

1、任务一

(1) Task 1

(1) Write a C program that uses standard I/O libraries to display the contents of text files. The program is compiled and linked by the make tool, which requires the generation of the.o file first, and then the generation of the executable file, and the function of deleting the intermediate file (.o) in the makefile file.

```
#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!\n");
    }
    if (fp == NULL)
    {
        printf("open source %s failed\n", argv[1]);
        return -1;
    }
    while (fgets(buf, 1024, fp))
    {
        printf("%s\n", buf);
    }
    return 0;
}
```

Make sure your filename is c1.c

We can use the following makefile.

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

```
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ touch c1.c
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ ls
c1.c
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ gcc -c c1.c
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ ls
c1.c  c1.o
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ gcc -o hello1 c1.o
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ ls
c1.c  c1.o  hello1
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ rm -rf *.o
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ ls
c1.c  hello1
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$
```

2、任务二

(2) Task 2

(2) Write a C program that displays all the file names in the current directory. The program is compiled and linked by the make tool, which requires the generation of the.o file first, and then the generation of the executable file, and the function of deleting the intermediate file (.o) in the makefile file.

include <stdio.h>

include <dirent.h>

include <sys/types.h>

```
int main(int argc, char* argv[])
{
    DIR* dirp;
    struct dirent* direntp;
    if ((dirp = opendir(argv[1])) == NULL) {
        printf("error\n");
        // exit(1);
    }
    while ((direntp = readdir(dirp)) != NULL)
        printf("%s\n", direntp->d_name);
    closedir(dirp);
    // exit(0);
}
```

Make sure your filename is c2.c

We can use the following makefile.

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

```
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ touch c2.c
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ ls
c1.c  c2.c  hello1
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ gcc -c c2.c
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ ls
c1.c  c2.c  c2.o  hello1
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ gcc -o hello1 c2.o
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ ls
c1.c  c2.c  c2.o  hello1
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ rm -rf *.o
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ ls
c1.c  c2.c  hello1
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$
```

3、任务 3

(3) Task 3

(3) Write a C program that changes the working directory of the current process. The program is compiled and linked by the make tool, which requires the generation of the.o file first, and then the generation of the executable file, and the function of deleting the intermediate file (.o) in the makefile file.

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
int main(){
    char buf[1024] = {0};
```

```
    char buf2[1024]={0};
    getcwd(buf, 1024);
    printf("%s\n", buf);
    if(chdir("/home")<0){
        printf("error\n");
    }
    else
    {
        printf("success\n");
    }
    getcwd(buf2,1024);
    printf("%s\n",buf2);
    return 0;
}
```

Make sure your filename is c3.c

We can use the following makefile.

```
hello3:c3.o
    gcc -o hello1 c3.o
c3.o:c3.c
    gcc -c c3.c
clean:
    rm -rf *.o
```

```
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ touch c3.c
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ ls
c1.c  c2.c  c3.c  hello1
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ gcc -c c3.c
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ ls
c1.c  c2.c  c3.c  c3.o  hello1
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ gcc -o hello1 c3.o
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ ls
c1.c  c2.c  c3.c  c3.o  hello1
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ rm -rf *.o
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$ ls
c1.c  c2.c  c3.c  hello1
rrrainy@rrrainy-virtual-machine:~/B22040704xyt$
```