# Lecture _5

LINUX essentials

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# Viewing Files

# Viewing Files

- There are a few Linux commands available to view the content of files. The cat command, which stands for "**concatenate**", is often used to quickly view the contents of small files.
- One of the most basic methods for opening text files is using the cat (short for concatenate) command. To open files using cat.
- The cat command will display the entire contents of the file, hence why it is mainly recommended for smaller files where the output is limited and does not require scrolling.

# Syntax for cat command

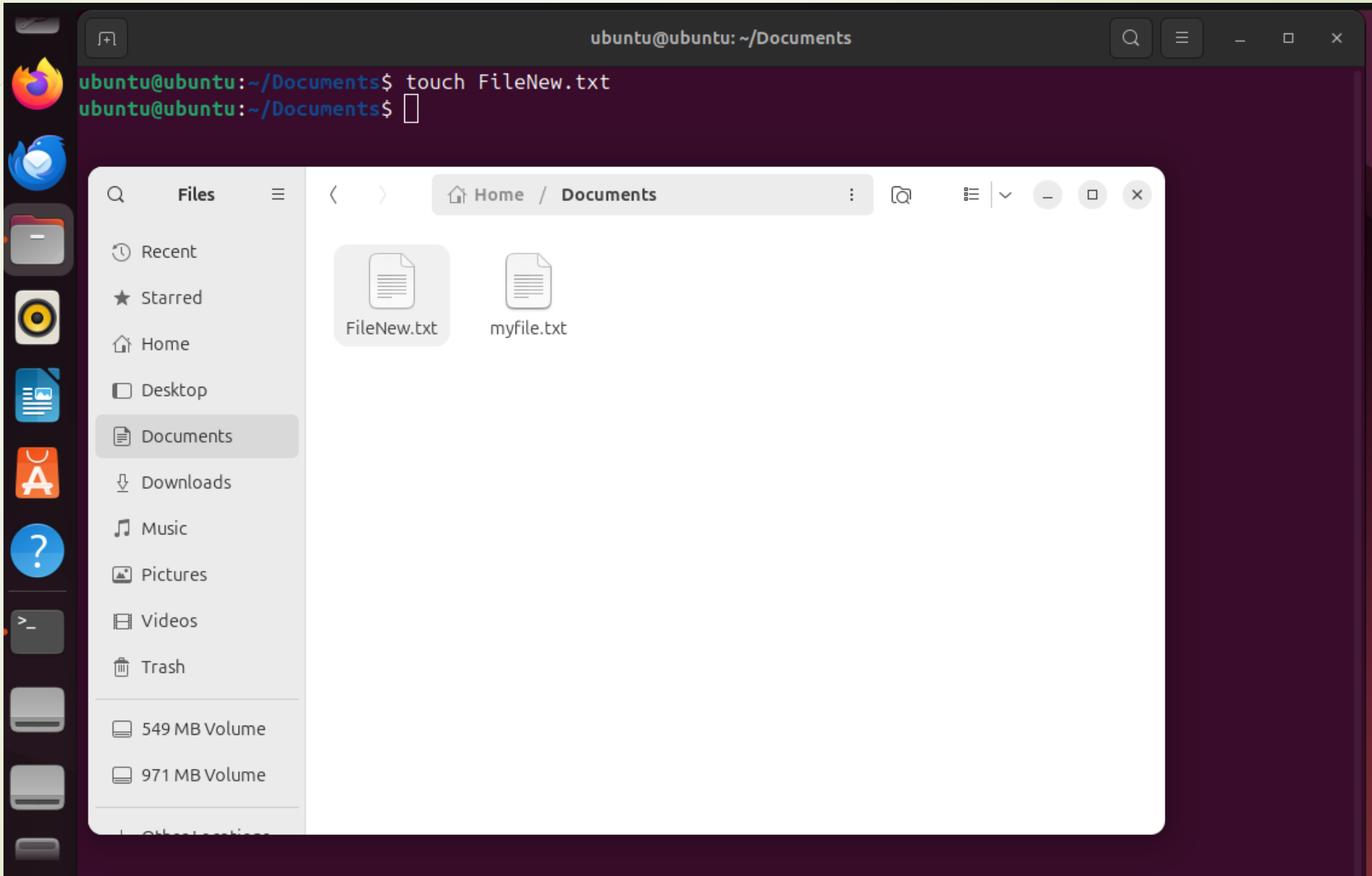
```
cat [OPTIONS] [FILE]
```

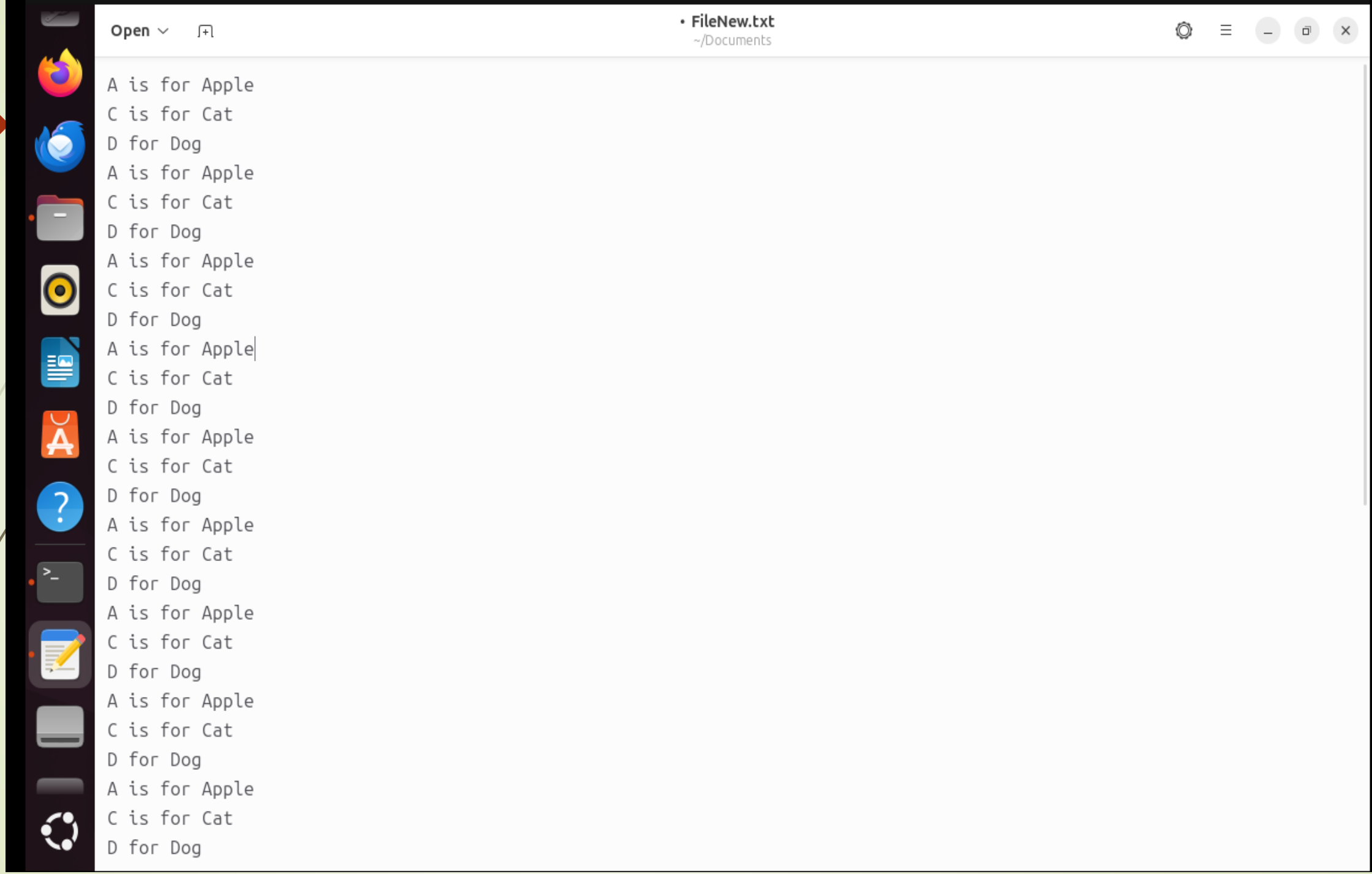
To view the contents of a file using the cat command, simply type the command and use the name of the file you wish to view as the argument.

The cat (concatenate) command is one of the simplest ways to view a file. It reads the entire contents of a file and prints them to the standard output.

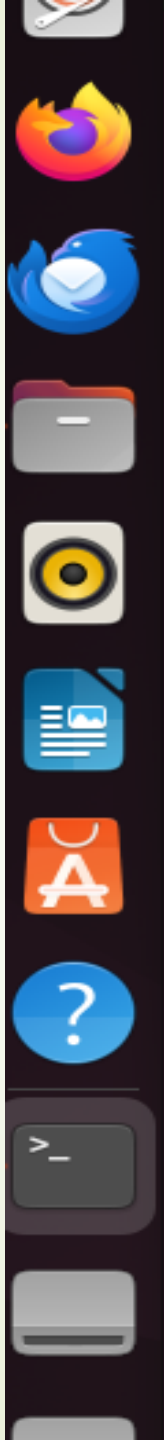
# Example for cat command

**Create new file called FileNew.txt**




Open
• FileNew.txt
~/Documents
A is for Apple
C is for Cat
D for Dog
A is for Apple
C is for Cat
D for Dog
A is for Apple
C is for Cat
D for Dog
A is for Apple
C is for Cat
D for Dog
A is for Apple
C is for Cat
D for Dog
A is for Apple
C is for Cat
D for Dog
A is for Apple
C is for Cat
D for Dog
A is for Apple
C is for Cat
D for Dog
A is for Apple
C is for Cat
D for Dog

Display all the content of **FileNew.txt**



```
ubuntu@ubuntu:~/Documents$ cat FileNew.txt
A is for Apple
C is for Cat
D for Dog
A is for Apple
C is for Cat
D for Dog
A is for Apple
C is for Cat
D for Dog
This a lesson for linux files
C is for Cat
D for Dog
A is for Apple
C is for Cat
D for Dog
A is for Apple
C is for Cat
D for degree
A is for Apple
C is for Cat
D for Dog
A is for Apple
C is for Cat
D for Dog
A is for Apple
C is for Cat
End of lines
```

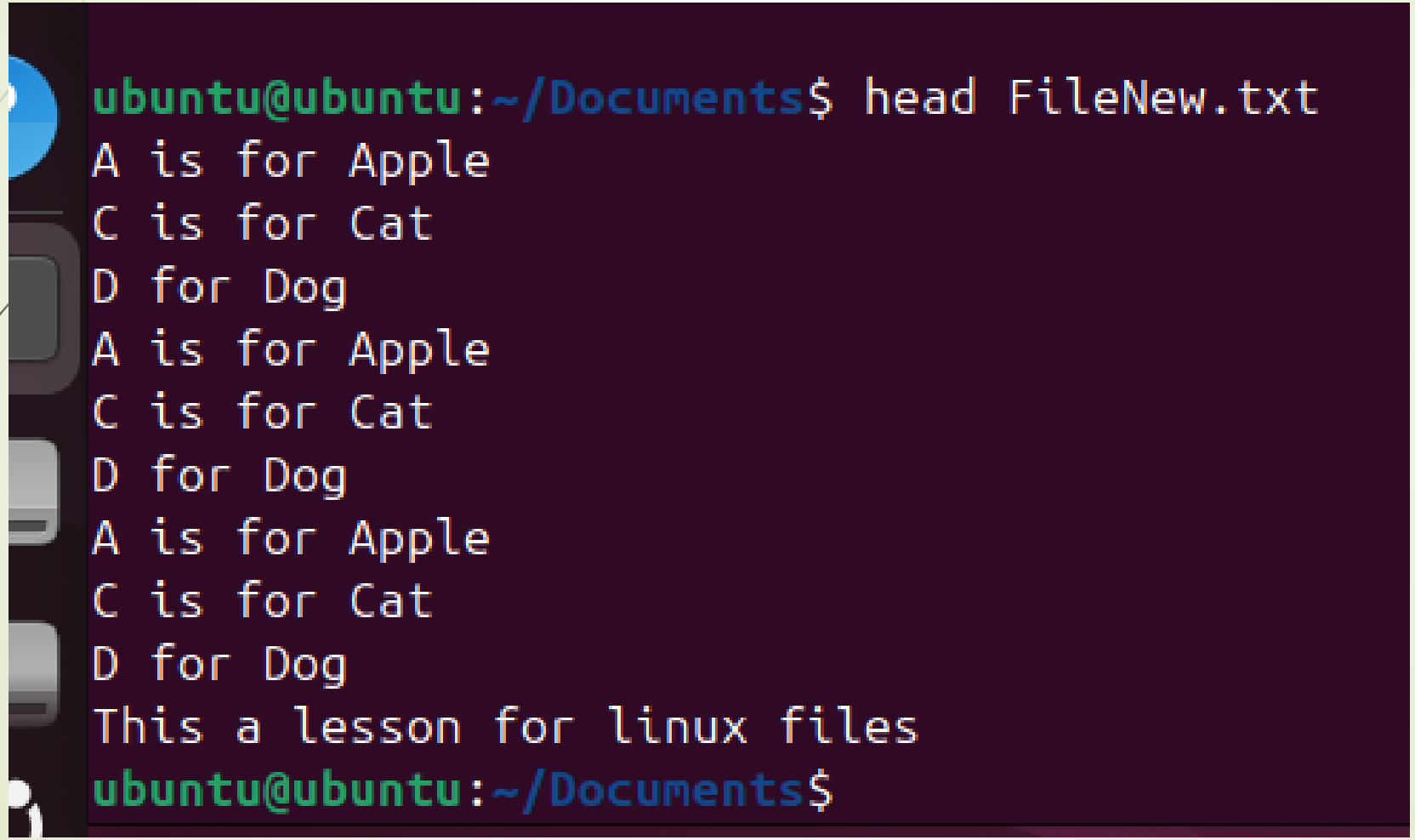
# Using head and tail

- Another way to view the content of files is by using the head and tail commands. These commands are used to view a select number of lines from the top or bottom of a file. The head command is used to display the first few lines of a file, while the tail command is used to display the last few lines.

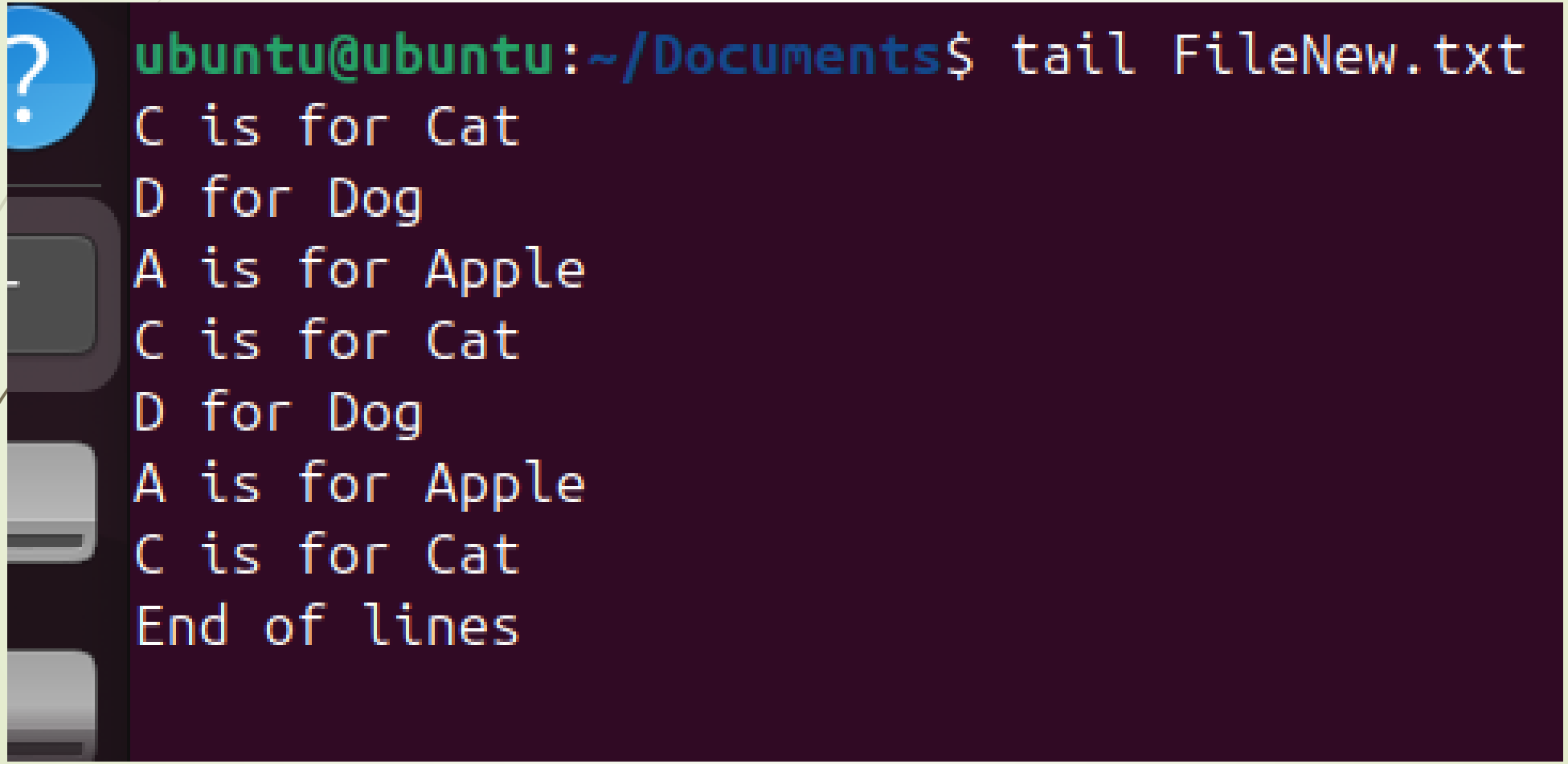
```
head [OPTIONS] [FILE]

tail [OPTIONS] [FILE]
```

Show the beginning or top of a file. So, if you want to see the first few lines of a file, type.

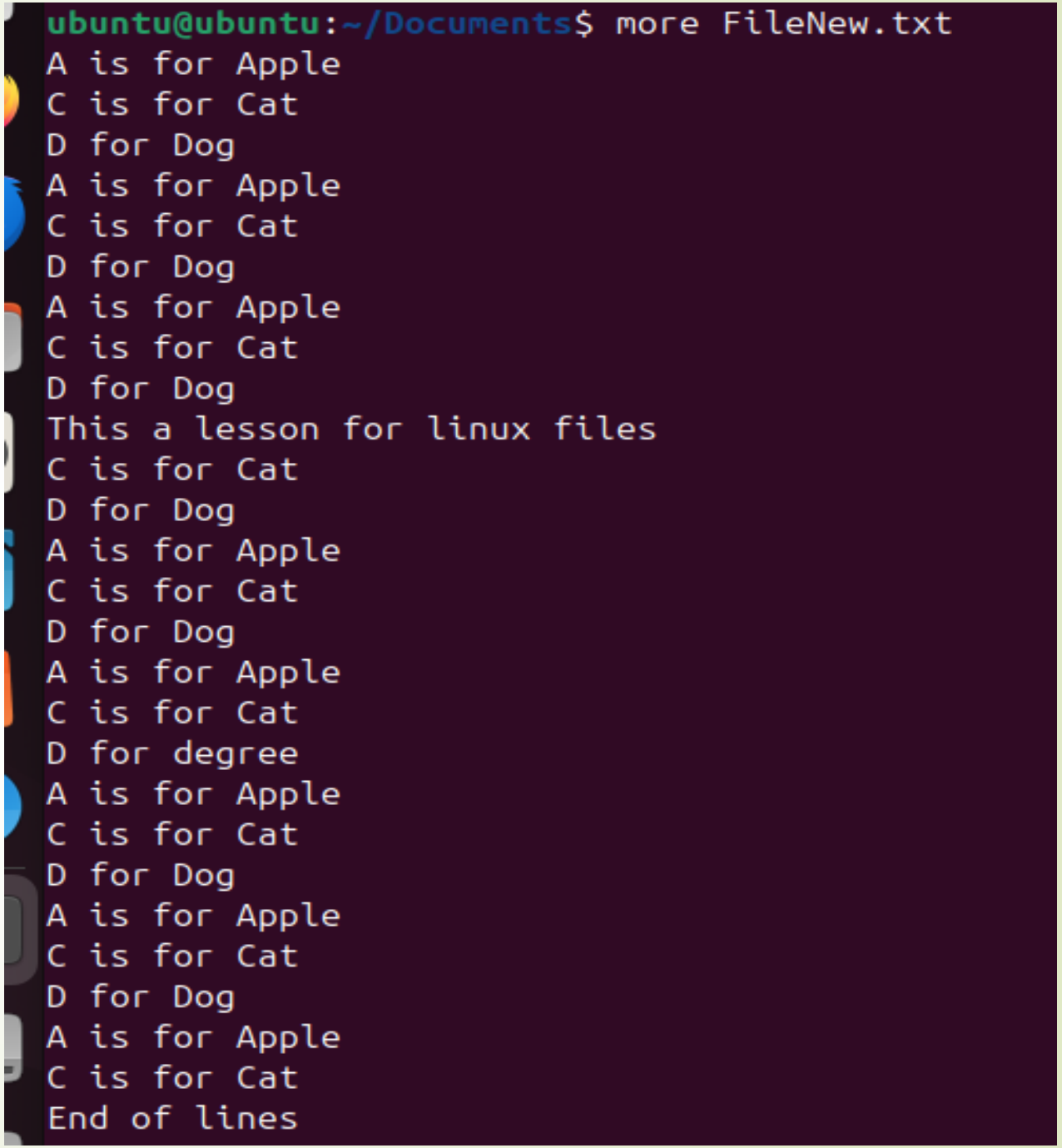


To see the ending lines or bottom of a text file, type.



# Using more command

- The **more** command is useful for viewing large files. It displays the file one screen at a time. When you reach the end of the screen, you can press the **Space** key to view the next screen or **q** to quit.

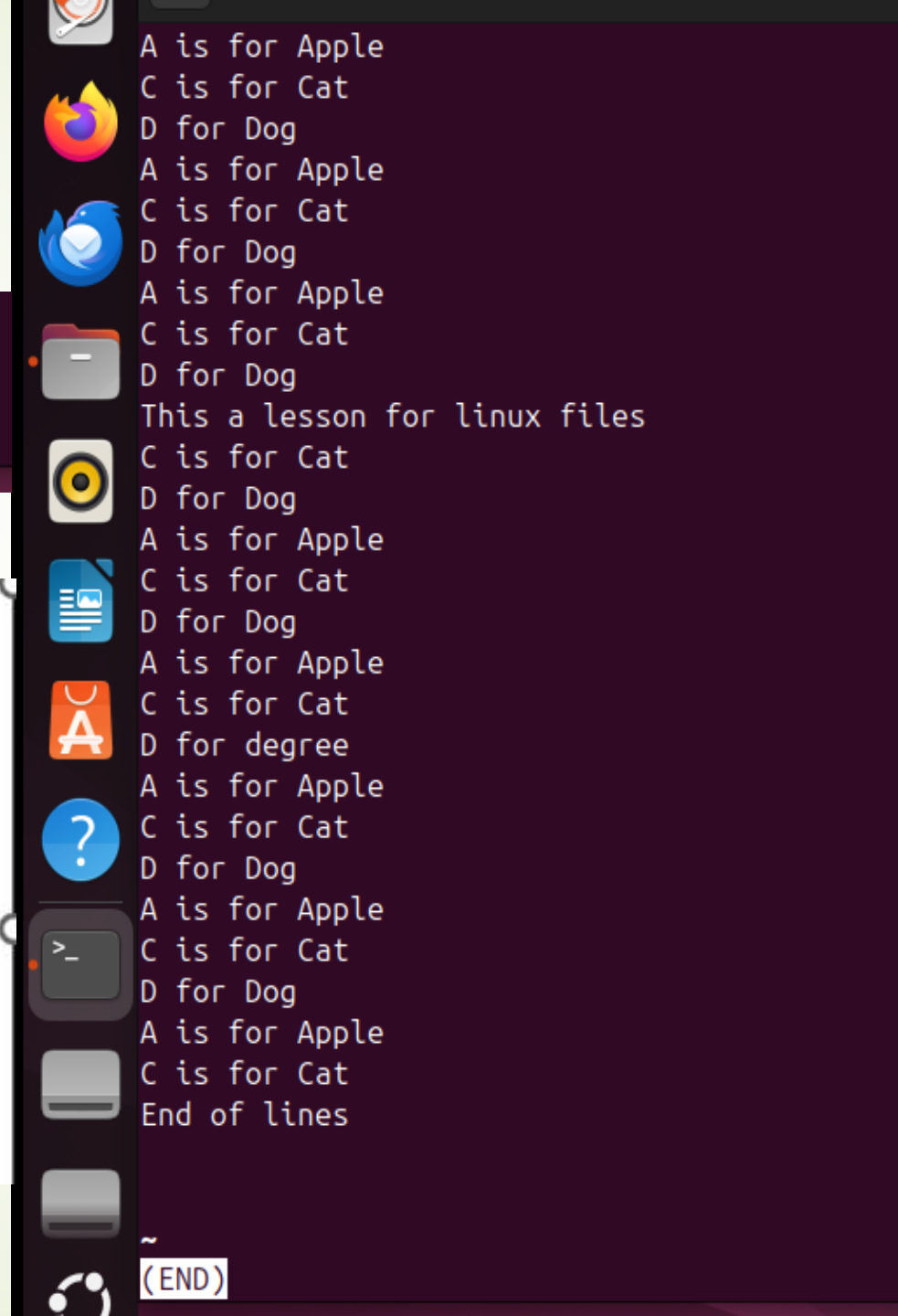


# Using less command

```
ubuntu@ubuntu:~/Documents$ less FileNew.txt
ubuntu@ubuntu:~/Documents$
```

Some useful commands while using `less`:

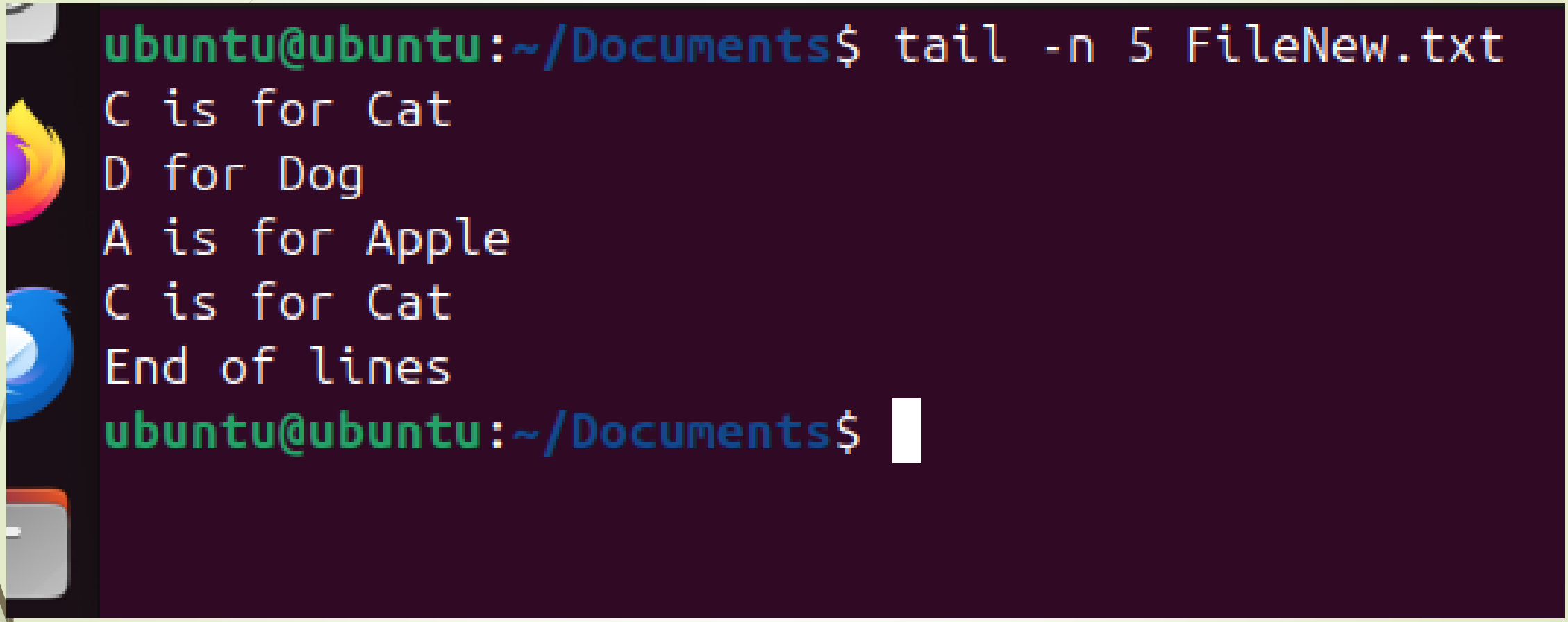
- `j` and `k`: Move down and up one line respectively.
- `n`: Go to the next occurrence of the pattern.
- `N`: Go to the previous occurrence of the pattern.
- `q`: Quit `less`.



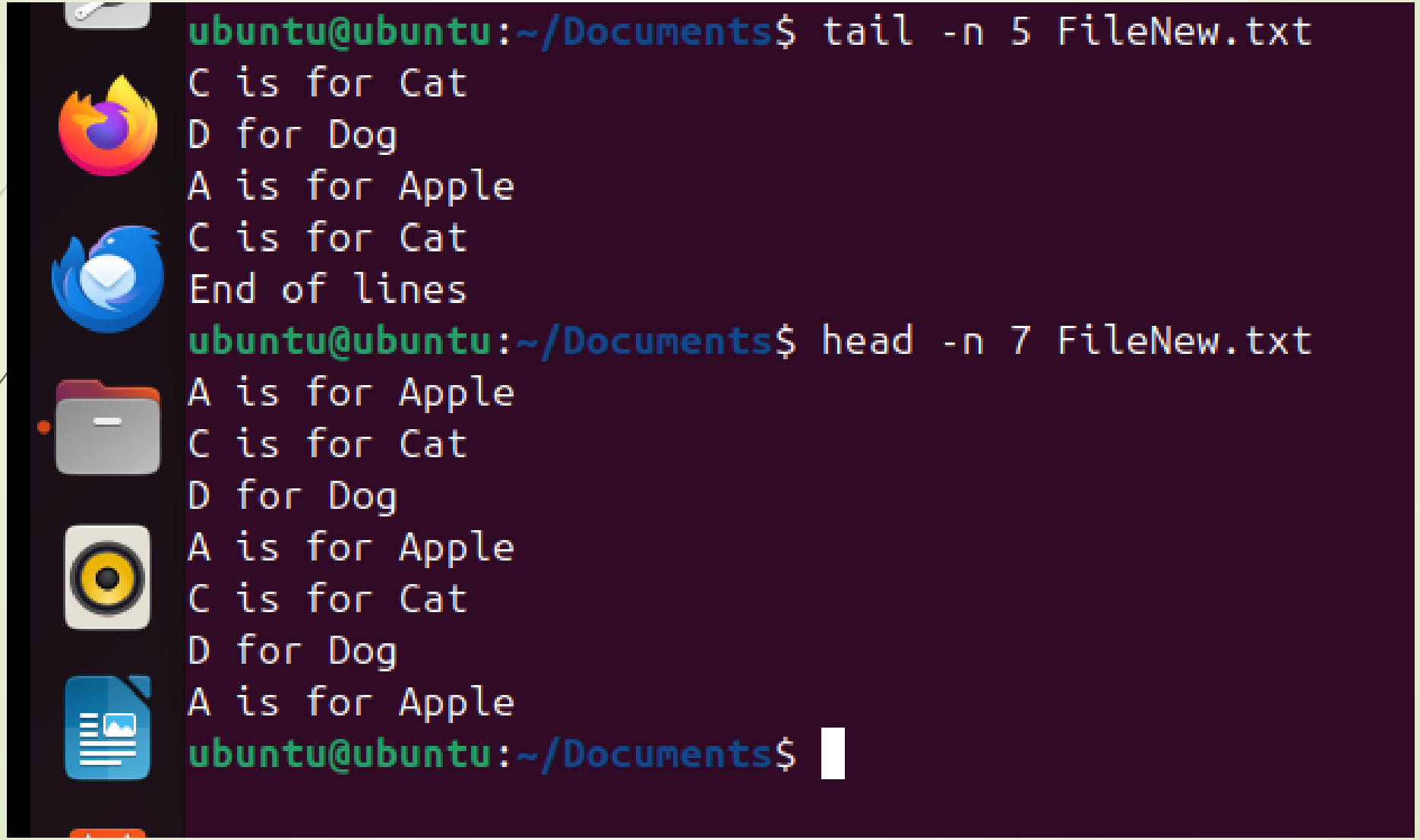
- The -n option with the head and tail commands can be used to specify the number of lines to display. To use the -n option, specify the number of lines from the file you want to display after the option and use  the filename as an argument:

```
head -n number_of_lines filename
```

# Display the last 5 lines of a file



# Display the first 7 lines of a file



# echo command in Linux

- The **echo** command in Linux is a built-in command that allows users to display lines of text or strings that are passed as arguments. It is commonly used in shell scripts and batch files to output status text to the screen or a file.
- The most straightforward usage of the echo command is to display a text or string on the terminal. To do this, you simply provide the desired text or string as an argument to the echo command.

# Syntax of `echo` command in Linux

```
echo [option] [string]
```

Here,

[options] = The various options available for modifying the behavior of the `echo` command

[string] = It is the string that we want to display.

```
ubuntu@ubuntu:~/Documents$ echo "Hello, this a lesson for Linux"
Hello, this a lesson for Linux
ubuntu@ubuntu:~/Documents$
```

# Options Available in `echo` command in Linux

- **-e** here enables the interpretation of backslash escapes.
- \b : it removes all the spaces in between the text

**\c :** suppress trailing new line with backspace interpreter `-e` to continue without emitting new line.

```
ubuntu@ubuntu:~/Documents$ echo -e "This Lesson \c for Linux"
This Lesson ubuntu@ubuntu:~/Documents$
```

**In the above example, text after \c is not printed and omitted trailing new line.**

# **\n :** this option creates a new line from where it is used.

```
ubuntu@ubuntu:~/Documents$ echo -e "Hello\n This Lesson for Linux "
Hello
 This Lesson for Linux
ubuntu@ubuntu:~/Documents$
```

raghvendra@raghvendra-Inspiron-15-3567: ~

File Edit View Search Terminal Help

```
raghvendra@raghvendra-Inspiron-15-3567:~$ echo -e "Geeks \nfor \nGeeks"
Geeks
for
Geeks
raghvendra@raghvendra-Inspiron-15-3567:~$
```

**\t :** this option is used to create horizontal tab spaces.

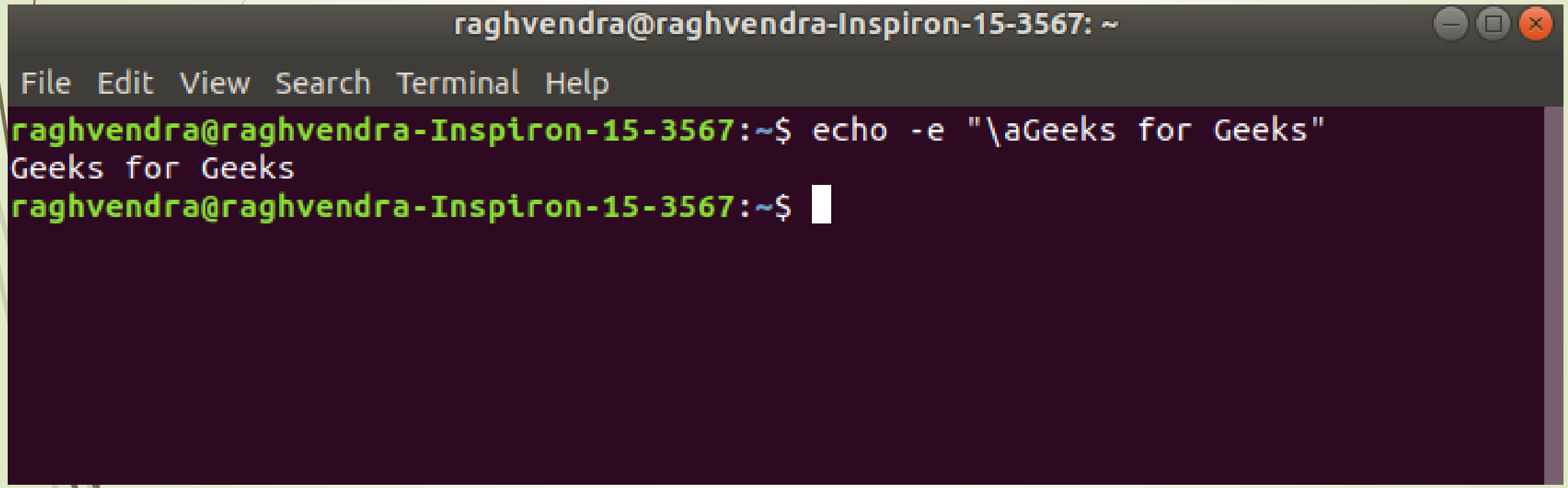
```
ubuntu@ubuntu:~/Documents$ echo -e "hi\tBoys\tHow are you?"
hi      Boys    How are you?
ubuntu@ubuntu:~/Documents$
```

text before **\r** is not printed.

```
ubuntu@ubuntu:~/Documents$ echo -e "Hello\rGood Morning"
Good Morning
ubuntu@ubuntu:~/Documents$
```

# **\v** : this option is used to create vertical tab spaces.

# **\a :** alert return with backspace interpreter ‘-e‘ to have sound alert.

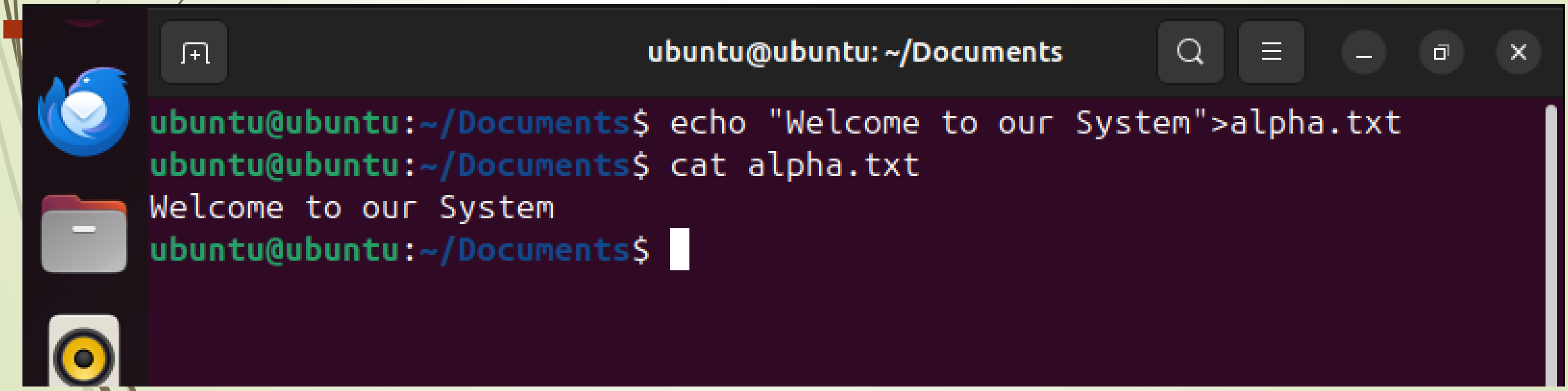


The output of the `echo` can be redirected to a file instead of displaying it on the terminal. We can achieve this by using the `>` or `>>` operators for output redirection. “**>**” and “**>>**” both of these operators represent **output redirection** in Linux.

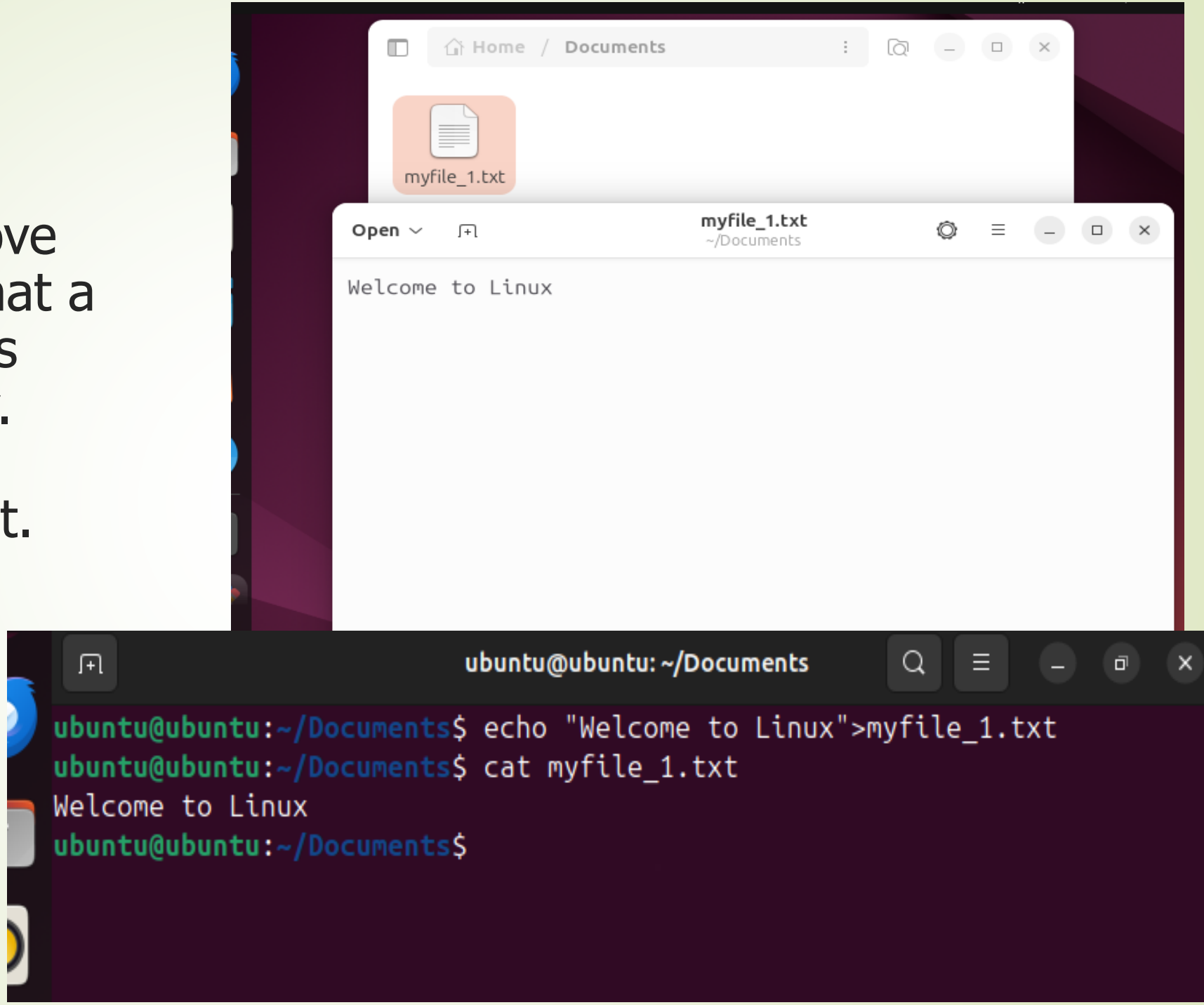
Operators are characters that offer various functionalities. And these redirection operators **redirect** the result or the output.

# The “>” Operator

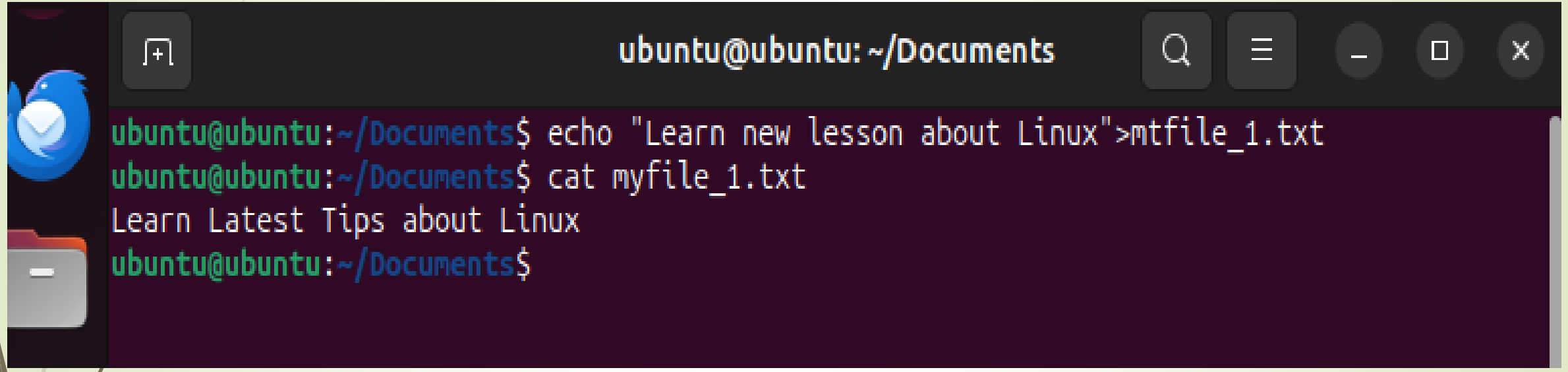
- “>” overwrites an already existing file or a new file is created providing the mentioned file name isn’t there in the directory. This means that while making changes in a file you need to overwrite certain any existing data, use the “>” operator.

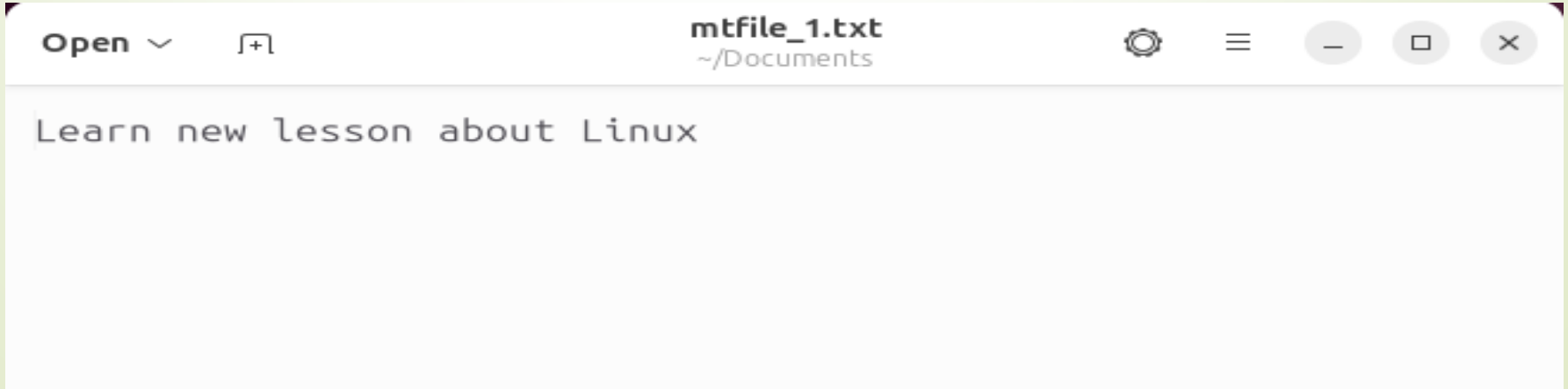


After executing the above command, you'll find that a text file "myfile_1.txt" is created in the directory. It'll contain the text "Welcome to Linux" in it.



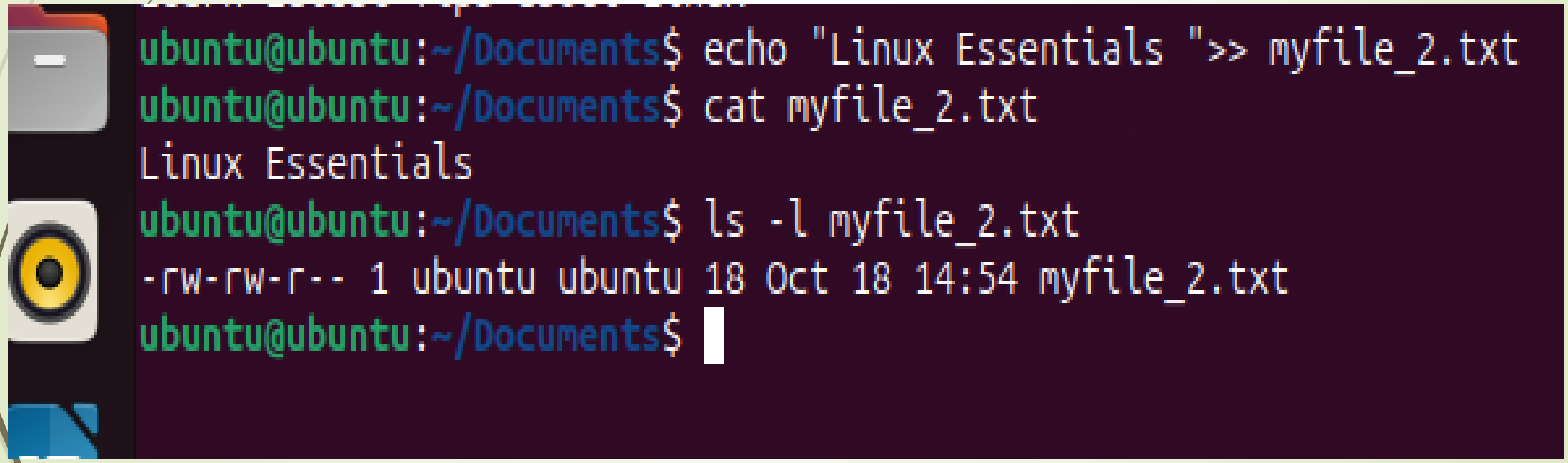
Now, let's execute the same command with a different text. You'll see that the new text has successfully overwritten the earlier text.



# The ">>" Operator

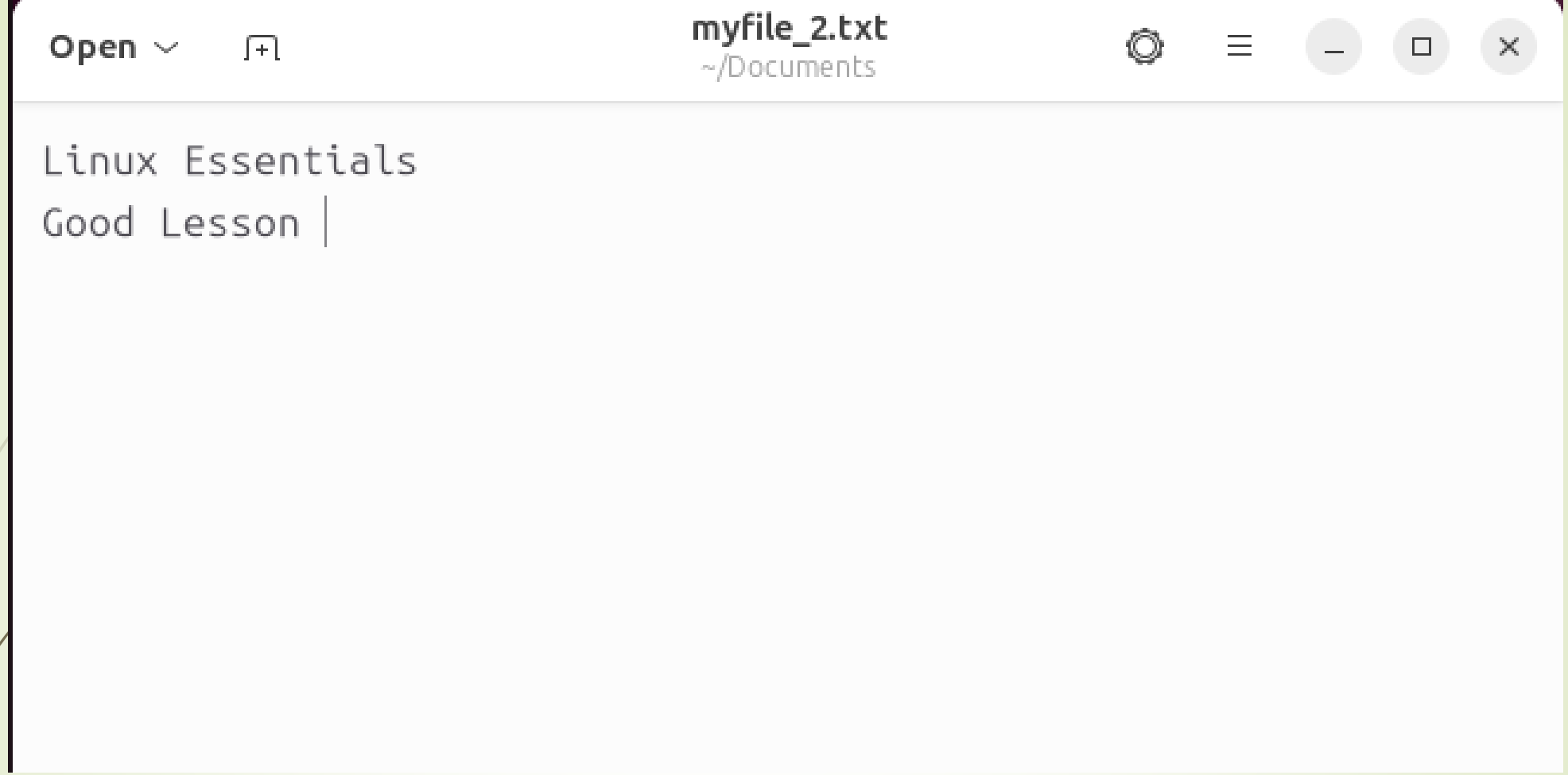
- ">>" operator appends an already present file or creates a new file if that file name doesn't exist in the directory.
- The above command will create a file by the name "my_file_2.txt" in your current directory.




Open
myfile_2.txt
~/Documents
Linux Essentials

Let’s alter the text, now, into, And you’ll see instead of overwriting the previously entered text, the “>>” operator has appended the text.

```
ubuntu@ubuntu:~/Documents$ echo "Linux Essentials ">> myfile_2.txt
ubuntu@ubuntu:~/Documents$ cat myfile_2.txt
Linux Essentials
ubuntu@ubuntu:~/Documents$ ls -l myfile_2.txt
-rw-rw-r-- 1 ubuntu ubuntu 18 Oct 18 14:54 myfile_2.txt
ubuntu@ubuntu:~/Documents$ echo "Good Lesson ">>myfile_2.txt
ubuntu@ubuntu:~/Documents$ cat myfile_2.txt
Linux Essentials
Good Lesson
ubuntu@ubuntu:~/Documents$
```




So, what we learned is, the “>” is the output redirection operator used for overwriting files that already exist in the directory. While the “>>” is an output operator as well, but it appends the data of an existing file. Often, both of these operators are used together to **modify** files in Linux.

# uname command in Linux

- Let's start with the basics. The term "uname" stands for "Unix Name," and the command itself is designed to provide you with key details about your Linux system. It's like asking your computer, "Hey, who are you, and what are you made of?" The answers you get can help you understand your system's kernel version, operating system, hardware architecture, and more. This command '**uname**' displays the information about the system.

## Syntax:

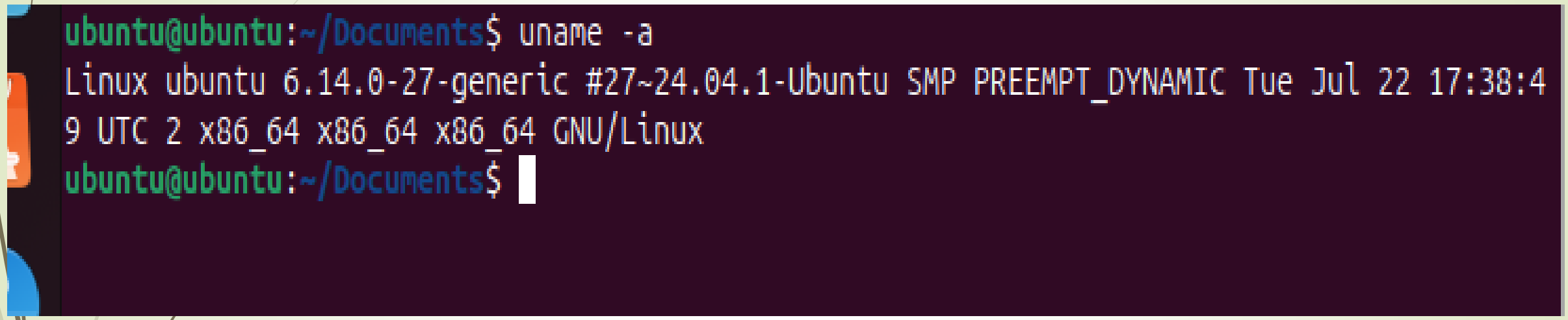
The basic syntax of '**uname**' command is as follows:

```
uname [OPTIONs]
```

# Options and Examples of 'uname' Command in Linux

| Options | Description |
| --- | --- |
| `'-a'` or `'--all'` | Displays all available information. |
| `'-s'` or `'--kernel-name'` | Shows the kernel name. |
| `'-n'` or `'--nodename'` | Displays the network (domain) name of the machine. |
| `'-r'` or `'--kernel-release'` | Shows the kernel release. |
| `'-v'` or `'--kernel-version'` | Displays the kernel version. |
| `'-m'` or `'--machine'` | Shows the machine hardware name. |
| `'-p'` or `'--processor'` | Displays the processor type or "unknown." |
| `'-i'` or `'--hardware-platform'` | Shows the hardware platform or "unknown." |
| `'-o'` or `'--operating-system'` | Displays the operating system. |

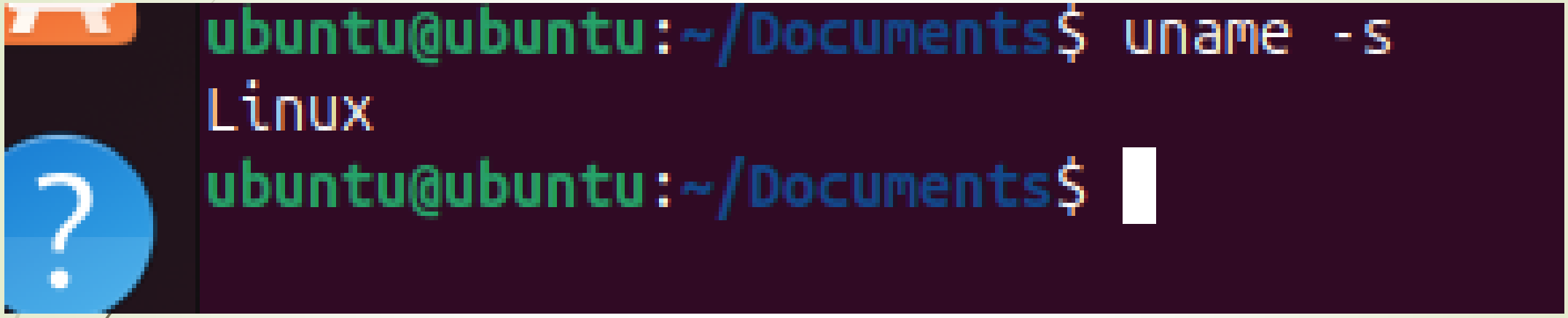
# '-a' option in uname Command in Linux




It prints all the system information in the following order:

Kernel name, network node hostname, kernel release date, kernel version, machine hardware name, hardware platform, operating system.

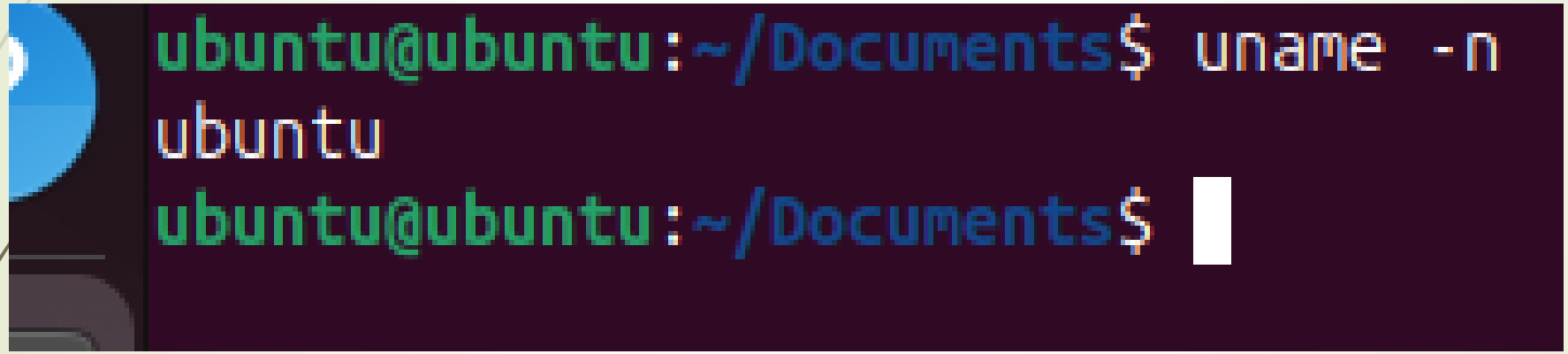
# '-s' option in uname Command in Linux




It prints the kernel name.

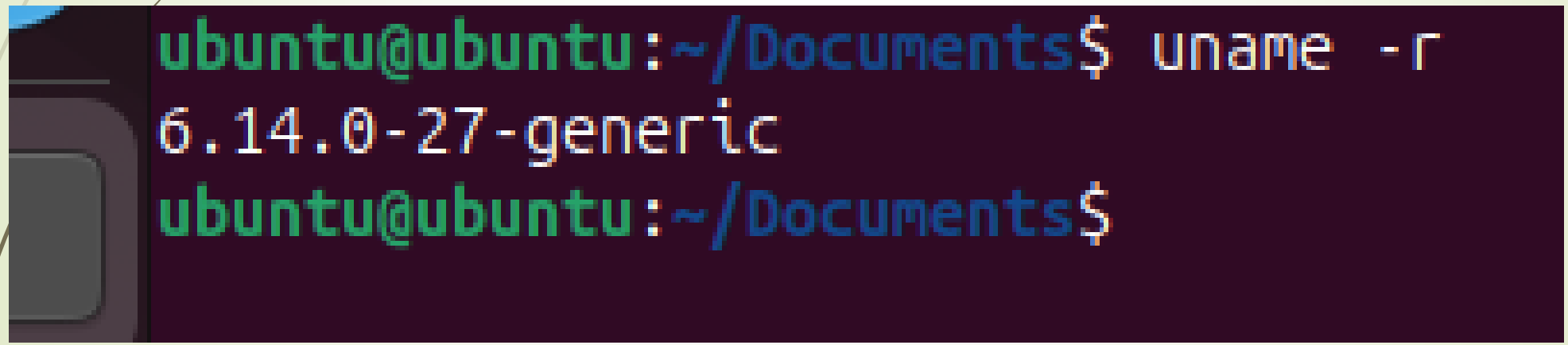
# '-n' option in uname Command in Linux

- It prints the hostname of the network node(current computer).
-



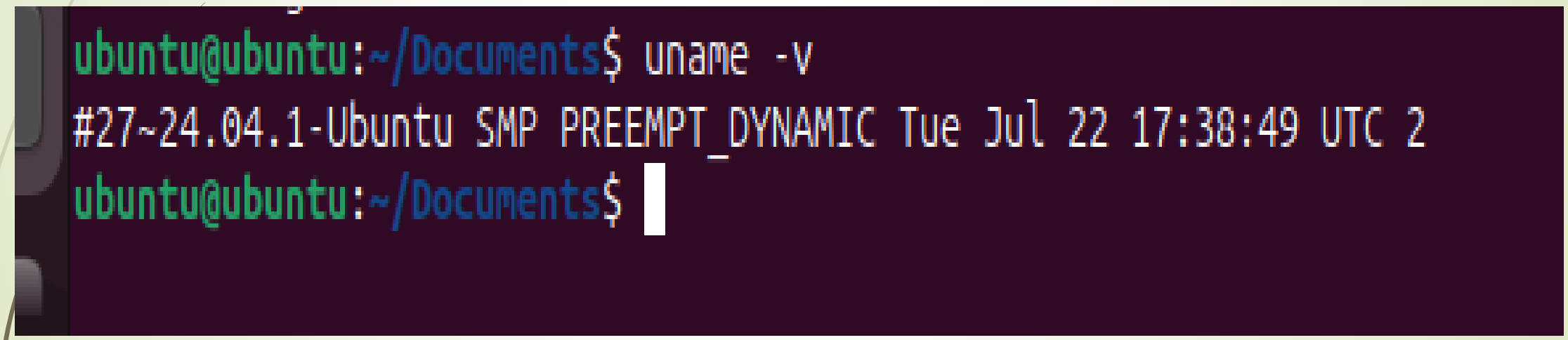
# '-r' option in uname Command in Linux

- It prints the kernel release date. This is useful for debugging or understanding the exact environment you're working in.

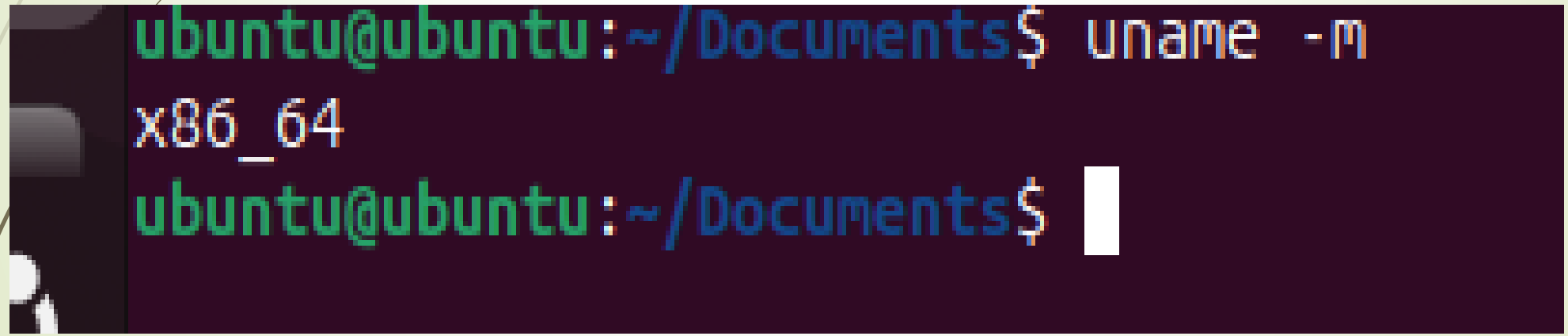


# '-v' option in uname Command in Linux

- It prints the version of the current kernel, including the build date and time.

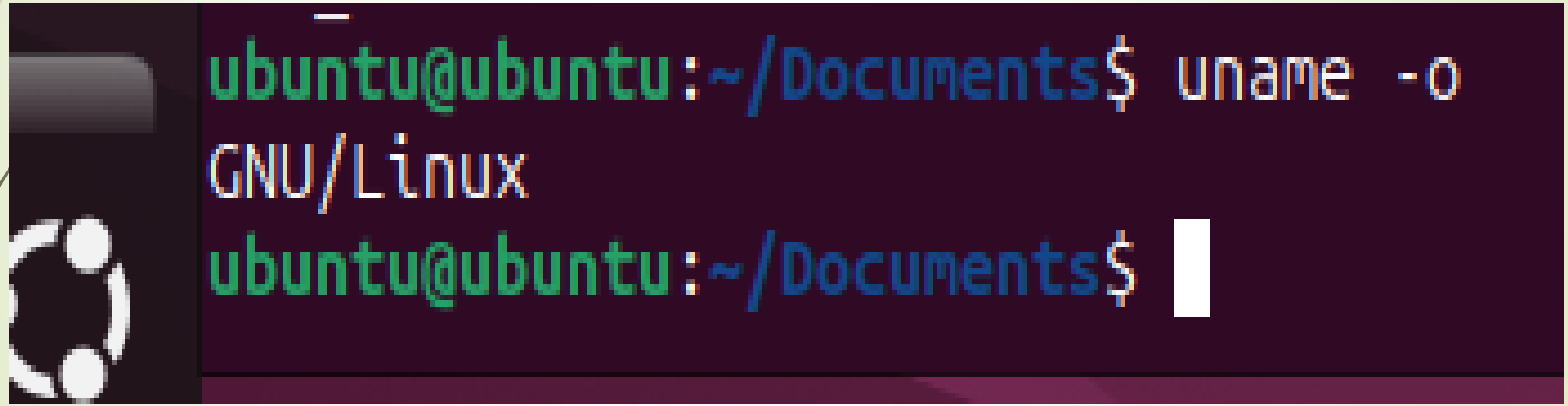


# '-m' option in uname Command in Linux

- It prints the machine hardware name of the machine, such as '**x86_64**' for a 64-bit system.
- 

# '-o' option in uname Command in Linux

- It prints the name of the operating system running on the machine.



# References


- https://www.howtogeek.com/ways-to-view-or-open-a-file-in-the-linux-terminal/
- https://linuxvox.com/blog/view-files-in-linux/#fundamental-concepts
- https://www.geeksforgeeks.org/linux-unix/echo-command-in-linux-with-examples/
- https://www.shells.com/l/en-US/tutorial/Difference-between-%E2%80%9C%3E%E2%80%9D-and-%E2%80%9C%3E%3E%E2%80%9D-in-Linux
- Ramses van Zon," Securing File Access Permissions on Linux ", SciNet HPC, University of Toronto ,27 October 2022.
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