

Experiment_3_B22170220余佳卓

(1) Task 1

源码：

The screenshot shows the VS Code interface with two tabs open: 'c1.c' and 'makefile'. The 'c1.c' tab contains the following C code:

```
#include <stdio.h>
int main(int argc,char* argv[])
{
    char buf[1024]={0};
    FILE* fp=fopen(argv[1],"r");
    if(argc<2)
    {
        printf("please input source file!\r\n");
    }
    if(fp==NULL)
    {
        printf("open source %s failed\r\n",argv[1]);
        return -1;
    }
    while(fgets(buf,1024,fp))
    {
        printf("%s\r\n",buf);
    }
    return 0;
}
```

The 'makefile' tab contains the following build script:

```
hello: c1.o
    gcc -o hello1 c1.o
c1.o: c1.c
    gcc -c c1.c
clean:
    rm -rf *.o
```

The terminal tab shows the user's session:

```
yjz@yjzpw:~/C$ make
gcc -c c1.c
gcc -o hello1 c1.o
yjz@yjzpw:~/C$ ./hello1
please input source file!
open source (null) failed
yjz@yjzpw:~/C$ ./hello1 c1.o
ELF
```

makefile文件

The screenshot shows the VS Code interface with the 'makefile' tab selected. The content is identical to the one shown in the previous screenshot:

```
hello: c1.o
    gcc -o hello1 c1.o
c1.o: c1.c
    gcc -c c1.c
clean:
    rm -rf *.o
```

运行结果：

```
● yjz@yjzpw:~/C$ make
gcc -c c1.c
gcc -o hello1 c1.o
● yjz@yjzpw:~/C$ ./hello1
please input source file!
open source (null) failed
● yjz@yjzpw:~/C$ ./hello1 c1.o
ELF
```

(2)Task 2

```
c c1.c      M makefile      c c2.c
c c2.c
1 #include <stdio.h>
2 #include <dirent.h>
3 #include <sys/types.h>
4
5 int main(int argc,char* argv[])
6 {
7     DIR* dirp;
8     struct dirent* direntp;
9     if((dirp=open(dir(argv[1])))==NULL){
10         printf("error\r\n");
11     }
12     while((direntp=readdir(dirp))!=NULL)
13         printf("%s\r\n",direntp->d_name);
14     closedir(dirp);
15     exit(0);
16 }
```

makefile文件:

```
hello2:c2.o
    gcc -o hello1 c2.o
c2.o:c2.c
    gcc -c c2.c
clean:
    rm -rf *.o
```

运行:

```
c c1.c m makefile c c2.c
c c2.c
1 #include <stdio.h>
2 #include <dirent.h>
3 #include <sys/types.h>
4
5 int main(int argc,char* argv[])
6 {
7     DIR* dirp;
8     struct dirent* direntp;
9     if((dirp=opendir(argv[1]))==NULL){
10         printf("error\r\n");
11     }
12 }
yjz@yjzpwn:~/C$ make
yjz@yjzpwn:~/C$ ./hello1
Segmentation fault (core dumped)
yjz@yjzpwn:~/C$ ./hello1 .
hello1
c1.c
c2.c
makefile
c2.o
.
..
yjz@yjzpwn:~/C$
```

(3)Task 3

源码

```
M makefile c c3.c x
c c3.c
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <unistd.h>
4
5 int main(){
6     char buf[1024]={0};
7     char buf2[1024]={0};
8     getcwd(buf,1024);
9     printf("%s\n",buf);
10    if(chdir("/home")<0){
11        printf("error\r\n");
12    }
13    else
14    {
15        printf("success\r\n");
16    }
17    getcwd(buf2,1024);
18    printf("%s\n",buf2);
19    return 0;
20 }
```

makefile文件

```
M makefile  X  C c3.c
M makefile
1 hello2:c3.o
2 |    gcc -o hello1 c3.o
3 c3.o:c3.c
4 |    gcc -c c3.c
5 clean:
6 |    rm -rf *.o
```

运行

```
M makefile  X  C c3.c
M makefile
1 hello2:c3.o
2 |    gcc -o hello1 c3.o
3 c3.o:c3.c
4 |    gcc -c c3.c
5 clean:
6 |    rm -rf *.o

yjz@yjzpwn:~/C$ make
gcc -c c3.c
gcc -o hello1 c3.o
yjz@yjzpwn:~/C$ ./hello1
/home/yjz/C
success
/home
yjz@yjzpwn:~/C$
```