

# The C language

Hello world:

```
#include <stdio.h>
```

```
int main(void) {  
    printf("hello, world\n");  
}
```

Main is special function, gets executed by default.

## Compilers

Source code

↓

Compiler

↓

Machine code

Compiling in cs50 cli

clang hello.c -o hello

## Integer overflow

11111111 + 1 =

00000000

## Compilation process

1. Preprocessing

Anything in a C programming that starts with a # is a preprocessing directive.  
(#include => get content of file, paste it here)

2. Compiling

Source code => Assembly code

(clang -S hello.c => outputs hello.s, assembly code)

3. Assembling

Assembly code => Machine Code

4. Linking

Add in the machine code of the libraries (linked files)