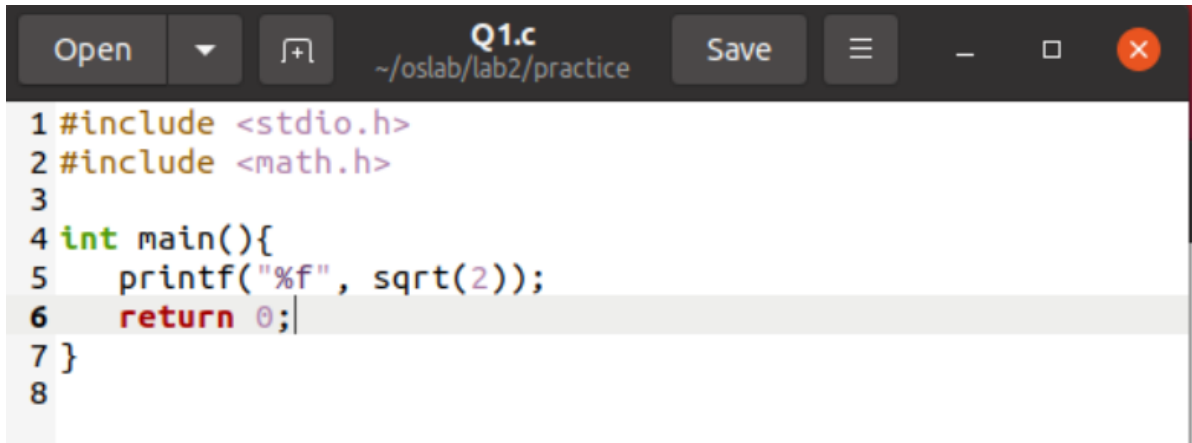


Lab2 Report

12011702 张镇涛

1

```
os12011702@vmos-tony:~/oslab/lab2/practice$ gcc -o Q1 Q1.c
os12011702@vmos-tony:~/oslab/lab2/practice$ ./Q1
1.414214os12011702@vmos-tony:~/oslab/lab2/practice$
```

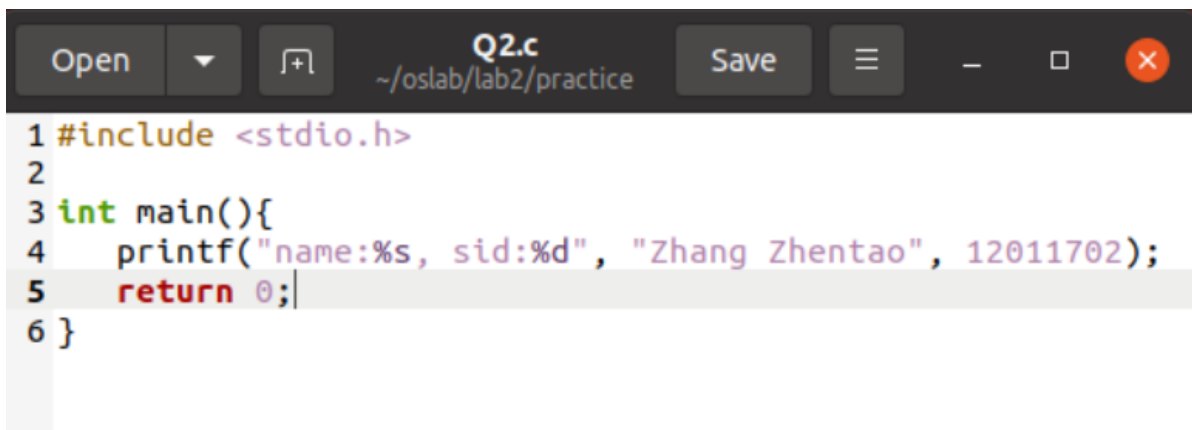


```
Open  Q1.c  Save
~/oslab/lab2/practice

1 #include <stdio.h>
2 #include <math.h>
3
4 int main(){
5     printf("%f", sqrt(2));
6     return 0;
7 }
8
```

2

```
os12011702@vmos-tony:~/oslab/lab2/practice$ gcc -c Q2.c
os12011702@vmos-tony:~/oslab/lab2/practice$ gcc -o Q2 Q2.o
os12011702@vmos-tony:~/oslab/lab2/practice$ file Q2
Q2: ELF 64-bit LSB shared object, x86-64, version 1 (SYSV), dynamically linked,
interpreter /lib64/ld-linux-x86-64.so.2, BuildID[sha1]=e92ba832a86b06f08ddbcef
a0df163a07399350a, for GNU/Linux 3.2.0, not stripped
os12011702@vmos-tony:~/oslab/lab2/practice$ ./Q2
name:Zhang Zhentao, sid:12011702os12011702@vmos-tony:~/oslab/lab2/practice$
```



```
Open  Q2.c  Save
~/oslab/lab2/practice

1 #include <stdio.h>
2
3 int main(){
4     printf("name:%s, sid:%d", "Zhang Zhentao", 12011702);
5     return 0;
6 }
```

3

预处理 (.c 文件 变为 扩展后的.c文件)

在这一部分，#define，#include等一些宏被拓展为C代码。

编译和优化 (.c 文件 变为汇编代码 .s 文件)

编译器的工作是将可读的代码转换成机器可以理解的代码。

1. 检查代码的语法并且进行分析
2. 如果1中没有错误，将产生中间代码，比如：汇编代码

汇编和链接

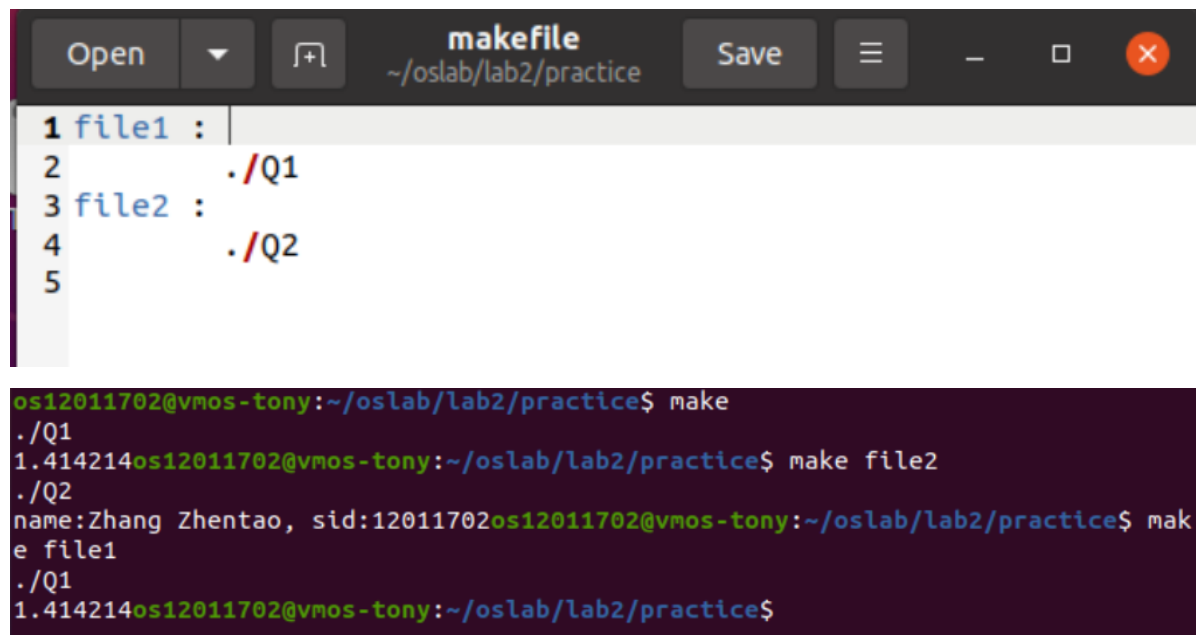
汇编器将汇编代码转换为目标代码（机器代码）。（.s 文件变为.o文件）

链接器将所有目标文件和库文件结合在一起生成可执行文件。

4

Windows下的PE（Portable Executable）和Linux的 ELF（Executable Linkable Format）

5



The screenshot shows a terminal window with a dark background. At the top, there is a window title bar for a file named 'makefile' located at '~/oslab/lab2/practice'. Below the title bar, the contents of the 'makefile' are displayed in a light-colored font on a dark background. The Makefile defines two targets: 'file1' which depends on './Q1', and 'file2' which depends on './Q2'. Below the Makefile, the terminal shows the execution of the 'make' command. The output shows that 'make' first builds 'file1' by running './Q1', and then builds 'file2' by running './Q2'. The prompt 'os12011702@vmos-tony:~/oslab/lab2/practice\$' is visible throughout the terminal session.

```
1 file1 :  
2     ./Q1  
3 file2 :  
4     ./Q2  
5  
  
os12011702@vmos-tony:~/oslab/lab2/practice$ make  
./Q1  
1.414214os12011702@vmos-tony:~/oslab/lab2/practice$ make file2  
./Q2  
name:Zhang Zhentao, sid:12011702os12011702@vmos-tony:~/oslab/lab2/practice$ mak  
e file1  
./Q1  
1.414214os12011702@vmos-tony:~/oslab/lab2/practice$
```

6

144

7

39