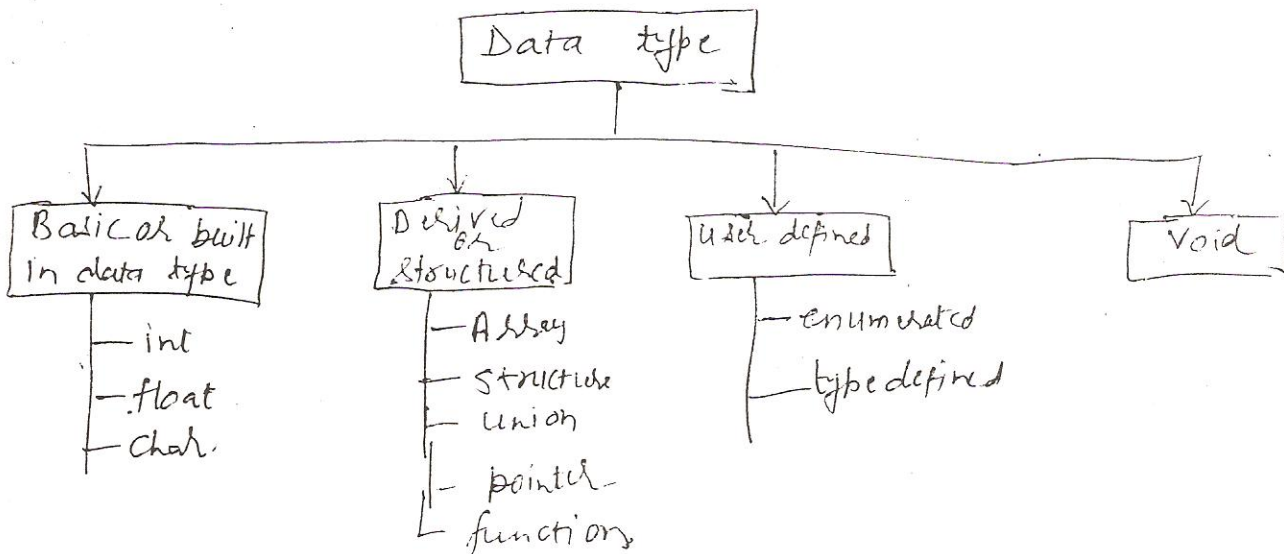


Data type:- Data types indicate the type of data that a variable can hold. The data may be numeric or non-numeric. In C, the data types are categorized as:

- 1) Built-in data types or basic data type.
  - a) Integer.
  - b) float or real.
  - c) Character.
- 2) Structured or derived data types
  - a) Array and strings.
  - b) Structure
  - c) Union.
  - d) Pointer.
- 3) User defined data types
  - a) Enumerated data type.
  - b) typedef.
- 4) The void data type.



~~Integer~~

Built-in data type

Size in memory size (in bytes)

Integer

2 bytes ✓

float

4 bytes ✓

Character

1 byte ✓

For altering the size we use - short and long  
For altering the sign we use - signed and unsigned

Types of integers:-

Type	No. of bytes	Allowed range	Format
int/short	2	-32767 to 32767	%d

The essence of all data type is given as:-

Data type	Range	bytes	Format
Signed int	-32768 to 32767	2	① %d
short signed int	"	"	② "
long " "	-2147483648 to +2147483647	4	③ %ld
unsigned int	0 to 65535	2	④ %u
short " "	"	2	⑤ %u
long " "	0 to 4294967295	4	⑥ %lu
signed char	-128 to 127	1	⑦ %c
unsigned " "	0 to 255	1	⑧ %c
float	-3.4e38 to 3.4e38	4	⑨ %f
double	-1.7e308 to +1.7e308	8	⑩ %lf
long double	-1.7e4932 to +1.7e4932	10	⑪ %Llf

Operators and expressions:-

Here signed means that the variable can take both + and - values and unsigned means that only + values are allowed.

The keyword short means the variable takes lesser no. of bits and long means greater no. of bits.