

(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.

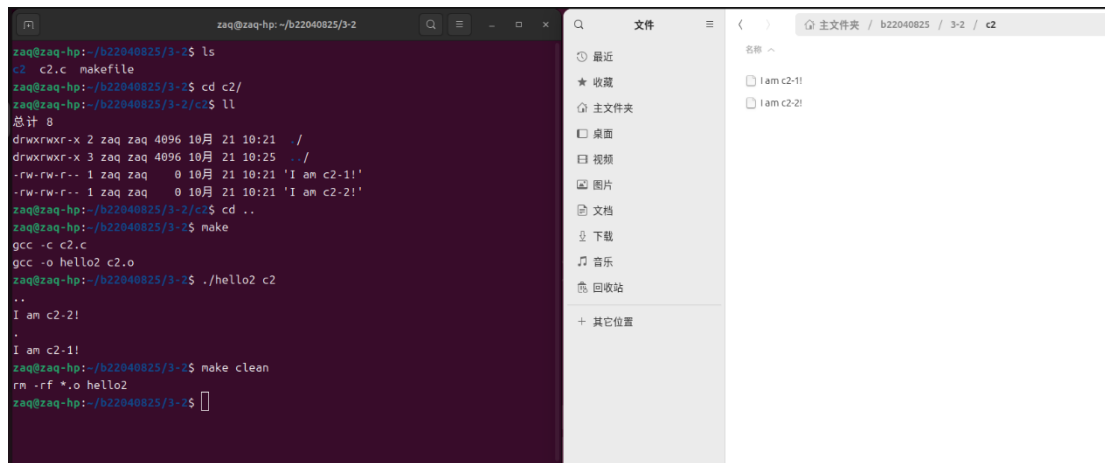
The screenshot displays a development environment with three panels. The left panel is a terminal window showing the execution of a C program. The middle panel shows the source code of the program, and the right panel shows the output of the program.

```
zaq@zaq-hp:~/b22040025/3-1$ make
gcc -c c1.c
gcc -o hello1 c1.o
zaq@zaq-hp:~/b22040025/3-1$ ./hello1 c1.txt
I am c1.txt!
zaq@zaq-hp:~/b22040025/3-1$ make clean
rm -rf *.o hello1
zaq@zaq-hp:~/b22040025/3-1$
```

```
#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]);
    }
    while(fgets(buf, 1024, fp)){
        printf("%s\n", buf);
    }
    return 0;
}
```

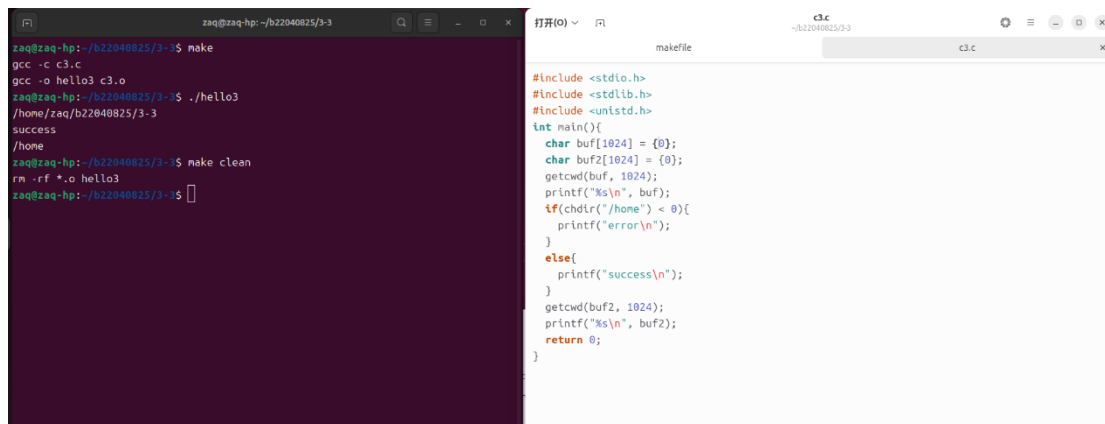
I am c1.txt!

(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.



```
zsq@zsq-hp:~/b22040825/3-2$ ls
c2  c2.c  makefile
zsq@zsq-hp:~/b22040825/3-2$ cd c2/
zsq@zsq-hp:~/b22040825/3-2/c2$ ll
总计 8
drwxrwxr-x 2 zsq zsq 4096 10月 21 10:21 ./
drwxrwxr-x 3 zsq zsq 4096 10月 21 10:25 ../
-rw-rw-r-- 1 zsq zsq  0 10月 21 10:21 'I am c2-1!'
-rw-rw-r-- 1 zsq zsq  0 10月 21 10:21 'I am c2-2!'
zsq@zsq-hp:~/b22040825/3-2/c2$ cd ..
zsq@zsq-hp:~/b22040825/3-2$ make
gcc -c c2.c
gcc -o hello2 c2.o
zsq@zsq-hp:~/b22040825/3-2$ ./hello2 c2
..
I am c2-2!
.
I am c2-1!
zsq@zsq-hp:~/b22040825/3-2$ make clean
rm -rf *.o hello2
zsq@zsq-hp:~/b22040825/3-2$
```

(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.



The image shows a terminal window on the left and a code editor on the right. The terminal window displays the following commands and output:

```
zsq@zsq-hp: ~/b22040825/3-3$ make
gcc -c c3.c
gcc -o hello3 c3.o
zsq@zsq-hp: ~/b22040825/3-3$ ./hello3
/home/zsq/b22040825/3-3
success
/home
zsq@zsq-hp: ~/b22040825/3-3$ make clean
rm -rf *.o hello3
zsq@zsq-hp: ~/b22040825/3-3$
```

The code editor on the right shows the content of the `c3.c` 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;
}
```