

# **Assignment Report**

## **On**

### **Design of Operating System (CSE 4049)**

**Submitted by**

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**Reg. No. : 2141019333**  
**Branch : CSE**  
**Semester : 5<sup>th</sup> Sem**  
**Section : 2141009( CSE-I)**  
**Session : 2023-2024**  
**Admission Batch : 2021**



**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**  
**FACULTY OF ENGINEERING & TECHNOLOGY (ITER)**  
**SIKSHA 'O' ANUSANDHAN DEEMED TO BE UNIVERSITY**  
**BHUBANESWAR, ODISHA – 751030**

# CONTENT

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**Laboratory Assignment #No. 1**  
**On**  
**Design of Operating System (CSE 4049)**

**Submitted by**

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### **Question 1:**

Write the commands to create the following directory hierarchy:

-> DOS\_Regdno →DOSass1→dir1

### **Solution :**

#### **Command :**

```
mkdir DOS_2141019333
```

```
cd DOS_2141019333
```

```
mkdir DOSass1
```

```
cd DOSass1
```

```
mkdir dir1
```

#### **Output :**

```
aks_1299@Ghost:~/2141019333/DOS_2141019333/DOS_Assignment1$ mkdir DOS_2141019333
aks_1299@Ghost:~/2141019333/DOS_2141019333/DOS_Assignment1$ cd DOS_2141019333
aks_1299@Ghost:~/2141019333/DOS_2141019333/DOS_Assignment1/DOS_2141019333$ mkdir DOSass1
aks_1299@Ghost:~/2141019333/DOS_2141019333/DOS_Assignment1/DOS_2141019333$ cd DOSass1
aks_1299@Ghost:~/2141019333/DOS_2141019333/DOS_Assignment1/DOS_2141019333/DOSass1$ mkdir dir1
aks_1299@Ghost:~/2141019333/DOS_2141019333/DOS_Assignment1/DOS_2141019333/DOSass1$
```

**Question 2:** Write the commands to create another directory with name dir2 in directory DOSass1 and make dir2 as the current working directory.

### **Solution :**

#### **Command :**

```
mkdir dir2
```

```
cd dir2
```

```
pwd
```

#### **Output :**

```
aks_1299@Ghost:~/2141019333/DOS_2141019333/DOS_Assignment1/DOS_2141019333/DOSAss1$ mkdir dir2
aks_1299@Ghost:~/2141019333/DOS_2141019333/DOS_Assignment1/DOS_2141019333/DOSAss1$ cd dir2
aks_1299@Ghost:~/2141019333/DOS_2141019333/DOS_Assignment1/DOS_2141019333/DOSAss1/dir2$ pwd
/home/aks_1299/2141019333/DOS_2141019333/DOS_Assignment1/DOS_2141019333/DOSAss1/dir2
aks_1299@Ghost:~/2141019333/DOS_2141019333/DOS_Assignment1/DOS_2141019333/DOSAss1/dir2$
```

**Question 3:** Write the command to delete the directory dir2 , when DOS\_Regdno will be the current working directory.

### **Solution :**

#### **Command :**

cd ..

cd ..

rmdir DOSAss1/dir2

cd DOSAss1

ls

#### **Output :**

```
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSAss1/dir2$ cd ..
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSAss1$ cd ..
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334$ rmdir DOSAss1/dir2
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334$ cd DOSAss1
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSAss1$ ls
dir1
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSAss1$
```

**Question 4:** Write the command to create a file named as file1 using cat command inside dir1. Write your name, regdno, branch, semester and section in file1. Then display the content of the file.

### **Solution :**

#### **Command :**

cd dir1

cat > file1

Name : Nandita Singh

Regd No.: 2141019333

Branch : CSE

Semester : 5<sup>th</sup>

Section : I

cat file 1

### Output :

```
aks_1299@Ghost:~/2141019333/DOS_2141019333/DOS_Assignment1/DOS_2141019333/DOSAss1/dir1$ cat > filename
Name : Nandita Singh
regd : 2141019333
Branch : CSE
sem : 5th
sec : I
aks_1299@Ghost:~/2141019333/DOS_2141019333/DOS_Assignment1/DOS_2141019333/DOSAss1/dir1$ cat filename
Name : Nandita Singh
regd : 2141019333
Branch : CSE
sem : 5th
sec : I
aks_1299@Ghost:~/2141019333/DOS_2141019333/DOS_Assignment1/DOS_2141019333/DOSAss1/dir1$
```

**Question 5:** Write the command to create a file named as file2 using cat command inside dir1. Write your semester wise SGPA in file2.

### Solution :

#### Command :

cat >file2

SGPA:

7.13

8.13

8.92

8.82

#### Output :

```
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSAss1/dir1$ cat > file2
SGPA:
7.13
8.13
8.92
8.82
^C
```

**Question 6:** Create a file named as file3 storing content of file1 merged with content of file2.

**Solution :**

**Command :**

```
cat > file1 file2 >> file3
```

```
cat file3
```

**Output :**

```
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ cat > file1 file2 >> file3
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ cat file3
SGPA:
7.13
8.13
8.92
8.82
```

**Question 7:** Write the command to rename file2 as markinfo.

**Solution :**

**Command :**

```
mv file2 markinfo
```

```
ls
```

**Output :**

```
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ mv file2 markinfo
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ ls
file1  file3  markinfo
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$
```

**Question 8:** Write the command to copy the content of file1 to reginfo.

**Solution :**

**Command :**

```
cp file1 reginfo
```

```
ls
```

### Output :

```
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ cp file1 reginfo
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ ls
file1 file3 markinfo reginfo
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$
```

**Question 9:** Write the command to display the inode values of file1,markinfo, reginfo.

### Solution :

#### Command :

ls -li file1

ls

#### Output :

```
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ ls -li file1
2379469 file1
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ ls
file1 file3 markinfo reginfo
```

**Question 10:** Write the command to delete file1.

### Solution :

#### Command :

rm file1

ls

#### Output :

```
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ rm file1
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ ls
file3 markinfo reginfo
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$
```

**Question 11:** Write the command to count the number of lines, words, characters in markinfo.

### Solution :

#### Command :

wc markinfo



### Output :

```
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ wc markinfo
5 5 26 markinfo
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$
```

**Question 12:** Write the command to create a file named as Personalinfo inside dir1. Write your name, regno, address in the file.

### Solution :

#### Command :

cat > personalinfo

Name: Nandita Singh

Redgno:2141019333

Address: Ranchi

Branch: CSE

ranchi

#### Output :

```
aks_1299@Ghost:~/2141019333/DOS_2141019333/DOS_Assignment1/DOS_2141019333/DOSAss1/dir1$ cat > personalinfo
Name : Nandita Singh
regd : 2141019333
Address: Ranchi
CSE
ranchi
```

**Question 13:** Write the command to display the content of markinfo in reverse order.

### Solution :

#### Command :

sort -r markinfo

#### Output :

```
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ sort -r markinfo
SGPA:
8.92
8.82
8.13
7.13
```

**Question 14:** Check the output of the following command:

cmp reginfo personalinfo

diff reginfo personalinfo

**Solution :**

**Command :**

cmp reginfo personalinfo

diff reginfo personalinfo

**Output :**

```
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ cmp reginfo personalinfo
cmp: EOF on reginfo which is empty
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ diff reginfo personalinfo
0a1,3
> Name : Aman Kumar Singh
> Regd No.: 2141019334
> Address: JSR
```

**Question 15:** Write a command to count the number of files in the current working directory and display that number.

**Solution :**

**Command :**

ls | wc -l

**Output :**

```
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ ls | wc -l
4
```

**Question 16:** Write a command to include all the file names present in a current working directory in a file named as filelist without causing filelist to be included in the names.

**Solution :**

**Command :**

ls > filelist

cat filelist

ls | grep -v filelist > filelist

cat filelist

**Output :**

```
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ ls > filelist
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ cat filelist
file3
filelist
markinfo
personalinfo
reginfo
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ ls | grep -v filelist > filelist
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ cat filelist
file3
markinfo
personalinfo
reginfo
```

**Question 17:** Write a command to give write permission to all the users of file reginfo.

**Solution :**

**Command :**

chmod a+w reginfo

ls -l reginfo

**Output :**

```
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ chmod a+w reginfo
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ ls -l reginfo
-rw-rw-rw- 1 aks_1299 aks_1299 0 Nov  7 23:49 reginfo
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$
```

**Question 18:** Write a command to discard write permission from group users of file reginfo.

**Solution :**

**Command :**

chmod g-w reginfo

ls -l reginfo

**Output :**

```
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ chmod g-w reginfo
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ ls -l reginfo
-rw-r--rw- 1 aks_1299 aks_1299 0 Nov  7 23:49 reginfo
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$
```

**Question 19:** Write the command to set rwx permissions for all the users of file reginfo.

## **Solution :**

### **Command :**

chmod a+rxw reginfo

ls -l reginfo

### **Output :**

```
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ chmod a+rxw reginfo
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ ls -l reginfo
-rwxrwxrwx 1 aks_1299 aks_1299 0 Nov  7 23:49 reginfo
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$
```

## **Question 20:** Differentiate between following commands:

date; pwd

date; pwd | wc -l

(date; pwd) | wc -l

## **Solution :**

### **Command :**

date; pwd

date; pwd | wc -l

(date; pwd) | wc -l

### **Output :**

```
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ date; pwd
Wednesday 08 November 2023 12:32:25 AM IST
/home/aks_1299/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ date; pwd | wc -l
Wednesday 08 November 2023 12:32:32 AM IST
1
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/DOSass1/dir1$ (date; pwd) | wc -l
2
```

## **Question 21:** Interpret the output of the following commands:

echo \*

echo \*\*\*

echo '\*\*\*'

echo \\*\*\*

echo \\*\\*\\*

echo \*/\*

```
echo Don't do this
echo "Don't do this" (Quotes of one kind protect quotes of other kind)
echo Hello # world
echo ` Hello # world`
echo ' Hello # world'
echo date
echo 'date'
echo "date"
echo `date`
```

## **Solution :**

### **Command :**

```
echo *
echo ***
echo '***'
echo \***
echo \*\*\/
echo */*
echo Don't do this
echo "Don't do this" (Quotes of one kind protect quotes of other kind)
echo Hello # world
echo ` Hello # world`
echo ' Hello # world'
echo date
echo 'date'
echo "date"
echo `date`
```

### **Output :**

```
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/D0Sass1/dir1$ echo *
file3 filelist markinfo personalinfo reginfo
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/D0Sass1/dir1$ echo ***
file3 filelist markinfo personalinfo reginfo
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/D0Sass1/dir1$ echo '***'
***
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/D0Sass1/dir1$ echo \***
***
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/D0Sass1/dir1$ echo \*\*\*
***
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/D0Sass1/dir1$ echo */*
*/*
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/D0Sass1/dir1$ echo Dont do this
Dont do this
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/D0Sass1/dir1$ echo "Dont do this"
Dont do this
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/D0Sass1/dir1$ echo Hello # world
Hello
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/D0Sass1/dir1$ echo "Hello # world"
Hello # world
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/D0Sass1/dir1$ echo 'Hello # world'
Hello # world
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/D0Sass1/dir1$ echo date
date
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/D0Sass1/dir1$ echo `date`
date
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/D0Sass1/dir1$ echo "date"
date
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/D0Sass1/dir1$ echo `date`
Wednesday 08 November 2023 12:35:35 AM IST
aks_1299@Ghost:~/2141019334/DOS_2141019334/DOS_Assignment1/DOS_2141019334/D0Sass1/dir1$
```