C Data Types & Format Specifier

C language supports 2 different type of data types:

1. **Primary data types**:

These are fundamental data types in C namely integer(int), floating point(float), character(char) and void.

1. **Derived data types**:

Derived data types are nothing but primary datatypes but a little twisted or grouped together like **array**, **stucture**, **union** and **pointer**. These are discussed in details later.

|  |  |  |
| --- | --- | --- |
| Type | Size (bytes) | Format Specifier |
| int | at least 2, usually 4 | %d, %i |
| char | 1 | %c |
| float | 4 | %f |
| double | 8 | %lf |
| short int | 2 usually | %hd |
| unsigned int | at least 2, usually 4 | %u |
| long int | at least 4, usually 8 | %ld, %li |
| long long int | at least 8 | %lld, %lli |
| unsigned long int | at least 4 | %lu |
| unsigned long long int | at least 8 | %llu |
| signed char | 1 | %c |
| unsigned char | 1 | %c |
| long double | at least 10, usually 12 or 16 | %Lf |

[Live Demo](http://tpcg.io/FnrxP5)

#include <stdio.h>

#include <stdlib.h>

#include <limits.h>

#include <float.h>

int main(int argc, char\*\* argv) {

printf("CHAR\_BIT : %d\n", CHAR\_BIT);

printf("CHAR\_MAX : %d\n", CHAR\_MAX);

printf("CHAR\_MIN : %d\n", CHAR\_MIN);

printf("INT\_MAX : %d\n", INT\_MAX);

printf("INT\_MIN : %d\n", INT\_MIN);

printf("LONG\_MAX : %ld\n", (long) LONG\_MAX);

printf("LONG\_MIN : %ld\n", (long) LONG\_MIN);

printf("SCHAR\_MAX : %d\n", SCHAR\_MAX);

printf("SCHAR\_MIN : %d\n", SCHAR\_MIN);

printf("SHRT\_MAX : %d\n", SHRT\_MAX);

printf("SHRT\_MIN : %d\n", SHRT\_MIN);

printf("UCHAR\_MAX : %d\n", UCHAR\_MAX);

printf("UINT\_MAX : %u\n", (unsigned int) UINT\_MAX);

printf("ULONG\_MAX : %lu\n", (unsigned long) ULONG\_MAX);

printf("USHRT\_MAX : %d\n", (unsigned short) USHRT\_MAX);

return 0;

}