

## Lab 1: Basic Unix Commands

(NOTE: The lab must be completed on cslinux machine by using remote login. Write down each question before you answer it.)

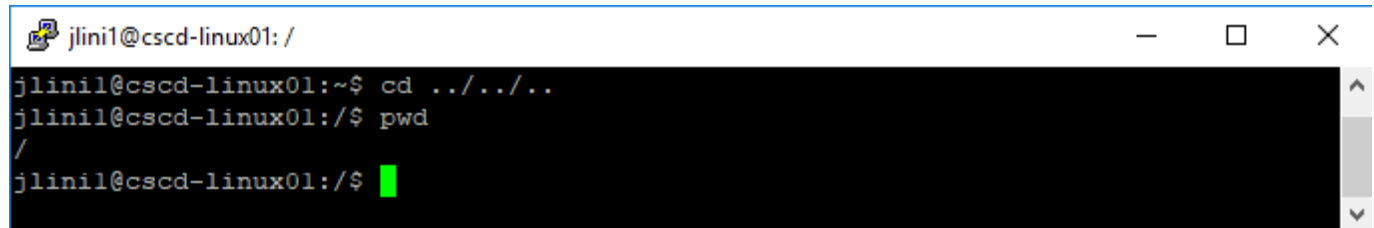
**Question 1:** (For each question below, you need to capture the screenshots along with the commands).

Suppose, you are in your home directory ( i.e., /home/EASTERN/*your\_user\_id*).

a) What will be printed by **pwd** after you run the following command? ( 1 point)

`cd ../../..`

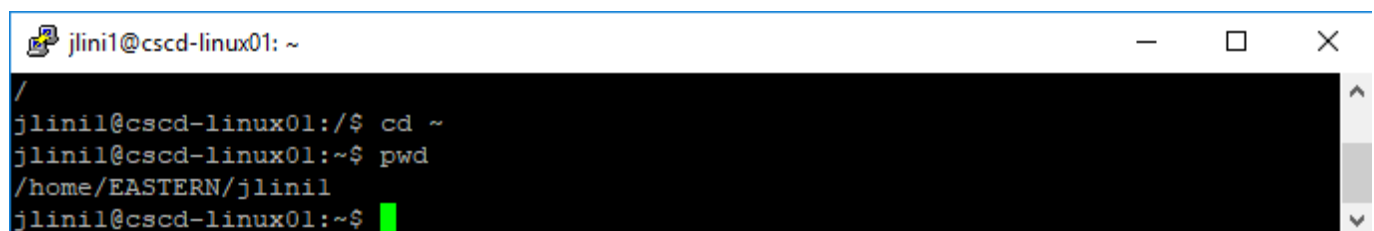
`/`

A terminal window titled 'jlini1@cscd-linux01: /' showing the execution of 'cd ../../..' and 'pwd', resulting in the root directory '/'.

```
jlini1@cscd-linux01: /  
jlini1@cscd-linux01:~$ cd ../../..  
jlini1@cscd-linux01:/ $ pwd  
/  
jlini1@cscd-linux01:/ $
```

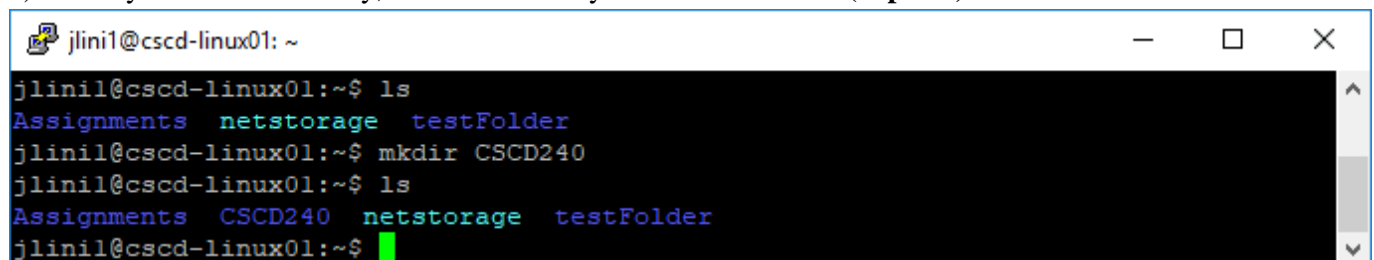
b) What command will bring you back to your home directory? ( 1 point)

`cd ~`

A terminal window titled 'jlini1@cscd-linux01: ~' showing the execution of 'cd ~' and 'pwd', resulting in the home directory '/home/EASTERN/jlini1'.

```
jlini1@cscd-linux01: ~  
/  
jlini1@cscd-linux01:/ $ cd ~  
jlini1@cscd-linux01:~$ pwd  
/home/EASTERN/jlini1  
jlini1@cscd-linux01:~$
```

c) Under your home directory, create a directory named **CSCD240**. ( 1 point)

A terminal window titled 'jlini1@cscd-linux01: ~' showing the execution of 'ls', 'mkdir CSCD240', and 'ls' again, showing the new directory 'CSCD240' in the list.

```
jlini1@cscd-linux01: ~  
jlini1@cscd-linux01:~$ ls  
Assignments  netstorage  testFolder  
jlini1@cscd-linux01:~$ mkdir CSCD240  
jlini1@cscd-linux01:~$ ls  
Assignments  CSCD240  netstorage  testFolder  
jlini1@cscd-linux01:~$
```

d) You want to access the directory named **CSCD240** from your home directory. Write down both the **absolute path** and **relative path** for that. ( 2 points)

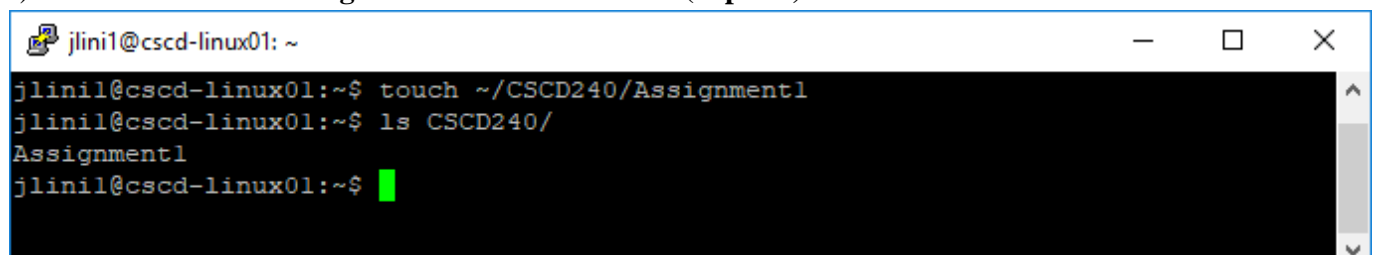
`/home/EASTERN/jlini1/CSCD240`

`CSCD240`

e) After running the command in **d**), what command will you use to figure out your current working directory? ( 1 point)

`pwd`

f) Create a file named **Assignment1** under **CSCD240**. ( 1 point)

A terminal window titled 'jlini1@cscd-linux01: ~' showing the execution of 'touch ~/CSCD240/Assignment1' and 'ls CSCD240/', resulting in the creation of the file 'Assignment1' in the directory.

```
jlini1@cscd-linux01: ~  
jlini1@cscd-linux01:~$ touch ~/CSCD240/Assignment1  
jlini1@cscd-linux01:~$ ls CSCD240/  
Assignment1  
jlini1@cscd-linux01:~$
```

g) Create a hard link for the file named **Assignment1** in your current directory. You can choose any name. (1 point)

```
jlinil@cscd-linux01: ~  
jlinil@cscd-linux01:~$ ln CSCD240/Assignment1 MoodyHLink  
jlinil@cscd-linux01:~$ ls  
Assignments CSCD240 MoodyHLink netstorage testFolder  
jlinil@cscd-linux01:~$ nano CSCD240/Assignment1  
jlinil@cscd-linux01:~$ nano MoodyHLink  
jlinil@cscd-linux01:~$
```

h) Suppose you are now in **CSCD240** folder. What output will be produced by the following command? Explain.

**ls ~ .** (1 point)

```
jlinil@cscd-linux01: ~/CSCD240  
jlinil@cscd-linux01:~/CSCD240$ ls ~ .  
.:  
Assignment1  
  
/home/EASTERN/jlinil:  
Assignments CSCD240 MoodyHLink netstorage testFolder  
jlinil@cscd-linux01:~/CSCD240$
```

The command lists from both locations ~ (user home) and ., which is current directory

i) You need to copy **Assignment1** file from your current directory (**CSCD240**) to your home directory. What command will you use? (1 point)

**cp Assignment1 ~/Assignment1**

```
jlinil@cscd-linux01: ~/CSCD240  
  
/home/EASTERN/jlinil:  
Assignments CSCD240 MoodyHLink netstorage testFolder  
jlinil@cscd-linux01:~/CSCD240$ cp Assignment1 ~/Assignment1  
jlinil@cscd-linux01:~/CSCD240$ ls ..  
Assignment1 Assignments CSCD240 MoodyHLink netstorage testFolder  
jlinil@cscd-linux01:~/CSCD240$
```

j) Create one folder named **Assignment** under **CSCD240**. Move the file named **Assignment1** from current folder (**CSCD240**) to **Assignment** folder. What commands will you use? (2 points)

**mkdir Assignment**

**mv Assignment1 Assignment/Assignment1**

```
jlinil@cscd-linux01: ~/CSCD240  
jlinil@cscd-linux01:~/CSCD240$ mkdir Assignment  
jlinil@cscd-linux01:~/CSCD240$ mv Assignment1 Assignment/Assignment1  
jlinil@cscd-linux01:~/CSCD240$ ls Assignment/  
Assignment1  
jlinil@cscd-linux01:~/CSCD240$
```

k) Copy the **Assignment** folder from current folder (CSCD240) to your home directory. What command will you use? (1 point)

`cp -r Assignment ~/Assignment`

```
jlinil@cscd-linux01: ~/Assignment
jlinil@cscd-linux01:~/CSCD240$ cp -r Assignment ~/Assignment
jlinil@cscd-linux01:~/CSCD240$ cd ..
jlinil@cscd-linux01:~$ ls
Assignment Assignment1 Assignments CSCD240 MoodyHLink netstorage testFolder
jlinil@cscd-linux01:~$ cd Assignment
```

l) What is the difference between '`ls -l`' and '`ls -al`' commands? (1 point)

`ls -l` and `ls -al` both list detailed info, but `-al` includes all files (even hidden)

```
jlinil@cscd-linux01: ~/Assignment
jlinil@cscd-linux01:~/Assignment$ ls -al
total 12
drwxr-xr-x 2 jlinil IT-GenericLinuxGroup 4096 Jan  9 14:48 .
drwx----- 8 jlinil IT-GenericLinuxGroup 4096 Jan  9 14:48 ..
-rw-r--r-- 1 jlinil IT-GenericLinuxGroup  5 Jan  9 14:48 Assignment1
jlinil@cscd-linux01:~/Assignment$ ls -a
.  ..  Assignment1
jlinil@cscd-linux01:~/Assignment$ ls -l
total 4
-rw-r--r-- 1 jlinil IT-GenericLinuxGroup 5 Jan  9 14:48 Assignment1
jlinil@cscd-linux01:~/Assignment$
```

m) Make a new command **dir** that is equivalent to unix command `ls -al`. Capture the screenshot of the command that can achieve that and the results. (1 point)

```
jlinil@cscd-linux01: ~
jlinil@cscd-linux01:~$ alias dir='ls -al'
jlinil@cscd-linux01:~$ dir
total 32
drwx----- 5 jlinil IT-GenericLinuxGroup 4096 Jan 10 11:11 .
drwxr-xr-x 6 root  root  0 Jan 10 13:14 ..
-rw----- 1 jlinil IT-GenericLinuxGroup 2842 Jan 10 11:51 .bash_history
-rw-r--r-- 1 jlinil IT-GenericLinuxGroup  220 Sep  4 06:30 .bash_logout
-rw-r--r-- 1 jlinil IT-GenericLinuxGroup 3771 Sep  4 06:30 .bashrc
drwx----- 2 jlinil IT-GenericLinuxGroup 4096 Jan  8 11:07 .cache
drwxr-xr-x 3 jlinil IT-GenericLinuxGroup 4096 Jan 10 11:12 CSCD240
drwxr-xr-x 2 jlinil IT-GenericLinuxGroup 4096 Jan  8 11:08 .nano
lrwxrwxrwx 1 jlinil IT-GenericLinuxGroup  14 Jan  8 11:07 netstorage -> /mnt/ns
-jlinil
-rw-r--r-- 1 jlinil IT-GenericLinuxGroup  655 Sep  4 06:30 .profile
jlinil@cscd-linux01:~$
```

n) We'd like to get a warning or prompt information before we delete the subdirectory **Assignment** under **CSCD240**. What command will you use? (1 point)

`rm -i -r CSCD240\Assignment`

o) Use **rmdir** to delete subdirectory **Assignment** under **CSCD240**. Does it delete the directory? Why or why not? (1 point)

The command does not delete the subdirectory when the directory is not empty

**Question 2.** Suppose you are in your home directory.

a) Create a text file named **calendar2019.txt** using command **cal 2019 > calendar2019.txt**. Issue the **more** command or the **less** command on **calendar2019.txt** and capture the screenshot of the output. How to move to the beginning of **calendar2019.txt** in **less**? How to move to the end of **calendar2019.txt** in **less**? How to scroll down or up?

```
jlinil@cscd-linux01: ~/CSCD240/Assignments
jlinil@cscd-linux01:~/CSCD240/Assignments$ cal 2019 > calendar2019.txt
jlinil@cscd-linux01:~/CSCD240/Assignments$ less calendar2019.txt
2019
    January                February                March
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
      1  2  3  4  5              1  2              1  2
  6  7  8  9 10 11 12    3  4  5  6  7  8  9    3  4  5  6  7  8  9
13 14 15 16 17 18 19    10 11 12 13 14 15 16    10 11 12 13 14 15 16
20 21 22 23 24 25 26    17 18 19 20 21 22 23    17 18 19 20 21 22 23
27 28 29 30 31          24 25 26 27 28          24 25 26 27 28 29 30
                          31

    April                  May                    June
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
      1  2  3  4  5  6              1  2  3  4              1
  7  8  9 10 11 12 13    5  6  7  8  9 10 11    2  3  4  5  6  7  8
14 15 16 17 18 19 20    12 13 14 15 16 17 18    9 10 11 12 13 14 15
21 22 23 24 25 26 27    19 20 21 22 23 24 25    16 17 18 19 20 21 22
28 29 30                26 27 28 29 30 31        23 24 25 26 27 28 29
                          30

    July                   August                 September
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
      1  2  3  4  5  6              1  2  3              1  2  3  4  5  6  7
  7  8  9 10 11 12 13    4  5  6  7  8  9 10    8  9 10 11 12 13 14
14 15 16 17 18 19 20    11 12 13 14 15 16 17    15 16 17 18 19 20 21
21 22 23 24 25 26 27    18 19 20 21 22 23 24    22 23 24 25 26 27 28
28 29 30 31            25 26 27 28 29 30 31    29 30

    October                November              December
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
      1  2  3  4  5              1  2              1  2  3  4  5  6  7
  6  7  8  9 10 11 12    3  4  5  6  7  8  9    8  9 10 11 12 13 14
13 14 15 16 17 18 19    10 11 12 13 14 15 16    15 16 17 18 19 20 21
20 21 22 23 24 25 26    17 18 19 20 21 22 23    22 23 24 25 26 27 28
27 28 29 30 31          24 25 26 27 28 29 30    29 30 31
```

Jumping: g to beginning, G to end

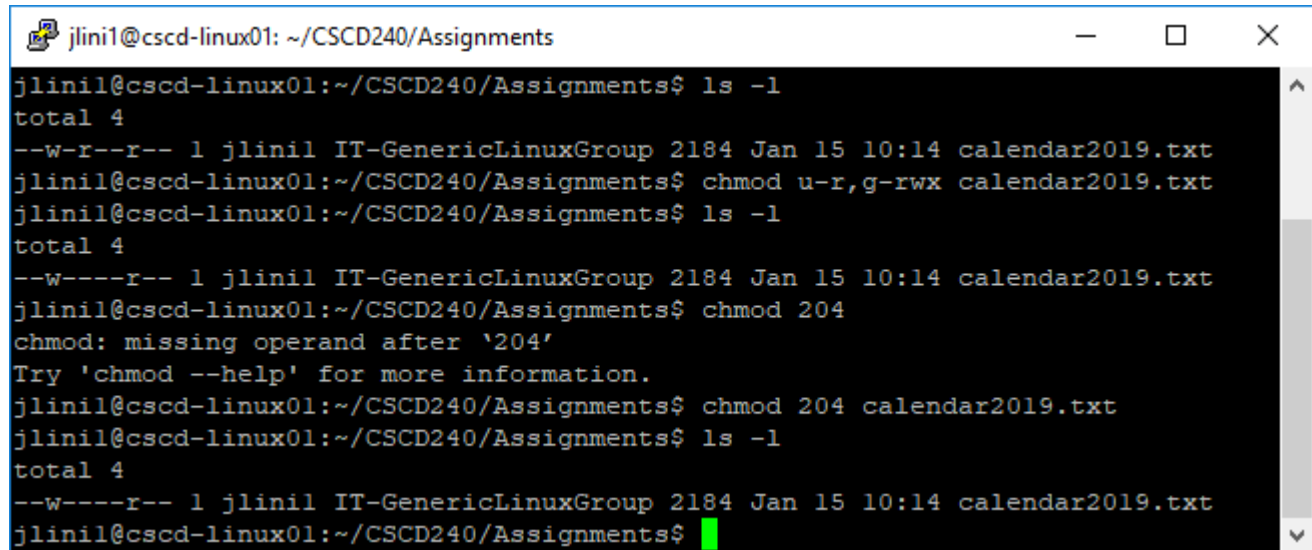
Scrolling: arrow keys or e(down) y(up)

( 5 points, one for each question)

b) Remove **read permission** from **calendar2019.txt** for the owner and **all permissions** for the group. Write down the commands using both symbolic and numeric (octal) values. Capture the screenshot for the commands and prove that the permission was changed.

chmod u-r,g-rwx calendar2019.txt

chmod 204 calendar.txt

A terminal window titled 'jlinil@cscd-linux01: ~/CSCD240/Assignments' with standard window controls. The terminal shows a sequence of commands and their outputs. First, 'ls -l' shows 'calendar2019.txt' with permissions '--w-r--r--'. Then, 'chmod u-r,g-rwx calendar2019.txt' is entered. Another 'ls -l' shows the permissions changed to '--w----r--'. Then, 'chmod 204' is entered, resulting in an error: 'chmod: missing operand after '204''. A help message is shown. Finally, 'chmod 204 calendar2019.txt' is entered successfully. A final 'ls -l' shows the permissions are '--w----r--'.

```
jlinil@cscd-linux01: ~/CSCD240/Assignments
jlinil@cscd-linux01:~/CSCD240/Assignments$ ls -l
total 4
--w-r--r-- 1 jlinil IT-GenericLinuxGroup 2184 Jan 15 10:14 calendar2019.txt
jlinil@cscd-linux01:~/CSCD240/Assignments$ chmod u-r,g-rwx calendar2019.txt
jlinil@cscd-linux01:~/CSCD240/Assignments$ ls -l
total 4
--w----r-- 1 jlinil IT-GenericLinuxGroup 2184 Jan 15 10:14 calendar2019.txt
jlinil@cscd-linux01:~/CSCD240/Assignments$ chmod 204
chmod: missing operand after '204'
Try 'chmod --help' for more information.
jlinil@cscd-linux01:~/CSCD240/Assignments$ chmod 204 calendar2019.txt
jlinil@cscd-linux01:~/CSCD240/Assignments$ ls -l
total 4
--w----r-- 1 jlinil IT-GenericLinuxGroup 2184 Jan 15 10:14 calendar2019.txt
jlinil@cscd-linux01:~/CSCD240/Assignments$
```

( 4 points ; 2 points for each command)

**Question 3.** Explain the following outputs from a unix command: ( 4 points, one for each)

This is the output of the command “ls -l”

-rw-r--r-- 1 syasmin IT-GenericLinuxGroup 3637 Sep 21 2015 file.txt

The file “file.txt” is owned by syasmin and has read permissions for all, and write for user, no execute

drwx----- 16 syasmin IT-GenericLinuxGroup 4096 Mar 29 2016 CSCD240

The directory “CSCD240” has all permissions enabled for only the user

lrwxrwxrwx 1 syasmin IT-GenericLinuxGroup 15 Nov 21 2015 netstorage -> /mnt/ns-syasmin

The soft link “netstorage” has all permissions for everyone and is an alias for /mnt/ns-syasmin

-rw-r--r-- 2 syasmin IT-GenericLinuxGroup 80 Jan 24 2017 hello.c

The file “hello.c” has read for all, and write for user, no execute

## Submission:

☐ Submit the assignment by creating a PDF file. Name this file as follows: your last name, first letter of your first name; Lab1.pdf (i.e., **YasminSLab1.pdf**). This file will contain all your answers. Each question should be copied first and then answered.

☐ Please note that some questions have more than one part. Please note that for those questions, points have been assigned separately for each part. You’ll miss points if you don’t answer all parts.

☐ You should turn in the assignment through EWU Canvas system.

☐ You need to follow the assignment specification properly. You’ll lose points if you fail to meet the assignment specifications.

☐ **Submission deadline is Wednesday, January 16, 2019 11: 59 pm.**

☐ No late submission will be accepted.