<div align="center">

Laboratory Assignment 1

Subject: Design Principles of Operating Systems

Subject code: CSE- 3249

</div>

Assignment 1: Basic Commands in Unix Operating System.

Objective of this <u>Assignment</u>:

- To study the basic commands such as who, who am i, date, cal, pwd, man, mkdir, cd, rmdir, cat, mv, cp, rm, wc, sort, head, tail, cmp, diff, ls, chmod, grep, echo for accessing files and directories.

1) Write the commands to create the following directory hirarchy:
-> DOS_Regdno ->DOSass1->dir1

```
iteradmin@D001-38:~$ cd Desktop
iteradmin@D001-38:~/Desktop$ mkdir -p DOS_2341010085/DOSass1/dir1
```

2) Write the commands to create another directory with name dir2 in directory DOSass1 and

make dir2 as the current working directory.

```
iteradmin@D001-38:~/Desktop$ cd DOS_2341010085/DOSass1
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1$ mkdir dir2
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1$ cd dir2
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir2$ pwd
/home/iteradmin/Desktop/DOS_2341010085/DOSass1/dir2
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir2$ █
```

3) Write the command to delete the directory dir2 , when DOS_Regdno will be the current working directory.

```
iteradmin@D001-38:~/Desktop/DOS_2341010085$ rmdir DOSass1/dir2
```

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.

```
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ cat > file1
Name: Swayam Swarup Jethi
RedgNo: 2341010085
Branch: CSE
Semester: 5th
Section: 2C1
^C
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ cat file1
Name: Swayam Swarup Jethi
RedgNo: 2341010085
Branch: CSE
Semester: 5th
Section: 2C1
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$
```

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

```
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ cat > file2
Sem-Wise-SGPA:
1st-Sem:8.2
2nd-Sem:9.2
3rd-Sem:8.7
4th-Sem:8.69
^C
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$
```

6) Create a file named as file3 storing content of file1 merged with content of file2.

```
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ cat file1 file2 > file3
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ cat file3
Name: Swayam Swarup Jethi
RedgNo: 2341010085
Branch: CSE
Semester: 5th
Section: 2C1
Sem-Wise-SGPA:
1st-Sem:8.2
2nd-Sem:9.2
3rd-Sem:8.7
4th-Sem:8.69
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$
```

7) Write the command to rename file2 as markinfo.

```
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ mv file2 markinfo
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ ls
file1  file3  markinfo
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$
```

8) Write the command to copy the content of file1 to reginfo.

```
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ cp file1 reginfo
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ cat reginfo
Name: Swayam Swarup Jethi
RedgNo: 2341010085
Branch: CSE
Semester: 5th
Section: 2C1
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$
```

9) Write the command to display the inode values of file1,markinfo, reginfo.

```
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ ls -i file1 markinfo reginfo
12583786 file1  12583799 markinfo  12583810 reginfo
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$
```

10) Write the command to delete file1.

```
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ rm file1
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ ls
file3  markinfo  reginfo
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$
```

11) Write the command to count the number of lines, words, characters in markinfo.

```
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ wc -l < markinfo
5
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ wc -w < markinfo
5
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ wc -c < markinfo
65
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$
```

12) Write the command to create a file named as Personalinfo inside dir1. Write your name, regdno, address in the file.

```
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ cat > PersonalInfo
Name: Swayam Swarup Jethi
RegdNo: 2341010085
Address:
Plot No-42,
Uttam Nagar,Bhubaneswar
```

13) Write the command to display the content of markinfo in reverse order.

```
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ tac markinfo
4th-Sem:8.69
3rd-Sem:8.7
2nd-Sem:9.2
1st-Sem:8.2
Sem-Wise-SGPA:
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ █
```

14) Check the output of the following command:
   cmp reginfo personalinfo
   diff reginfo personalinfo

```
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ cmp reginfo PersonalInfo
reginfo PersonalInfo differ: byte 29, line 2
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ diff reginfo PersonalInfo
2,5c2,5
< RedgNo: 2341010085
< Branch: CSE
< Semester: 5th
< Section: 2C1
---
> RegdNo: 2341010085
> Address:
> Plot No-42,
> Uttam Nagar,Bhubaneswar
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ █
```

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

```
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ ls -1 | wc -l
4
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$
```

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.

```
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ ls -1 | grep -v "filelist" > filelist
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ cat filelist
file3
markinfo
PersonalInfo
reginfo
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ █
```

17) Write a command to give write permission to all the users of file reginfo.

```
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ chmod a+w reginfo
```

18) Write a command to discard write permission from group users group users of file reginfo.

```
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ chmod g-w reginfo
```

19) Write the command to set rwx permissions for all the users of file reginfo.

```
iteradmin@D001-38:~/Desktop/DOS_2341010085/DOSass1/dir1$ chmod a+rwx reginfo
```

20) Differentiate between following commands:

       date; pwd

       date; pwd | wc -l

       (date; pwd) | wc -l

```
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$ date; pwd
Thu Oct 16 02:26:38 AM IST 2025
/home/swayam/DOS_2341010085/DOSass1/dir1
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$ date;pwd | wc -l
Thu Oct 16 02:27:02 AM IST 2025
1
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$ (date;pwd)| wc -l
2
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$
```

21) Interpret the output of the following commmands:

       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`

```
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$ echo *
file3 filelist markinfo Personalinfo reginfo
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$ echo ***
file3 filelist markinfo Personalinfo reginfo
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$ echo '***'
***
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$ echo \***
***
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$ echo \*\*\*
***
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$ echo */*
*/*
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$ echo Don't do this
> ^C
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$ echo "Don't do this"
Don't do this
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$ echo Hello # world
Hello
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$ echo "Hello # world"
Hello # world
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$ echo 'Hello # world'
Hello # world
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$ echo date
date
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$ echo 'date'
date
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$ echo "date"
date
swayam@ubuntu-box:~/DOS_2341010085/DOSass1/dir1$ echo `date`
Thu Oct 16 02:36:59 AM IST 2025
```