

C-5

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Data types

There are always data types in programming to represent the basic parts of information such as numbers and words (characters). These data types can then be manipulated to do many things such display text and create wonderful Programs

```
1 #include <stdio.h>
2 #include "poop.h"
3
4 int main() {
5
6     short i = 5;
7     int j = 100;
8     long b = 1000;
9
10    float h = 100.000;
11    double a = -100000;
12    long double u = 100;
13
14    printf("%d", sizeof());
15
16    return 0;
17 }
18
19
```

This section will be about the integer and floating types.

We can say that a value is

Short- can store 16 bits -32,768 to 32767

int - can store 32 bits (about -2 billion to 2 billion)

Long- can store 64 bits (about -2^{63} to 2^{63})

Floating types are used to represent numbers that need decimals or more precision than just an integer. For example PI. (3.14.....)

These types are called float and double

Floats- from $(1.7) \times 10^{-38}$ to 3.4×10^{38}

Double- from 2.22×10^{-308} to 1.79×10^{308}

(These standards are defined by the IEEE- institute of electrical and electronic engineers.

There also is the long double which varies on computers can either have 80 bits or 128 bits.