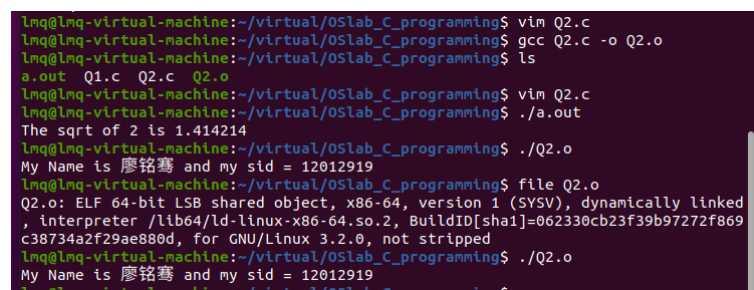


```
lmq@lmq-virtual-machine: ~/virtual/OSlab_C_programming
#include<stdio.h>
#include<math.h>
int main()
{
    printf("My Name is %s and my sid = %d\n", "廖铭骞", 12012919);
    return 0;
}
```

操作截图：



```
lmq@lmq-virtual-machine:~/virtual/OSlab_C_programming$ vim Q2.c
lmq@lmq-virtual-machine:~/virtual/OSlab_C_programming$ gcc Q2.c -o Q2.o
lmq@lmq-virtual-machine:~/virtual/OSlab_C_programming$ ls
a.out  Q1.c  Q2.c  Q2.o
lmq@lmq-virtual-machine:~/virtual/OSlab_C_programming$ vim Q2.c
lmq@lmq-virtual-machine:~/virtual/OSlab_C_programming$ ./a.out
The sqrt of 2 is 1.414214
lmq@lmq-virtual-machine:~/virtual/OSlab_C_programming$ ./Q2.o
My Name is 廖铭骞 and my sid = 12012919
lmq@lmq-virtual-machine:~/virtual/OSlab_C_programming$ file Q2.o
Q2.o: ELF 64-bit LSB shared object, x86-64, version 1 (SYSV), dynamically linked
, interpreter /lib64/ld-linux-x86-64.so.2, BuildID[sha1]=062330cb23f39b97272f869
c38734a2f29ae880d, for GNU/Linux 3.2.0, not stripped
lmq@lmq-virtual-machine:~/virtual/OSlab_C_programming$ ./Q2.o
My Name is 廖铭骞 and my sid = 12012919
```

## 请总结C语言的编译过程

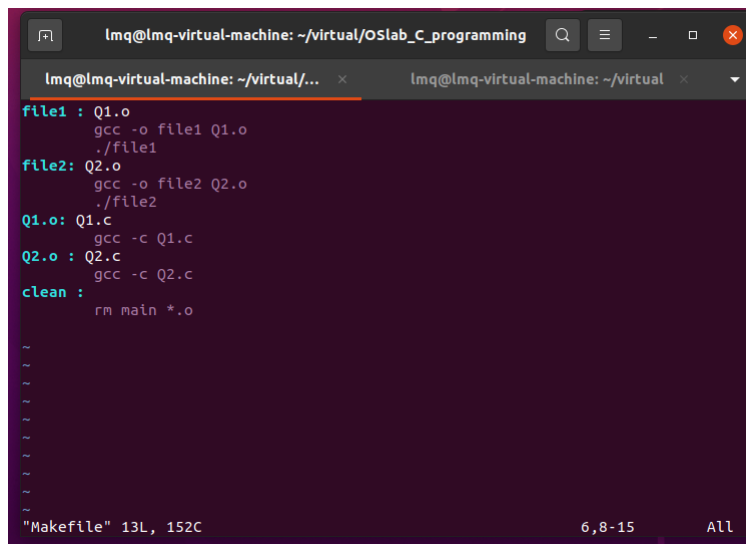
先是经过预处理（展开所有的头文件，进行对应的宏替换等等操作）；之后进行编译，生成汇编程序；之后进入汇编过程，将汇编代码转换成为机器码；最后进行链接，将所有目标文件和库文件结合在一起，成为可执行文件。

## windows和ubuntu下的可执行文件的格式分别是什么？

在 Windows 下可执行文件的格式一般为PE，而在 Ubuntu下可执行文件的格式为ELF。

**请编写makefile文件(截图)，执行make命令或者执行make file1时通过Q1打印2的开方结果(截图)，执行make file2时通过Q2打印自己的姓名学号(截图)**

Makefile 文件截图：



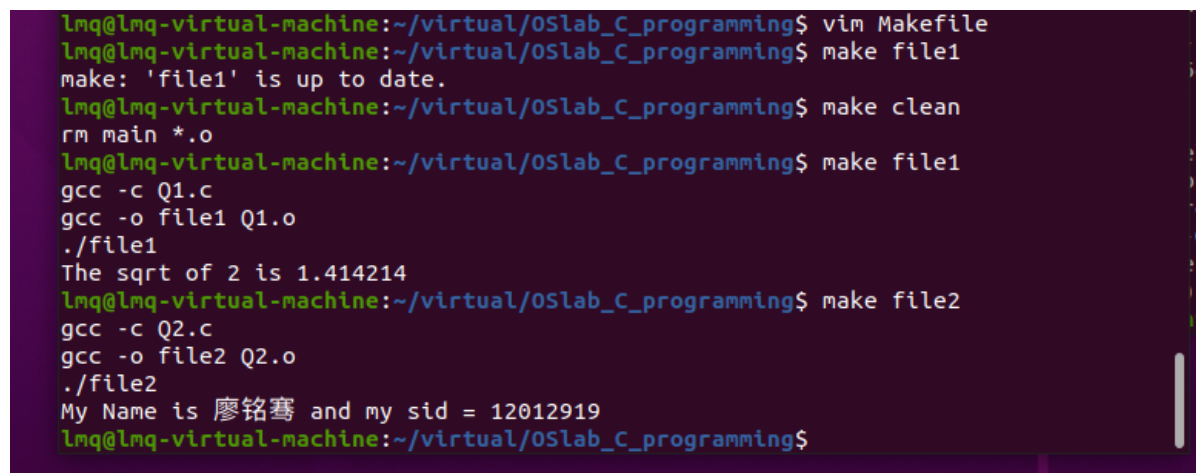
```
lmq@lmq-virtual-machine: ~/virtual/OSlab_C_programming
lmq@lmq-virtual-machine: ~/virtual/... x lmq@lmq-virtual-machine: ~/virtual x
file1 : Q1.o
gcc -o file1 Q1.o
./file1
file2: Q2.o
gcc -o file2 Q2.o
./file2
Q1.o: Q1.c
gcc -c Q1.c
Q2.o : Q2.c
gcc -c Q2.c
clean :
rm main *.o

~
~
~
~
~
~
~
"Makefile" 13L, 152C 6,8-15 All
```

运行 make file1 执行 Q1(开方)

以及

运行 make file2 执行 Q2 (显示姓名学号) :



```
lmq@lmq-virtual-machine:~/virtual/OSlab_C_programming$ vim Makefile
lmq@lmq-virtual-machine:~/virtual/OSlab_C_programming$ make file1
make: 'file1' is up to date.
lmq@lmq-virtual-machine:~/virtual/OSlab_C_programming$ make clean
rm main *.o
lmq@lmq-virtual-machine:~/virtual/OSlab_C_programming$ make file1
gcc -c Q1.c
gcc -o file1 Q1.o
./file1
The sqrt of 2 is 1.414214
lmq@lmq-virtual-machine:~/virtual/OSlab_C_programming$ make file2
gcc -c Q2.c
gcc -o file2 Q2.o
./file2
My Name is 廖铭骞 and my sid = 12012919
lmq@lmq-virtual-machine:~/virtual/OSlab_C_programming$
```

**给定宏定义 #define SUM(x) (x)+(x) , SUM(5\*3) \* SUM(5\*3)的计算结果是什么**

字符替换之后等于:

$$*5*3+5*3 * 5*3+5*3 = 255$$

所以结果是 255