

CS5243 Advanced UNIX Programming
Assignment 1 (4 pts)
Group 4

Screenshot of codes:

```
#include <sys/types.h>
#include <sys/stat.h>
#include <fcntl.h>
#include <unistd.h>
#include <stdio.h>
#include <string.h>

int main(){
    char c; // buffer to store the char ready to print
    int read_sit; // read situation, which is the return value from read()
    char newString[] = "NTHU student.\n";

    // Task 1
    // Task 3 (Append Flag => O_RDWR)
    int fd = open("sample.txt", O_RDWR); // [TODO]

    lseek(fd, 14, SEEK_SET); // move cursor to 14, which is "s"
    for(int i = 0; i < 8; i++){ // "student." have 8 char
        read_sit = read(fd, &c, 1); // read one char and save to the buffer
        printf("%c", c);
    }
    printf("\n"); // extra newline for demo

    // Task 2
    lseek(fd, 14, SEEK_SET); // move cursor to 14, which is "s"
    write(fd, newString, strlen(newString));

    lseek(fd, 0, SEEK_SET); // move cursor to first

    do{
        read_sit = read(fd, &c, 1);
        printf("%c", c);
    }while(read_sit!=0); // if read_sit == 0, means EOF

    close(fd);
}
```

Screenshot of result:

```
ccw@freebsd:~/Advanced-UNIX-Programming_Student/assignment1 $ make clean && make
rm -f assignment1.o assignment1
gcc -O2 -pipe -c assignment1.c -o assignment1.o
gcc -std=c11 -O2 -Wall -o assignment1 assignment1.o
ccw@freebsd:~/Advanced-UNIX-Programming_Student/assignment1 $ ./assignment1
student.
Hello, I am a NTHU student.
```

The append flag should be `O_RDWR`, which supports the reading and writing permission.

2.

For task 1, we use `lseek(fd, 14, SEEK_SET)` to move the cursor to 14, which is "s"

For task 2, we use `write(fd, newString, strlen(newString))` to replace "student" with newString "NTHU student."

For task 3, we use `int fd = open("sample.txt", O_RDWR)` to open file with writing and reading permission
`O_APPEND` is to add new text behind the original content.