

Indian Institute of Technology Gandhinagar

BE623 Biocomputing

Sem1 2025-2026

Assignment: Lab session –1

(Shell, Filesystem and Permissions)

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Q1) Open terminal and find out the path of the folder being displayed in the terminal.

Output: -

```
bhavya@BhavyaSharma:~$ pwd  
/home/bhavya
```

Location: bhavya located in home

Q2) Change directory to the folder with files uploaded on classroom. Create a new folder named “BE623_labsession_1”

Output: -

```
bhavya@BhavyaSharma:~$ mkdir BE623_labsession_1
```

BE623_labsession_1 created

Q3) Enter BE623_labsession_1 folder

Output: -

```
bhavya@BhavyaSharma:~$ cd BE623_labsession_1
```

Changed directory to BE623_labsession_1

Q4) Confirm that your current folder is “BE623_labsession_1”

Output: -

```
bhavya@BhavyaSharma:~/BE623_labsession_1$ pwd  
/home/bhavya/BE623_labsession_1
```

Folder- BE623_labsession_1- located in home/bhavya

Q5) List all the files and folders in the directory

Output: -

```
bhavya@BhavyaSharma:~/BE623_labsession_1$ cd /home/bhavya
bhavya@BhavyaSharma:~$ pwd
/home/bhavya
bhavya@BhavyaSharma:~$ ls
BE623_labsession_1
```

```
bhavya@BhavyaSharma:~/BE623_labsession_1$ ls
```

Q6) Copy “sequence.fasta and protein.fasta” file to current folder

Output: -

```
bhavya@BhavyaSharma:~/BE623_labsession_1$ cp /mnt/c/Users/hp/Downloads
/protein.fasta /home/bhavya/BE623_labsession_1
```

```
bhavya@BhavyaSharma:~/BE623_labsession_1$ cp /mnt/c/Users/hp/Downloads
/sequence.fasta /home/bhavya/BE623_labsession_1
```

Both sequence.fasta and protein.fasta were initially located in Downloads, so by using cp command they were copied to the BE623_labsession_1 folder located in home/bhavya.

Q7) List all the files and folders in the directory

Output: -

```
bhavya@BhavyaSharma:~/BE623_labsession_1$ ls
protein.fasta  sequence.fasta
```

Q8) Find out if there is any hidden file or folder in the directory

Output: -

```
bhavya@BhavyaSharma:~$ ls -al
total 32
drwxr-x--- 4 bhavya bhavya 4096 Aug  9 10:18 .
drwxr-xr-x 3 root  root  4096 Aug  8 23:03 ..
-rw----- 1 bhavya bhavya   67 Aug  8 23:07 .bash_history
-rw-r--r-- 1 bhavya bhavya  220 Aug  8 23:03 .bash_logout
-rw-r--r-- 1 bhavya bhavya 3771 Aug  8 23:03 .bashrc
drwx----- 2 bhavya bhavya 4096 Aug  8 23:05 .cache
-rw-r--r-- 1 bhavya bhavya    0 Aug  9 10:11 .motd_shown
-rw-r--r-- 1 bhavya bhavya  807 Aug  8 23:03 .profile
drwxr-xr-x 2 bhavya bhavya 4096 Aug  9 10:20 BE623_labsession_1
```

There are hidden files (starting with ‘.’) and folders in home/bhavya

```
bhavya@BhavyaSharma:~/BE623_labsession_1$ ls -al
total 92
drwxr-xr-x 2 bhavya bhavya  4096 Aug  9 10:20 .
drwxr-x--- 4 bhavya bhavya  4096 Aug  9 10:18 ..
-rwxr-xr-x 1 bhavya bhavya   467 Aug  9 10:20 protein.fasta
-rwxr-xr-x 1 bhavya bhavya 79551 Aug  9 10:20 sequence.fasta
```

There are no hidden files in this folder- BE623_labsession_1.

Q9) Find out permissions associated with files in the folder

Output: -

```
bhavya@BhavyaSharma:~/BE623_labsession_1$ ls -al
total 92
drwxr-xr-x 2 bhavya bhavya 4096 Aug  9 10:20 .
drwxr-x--- 4 bhavya bhavya 4096 Aug  9 10:18 ..
-rwxr-xr-x 1 bhavya bhavya 467 Aug  9 10:20 protein.fasta
-rwxr-xr-x 1 bhavya bhavya 79551 Aug  9 10:20 sequence.fasta
```

‘.’- directory- drwxr-xr-x: Owner (bhavya)-read (r), write (w), execute (x), Group- r and x, Others- r and x.

‘..’- directory- drwxr-x---: Owner (bhavya)- rwx, Group- r and x, Others-none

‘protein.fasta’- file- -rwxr-xr-x: Owner (bhavya)- r, w and x, Group- r and x, Others- r and x

‘sequence.fasta’- file- -rwxr-xr-x: Owner (bhavya)- r, w and x, Group- r and x, Others- r and x

Q10) Find out the permissions of the files and folders in /

Output: -

```
bhavya@BhavyaSharma:~$ cd /
bhavya@BhavyaSharma:/$ ls -al
total 2736
drwxr-xr-x 19 root root 4096 Aug  9 10:11 .
drwxr-xr-x 19 root root 4096 Aug  9 10:11 ..
lrwxrwxrwx 1 root root 7 Nov 23 2023 bin -> usr/bin
drwxr-xr-x 2 root root 4096 Apr 18 2022 boot
drwxr-xr-x 15 root root 3860 Aug  9 10:11 dev
drwxr-xr-x 73 root root 4096 Aug  9 10:11 etc
drwxr-xr-x 3 root root 4096 Aug  8 23:03 home
-rwxrwxrwx 1 root root 2724480 Jun 10 00:02 init
lrwxrwxrwx 1 root root 7 Nov 23 2023 lib -> usr/lib
lrwxrwxrwx 1 root root 9 Nov 23 2023 lib32 -> usr/lib32
lrwxrwxrwx 1 root root 9 Nov 23 2023 lib64 -> usr/lib64
lrwxrwxrwx 1 root root 10 Nov 23 2023 libx32 -> usr/libx32
drwx----- 2 root root 16384 Apr 10 2019 lost+found
drwxr-xr-x 2 root root 4096 Nov 23 2023 media
drwxr-xr-x 5 root root 4096 Aug  6 12:05 mnt
drwxr-xr-x 2 root root 4096 Nov 23 2023 opt
dr-xr-xr-x 280 root root 0 Aug  9 10:11 proc
drwx----- 4 root root 4096 Aug  7 19:57 root
drwxr-xr-x 20 root root 580 Aug  9 10:12 run
lrwxrwxrwx 1 root root 8 Nov 23 2023/sbin -> usr/sbin
drwxr-xr-x 8 root root 4096 Nov 23 2023 snap
drwxr-xr-x 2 root root 4096 Nov 23 2023 srv
dr-xr-xr-x 13 root root 0 Aug  9 10:11 sys
drwxrwxrwt 6 root root 4096 Aug  9 10:26 tmp
drwxr-xr-x 14 root root 4096 Nov 23 2023 usr
drwxr-xr-x 13 root root 4096 Nov 23 2023 var
```

Q11) Change the permissions of the file “protein.fasta” so that it is readable, writable and executable by everyone (Hint use chmod). Change the permissions back to what they were.

Output: -

```
bhavya@BhavyaSharma:/$ cd /home/bhavya/BE623_labsession_1
bhavya@BhavyaSharma:~/BE623_labsession_1$ chmod ugo+rwX protein.fasta
bhavya@BhavyaSharma:~/BE623_labsession_1$ ls -al
total 92
drwxr-xr-x 2 bhavya bhavya 4096 Aug  9 10:20 .
drwxr-x--- 4 bhavya bhavya 4096 Aug  9 10:18 ..
-rwxrwxrwx 1 bhavya bhavya  467 Aug  9 10:20 protein.fasta
-rwxr-xr-x 1 bhavya bhavya 79551 Aug  9 10:20 sequence.fasta
```

protein.fasta- permissions changed to read, write, and executable by everyone.

```
bhavya@BhavyaSharma:~/BE623_labsession_1$ chmod g-w,o-w protein.fasta
bhavya@BhavyaSharma:~/BE623_labsession_1$ ls -al
total 92
drwxr-xr-x 2 bhavya bhavya 4096 Aug  9 10:20 .
drwxr-x--- 4 bhavya bhavya 4096 Aug  9 10:18 ..
-rwxr-xr-x 1 bhavya bhavya  467 Aug  9 10:20 protein.fasta
-rwxr-xr-x 1 bhavya bhavya 79551 Aug  9 10:20 sequence.fasta
```

protein.fasta- permissions changed back to what they were.