# Tutorial 1 Solution

## Introduction to Linux Commands

**Table of commands (commands are case sensitive):**

| | |
|---|---|
| **pwd** | Display path of working directory name. |
| **cd** | Change directory. |
| **cd ..** | Move to previous folder/ directory |
| **ls** | List contents of directory. |
| **ls -l** | Long list of contents of directory (shows more information for owner of files). |
| **ls -lht** | What changes observed than the previous command? |
| **info pwd** | Display information on the pwd command. |
| **mkdir folder/ directory** | Make a new directory called folder/ directory. |
| **echo Welcome** | Output Welcome. |
| **> file_1.txt** | Create a new empty file called **file_1.txt** in the current working directory. |
| **echo file_2 > file_1.txt** | Redirect the output from the **echo** command to a file called **file_1.txt.** |
| **cat file_1.txt** | Output the contents of the **file_1.txt** file. |
| **cp file_1.txt file_2.txt** | Create a copy of the file named **file_1.txt**. The copied file will be called **file_2.txt**. |
| **mv file_1.txt file_11.txt** | Move the file named **file_1.txt** to a file named as **file_11.txt.** |
| **rm file_1.txt** | Delete the file named **file_1.txt.** |
| **rm -rf folder_name** | Delete the folder name. |
| **chmod** | **chmod** is the command and system call used to change the access permissions of file system objects. Setting 777 permissions to a file or directory means that it will be readable, writable and executable by all users and may pose a huge security risk. |
| **chown** | The **chown** command allows you to change the user and/or group ownership of a given file, directory, or symbolic link |

Answer the following questions

a) List the contents of a directory so that the files that have been modified most recently are displayed first

b) List the contents of a directory so that the files that have been modified most recently are displayed last

c) Change the current working directory to **/usr/bin**

d) Find information for the **cut** command (man grep, press **q** to quit)

e) Output the message **Welcome to second semester!**

f) Create a new file named **BDSP.txt**

g) Investigate how to create a new directory named as BDSP.

h) Investigate how to delete a directory.

i) Create a new file called **welcome.txt** containing some text data.

**a) List the contents of a directory so that the files that have been modified most recently are displayed first**

The accepted answer lists only the filenames, but to get the top 5 files one can also use:

```
$ls -lht | head -6
```

where:

**-l** outputs in a list format

**-h** makes output human readable (i.e. file sizes appear in kb, mb, etc.)

**-t** sorts output by placing most recently modified file first

head -6 will show 5 files because ls prints the block size in the first line of output.

```
$ls -lht
```

```
$ls -lhr
```

**b)** 
```
$ls -lhr
```

**-r means list in the reverse alphabetical order**

**c) Change the current working directory to `/usr/bin`**

```
$cd /usr/bin
```

**d) Find information for the grep command (man grep, press q to quit)**

```
$man cut
```

Press q to quit from this command.

**e) Output the message Hello World! (echo "Welcome back to second semester!")**

```
$echo "Welcome back to second semester!"
```

**f)** Create a new file named as **BDSP.txt** using nano or gedit editor.

```
$nano BDSP.txt
```

```
$gedit BDSP.txt
```

**g) Investigate how to create a new directory (mkdir newDirectory)**

```
$mkdir BDSP
```

**h) Investigate how to delete a directory (rm newDirectory if the directory contains some files, rm -rf newDirectory)**

For empty directory

```
$rm BDSP
```

For directory containing files and other directories

```
$rm -rf BDSP
```

**i)** Create a new file called **welcome.txt** containing some text data using **cat** command. **(cat welcome.txt ……, ctrl+D to save the text)**

```
$cat > welcome.txt
Write any text
```

**Press `ctrl+D` to save all above text in welcome.txt file.**

**j) How you display the contents of the welcome.txt file normally and backwards?**

```
$cat welcome.txt
$tac welcome.txt
```

**k) How to write a shell script file and provides the executable privileges?**

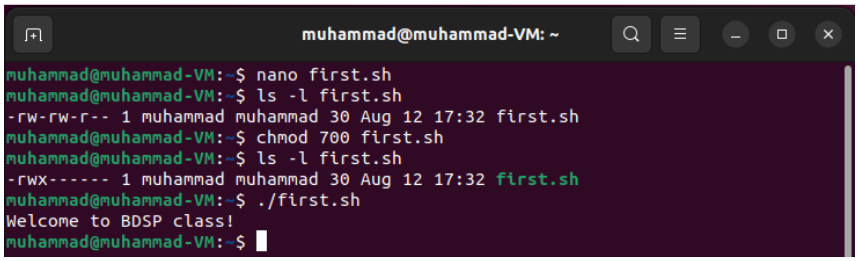
```
$nano first.sh
```

echo "Welcome to BDSP class!"

ctrl+x

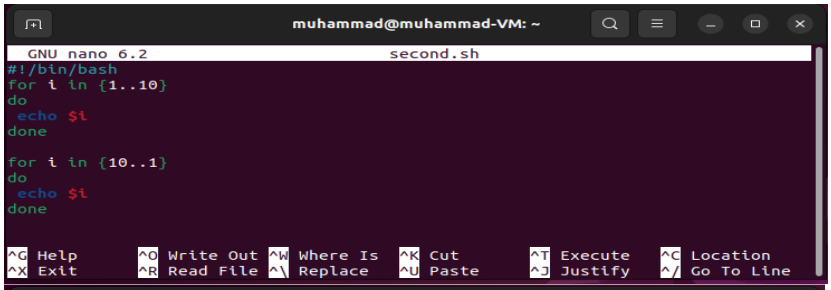
and press y to save the file

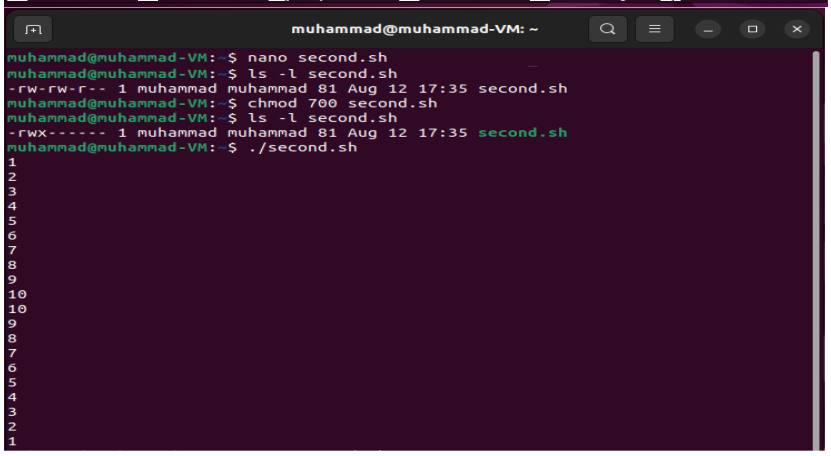
```
$chmod 700 first.sh
$./first.sh
```




**l) Write a shell script to display the first 10 numbers in the forward and reverse order.**

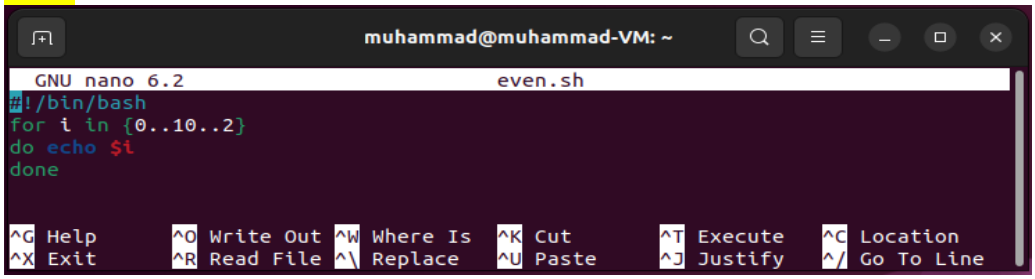
```
#!/bin/bash
for i in {1..10}
do
   echo $i
done
# for reverse order
for i in {10..1}
do
   echo $i
done
```

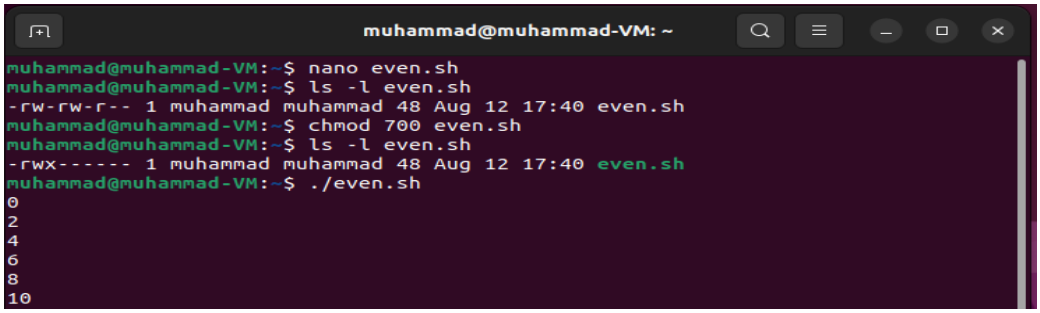



**m) Write a shell script to display the even numbers from 0 to 10.**

```
#!/bin/bash
for i in {0..10..2}
do
    echo $i
done
```




## References:


- https://ubuntu.com/tutorials/command-line-for-beginners#1-overview
- Ubuntu Linux Unleashed 2021 Edition, 14th Edition, Matthew Helmke, Addison-Wesley Professional, 2022.