

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

**Submitted by**

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**Semester : 5<sup>th</sup>**  
**Section : 15 ('O')**  
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**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**  
**FACULTY OF ENGINEERING & TECHNOLOGY (ITER)**  
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**BHUBANESWAR, ODISHA – 751030**

# CONTENT

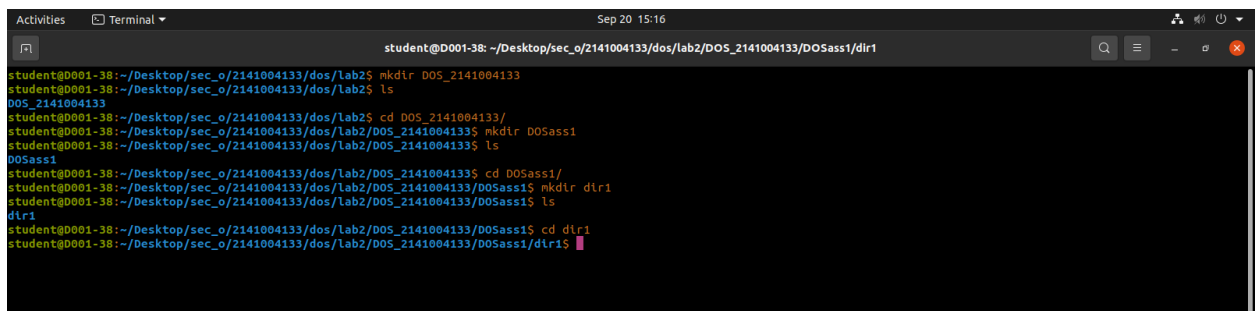
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## Assignment 1: Basic Commands in Unix Operating System.

### Objective of this Assignment:

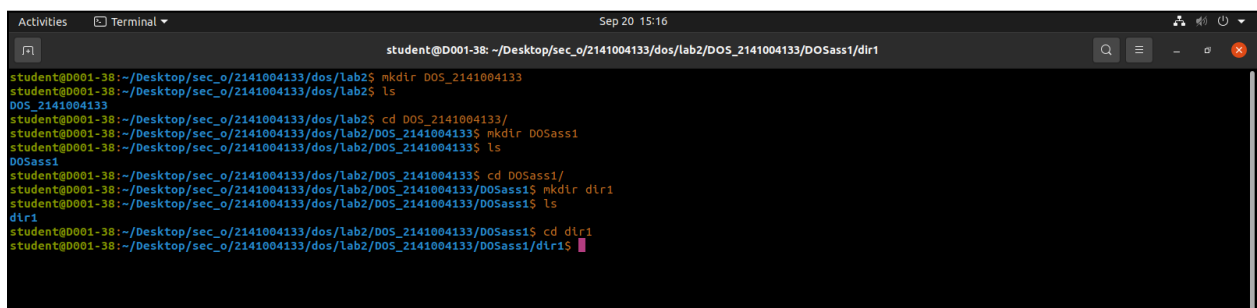
- To study the basic commands such as who, who am i, date, cal, pwd, man, mkdir, cd, rmdir, cat, mv, cp, rm, wc, sort, head, tail, cmp, diff, ls, chmod, grep, echo for accessing files and directories.

1) Write the commands to create the following directory hierarchy: -> DOS\_Regdno -> DOSass1 -> dir1



```
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2$ mkdir DOS_2141004133
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2$ ls
DOS_2141004133
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2$ cd DOS_2141004133/
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133$ mkdir DOSass1
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133$ ls
DOSass1
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133$ cd DOSass1/
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1$ mkdir dir1
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1$ ls
dir1
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1$ cd dir1
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$
```

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



```
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2$ mkdir DOS_2141004133
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2$ ls
DOS_2141004133
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2$ cd DOS_2141004133/
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133$ mkdir DOSass1
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133$ ls
DOSass1
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133$ cd DOSass1/
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1$ mkdir dir1
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1$ ls
dir1
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1$ cd dir1
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$
```

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



```
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133$ pwd
/home/student/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133$ rmdir DOSass1/dir2
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133$ ls DOSass1/
dir1
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133$
```

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.

```
Activities Terminal Sep 20 15:24
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ pwd
/home/student/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ cat > file1
Name: Sourav Chandra Dey
Regd No: 2141004133
Branch: CSE
Semester: 5th
section: 0(15)
^C
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ cat file1
Name: Sourav Chandra Dey
Regd No: 2141004133
Branch: CSE
Semester: 5th
section: 0(15)
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/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.

```
Activities Terminal Sep 20 15:32
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ pwd
/home/student/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ cat > file1
Name: Sourav Chandra Dey
Regd No: 2141004133
Branch: CSE
Semester: 5th
section: 0(15)
^C
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ cat file1
Name: Sourav Chandra Dey
Regd No: 2141004133
Branch: CSE
Semester: 5th
section: 0(15)
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ cat > file2
1st sem: 10
2nd sem: 10
3rd sem: 9.8
4th sem: 9.92
^C
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ cat file
cat: file: No such file or directory
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ cat file2
1st sem: 10
2nd sem: 10
3rd sem: 9.8
4th sem: 9.92
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$
```

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

```
Activities Terminal Sep 20 15:38
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ ls
file1 file2
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ cat file1 file2 > file3
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ cat file3
Name: Sourav Chandra Dey
Regd No: 2141004133
Branch: CSE
Semester: 5th
section: 0(15)
1st sem: 10
2nd sem: 10
3rd sem: 9.8
4th sem: 9.92
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$
```

7) Write the command to rename file2 as markinfo.

```
Activities Terminal Sep 20 15:43
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ mv file2 markinfo
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ ls
file1 file3 markinfo
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$
```

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

```
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ mv file2 markinfo
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ ls
file1 file3 markinfo
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ cp file1 regdinfo
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ ls
file1 file3 markinfo regdinfo
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ cat regdinfo
Name: Sourav Chandra Dey
Regd No: 2141004133
Branch: CSE
Semester: 5th
section: 0(15)
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$
```

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

```
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ ls -li file1 markinfo regdinfo
12861689 -rw-rw-r-- 1 student student 86 Sep 20 15:24 file1
12861693 -rw-rw-r-- 1 student student 51 Sep 20 15:36 markinfo
12861696 -rw-rw-r-- 1 student student 86 Sep 20 15:44 regdinfo
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$
```

10) Write the command to delete file1.

```
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ rm file1
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ ls
file3 markinfo regdinfo
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$
```

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

```
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$ wc markinfo
 4 12 51 markinfo
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$
```

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

```
Open PersonalInfo
~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1
1 Name: Sourav Chandra Dey
2 Reg No: 2141004133
3 Address: Iter, Bh4

student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/D...
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$
cat > PersonalInfo
Name: Sourav Chandra Dey
Reg No: 2141004133
Address: Iter, Bh4
^C
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/DOS_2141004133/DOSass1/dir1$
```

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

```
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$ cat > PersonalInfo
Name: Sourav Chandra Dey
Reg No: 2141004133
Address: Iter, Bh4
^C
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$ tac PersonalInfo
Address: Iter, Bh4
Reg No: 2141004133
Name: Sourav Chandra Dey
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$
```

14) Check the output of the following command:

cmp reginfo personalinfo  
diff reginfo peronalinfo.

```
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$ cmp reginfo PersonalInfo
reginfo PersonalInfo differ: byte 29, line 2
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$ diff reginfo PersonalInfo
2,5c2,3
< Regd No: 2141004133
< Branch: CSE
< Semester: 5th
< section: 0(15)
---
> Reg No: 2141004133
> Address: Iter, Bh4
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$
```

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

```
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$ ls | wc -l
4
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/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.

```
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$ ls | grep -v "filelist" | cat > filelist
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$ cat filelist
file3
markinfo
PersonalInfo
reginfo
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$
```

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

```
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$ ls -l
total 60
-rw-r--r-- 1 student student 38677 Sep 27 15:33 'e distinctions in patterns and input data, so that characters that differ only in case match each other.'
-rw-rw-r-- 1 student student 137 Sep 20 15:37 file3
-rw-rw-r-- 1 student student 37 Sep 27 15:32 filelist
-rw-rw-r-- 1 student student 51 Sep 20 15:36 markinfo
-rw-rw-r-- 1 student student 63 Sep 27 15:01 PersonalInfo
-rw-rw-r-- 1 student student 86 Sep 20 15:44 reginfo
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$ chmod 222 reginfo | ls -l
total 60
-rw-r--r-- 1 student student 38677 Sep 27 15:33 'e distinctions in patterns and input data, so that characters that differ only in case match each other.'
-rw-rw-r-- 1 student student 137 Sep 20 15:37 file3
-rw-rw-r-- 1 student student 37 Sep 27 15:32 filelist
-rw-rw-r-- 1 student student 51 Sep 20 15:36 markinfo
-rw-rw-r-- 1 student student 63 Sep 27 15:01 PersonalInfo
--w--w--w 1 student student 86 Sep 20 15:44 reginfo
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$
```

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

```
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$ ls -l
total 60
-rw-r--r-- 1 student student 38677 Sep 27 15:33 'e distinctions in patterns and input data, so that characters that differ only in case match each other.'
-rw-rw-r-- 1 student student 137 Sep 20 15:37 file3
-rw-rw-r-- 1 student student 37 Sep 27 15:32 filelist
-rw-rw-r-- 1 student student 51 Sep 20 15:36 markInfo
-rw-rw-r-- 1 student student 63 Sep 27 15:01 PersonalInfo
--w---w- 1 student student 86 Sep 20 15:44 reginfo
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$ chmod g-w reginfo | ls -l
total 60
-rw-r--r-- 1 student student 38677 Sep 27 15:33 'e distinctions in patterns and input data, so that characters that differ only in case match each other.'
-rw-rw-r-- 1 student student 137 Sep 20 15:37 file3
-rw-rw-r-- 1 student student 37 Sep 27 15:32 filelist
-rw-rw-r-- 1 student student 51 Sep 20 15:36 markInfo
-rw-rw-r-- 1 student student 63 Sep 27 15:01 PersonalInfo
--w---w- 1 student student 86 Sep 20 15:44 reginfo
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$
```

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

```
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$ ls -l
total 60
-rw-r--r-- 1 student student 38677 Sep 27 15:33 'e distinctions in patterns and input data, so that characters that differ only in case match each other.'
-rw-rw-r-- 1 student student 137 Sep 20 15:37 file3
-rw-rw-r-- 1 student student 37 Sep 27 15:32 filelist
-rw-rw-r-- 1 student student 51 Sep 20 15:36 markInfo
-rw-rw-r-- 1 student student 63 Sep 27 15:01 PersonalInfo
--w---w- 1 student student 86 Sep 20 15:44 reginfo
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$ chmod 777 reginfo | ls -l
total 60
-rw-r--r-- 1 student student 38677 Sep 27 15:33 'e distinctions in patterns and input data, so that characters that differ only in case match each other.'
-rw-rw-r-- 1 student student 137 Sep 20 15:37 file3
-rw-rw-r-- 1 student student 37 Sep 27 15:32 filelist
-rw-rw-r-- 1 student student 51 Sep 20 15:36 markInfo
-rw-rw-r-- 1 student student 63 Sep 27 15:01 PersonalInfo
-rwxrwxrwx 1 student student 86 Sep 20 15:44 reginfo
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$
```

20) Differentiate between following commands:

date; pwd

date; pwd | wc -l

(date; pwd) | wc -l

```
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$ date; pwd
Wednesday 27 September 2023 03:51:51 PM IST
/home/student/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$ date; pwd | wc -l
Wednesday 27 September 2023 03:51:59 PM IST
1
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$ (date; pwd) | wc -l
2
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05Sass1/dir1$
```

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`



```
Activities Terminal Sep 27 16:07
student@D001-38: ~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05ass1/dir1

student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05ass1/dir1$ echo *
file3 filelist markinfo Personalinfo regdinfo
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05ass1/dir1$ echo ***
file3 filelist markinfo Personalinfo regdinfo
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05ass1/dir1$ echo '***'
***
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05ass1/dir1$ echo \***
***
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05ass1/dir1$ echo \*\**
***
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05ass1/dir1$ echo */*
*/*
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05ass1/dir1$ echo Don't do this
> ^C
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05ass1/dir1$ echo "Don't do this"
Don't do this
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05ass1/dir1$ echo Hello # world
Hello
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05ass1/dir1$ echo "Hello # world"
Hello # world
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05ass1/dir1$ echo 'Hello # world'
Hello # world
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05ass1/dir1$ echo date
date
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05ass1/dir1$ echo 'date'
date
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05ass1/dir1$ echo "date"
date
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05ass1/dir1$ echo `date`
date
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05ass1/dir1$ echo 'date'
date
student@D001-38:~/Desktop/sec_o/2141004133/dos/lab2/D05_2141004133/D05ass1/dir1$
```