



## Data Type

The type of the value that is to be stored throughout the execution of 'C' program, determines the type of the memory and that type is known as data type. There are four in-built or primitive data types available in 'C' as:

Data Type	Memory Size	Range
char	1 byte	-128 to +127
int	2 bytes	-32768 to +32767
float	4 bytes	$-3.4 \times 10^{-38}$ to $-3.4 \times 10^{+38}$
double	8 bytes	$-1.7 \times 10^{-308}$ to $1.7 \times 10^{+308}$

## Range Modifier

If the range provided by the data type is not enough to hold the value is memory created in the program, then range modifiers available in 'C' can be used to modify the range. There are four range modifier keywords available in 'C' as:

short, signed, long and unsigned

signed range modifier has no effect on any available data type as the range for the data type is already positive.

short range modifier can only be used with int data type on 8 bit compilers and when it is used it modifies the range of int data type as -128 to +128 by modifying the memory size as 1 byte.

unsigned range modifier has no special effect with float and double data types. It can be used with char and int data type for

Range modifier	Data type	Memory size	Range
unsigned	char	1 byte	0 to 255
unsigned	int	2 bytes	0 to 65535

long range modifier can only be used with int and double data types for

Range modifier	Data type	Memory size	Range
long	int	4 bytes	-2147483648 to +2147483647
long	double	10 bytes	$-3.4 \times 10^{-4932}$ to $+3.4 \times 10^{+4932}$