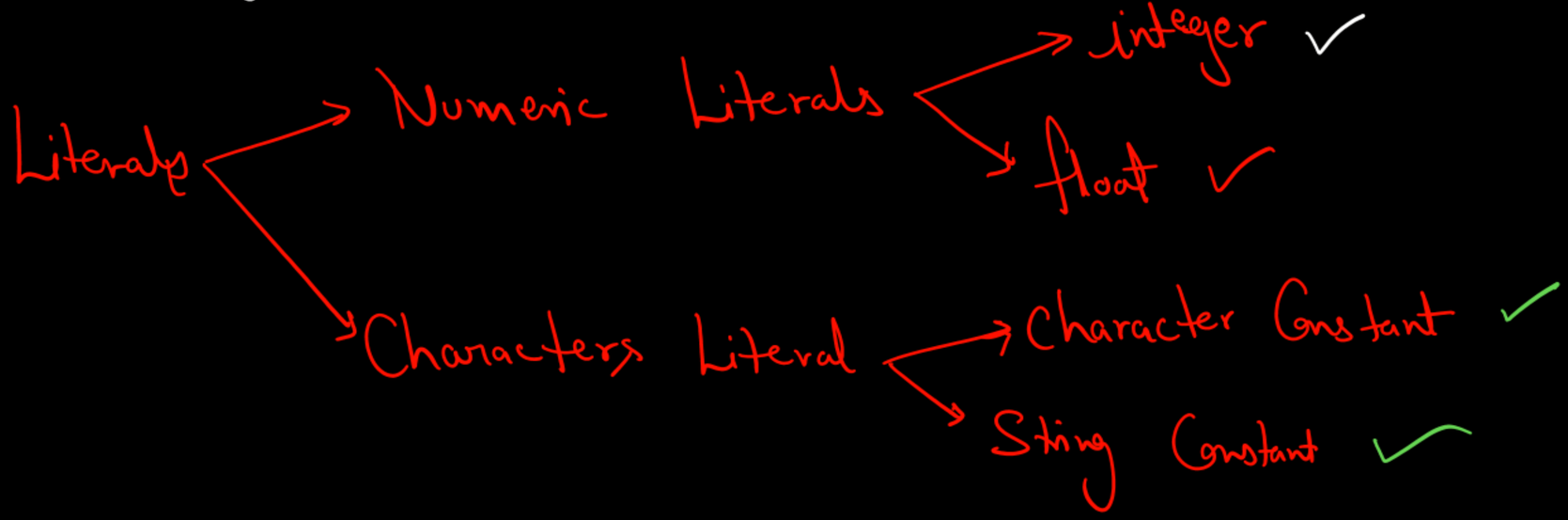
d) Strings

e) Special Symbols

f) Operators

Constant / Literal :

→ Those tokens whoose values does NOT Change during execution of a program



Integer Constant :

↳ Sequence of digit
  ↳ +ve , -ve

→ No Decimal Point / No floating Point

Decimal → Base - 10
⇓
One Single digit
Can Consist the range
of 10 numbers

a) Decimal Integer : directly Represented by the number (25, 36, 72 ...)

b) Octal Integer : One Single digit can Consist the range of 8 number
(0 to 7)

Ex $(25)_8 \Rightarrow 0_025$, $(36)_8 \Rightarrow 0_036$

In C-programming, $(25)_8 \Rightarrow 025$ ← leading number = 0

Ex: $(37)_8 \Rightarrow 0_0 37$ ← Octal C-Prog: $(37)_8 \Rightarrow$ 037

c) Hexadecimal : Each Single digit can consists range of 16 numbers.
i.e. 0 to F

$(37)_{16} \Rightarrow$ 0x37

0x ← leading Number

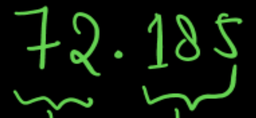
$(95A)_{16} \Rightarrow$ 0X95A

Float Constant :

↳ The number having decimal / floating point

A number having two parts

- ↳ Integral Part
- ↳ fractional Part



Ex: −3.75, +21.78, 3.14159

Character Constant :

↳ The Constant that holds an alphanumeric values

Ex: 'A', 'B', '4', '$', '\n' etc

⇒ Characters are represented within Single quotation Mark.

Ex: m = 'T';

↖ Character Constant

A = 'R'

↖ Char

⇒ A Single Character takes 1 Byte in memory.

↳ ASCII

↙ 8 bits

String Constant

↳ NULL terminated array of Character is called String

NULL → Nothing

terminated → Last

array → Sequence of element

Character → Alphanumeric

Sequence of Character = String

Ex Name = "Aditi";

5 characters

* String represented within double quotation mark.

Subject = "Mathematics";

Data Types in C

↳ Data + Type ← different type of data

↳ integer, float, char, double, void, array, Pointer, function, Structure, enums, unions.

(char → String; void → NULL)

Classification

- Primitive Datatype [fundamental datatype / Primary Datatype] ⇒ Already defined by Compiler
  Ex: int, float, char, double, void
- Non-primitive Datatype ⇒ [Derived Datatype, Secondary Datatype]
  ⇒ Arrays, Pointers, functions
  User defined ⇒ Structure, unions, enums

(A) Fundamental Datatype

↳ Built in datatype

- Integer type
  - int → long, signed, unsigned
  - char
  - short → 2bytes
- float type
  - float
  - double → long
- Void → खाली (Nothing)

Char → 1 byte → 8bit

$2^8 = 256$

↳ 0 to 255

ASCII

(B) Derived Datatype

↳ derived from Primitive datatypes

↳ उत्पादन

Ex: `int x = 25;` ← literal

`int x[5] = {25, 30, 40, 50, 60};`

x के अंदर 5 elements

↳ integer

[Array of integers]

- ✯ Array
- ✯ Pointer
- ✯ function
- ✯ Structure
- ✯ Union
- ✯ Enums

] Similar