



## **Operating System**

### **Lab 04 Tasks**

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**Q1.**

You are tasked with changing the access permissions of file name **LINUXOS** according to the following requirements by using **both methods**.

User (Owner): Full permissions (read, write, and execute).

Group: Read and write permissions.

Others: Read permission only. (02 Marks)

**Note:** Include screenshots, where required to illustrate your explanation

**Solution:**

To change the access permissions of file **LINUXOS**, I'm using following methods:

```
[root@localhost ~]# cat > LINUXOS
I'm Dua Amir and this is my file of LINUX operating System.
[root@localhost ~]# ls
bench.py  D1  hello.c  LINUXOS
[root@localhost ~]#
```

**Symbolic method:**

```
[root@localhost ~]# chmod u+rwx LINUXOS
[root@localhost ~]# chmod g+rw LINUXOS
[root@localhost ~]# chmod o+r LINUXOS
[root@localhost ~]# ls -l LINUXOS
-rwxrw-r-- 1 root root 59 Sep  7 13:16 LINUXOS
[root@localhost ~]#
```

**Numeric method:**

```
[root@localhost ~]# chmod 764 LINUXOS
[root@localhost ~]# ls -l LINUXOS
-rwxrw-r-- 1 root root 59 Sep  7 13:16 LINUXOS
[root@localhost ~]#
```

**Q2.**

Create a directory called lab4 and create three files say quiz, report and cprogram inside the directory. Now try to set the following rights;

-rw-r--r-- quiz

-rw-rw-r-- report

-rwxrwx-x cprogram

(02 Marks)

**Note:** Include screenshots, where required to illustrate your explanation.

**Solution:**

```
[root@localhost ~]# mkdir lab4
[root@localhost ~]# ls
bench.py D1 hello.c lab4 LINUXOS
[root@localhost ~]# cd lab4
[root@localhost lab4]# touch quiz
[root@localhost lab4]# touch report
[root@localhost lab4]# touch cprogram
[root@localhost lab4]# ls
cprogram quiz report
[root@localhost lab4]# chmod 644 quiz
[root@localhost lab4]# chmod 664 report
[root@localhost lab4]# chmod 771 cprogram
[root@localhost lab4]# ls -l
total 0
-rwxrwx--x 1 root root 0 Sep  7 13:26 cprogram
-rw-r--r-- 1 root root 0 Sep  7 13:26 quiz
-rw-rw-r-- 1 root root 0 Sep  7 13:26 report
[root@localhost lab4]#
```

**Q3.**

You are managing a project where you need to organize and summarize information for a class assignment. On your Linux system, you have two directories named OSLAB and OSTheory. In the OSLAB directory, your task is to create three text files: overview.txt with the text "Overview of Operating Systems," details.txt with the text "Detailed study of key OS concepts," and applications.txt with the text "Applications and examples of OS concepts." Once these files are created and populated, you need to combine their contents into a single file named Combinedtext. Now display the data in a Combinedtext.

**Note:** Include screenshots, where required to illustrate your explanation. (02 Marks)

**Solution:**

```
[root@localhost ~]# mkdir OSLAB
[root@localhost ~]# mkdir OSTheory
[root@localhost ~]# ls
bench.py D1 hello.c lab4 LINUXOS OSLAB OSTheory
[root@localhost ~]# cd OSLAB
[root@localhost OSLAB]# cat > overview.txt
Overview of Operating Systems.^C
[root@localhost OSLAB]# cat > details.txt
Detailed study of key OS concepts.^C
[root@localhost OSLAB]# cat > applications.txt
Applications and examples of OS concepts.^C
[root@localhost OSLAB]# ls
applications.txt details.txt overview.txt
[root@localhost OSLAB]# cat overview.txt details.txt applications.txt >Combinedtext
[root@localhost OSLAB]# cat Combinedtext
Overview of Operating Systems.Detailed study of key OS concepts.Applications and
examples of OS concepts.[root@localhost OSLAB]#
```

**Q4.**

Directory A contains at least two files named "FinalTerm" and "MidTerm". Directory B contains at least two files named "OSTheory" and "OSLAB".

Your task involves the following steps:

Move the "MidTerm" file from the existing Directory to the Directory where the OSLAB file exists and Rename it with TASK.

**Note:** Include screenshots, where required to illustrate your explanation. (02 Marks)

**Solution:**

```
[root@localhost ~]# mkdir A
[root@localhost ~]# mkdir B
[root@localhost ~]# ls
A B bench.py D1 hello.c lab4 LINUXOS OSLAB OSTheory
[root@localhost ~]# cd A
[root@localhost A]# touch FinalTerm
[root@localhost A]# touch MidTerm
[root@localhost A]# ls
FinalTerm MidTerm
[root@localhost A]# cd ..
[root@localhost ~]# cd B
[root@localhost B]# touch OSTheory
[root@localhost B]# touch OSLAB
[root@localhost B]# ls
OSLAB OSTheory
[root@localhost B]# cd
[root@localhost ~]# mv /root/A/MidTerm /root/B/Task
[root@localhost ~]# cd B
[root@localhost B]# ls
OSLAB OSTheory Task
[root@localhost B]# cd ..
[root@localhost ~]# cd A
[root@localhost A]# ls
FinalTerm
[root@localhost A]#
```

**Q5.**

As part of your coursework, you have been assigned a project to develop a simple application on a Linux system. Your task is to write a C++ program that draws a circle on the screen. Describe the steps you would follow to complete this task, including the setup of the necessary library, writing the C++ code, compiling the program, and running it to display the circle. What commands and procedures would you use to accomplish this?

**Note:** Include screenshots, where required to illustrate your explanation. (02 Marks)

**Solution:**

```

Loading...

Welcome to Fedora 33 (riscv64)

[root@localhost ~]# nano DrawCircle.cpp

```

GNU nano 5.3		DrawCircle.cpp		Modified	
# include <iostream>					
# include <cmath>					
using namespace std;					
int main (){					
int radius = 9;					
int center_x=radius, center_y=radius;					
double aspect_ratio=1.9;					
for(int y=0; y<=2*radius; y++){					
for(int x=0; x<=2*radius*aspect_ratio; x++){					
double dist=sqrt(pow((x/aspect_ratio)- center_x,2) +pow(y - center_y,2));					
if(fabs(dist-radius) < 0.2){					
cout<<"*";					
}					
else {					
cout<<" ";					
}					
}					
cout<<endl;					
}					
return 0;					
}					

^G Help	^O Write Out	^W Where Is	^K Cut	^T Execute	^C Location
^X Exit	^R Read File	^_ Replace	^U Paste	^J Justify	^_ Go To Line

Exit

```

Save modified buffer?
Y Yes
N No      ^C Cancel

```

Yes

```

File Name to Write: DrawCircle.cpp

```

^G Help	M-D DOS Format	M-A Append	M-B Backup File
^C Cancel	M-M Mac Format	M-P Prepend	^T Browse

Enter

[illegible]