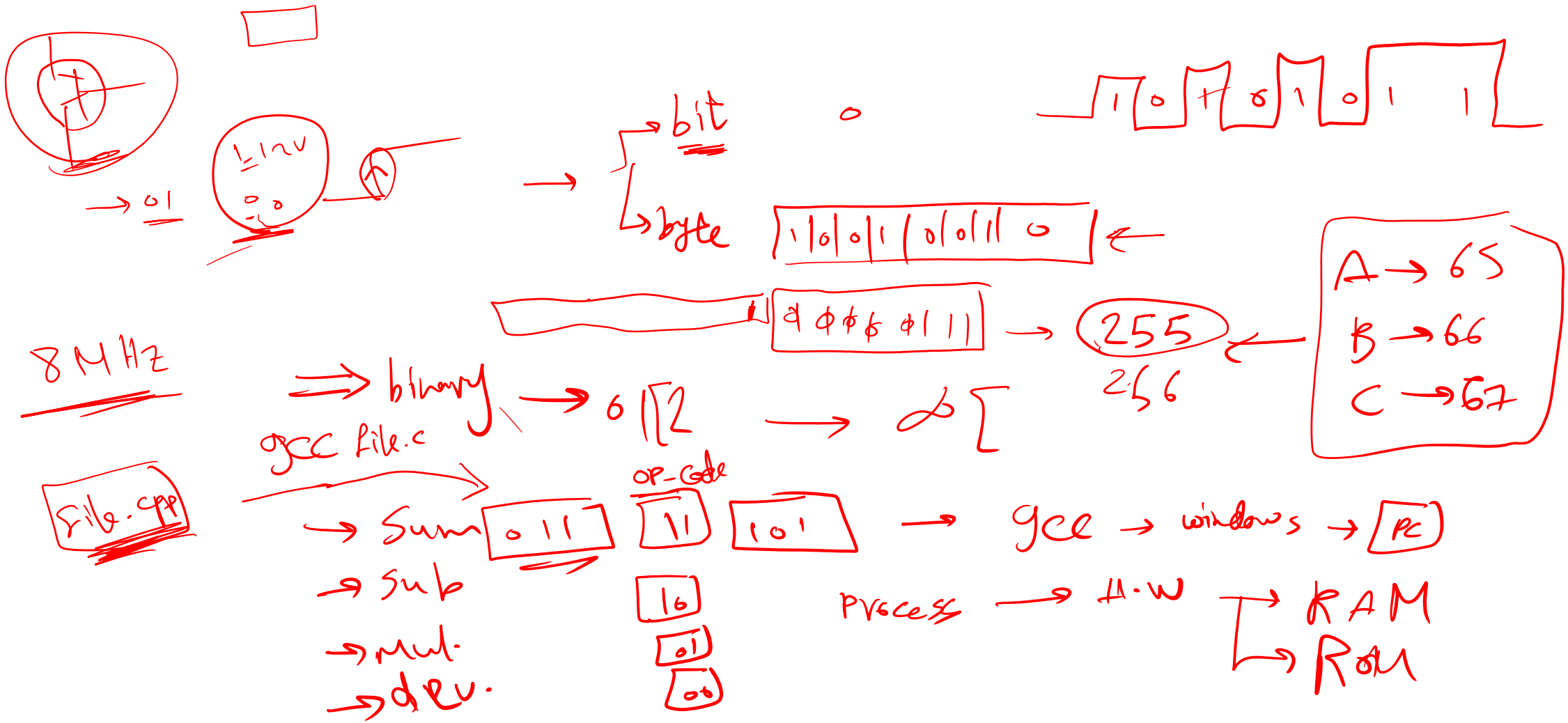
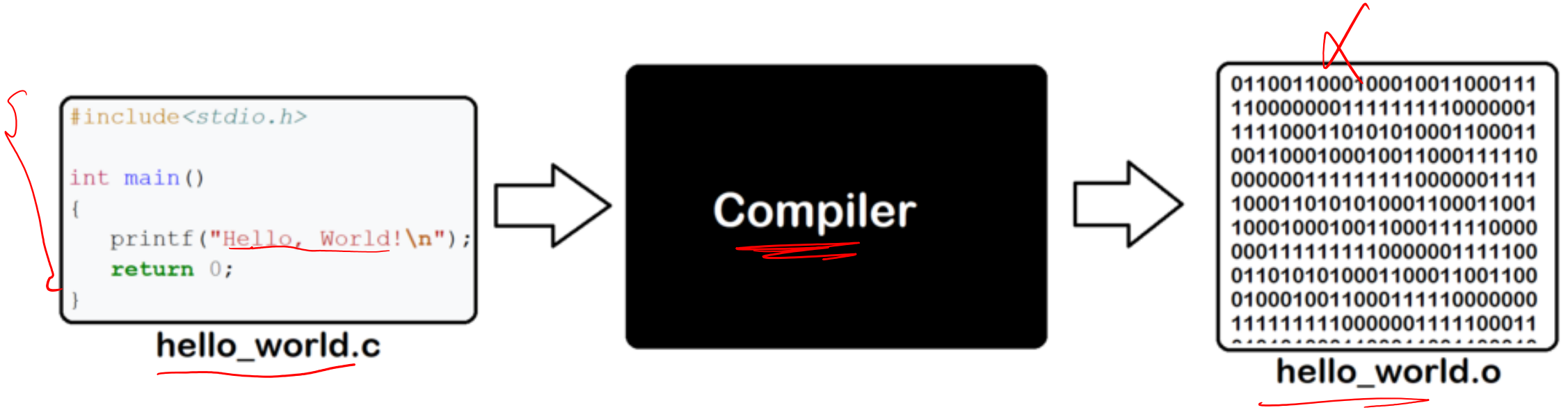
Session 2

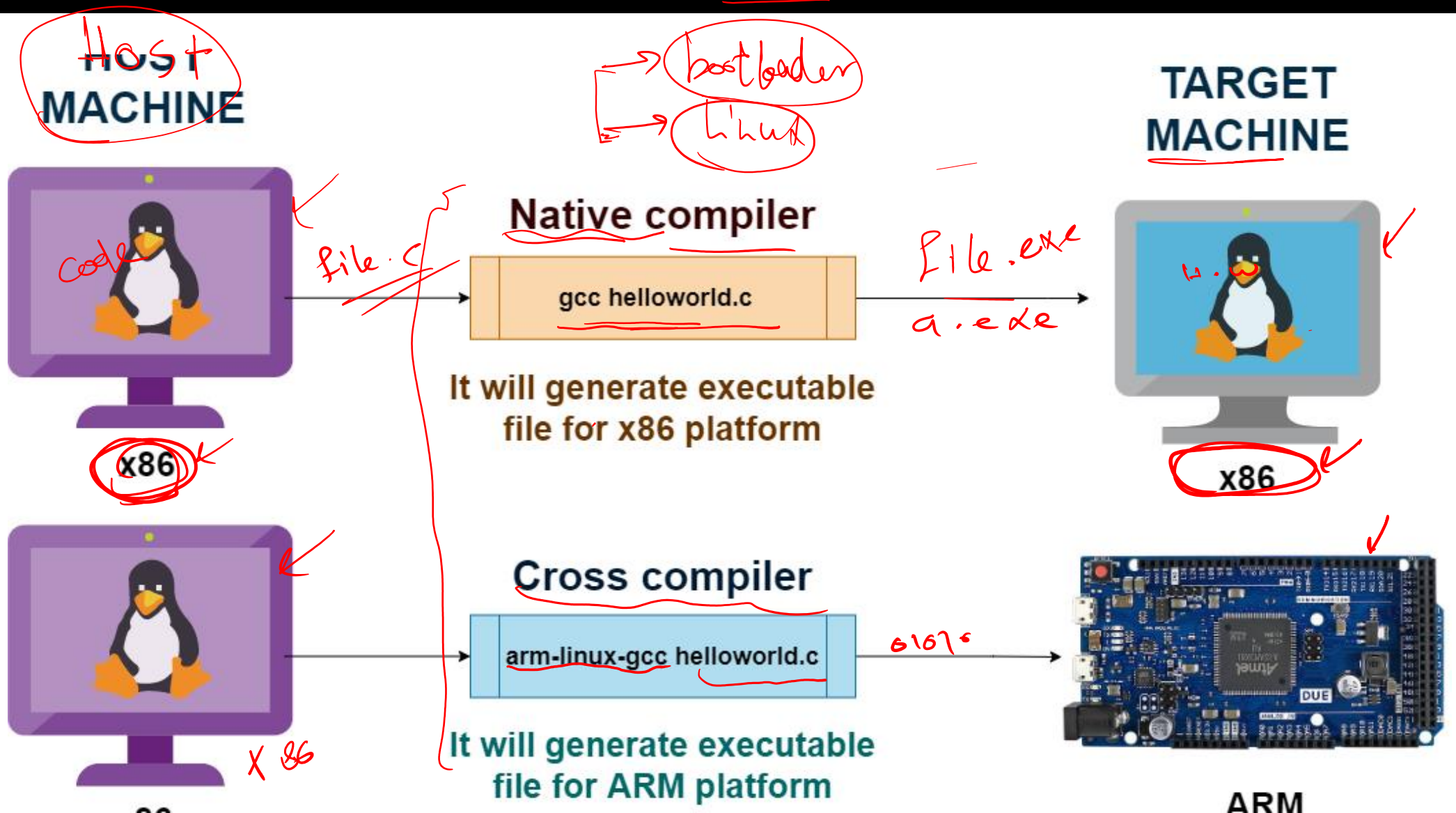
Mostafa Akram

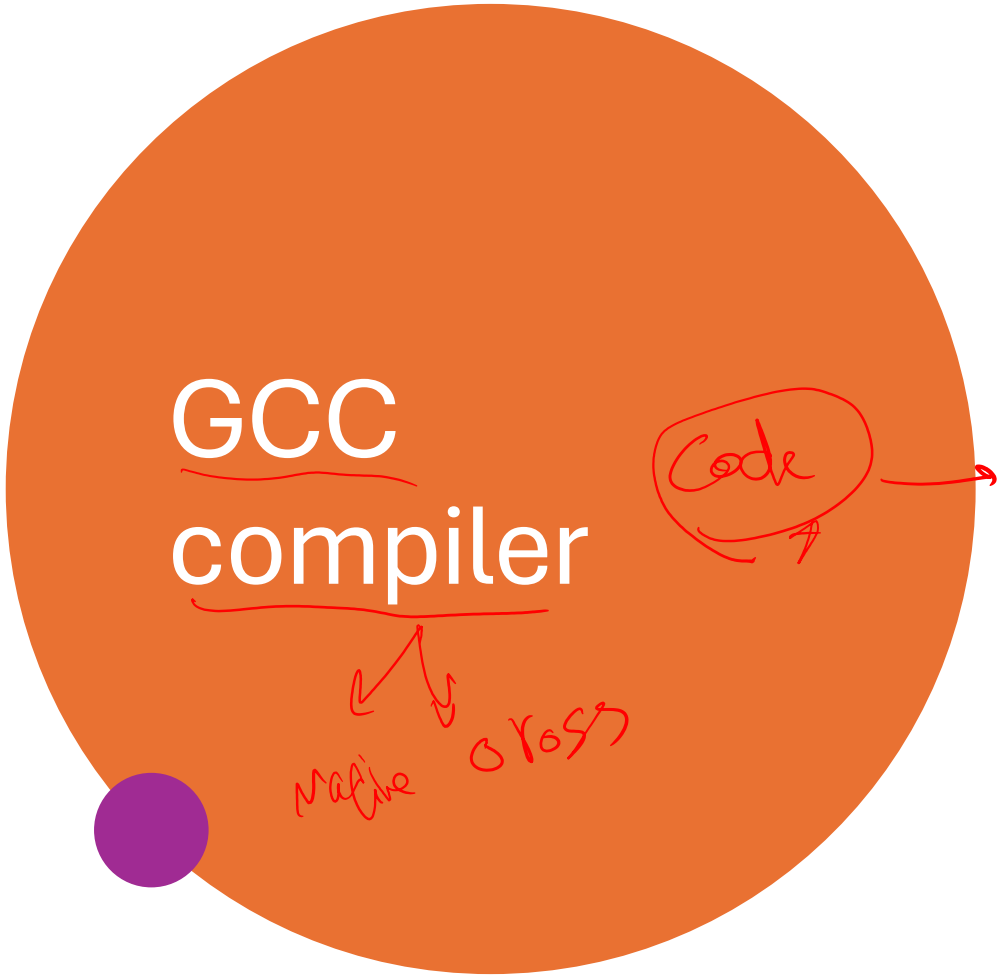

bit
byte
A → 65
B → 66
C → 67
255
256
8 MHz
binary
gcc file.c
file.cpp
Sum
Sub
mul.
div.
OP-Code
gcc
windows
PC
Process
H.W
RAM
ROM

Compiler


#include<stdio.h>
int main()
{
printf("Hello, World!\n");
return 0;
}
hello_world.c
Compiler
0110011000100010011000111
1100000001111111110000001
1111000110101010001100011
0011000100010011000111110
0000001111111110000001111
1000110101010001100011001
1000100010011000111110000
0001111111110000001111100
0110101010001100011001100
0100010011000111110000000
1111111110000001111100011
hello_world.o

Native VS. Cross compliers





Open a Terminal, and enter "`gcc --version`". If `gcc` is not installed, the system will prompt you to install `gcc`.

GCC compiler

$ gcc --version

GCC compiler

For Windows, you could either install Cygwin GCC, MinGW GCC or MinGW-W64 GCC. Read "How to install Cygwin and MinGW".

Cygwin GCC: Cygwin is a Unix-like environment and command-line interface for Microsoft Windows. Cygwin is huge and includes most of the Unix tools and utilities. It also included the commonly-used Bash shell.

MinGW: MinGW (Minimalist GNU for Windows) is a port of the GNU Compiler Collection (GCC) and GNU Binutils for use in Windows. It also included MSYS (Minimal System), which is basically a Bourne shell (bash).

MinGW-W64: a fork of MinGW that supports both 32-bit and 64-bit windows.

Getting Started GCC

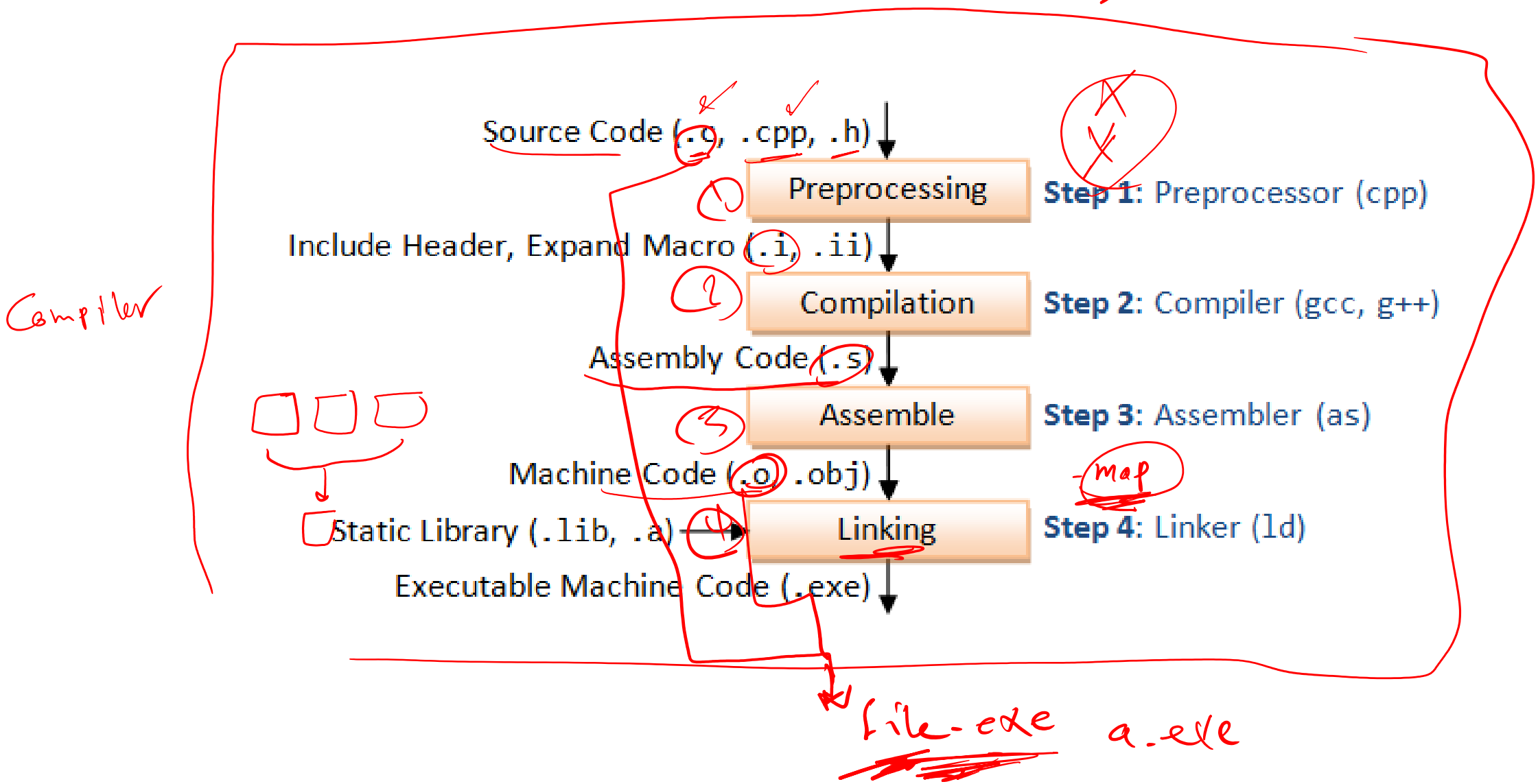
Compile/Link a Simple C Program

- gcc file.c

```c
// hello.c
#include <stdio.h>

int main() {
    printf("Hello, world!\n");
    return 0;
}
```

Compiling process



Most used keywords gcc

- Gcc --version
- Gcc file.c → a.exe
- gcc -c file.c → file.o
- gcc -o file.exe file.o →
-
- gcc -S file.i

Let us print “Hello World”

⇒ outcome

1. int , void
2. Compiler types
3. Compiling process (intro)
4. Using GCC keywords
5. How to use terminal
   - clear
   - "tap button"
   - ↑↓ buttons
   - ctrl + shift + { V }
6. Using terminal & CMD

⇒ Task → print → Hello world ①
↳ your name ②
↳ Search how to print numbers using printf and %d. ③

Links

- https://forms.gle/zeLZELpMcqBmvmmt7
- https://www.youtube.com/watch?v=sXW2VLrQ3Bs MINGW64 tutorial
- https://notepad-plus-plus.org/downloads/