1. Construct a C program to implement the I/O system calls of UNIX (fcntl, seek, stat, opendir, readdir)

#include <stdio.h>

#include <fcntl.h>

#include <unistd.h>

#include <sys/stat.h>

#include <dirent.h>

#include <string.h>

int main() {

int fd;

struct stat st;

struct dirent \*de;

DIR \*dr;

fd = open("example.txt", O\_CREAT | O\_RDWR, 0644);

if (fd < 0) {

perror("open");

return 1;

}

write(fd, "Hello, UNIX I/O!\n", 17);

int flags = fcntl(fd, F\_GETFL);

printf("File descriptor flags: %d\n", flags);

lseek(fd, 0, SEEK\_END);

write(fd, "Appended with lseek.\n", 22);

if (stat("example.txt", &st) == 0) {

printf("File Size: %ld bytes\n", st.st\_size);

printf("File Permissions: %o\n", st.st\_mode & 0777);

} else {

perror("stat");

}

close(fd);

dr = opendir(".");

if (dr == NULL) {

perror("opendir");

return 1;

}

printf("\nFiles in current directory:\n");

while ((de = readdir(dr)) != NULL) {

printf("%s\n", de->d\_name);

}

closedir(dr);

return 0;

}