

Real Time Systems, January 2024

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Implementation of a program involving file and directory related system calls

Opened: Wednesday, 6 March 2024, 12:00 AM

Due: Wednesday, 13 March 2024, 10:59 PM

✓ Done

Write a C program, say **secure_file.c**, which can be used to withdraw **read** permissions from the "**group**" and "**others**" of all the **normal files** having a particular extension (say **.c**, **.txt**, etc.) in a given directory, as described below.

Let the program be compiled into the executable file **secure_file**.

The program should be executed as "**secure_file <dir_name> <extn>**", where, **dir_name** is the name of the directory which should be explored and **extn** is the extension string that is to be searched for in the names of the all the normal file contained in that directory.

Example

Say the contents of the current working directory (as displayed by the command "**\$ls -lR .**" is as given below.

```
$ls -lR .
```

```
..:
```

```
total 20
```

```
drwxr-xr-x 4 root root 4096 Feb 24 12:46 btech
```

```
-rwxr-xr-x 1 root root 8920 Feb 24 12:19 secure_file
```

```
-rw-r--r-- 1 root root 1678 Feb 24 12:19 secure_file.c
```

```
./btech:
```

```
total 12
```

```
-rw-r--r-- 1 root root 1678 Feb 24 12:46 f.txt
```

```
drwxr-xr-x 2 root root 4096 Feb 24 12:22 sem1
```

```
drwxr-xr-x 2 root root 4096 Feb 24 12:23 sem2
```

```
./btech/sem1:
```

```
total 12
```

```
-rw-r--r-- 1 root root 1678 Feb 24 12:22 f1.c
```

```
-rw-r--r-- 1 root root 1678 Feb 24 12:22 f1.tc
```

```
-rw-r--r-- 1 root root 1678 Feb 24 12:22 f1.txt
```

```
./btech/sem2:
```

```
total 8
```

```
-rw-r--r-- 1 root root 1678 Feb 24 12:23 f2.txt
```

```
-rw-r--r-- 1 root root 1678 Feb 24 12:23 f3.txt
```

Please note that the current directory has a subdirectory **btech**, which again contains 2 subdirectories **sem1** and **sem2**.

If the program **secure_file** is executed as "**./securefile btech txt**", then all the files, appearing somewhere in the directory **btech**, whose extension is "**.txt**" should be modified. That is, read permission from the "**group**" of the files and "**others**" should be withdrawn from those files. The command "**ls -lR .**", now, should show the following output.

```
$ls -lR .
```

```
..:
```

```
total 20
```

```
drwxr-xr-x 4 root root 4096 Feb 24 12:46 btech
```

```
-rwxr-xr-x 1 root root 8920 Feb 24 12:19 secure_file
```

```
-rw-r--r-- 1 root root 1678 Feb 24 12:19 secure_file.c
```

```
./btech:
```

```
total 12
```

```
-rw----- 1 root root 1678 Feb 24 12:46 f.txt
drwxr-xr-x 2 root root 4096 Feb 24 12:22 sem1
drwxr-xr-x 2 root root 4096 Feb 24 12:23 sem2
```

./btech/sem1:

total 12

```
-rw-r--r-- 1 root root 1678 Feb 24 12:22 f1.c
-rw-r--r-- 1 root root 1678 Feb 24 12:22 f1.tc
-rw----- 1 root root 1678 Feb 24 12:22 f1.txt
```

./btech/sem2:


total 8

```
-rw-r--r-- 1 root root 1678 Feb 24 12:23 f2.txt
-rw----- 1 root root 1678 Feb 24 12:23 f3.txt
```

As and when necessary read the manual pages for the file and directory related system calls listed in the above page.

Your program must be well documented and should print appropriate error messages!

Submission status

Attempt number	This is attempt 1.		
Submission status	Submitted for grading		
Grading status	Not graded		
Time remaining	Assignment was submitted 21 hours 11 mins early		
Last modified	Wednesday, 13 March 2024, 1:47 AM		
File submissions	 secure_file.c	13 March 2024, 1:47 AM	
Submission comments	▶ Comments (0).		

◀ Two ways in which a file can be viewed!

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