[rename() system call implementation]

Implementing the rename() System Call in C

Introduction

In this project, we demonstrate the use of the rename() system call in the C programming language.The rename() function is a standard library function defined in <stdio.h> and is used to change the name of a file or directory. This system call interacts directly with the filesystem, allowing programs to manage files dynamically. In this documentation, we cover the objectives, environment setup,implementation process, and outcomes of the file renaming operation.

Objectives

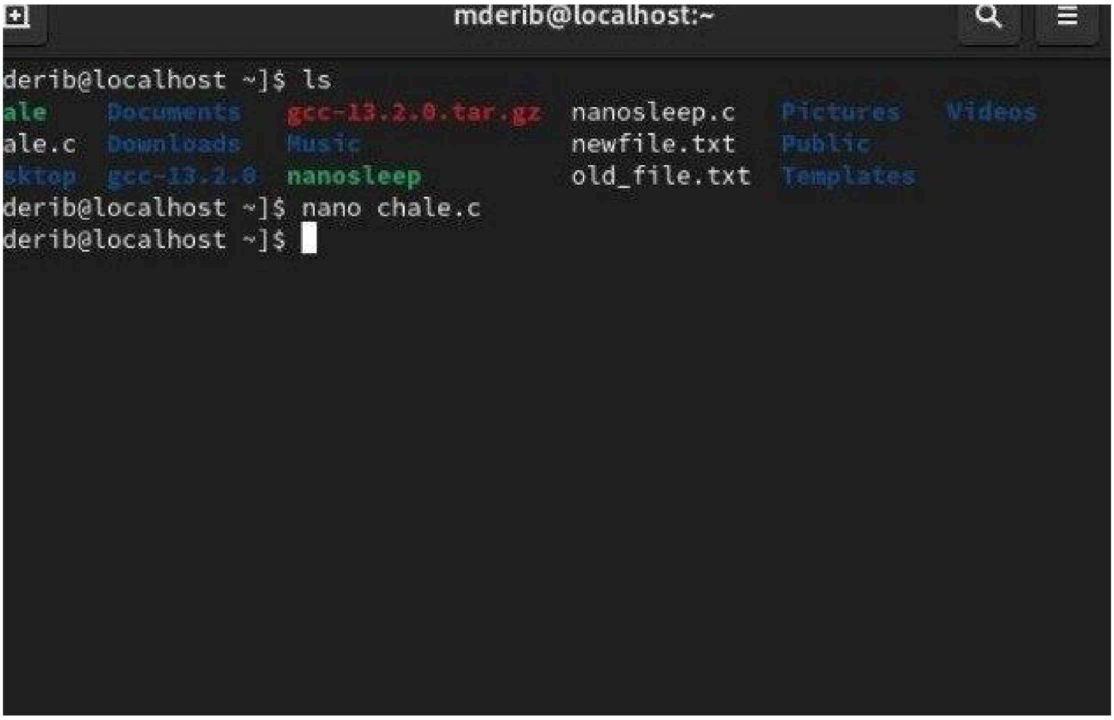
Understand and implement the rename() system call in C Create a C file that demonstrates file renaming functionality Compile, run, and test the program on a Linux terminal Verify the renaming operation using basic terminal commands.

Tools and Environment

- Operating System: Linux (Lubuntu)
- Compiler: GCC (GNU Compiler Collection)
- Editor: nano
- Terminal Commands Used: nano, gcc, ./a.out, ls

Implementation Steps

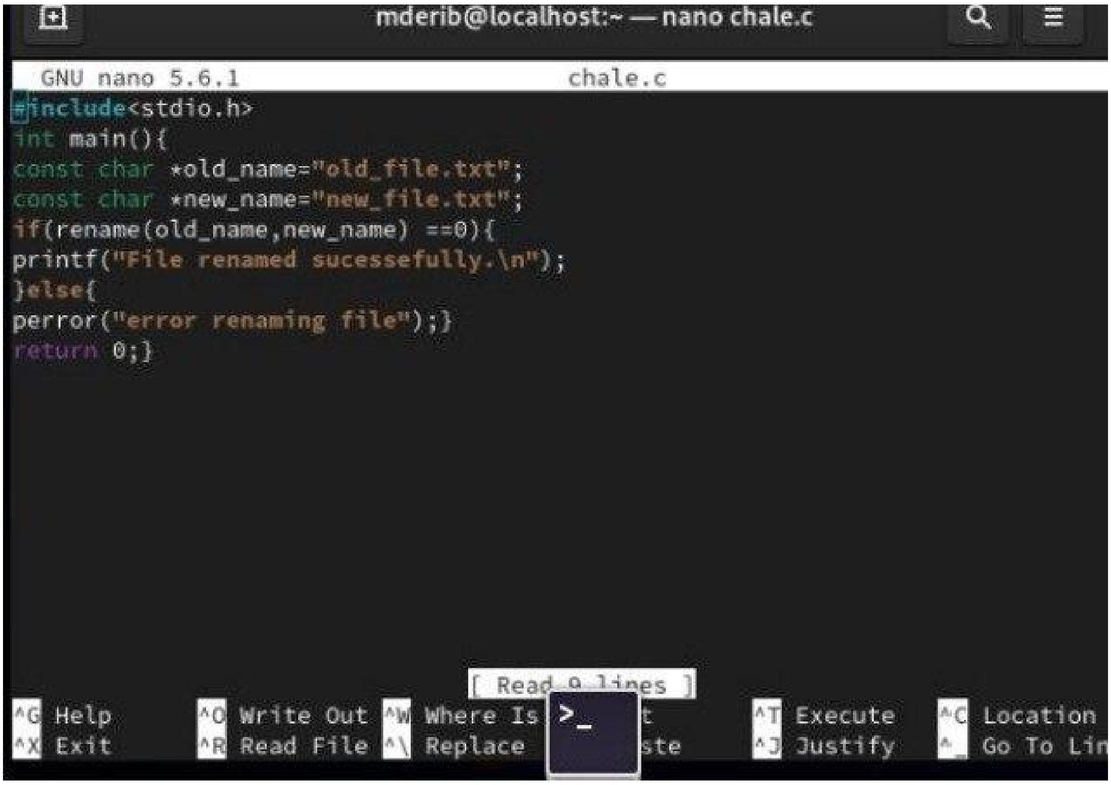
Creating the C File
Using the nano text editor, we created a file named chale.c by typing:
nano chale.c



```
derib@localhost ~]$ ls
ale     Documents    gcc-13.2.0.tar.gz  nanosleep.c    Pictures   Videos
ale.c   Downloads    Music              newfile.txt    Public
sktop   gcc-13.2.0   nanosleep          old_file.txt   Templates
derib@localhost ~]$ nano chale.c
derib@localhost ~]$ 
```

Writing the Program

The following code was written inside chale.c:



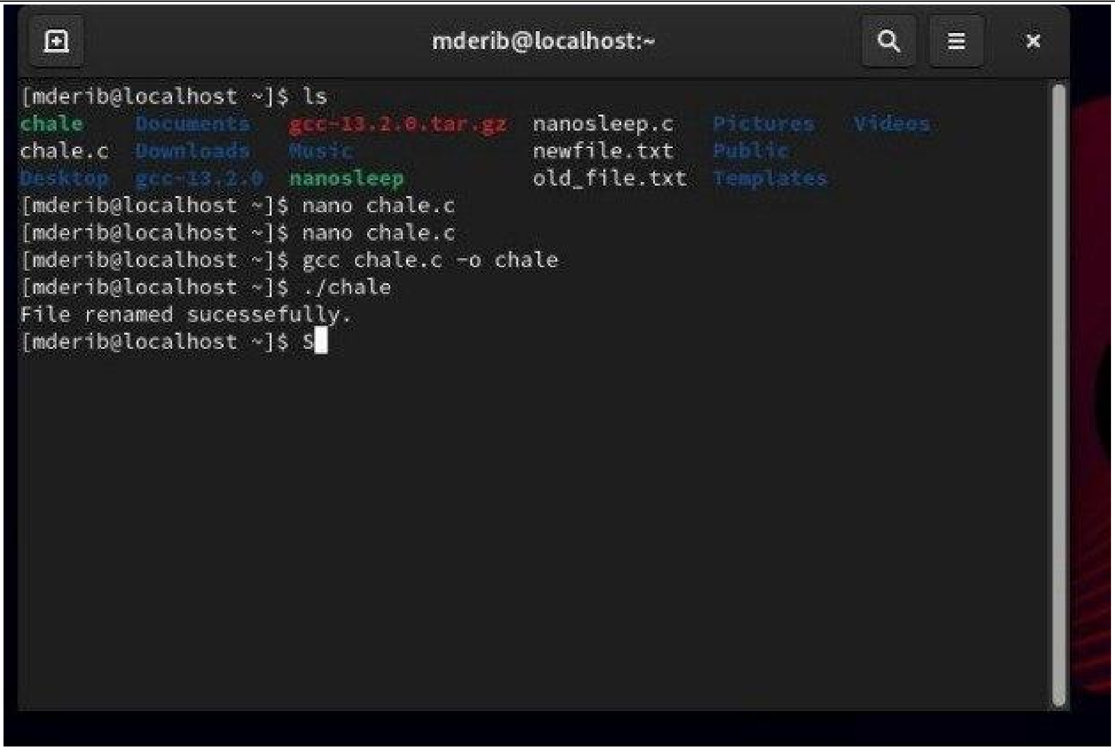
```
mderib@localhost:~ — nano chale.c

GNU nano 5.6.1                        chale.c
#include<stdio.h>
int main(){
const char *old_name="old_file.txt";
const char *new_name="new_file.txt";
if(rename(old_name,new_name) ==0){
printf("File renamed sucessefully.\n");
}else{
perror("error renaming file");}
return 0;}

                         [ Read 9 lines ]
^G Help       ^O Write Out  ^W Where Is      t        ^T Execute    ^C Location
^X Exit       ^R Read File  ^\ Replace       ste      ^J Justify    ^_ Go To Lin
```

```
#include <stdio.h>

    int main() {
        const char *old_name = "old_file.txt";

          const char *new_name = "new_file.txt";

  if (rename(old_name, new_name) == 0) {

        printf("File renamed successfully.\n");
}
   else {

perror("Error renaming file");
}

return 0;
}
```

* rename() attempts to change the name from oldfile.txt to newfile.txt.If successful, a success message is printed.If there’s an error (e.g., file not found), perror() displays the reason.

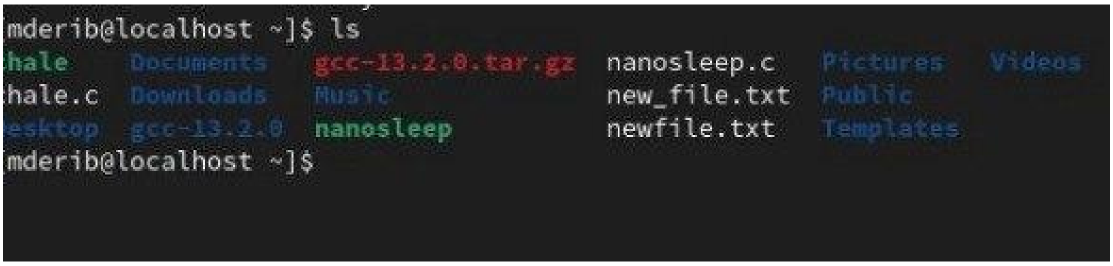
Compiling and Running the Program

We compiled the program using:



```
[mderib@localhost ~]$ ls
chale     Documents   gcc-13.2.0.tar.gz  nanosleep.c   Pictures   Videos
chale.c   Downloads   Music              newfile.txt   Public
Desktop   gcc-13.2.0  nanosleep          old_file.txt  Templates
[mderib@localhost ~]$ nano chale.c
[mderib@localhost ~]$ nano chale.c
[mderib@localhost ~]$ gcc chale.c -o chale
[mderib@localhost ~]$ ./chale
File renamed sucessefully.
[mderib@localhost ~]$ $
```

Verifying the File Renaming



```
mderib@localhost ~]$ ls
hale     Documents   gcc-13.2.0.tar.gz  nanosleep.c   Pictures   Videos
hale.c   Downloads   Music              new_file.txt  Public
esktop   gcc-13.2.0  nanosleep          newfile.txt   Templates
mderib@localhost ~]$
```

This confirmed that the file renaming operation was successful