



Institute of Technology of Cambodia
Department of Information Technology
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Operating System

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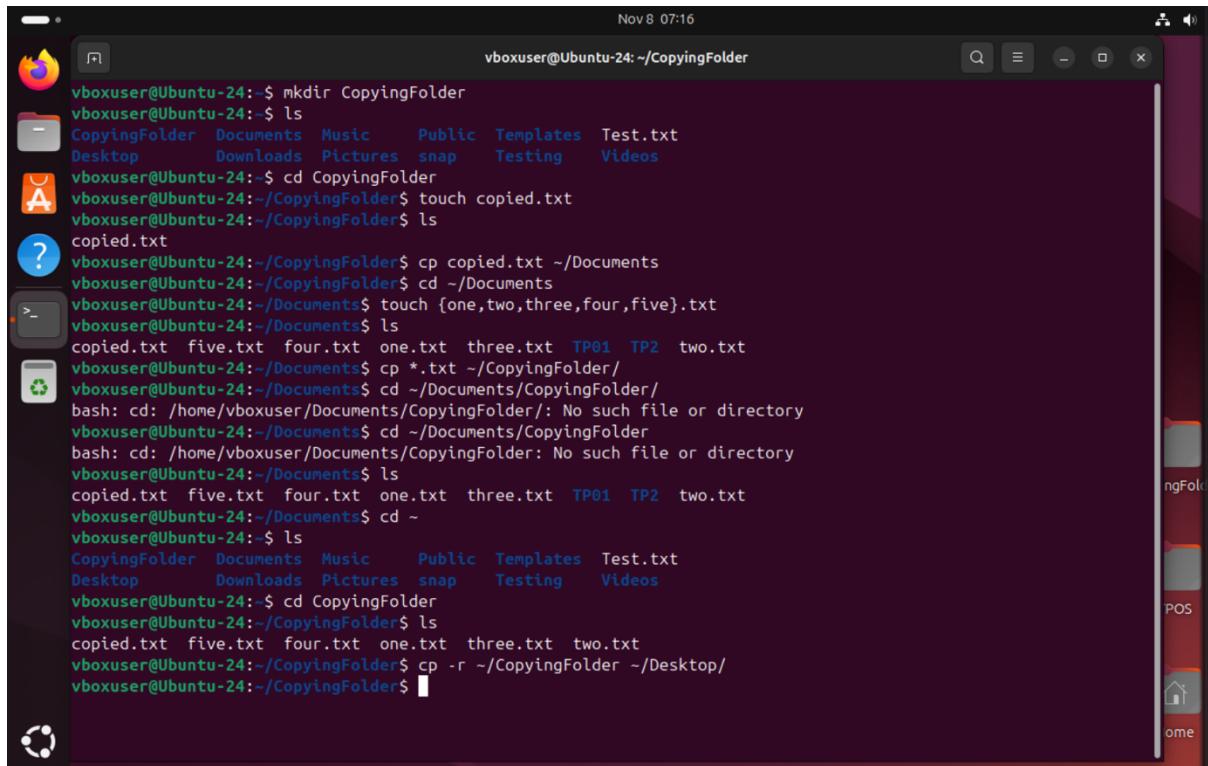
Lecturer: Mr. Heng Rathpisey

Academic Year 2024-2025

TP3

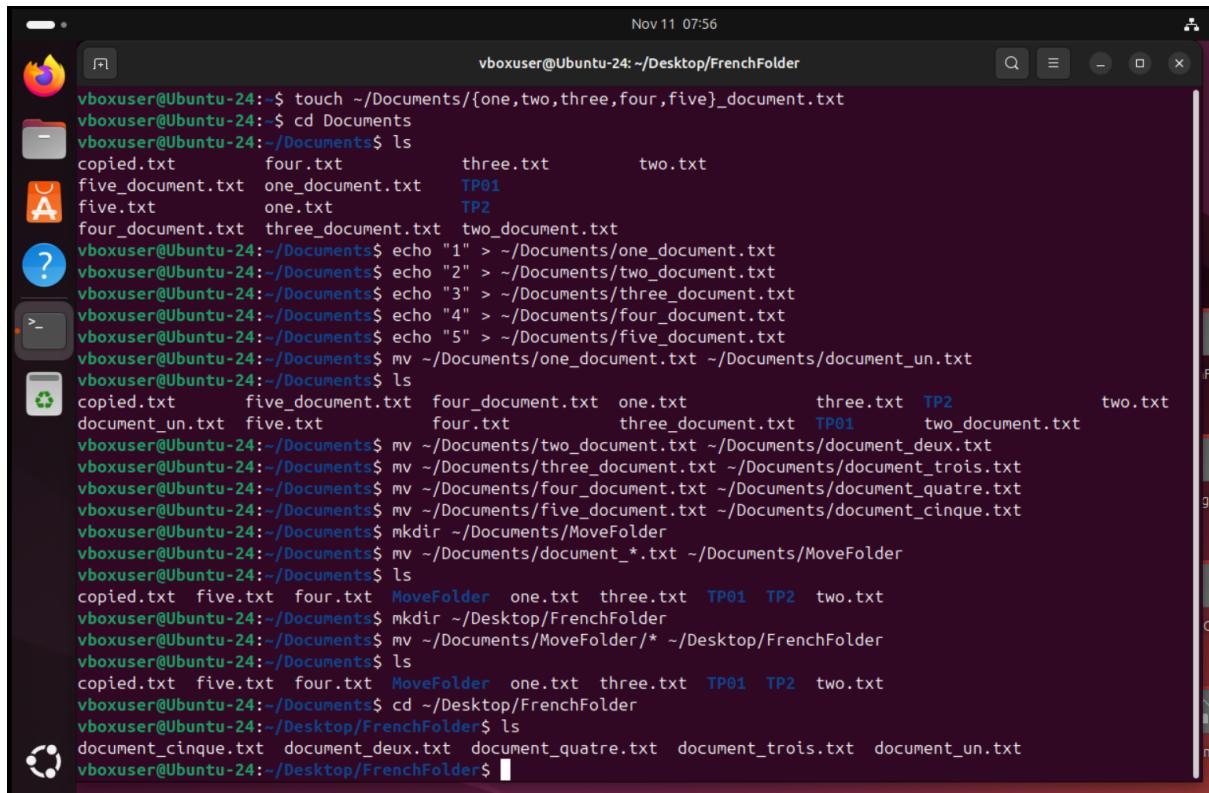
- Exercise 1

- Go to Home directory (Your username directory)
- cd ~
- Create a folder named ‘CopyingFolder’, in the folder, create a text file copied.txt.
- Now copy this file to ‘Documents’ folder.
- In Documents folder, create 5 text file, one.txt, two.txt, ... five.txt.
- Copy all these files to ‘CopyingFolder’.
- Copy ‘CopyingFolder’ to Desktop.



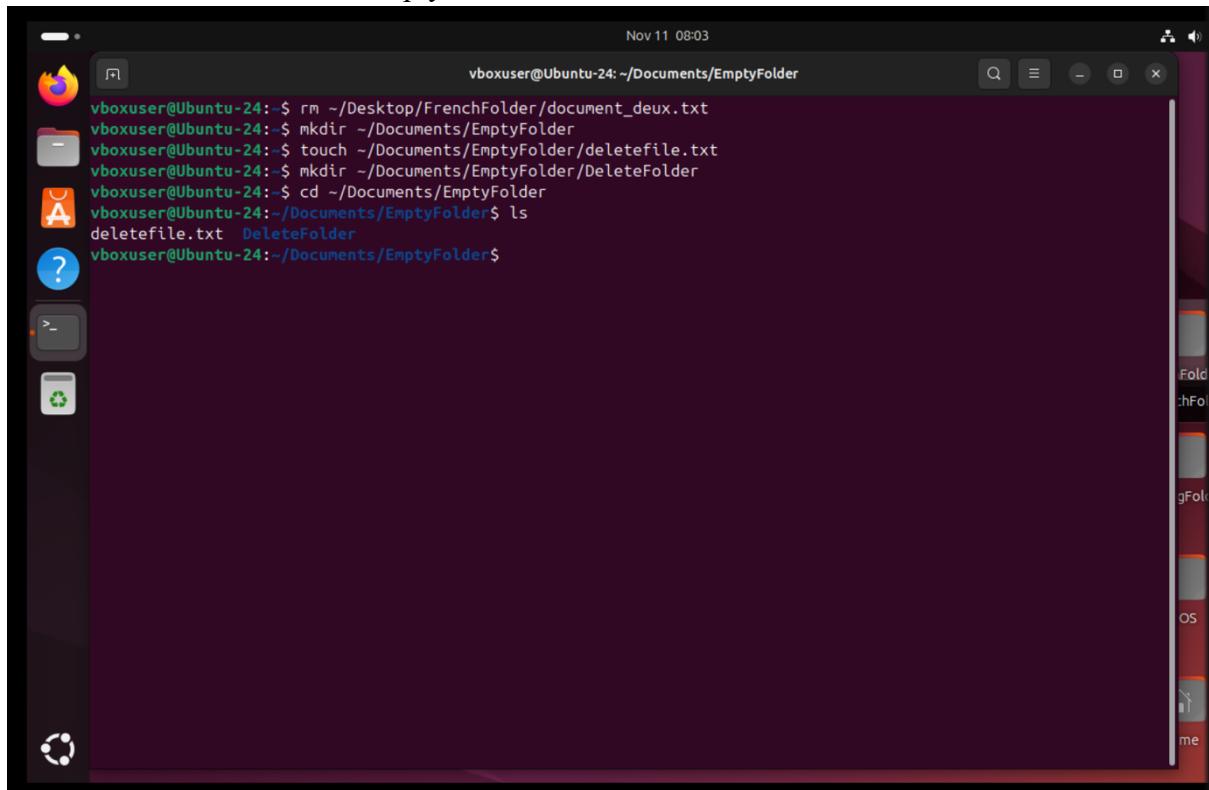
```
Nov 8 07:16
vboxuser@Ubuntu-24: ~/CopyingFolder
vboxuser@Ubuntu-24: $ mkdir CopyingFolder
vboxuser@Ubuntu-24: $ ls
CopyingFolder  Documents  Music  Public  Templates  Test.txt
Desktop  Downloads  Pictures  snap  Testing  Videos
vboxuser@Ubuntu-24: $ cd CopyingFolder
vboxuser@Ubuntu-24: ~/CopyingFolder$ touch copied.txt
vboxuser@Ubuntu-24: ~/CopyingFolder$ ls
copied.txt
vboxuser@Ubuntu-24: ~/CopyingFolder$ cp copied.txt ~/Documents
vboxuser@Ubuntu-24: ~/CopyingFolder$ cd ~/Documents
vboxuser@Ubuntu-24: ~/Documents$ touch {one,two,three,four,five}.txt
vboxuser@Ubuntu-24: ~/Documents$ ls
copied.txt  five.txt  four.txt  one.txt  three.txt  TP01  TP2  two.txt
vboxuser@Ubuntu-24: ~/Documents$ cp *.txt ~/CopyingFolder/
vboxuser@Ubuntu-24: ~/Documents$ cd ~/Documents/CopyingFolder/
bash: cd: /home/vboxuser/Documents/CopyingFolder/: No such file or directory
vboxuser@Ubuntu-24: ~/Documents$ cd ~/Documents/CopyingFolder
bash: cd: /home/vboxuser/Documents/CopyingFolder: No such file or directory
vboxuser@Ubuntu-24: ~/Documents$ ls
copied.txt  five.txt  four.txt  one.txt  three.txt  TP01  TP2  two.txt
vboxuser@Ubuntu-24: ~/Documents$ cd ~
vboxuser@Ubuntu-24: $ ls
CopyingFolder  Documents  Music  Public  Templates  Test.txt
Desktop  Downloads  Pictures  snap  Testing  Videos
vboxuser@Ubuntu-24: $ cd CopyingFolder
vboxuser@Ubuntu-24: ~/CopyingFolder$ ls
copied.txt  five.txt  four.txt  one.txt  three.txt  two.txt
vboxuser@Ubuntu-24: ~/CopyingFolder$ cp -r ~/CopyingFolder ~/Desktop/
vboxuser@Ubuntu-24: ~/CopyingFolder$
```

- In Documents folder, create 5 textfiles, one_document.txt, two_document.txt, three_document.txt, ..., five_document.txt
- In each file write the number correspondent, 1 in one_document.txt, etc.
- Rename each file to French words, document_un, document_deux, document_trois, document_quatre, document_cinque.txt
- Move these files to a new folder named MoveFolder
- Create a folder on Desktop named FrenchFolder
- Move all the files with just one command using * from MoveFolder to FrenchFolder.



```
vboxuser@Ubuntu-24:~$ touch ~/Documents/{one,two,three,four,five}_document.txt
vboxuser@Ubuntu-24:~$ cd Documents
vboxuser@Ubuntu-24:~/Documents$ ls
copied.txt        four.txt        three.txt        two.txt
five_document.txt one_document.txt  TP01
five.txt          one.txt         TP2
four_document.txt three_document.txt two_document.txt
vboxuser@Ubuntu-24:~/Documents$ echo "1" > ~/Documents/one_document.txt
vboxuser@Ubuntu-24:~/Documents$ echo "2" > ~/Documents/two_document.txt
vboxuser@Ubuntu-24:~/Documents$ echo "3" > ~/Documents/three_document.txt
vboxuser@Ubuntu-24:~/Documents$ echo "4" > ~/Documents/four_document.txt
vboxuser@Ubuntu-24:~/Documents$ echo "5" > ~/Documents/five_document.txt
vboxuser@Ubuntu-24:~/Documents$ mv ~/Documents/one_document.txt ~/Documents/document_un.txt
vboxuser@Ubuntu-24:~/Documents$ ls
copied.txt      five_document.txt four_document.txt one.txt      three.txt  TP2      two.txt
document_un.txt five.txt        four.txt        three_document.txt  TP01    two_document.txt
vboxuser@Ubuntu-24:~/Documents$ mv ~/Documents/two_document.txt ~/Documents/document_deux.txt
vboxuser@Ubuntu-24:~/Documents$ mv ~/Documents/three_document.txt ~/Documents/document_trois.txt
vboxuser@Ubuntu-24:~/Documents$ mv ~/Documents/four_document.txt ~/Documents/document_quatre.txt
vboxuser@Ubuntu-24:~/Documents$ mv ~/Documents/five_document.txt ~/Documents/document_cinque.txt
vboxuser@Ubuntu-24:~/Documents$ mkdir ~/Documents/MoveFolder
vboxuser@Ubuntu-24:~/Documents$ mv ~/Documents/document_*.txt ~/Documents/MoveFolder
vboxuser@Ubuntu-24:~/Documents$ ls
copied.txt five.txt four.txt MoveFolder one.txt three.txt  TP01  TP2  two.txt
vboxuser@Ubuntu-24:~/Documents$ mkdir ~/Desktop/FrenchFolder
vboxuser@Ubuntu-24:~/Documents$ mv ~/Documents/MoveFolder/* ~/Desktop/FrenchFolder
vboxuser@Ubuntu-24:~/Documents$ ls
copied.txt five.txt four.txt MoveFolder one.txt three.txt  TP01  TP2  two.txt
vboxuser@Ubuntu-24:~/Documents$ cd ~/Desktop/FrenchFolder
vboxuser@Ubuntu-24:~/Desktop/FrenchFolder$ ls
document_cinque.txt document_deux.txt document_quatre.txt document_trois.txt document_un.txt
vboxuser@Ubuntu-24:~/Desktop/FrenchFolder$
```

- From Home Directory, remove a file name document_deux.txt in FrenchFolder.
- Go to Documents folder and create a folder name EmptyFolder.
- In EmptyFolder, create a textfile named deletefile.txt and another folder named DeleteFolder in EmptyFolder.



```
vboxuser@Ubuntu-24:~$ rm ~/Desktop/FrenchFolder/document_deux.txt
vboxuser@Ubuntu-24:~$ mkdir ~/Documents/EmptyFolder
vboxuser@Ubuntu-24:~$ touch ~/Documents/EmptyFolder/deletefile.txt
vboxuser@Ubuntu-24:~$ mkdir ~/Documents/EmptyFolder/DeleteFolder
vboxuser@Ubuntu-24:~$ cd ~/Documents/EmptyFolder
vboxuser@Ubuntu-24:~/Documents/EmptyFolder$ ls
deletefile.txt  DeleteFolder
vboxuser@Ubuntu-24:~/Documents/EmptyFolder$
```

1. Command to delete DeleteFolder:

```
rm -r ~/Documents/EmptyFolder/DeleteFolder
```

2. Command to delete EmptyFolder:

```
rm -r ~/Documents/EmptyFolder
```

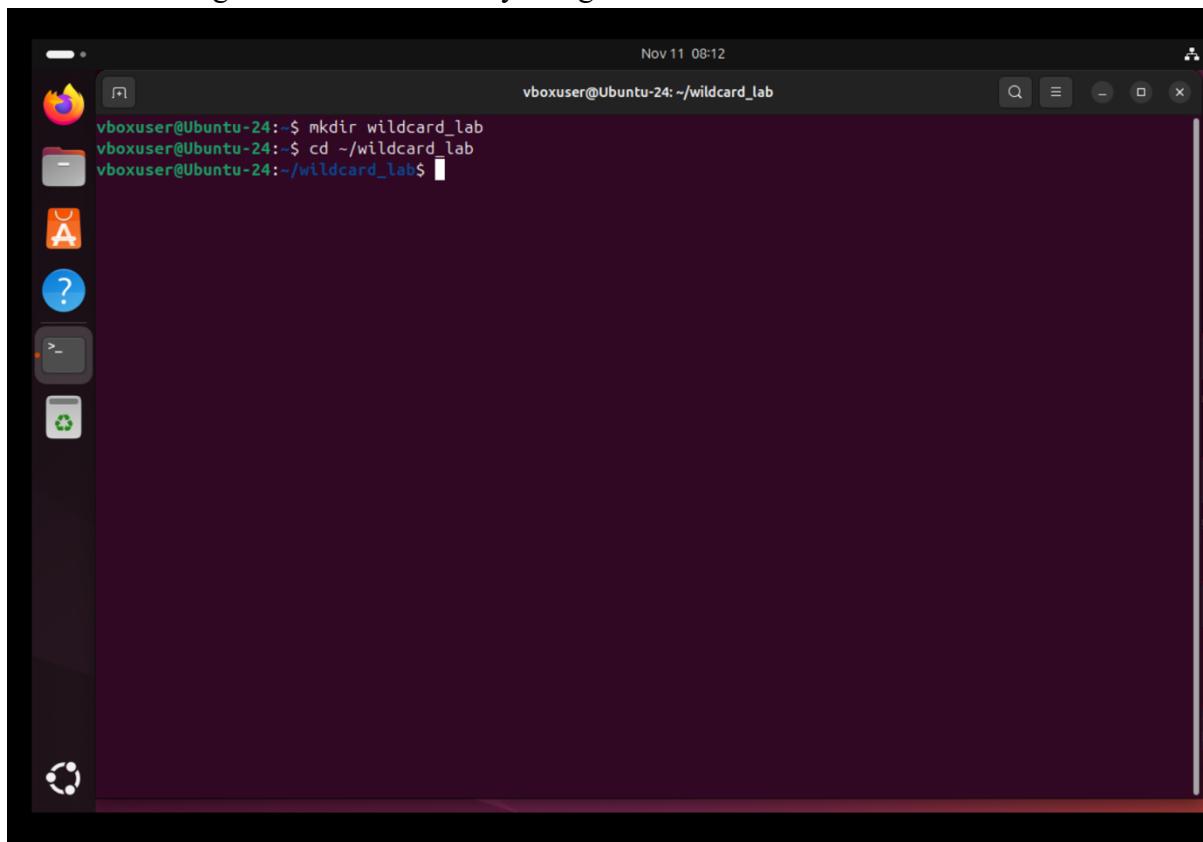
3. Command to delete all text file in FrenchFolder

```
rm -r ~/Desktop/FrenchFolder/*.txt
```

- Exercise 2:

1. Navigate to the Lab Directory:

- Open a terminal.
- Create a directory for this lab session, e.g., wildcard_lab.
- Navigate to the lab directory using the cd command.



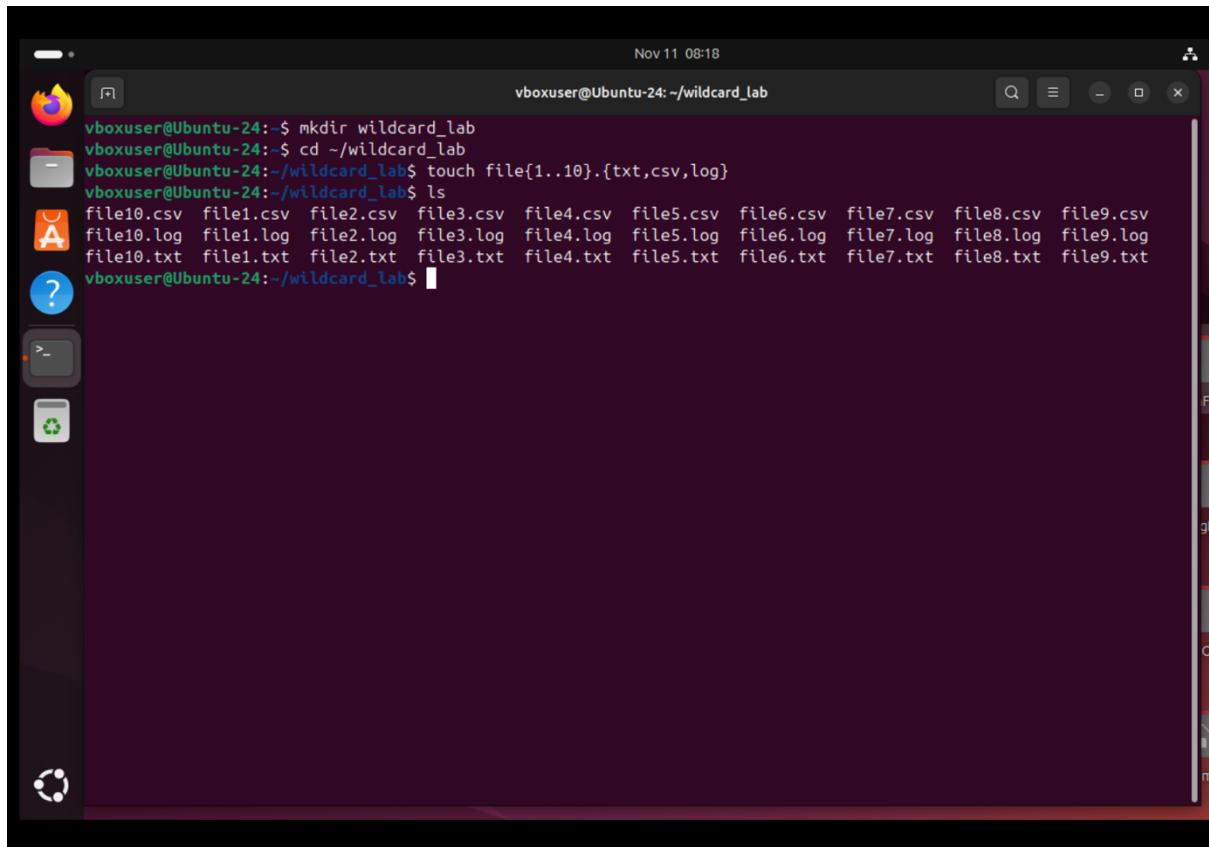
A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window has a dark background and contains the following text:

```
vboxuser@Ubuntu-24:~$ mkdir wildcard_lab
vboxuser@Ubuntu-24:~$ cd ~/wildcard_lab
vboxuser@Ubuntu-24:~/wildcard_lab$
```

The desktop interface includes a dock with icons for Home, Applications, Help, and Dash, and a taskbar at the bottom.

2. Create Sample Files:

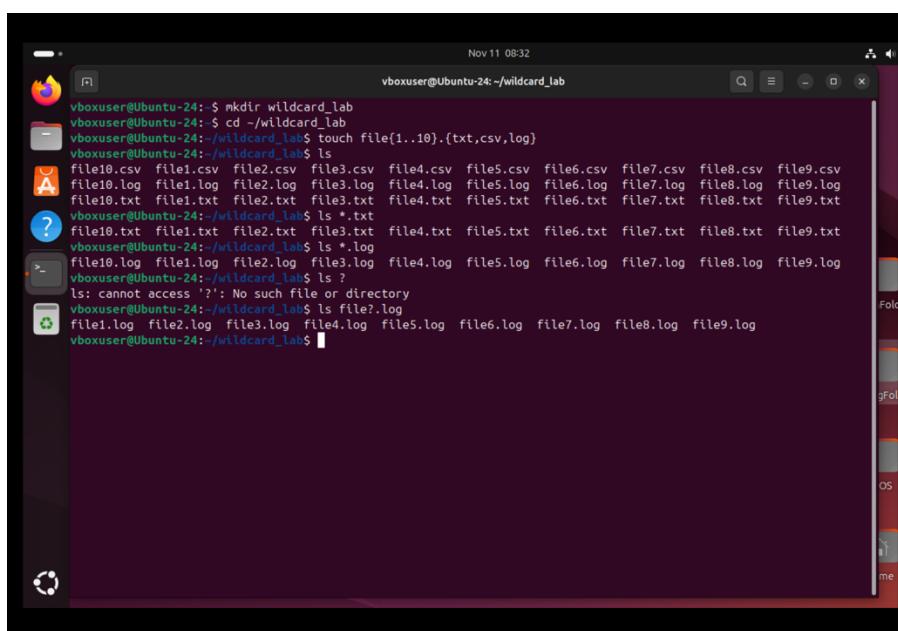
- Inside the lab directory, create several sample files with different extensions (e.g., .txt, .csv, .log) using the touch command.
- Give them meaningful names.



vboxuser@Ubuntu-24: ~\$ mkdir wildcard_lab
vboxuser@Ubuntu-24: ~\$ cd ~/wildcard_lab
vboxuser@Ubuntu-24:~/wildcard_lab\$ touch file{1..10}.{txt,csv,log}
vboxuser@Ubuntu-24:~/wildcard_lab\$ ls
file10.csv file1.csv file2.csv file3.csv file4.csv file5.csv file6.csv file7.csv file8.csv file9.csv
file10.log file1.log file2.log file3.log file4.log file5.log file6.log file7.log file8.log file9.log
file10.txt file1.txt file2.txt file3.txt file4.txt file5.txt file6.txt file7.txt file8.txt file9.txt
vboxuser@Ubuntu-24:~/wildcard_lab\$

3. List Files Using Wildcards:

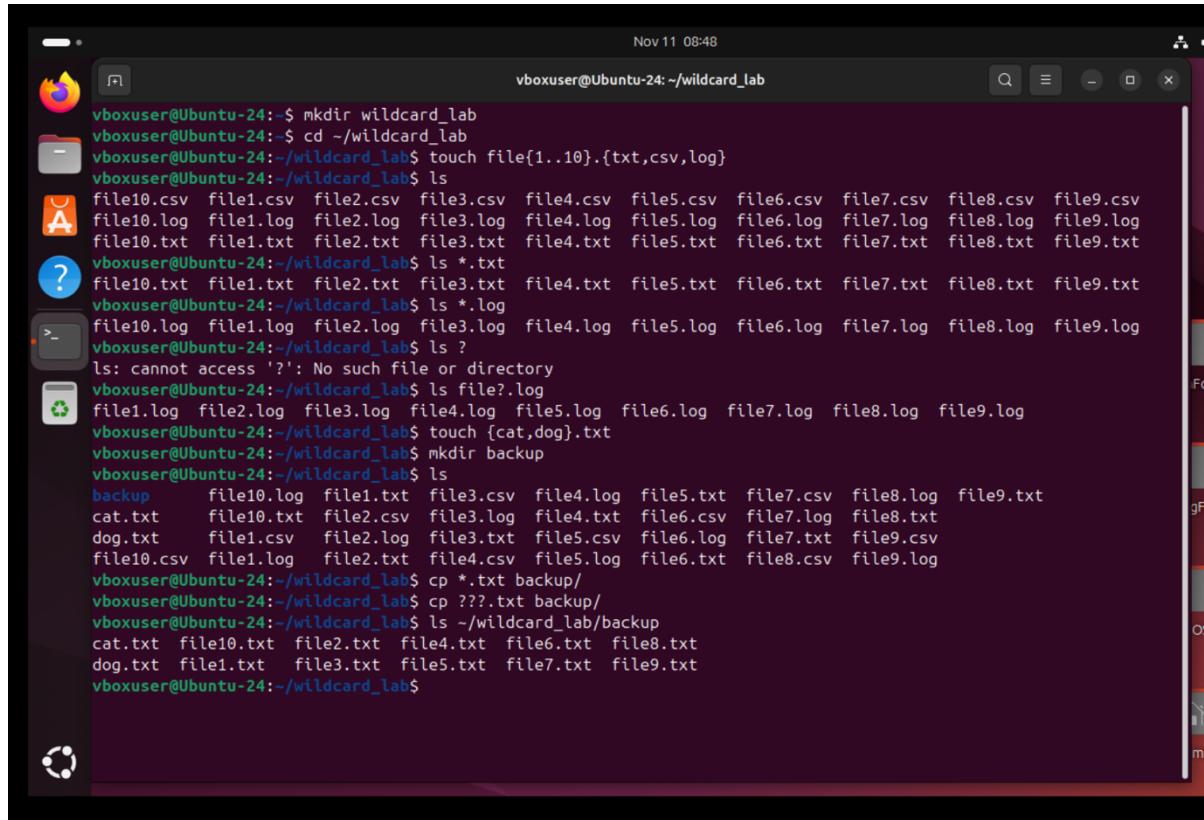
- Use the ls command with wildcards to list specific groups of files. Try the following:
- List all files with the .txt extension.
- List all files with the .log extension.
- List files with a single-character name.



vboxuser@Ubuntu-24: ~\$ mkdir wildcard_lab
vboxuser@Ubuntu-24: ~\$ cd ~/wildcard_lab
vboxuser@Ubuntu-24:~/wildcard_lab\$ touch file{1..10}.{txt,csv,log}
vboxuser@Ubuntu-24:~/wildcard_lab\$ ls
file10.csv file1.csv file2.csv file3.csv file4.csv file5.csv file6.csv file7.csv file8.csv file9.csv
file10.log file1.log file2.log file3.log file4.log file5.log file6.log file7.log file8.log file9.log
file10.txt file1.txt file2.txt file3.txt file4.txt file5.txt file6.txt file7.txt file8.txt file9.txt
vboxuser@Ubuntu-24:~/wildcard_lab\$ ls *.txt
file10.txt file1.txt file2.txt file3.txt file4.txt file5.txt file6.txt file7.txt file8.txt file9.txt
vboxuser@Ubuntu-24:~/wildcard_lab\$ ls *.log
file10.log file1.log file2.log file3.log file4.log file5.log file6.log file7.log file8.log file9.log
vboxuser@Ubuntu-24:~/wildcard_lab\$ ls ?
ls: cannot access '?': No such file or directory
vboxuser@Ubuntu-24:~/wildcard_lab\$ ls file?.log
file1.log file2.log file3.log file4.log file5.log file6.log file7.log file8.log file9.log
vboxuser@Ubuntu-24:~/wildcard_lab\$

4. Copy Files Using Wildcards:

- Create a new directory within the lab directory (e.g., backup).
- Use the cp command with wildcards to copy files into the backup directory.
- Copy all .txt files into the backup directory.
- Copy files with a name of exactly three characters into the backup directory.

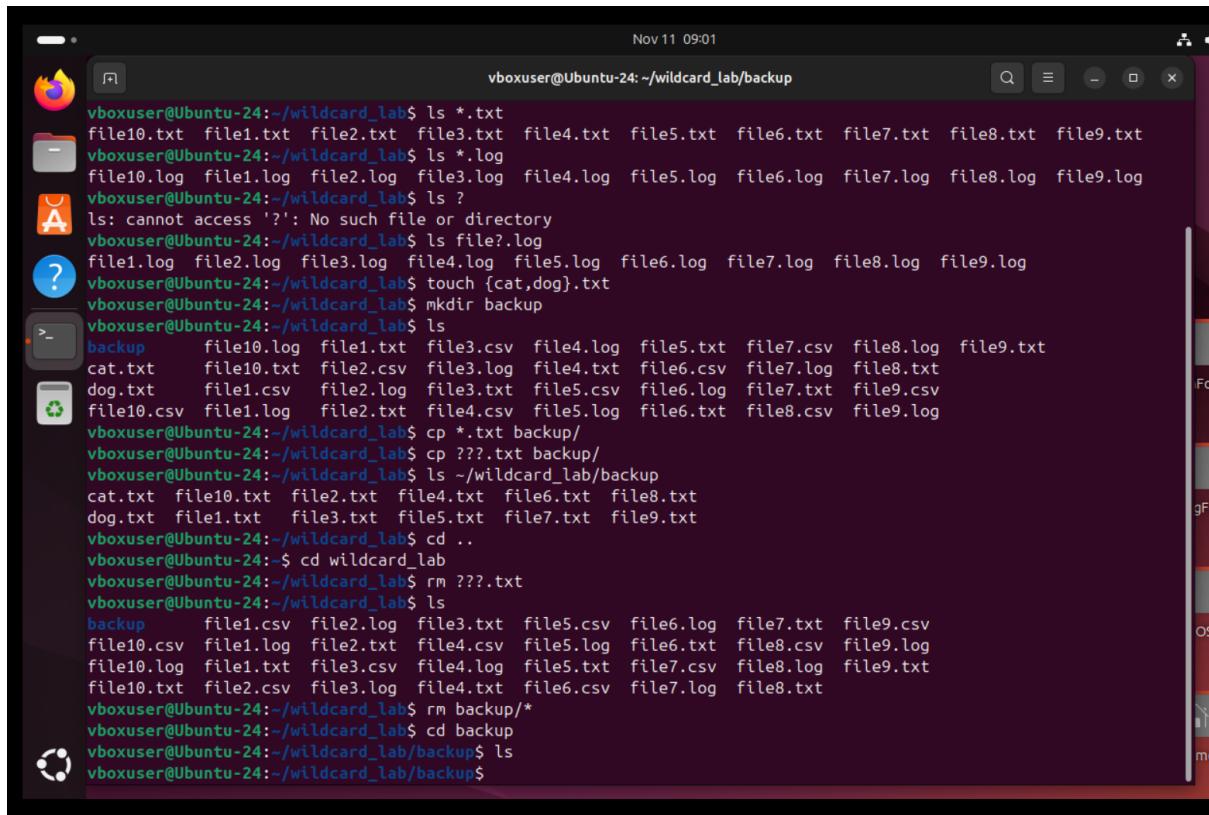


The screenshot shows a terminal window on a Linux desktop environment. The terminal window title is "vboxuser@Ubuntu-24: ~/wildcard_lab". The terminal history shows the following commands and their results:

- \$ mkdir wildcard_lab
- \$ cd ~/wildcard_lab
- \$ touch file{1..10}.{txt,csv,log}
- \$ ls
- Output: file10.csv, file1.csv, file2.csv, file3.csv, file4.csv, file5.csv, file6.csv, file7.csv, file8.csv, file9.csv, file10.log, file1.log, file2.log, file3.log, file4.log, file5.log, file6.log, file7.log, file8.log, file9.log, file10.txt, file1.txt, file2.txt, file3.txt, file4.txt, file5.txt, file6.txt, file7.txt, file8.txt, file9.txt
- \$ ls *.txt
- Output: file10.txt, file1.txt, file2.txt, file3.txt, file4.txt, file5.txt, file6.txt, file7.txt, file8.txt, file9.txt
- \$ ls *.log
- Output: file10.log, file1.log, file2.log, file3.log, file4.log, file5.log, file6.log, file7.log, file8.log, file9.log
- \$ ls ?
- Output: ls: cannot access '?': No such file or directory
- \$ ls file?.log
- Output: file1.log, file2.log, file3.log, file4.log, file5.log, file6.log, file7.log, file8.log, file9.log
- \$ touch {cat,dog}.txt
- \$ mkdir backup
- \$ ls
- Output: backup, file10.log, file1.txt, file3.csv, file4.log, file5.txt, file7.csv, file8.log, file9.txt, cat.txt, file10.txt, file2.csv, file3.log, file4.txt, file6.csv, file7.log, file8.txt, dog.txt, file1.csv, file2.log, file3.txt, file5.csv, file6.log, file7.txt, file9.csv, file10.csv, file1.log, file2.txt, file4.csv, file5.log, file6.txt, file8.csv, file9.log
- \$ cp *.txt backup/
- \$ cp ????.txt backup/
- \$ ls ~/wildcard_lab/backup
- Output: cat.txt, file10.txt, file2.txt, file4.txt, file6.txt, file8.txt, dog.txt, file1.txt, file3.txt, file5.txt, file7.txt, file9.txt

5. Deleting Files:

- Use the rm command with wildcards to delete files.
- Delete all files in the lab directory with a single-character name.
- Delete all files in the backup directory.



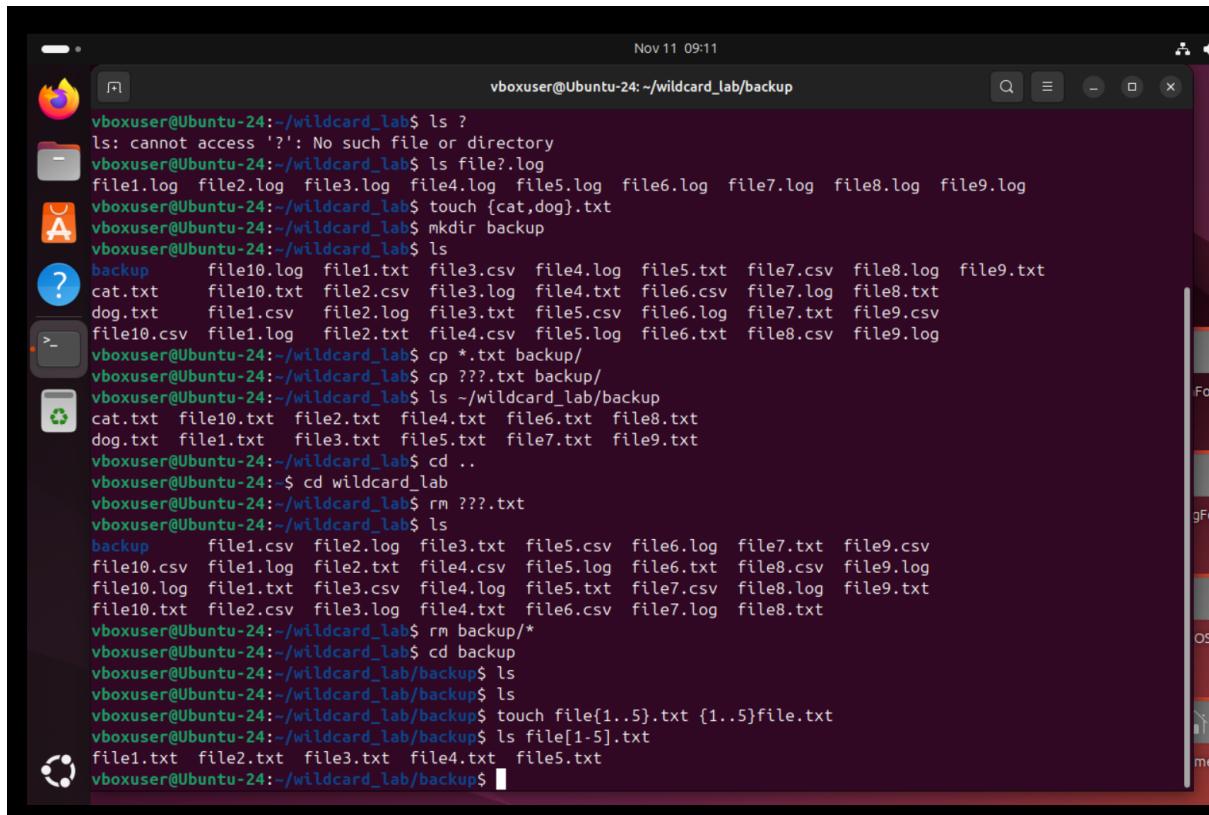
The screenshot shows a terminal window titled "vboxuser@Ubuntu-24: ~/wildcard_lab/backup". The terminal displays the following command-line session:

```
vboxuser@Ubuntu-24:~/wildcard_lab$ ls *.txt
file10.txt file1.txt file2.txt file3.txt file4.txt file5.txt file6.txt file7.txt file8.txt file9.txt
vboxuser@Ubuntu-24:~/wildcard_lab$ ls *.log
file10.log file1.log file2.log file3.log file4.log file5.log file6.log file7.log file8.log file9.log
vboxuser@Ubuntu-24:~/wildcard_lab$ ls ?
ls: cannot access '?': No such file or directory
vboxuser@Ubuntu-24:~/wildcard_lab$ ls file?.log
file1.log file2.log file3.log file4.log file5.log file6.log file7.log file8.log file9.log
vboxuser@Ubuntu-24:~/wildcard_lab$ touch {cat,dog}.txt
vboxuser@Ubuntu-24:~/wildcard_lab$ mkdir backup
vboxuser@Ubuntu-24:~/wildcard_lab$ ls
backup    file10.log file1.txt file3.csv file4.log file5.txt file7.csv file8.log file9.txt
cat.txt   file10.txt file2.csv file3.log file4.txt file6.csv file7.log file8.txt
dog.txt   file1.csv  file2.log file3.txt file5.csv file6.log file7.txt file9.csv
file10.csv file1.log  file2.txt file4.csv file5.log file6.txt file8.csv file9.log
vboxuser@Ubuntu-24:~/wildcard_lab$ cp *.txt backup/
vboxuser@Ubuntu-24:~/wildcard_lab$ cp ????.txt backup/
vboxuser@Ubuntu-24:~/wildcard_lab$ ls ~/wildcard_lab/backup
cat.txt file10.txt file2.txt file4.txt file6.txt file8.txt
dog.txt file1.txt file3.txt file5.txt file7.txt file9.txt
vboxuser@Ubuntu-24:~/wildcard_lab$ cd ..
vboxuser@Ubuntu-24:~$ cd wildcard_lab
vboxuser@Ubuntu-24:~/wildcard_lab$ rm ????.txt
vboxuser@Ubuntu-24:~/wildcard_lab$ ls
backup    file1.csv  file2.log  file3.txt  file5.csv  file6.log  file7.txt  file9.csv
file10.csv file1.log   file2.txt  file4.csv  file5.log   file6.txt  file8.csv  file9.log
file10.log file1.txt   file3.csv  file4.log  file5.txt   file7.csv  file8.log  file9.txt
file10.txt file2.csv   file3.log  file4.txt  file6.csv   file7.log  file8.txt  file9.log
vboxuser@Ubuntu-24:~/wildcard_lab$ rm backup/*
vboxuser@Ubuntu-24:~/wildcard_lab$ cd backup
vboxuser@Ubuntu-24:~/wildcard_lab/backup$ ls
vboxuser@Ubuntu-24:~/wildcard_lab/backup$
```

6. Advanced Wildcards:

- Create new sample files to experiment with advanced wildcards.
- Use curly braces to create files like file1.txt, file2.txt, file3.txt, etc.
- Use square brackets to list files like:
file1.txt, file2.txt, file3.txt, etc.

1file.txt, 2file.txt, 3file.txt, etc.



vboxuser@Ubuntu-24:~/wildcard_lab\$ ls ?
ls: cannot access '?': No such file or directory
vboxuser@Ubuntu-24:~/wildcard_lab\$ ls file?.log
file1.log file2.log file3.log file4.log file5.log file6.log file7.log file8.log file9.log
vboxuser@Ubuntu-24:~/wildcard_lab\$ touch {cat,dog}.txt
vboxuser@Ubuntu-24:~/wildcard_lab\$ mkdir backup
vboxuser@Ubuntu-24:~/wildcard_lab\$ ls
backup file10.log file1.txt file3.csv file4.log file5.txt file7.csv file8.log file9.txt
cat.txt file10.txt file2.csv file3.log file4.txt file6.csv file7.log file8.txt
dog.txt file1.csv file2.log file3.txt file5.csv file6.log file7.txt file9.csv
file10.csv file1.log file2.txt file4.csv file5.log file6.txt file8.csv file9.log
vboxuser@Ubuntu-24:~/wildcard_lab\$ cp *.txt backup/
vboxuser@Ubuntu-24:~/wildcard_lab\$ cp ????.txt backup/
vboxuser@Ubuntu-24:~/wildcard_lab\$ ls ~/wildcard_lab/backup
cat.txt file10.txt file2.txt file4.txt file6.txt file8.txt
dog.txt file1.txt file3.txt file5.txt file7.txt file9.txt
vboxuser@Ubuntu-24:~/wildcard_lab\$ cd ..
vboxuser@Ubuntu-24:~\$ cd wildcard_lab
vboxuser@Ubuntu-24:~/wildcard_lab\$ rm ????.txt
vboxuser@Ubuntu-24:~/wildcard_lab\$ ls
backup file1.csv file2.log file3.txt file5.csv file6.log file7.txt file9.csv
file10.csv file1.log file2.txt file4.csv file5.log file6.txt file8.csv file9.log
file10.log file1.txt file3.csv file4.log file5.txt file7.csv file8.log file9.txt
file10.txt file2.csv file3.log file4.txt file6.csv file7.log file8.txt
vboxuser@Ubuntu-24:~/wildcard_lab\$ rm backup/*
vboxuser@Ubuntu-24:~/wildcard_lab\$ cd backup
vboxuser@Ubuntu-24:~/wildcard_lab/backup\$ ls
vboxuser@Ubuntu-24:~/wildcard_lab/backup\$ ls
vboxuser@Ubuntu-24:~/wildcard_lab/backup\$ touch file{1..5}.txt {1..5}file.txt
vboxuser@Ubuntu-24:~/wildcard_lab/backup\$ ls file[1-5].txt
file1.txt file2.txt file3.txt file4.txt file5.txt
vboxuser@Ubuntu-24:~/wildcard_lab/backup\$

- Exercise 3:

1. Create a directory named logs in your home directory.
 - Inside the logs directory, create the following log files with different timestamps in their names (e.g., log20230101.txt, log20230102.txt, etc.):

log20230101.txt

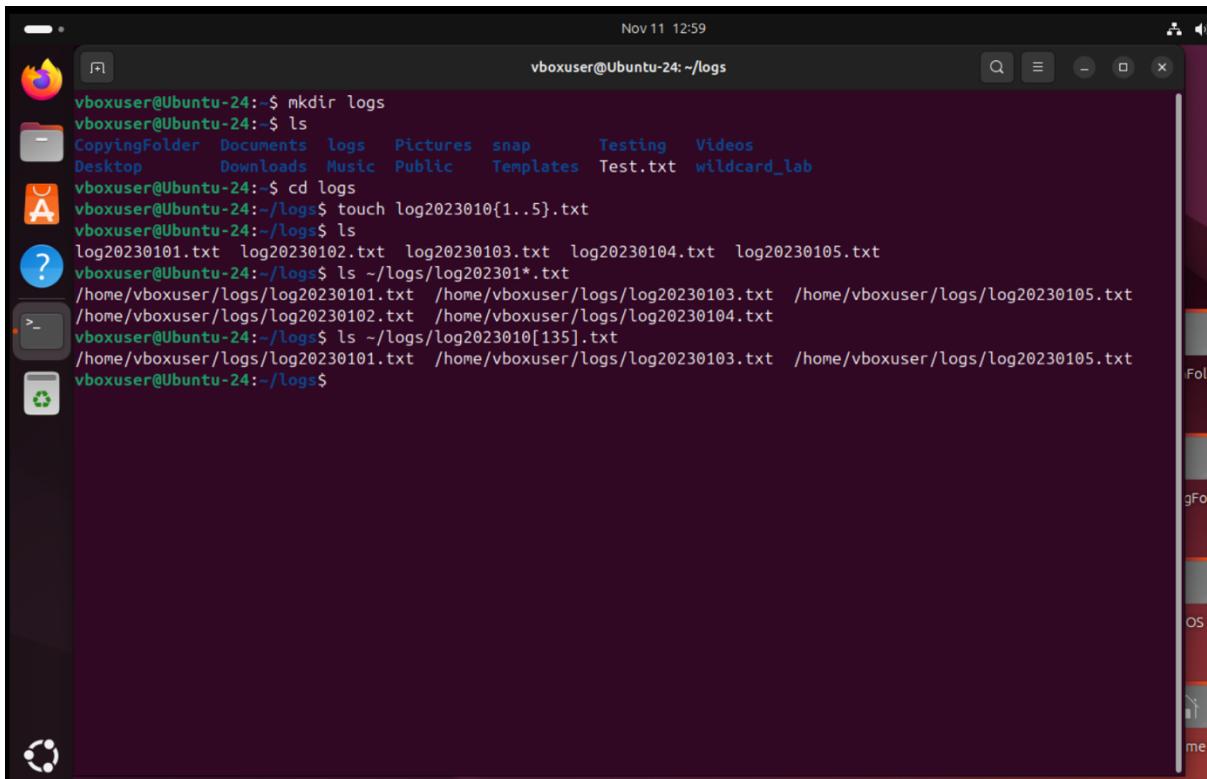
log20230102.txt

log20230103.txt

log20230104.txt

log20230105.txt

2. Use a wildcard pattern to list and display only the log files that have timestamps in January 2023 (files like log20230101.txt, log20230102.txt, etc.).
3. Use a wildcard pattern to list and display only the log files that have timestamps on days ending in an odd number (files like log20230101.txt, log20230103.txt, log20230105.txt, etc.).



A screenshot of a Linux terminal window titled "vboxuser@Ubuntu-24: ~/logs". The terminal shows the following command history:

```
vboxuser@Ubuntu-24:~$ mkdir logs
vboxuser@Ubuntu-24:~$ ls
CopyingFolder Documents logs Pictures snap Testing Videos
Desktop Downloads Music Public Templates Test.txt wildcard_lab
vboxuser@Ubuntu-24:~$ cd logs
vboxuser@Ubuntu-24:~/logs$ touch log2023010{1..5}.txt
vboxuser@Ubuntu-24:~/Logs$ ls
log20230101.txt log20230102.txt log20230103.txt log20230104.txt log20230105.txt
vboxuser@Ubuntu-24:~/Logs$ ls -/logs/log202301*.txt
/home/vboxuser/logs/log20230101.txt /home/vboxuser/logs/log20230103.txt /home/vboxuser/logs/log20230105.txt
/home/vboxuser/logs/log20230102.txt /home/vboxuser/logs/log20230104.txt
vboxuser@Ubuntu-24:~/Logs$ ls -/logs/log2023010[135].txt
/home/vboxuser/logs/log20230101.txt /home/vboxuser/logs/log20230103.txt /home/vboxuser/logs/log20230105.txt
vboxuser@Ubuntu-24:~/Logs$
```

- Exercise 4
 - Create a directory named **link_lab**.
 - Inside **link_lab**, create a text file named **original.txt** and add some content to it.
 - Create a symbolic link to **original.txt** named **symlink.txt**.
 - Create a hard link to **original.txt** named **hardlink.txt**.
 - Verify that changes to **original.txt** are reflected in both **symlink.txt** and **hardlink.txt**.
 - Try creating a symbolic link to a non-existent file or directory.

```
Nov 11 13:22
vboxuser@Ubuntu-24:~$ mkdir link_lab
vboxuser@Ubuntu-24:~$ ls
CopyingFolder Documents link_lab Music Public Templates Test.txt wildcard_lab
Desktop Downloads logs Pictures snap Testing Videos
vboxuser@Ubuntu-24:~$ cd link_lab
vboxuser@Ubuntu-24:~/link_lab$ touch original.txt
vboxuser@Ubuntu-24:~/link_lab$ ls
original.txt
vboxuser@Ubuntu-24:~/link_lab$ echo "Original text content blah blah blah" > original.txt
vboxuser@Ubuntu-24:~/link_lab$ ln -s ~/link_lab/original.txt ~/link_lab/symlink.txt
vboxuser@Ubuntu-24:~/link_lab$ ls
original.txt symlink.txt
vboxuser@Ubuntu-24:~/link_lab$ ln ~/link_lab/original.txt ~/link_lab/hardlink.txt
vboxuser@Ubuntu-24:~/link_lab$ ls
hardlink.txt original.txt symlink.txt
vboxuser@Ubuntu-24:~/link_lab$ echo "Additional original content text" > original.txt
vboxuser@Ubuntu-24:~/link_lab$ cat original.txt
Additional original content text
vboxuser@Ubuntu-24:~/link_lab$ cat symlink.txt
Additional original content text
vboxuser@Ubuntu-24:~/link_lab$ cat hardlink.txt
Additional original content text
vboxuser@Ubuntu-24:~/link_lab$ ln -s ~/link_lab/non_existent.txt ~/link_lab/broken_symlink.txt
vboxuser@Ubuntu-24:~/link_lab$ ls
broken_symlink.txt hardlink.txt original.txt symlink.txt
vboxuser@Ubuntu-24:~/link_lab$ ls -l link_lab
ls: cannot access 'link_lab': No such file or directory
vboxuser@Ubuntu-24:~/link_lab$ ls -l ~/link_lab
total 8
lrwxrwxrwx 1 vboxuser vboxuser 40 Nov 11 13:21 broken_symlink.txt -> /home/vboxuser/link_lab/non_existent.txt
-rw-rw-r-- 2 vboxuser vboxuser 33 Nov 11 13:15 hardlink.txt
-rw-rw-r-- 2 vboxuser vboxuser 33 Nov 11 13:15 original.txt
```