

OPS102 – Week 4 – File Systems

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Activity 1: Redirection and Piping

Put following text to a file called gpt.txt

ChatGPT is an artificial intelligence chatbot developed by OpenAI and released in November 2022.

The name "ChatGPT" combines "Chat", referring to its chatbot functionality, and "GPT", which stands for Generative Pre-trained Transformer, a type of large language model.

Wikipedia

ChatGPT has been trained on huge amount of data scraped from internet.

This has enabled us to develop artificial programmes that can answer questions like humans.

Redirection:

Redirection can send input to a command from a file or can send output of a command to a file.

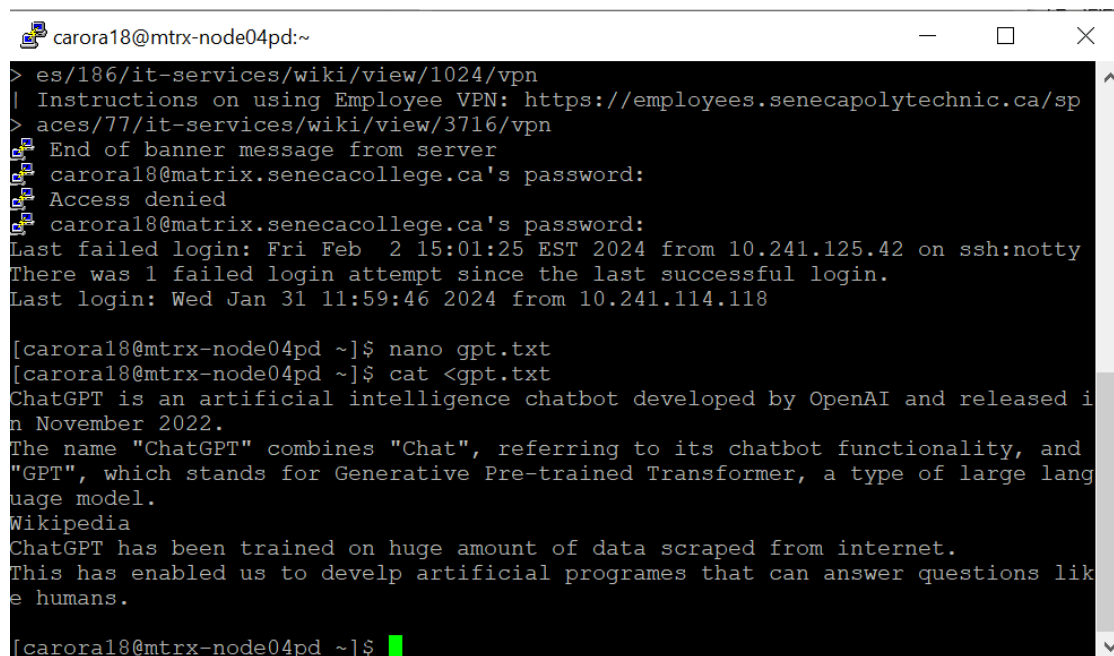
Input redirection symbol: <

Command < filename

1. Run the command on Linux: **cat < gpt.txt**

What do you see and why?

Ans:-



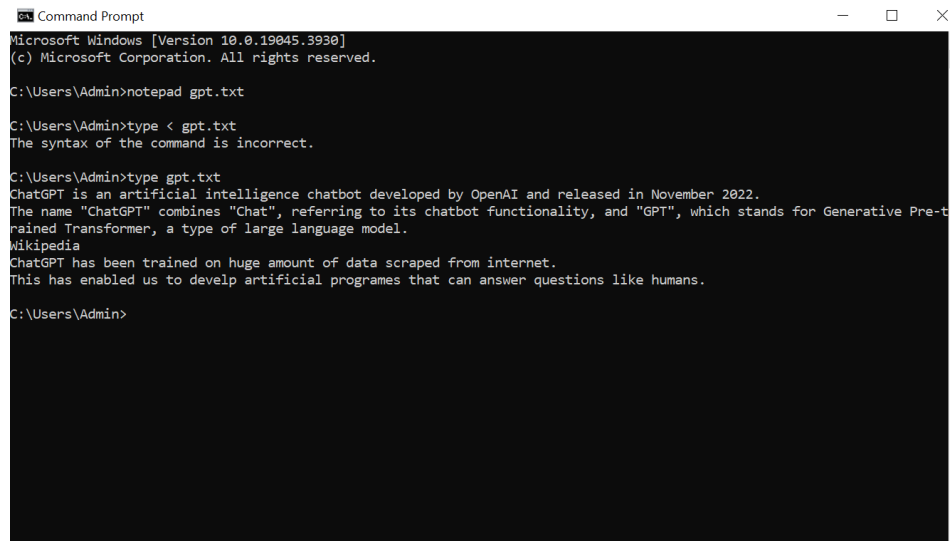
```
carora18@mtrx-node04pd:~  
> es/186/it-services/wiki/view/1024/vpn  
| Instructions on using Employee VPN: https://employees.senecapolytechnic.ca/sp  
> aces/77/it-services/wiki/view/3716/vpn  
End of banner message from server  
carora18@matrix.senecacollege.ca's password:  
Access denied  
carora18@matrix.senecacollege.ca's password:  
Last failed login: Fri Feb  2 15:01:25 EST 2024 from 10.241.125.42 on ssh:notty  
There was 1 failed login attempt since the last successful login.  
Last login: Wed Jan 31 11:59:46 2024 from 10.241.114.118  
  
[carora18@mtrx-node04pd ~]$ nano gpt.txt  
[carora18@mtrx-node04pd ~]$ cat <gpt.txt  
ChatGPT is an artificial intelligence chatbot developed by OpenAI and released i  
n November 2022.  
The name "ChatGPT" combines "Chat", referring to its chatbot functionality, and  
"GPT", which stands for Generative Pre-trained Transformer, a type of large lang  
uage model.  
Wikipedia  
ChatGPT has been trained on huge amount of data scraped from internet.  
This has enabled us to develop artificial programmes that can answer questions lik  
e humans.  
[carora18@mtrx-node04pd ~]$
```

The `cat< gpt.txt` command will show the contents of the `gpt.txt` on the terminal screen.

2. Run similar command on Windows: **TYPE < gpt.txt**

What do you see and why?

Ans:-



```
Command Prompt
Microsoft Windows [Version 10.0.19045.3930]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Admin>notepad gpt.txt

C:\Users\Admin>type < gpt.txt
The syntax of the command is incorrect.

C:\Users\Admin>type gpt.txt
ChatGPT is an artificial intelligence chatbot developed by OpenAI and released in November 2022.
The name "ChatGPT" combines "Chat", referring to its chatbot functionality, and "GPT", which stands for Generative Pre-trained Transformer, a type of large language model.
Wikipedia
ChatGPT has been trained on huge amount of data scraped from internet.
This has enabled us to develop artificial programmes that can answer questions like humans.

C:\Users\Admin>
```

The Type command of Windows operating system is similar to the cat command of Linux. The type< gpt.txt command will show the contents of the gpt.txt on the terminal screen.

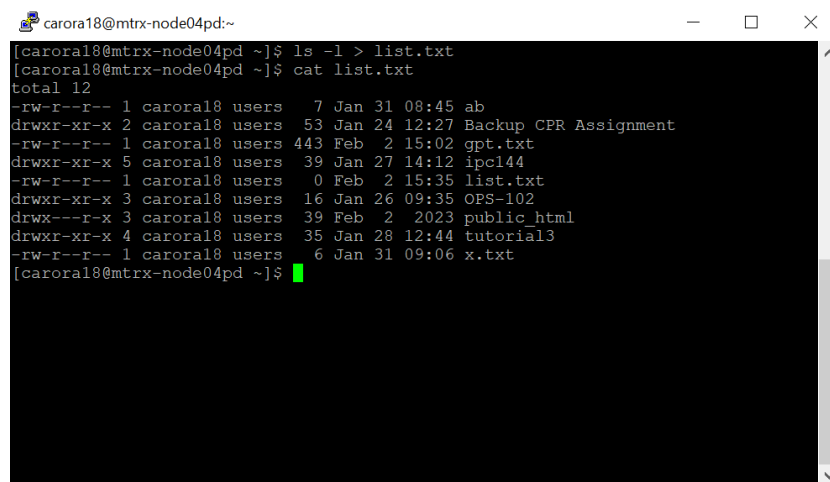
Output redirection symbol: >

Command > filename

3. Run the command on Linux **ls -l > list.txt**

What is the output? Explain

Ans:-



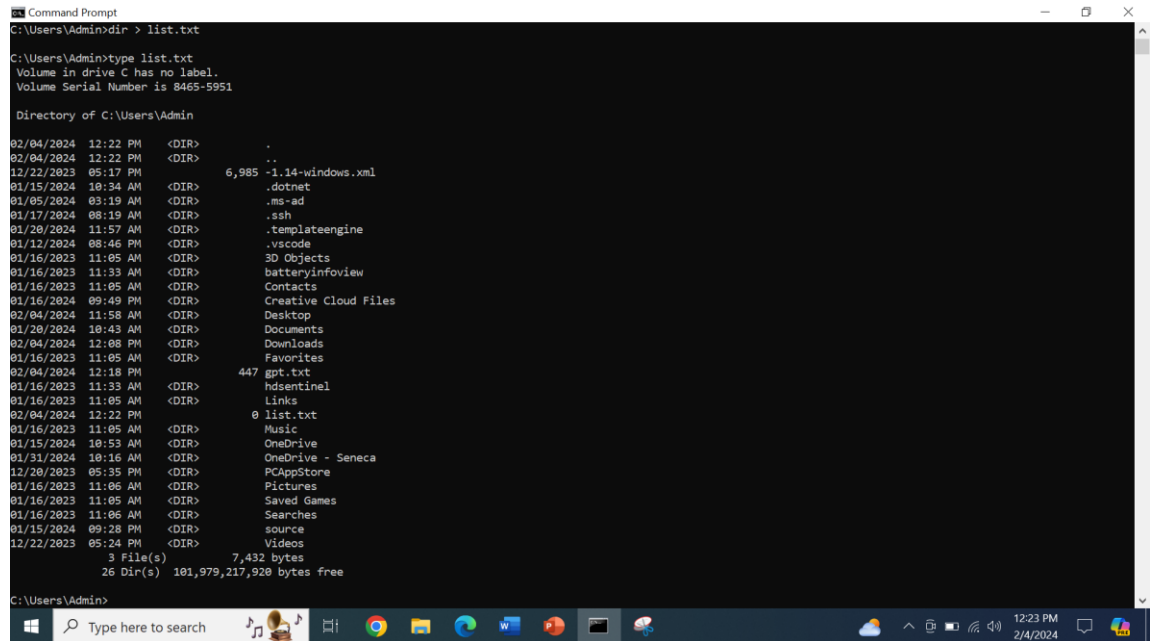
```
carora18@mtmx-node04pd:~
[carora18@mtmx-node04pd ~]$ ls -l > list.txt
[carora18@mtmx-node04pd ~]$ cat list.txt
total 12
-rw-r--r-- 1 carora18 users  7 Jan 31 08:45 ab
drwxr-xr-x 2 carora18 users 53 Jan 24 12:27 Backup CPR Assignment
-rw-r--r-- 1 carora18 users 443 Feb  2 15:02 gpt.txt
drwxr-xr-x 5 carora18 users 39 Jan 27 14:12 ipc144
-rw-r--r-- 1 carora18 users  0 Feb  2 15:35 list.txt
drwxr-xr-x 3 carora18 users 16 Jan 26 09:35 OPS-102
drwx---r-x 3 carora18 users 39 Feb  2 2023 public html
drwxr-xr-x 4 carora18 users 35 Jan 28 12:44 tutorial3
-rw-r--r-- 1 carora18 users  6 Jan 31 09:06 x.txt
[carora18@mtmx-node04pd ~]$
```

The ls -l > list.txt command is used to create a list.txt file with the content of detailed list of the files and directories which is present in current directory.

4. Run equivalent command on Windows: `dir > list.txt`

What is the output? Explain

Ans:-



```
Command Prompt
C:\Users\Admin>dir > list.txt

C:\Users\Admin>type list.txt
Volume in drive C has no label.
Volume Serial Number is 8465-5951

Directory of C:\Users\Admin

02/04/2024 12:22 PM <DIR>      .
02/04/2024 12:22 PM <DIR>      ..
12/22/2023 05:17 PM          6,985 -1.14-windows.xml
01/15/2024 10:34 AM <DIR>      .dotnet
01/05/2024 03:19 AM <DIR>      .ms-ad
01/17/2024 08:19 AM <DIR>      .ssh
01/28/2024 11:57 AM <DIR>      .templateengine
01/12/2024 08:46 PM <DIR>      .vscode
01/16/2023 11:05 AM <DIR>      3D Objects
01/16/2023 11:33 AM <DIR>      batteryinfoview
01/16/2023 11:05 AM <DIR>      Contacts
01/16/2024 09:49 PM <DIR>      Creative Cloud Files
02/04/2024 11:58 AM <DIR>      Desktop
01/28/2024 10:43 AM <DIR>      Documents
02/04/2024 12:08 PM <DIR>      Downloads
01/16/2023 11:05 AM <DIR>      Favorites
02/04/2024 12:18 PM          447 gpt.txt
01/16/2023 11:33 AM <DIR>      hdsentinel
01/16/2023 11:05 AM <DIR>      Links
02/04/2024 12:22 PM          0 list.txt
01/16/2023 11:05 AM <DIR>      Music
01/15/2024 10:53 AM <DIR>      OneDrive
01/31/2024 10:16 AM <DIR>      OneDrive - Seneca
12/28/2023 05:35 PM <DIR>      PCAppStore
01/16/2023 11:06 AM <DIR>      Pictures
01/16/2023 11:05 AM <DIR>      Saved Games
01/16/2023 11:06 AM <DIR>      Searches
01/15/2024 09:28 PM <DIR>      source
12/22/2023 05:24 PM <DIR>      Videos
          3 File(s)          7,432 bytes
         26 Dir(s) 101,979,217,920 bytes free

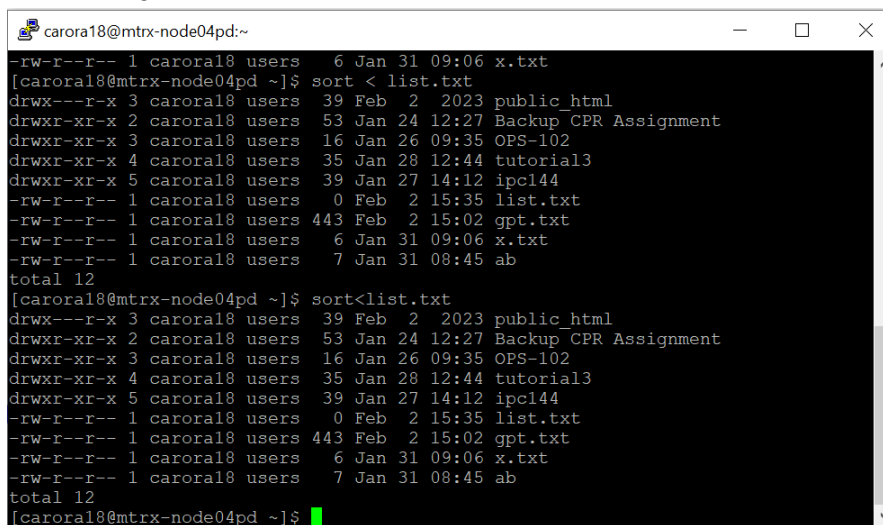
C:\Users\Admin>
```

The `dir > list.txt` command of Windows operating system is similar to the `ls -l > list.txt` of Linux command. The `dir > list.txt` command is used to create a `list.txt` file with the content of detailed list of the files and directories which is present in current directory.

5. Run the command on both Linux and Windows: `sort < list.txt`

What is the output?

Ans:-



```
carora18@mtx-node04pd:~$
-rw-r--r-- 1 carora18 users 6 Jan 31 09:06 x.txt
[carora18@mtx-node04pd ~]$ sort < list.txt
drwx---r-x 3 carora18 users 39 Feb 2 2023 public_html
drwxr-xr-x 2 carora18 users 53 Jan 24 12:27 Backup CPR Assignment
drwxr-xr-x 3 carora18 users 16 Jan 26 09:35 OPS-102
drwxr-xr-x 4 carora18 users 35 Jan 28 12:44 tutorial3
drwxr-xr-x 5 carora18 users 39 Jan 27 14:12 ipc144
-rw-r--r-- 1 carora18 users 0 Feb 2 15:35 list.txt
-rw-r--r-- 1 carora18 users 443 Feb 2 15:02 gpt.txt
-rw-r--r-- 1 carora18 users 6 Jan 31 09:06 x.txt
-rw-r--r-- 1 carora18 users 7 Jan 31 08:45 ab
total 12
[carora18@mtx-node04pd ~]$ sort<list.txt
drwx---r-x 3 carora18 users 39 Feb 2 2023 public_html
drwxr-xr-x 2 carora18 users 53 Jan 24 12:27 Backup CPR Assignment
drwxr-xr-x 3 carora18 users 16 Jan 26 09:35 OPS-102
drwxr-xr-x 4 carora18 users 35 Jan 28 12:44 tutorial3
drwxr-xr-x 5 carora18 users 39 Jan 27 14:12 ipc144
-rw-r--r-- 1 carora18 users 0 Feb 2 15:35 list.txt
-rw-r--r-- 1 carora18 users 443 Feb 2 15:02 gpt.txt
-rw-r--r-- 1 carora18 users 6 Jan 31 09:06 x.txt
-rw-r--r-- 1 carora18 users 7 Jan 31 08:45 ab
total 12
[carora18@mtx-node04pd ~]$
```

The command `sort < list.txt` used to sort the lines of the file `list.txt` in alphabetical order and display the output on the terminal screen.

Piping:

Command1 | Command2

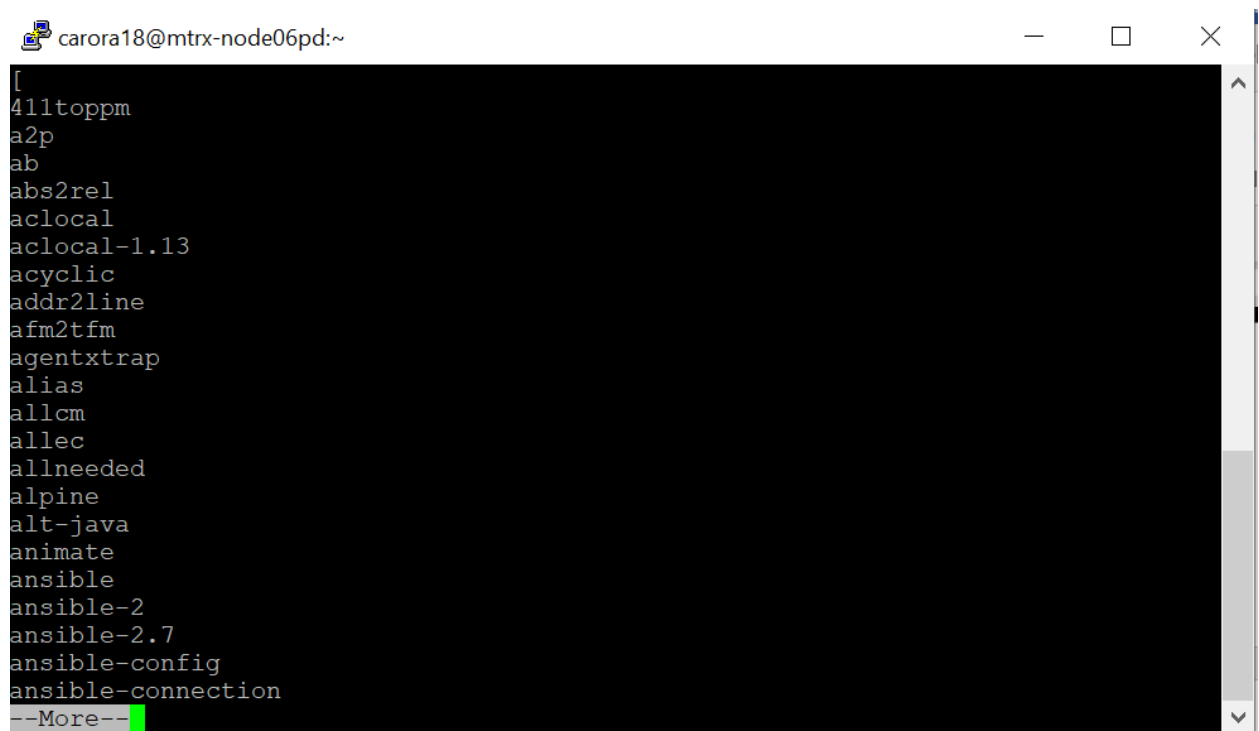
Piping is used to redirect output of first command to the input of the second command. This allows to combine simple commands to achieve more complex task.

Perform following tasks and add screenshots

1. On Linux run the command `ls /bin | more`

What do you see and why?

Ans:-



```
carora18@mtrx-node06pd:~  
[  
411toppm  
a2p  
ab  
abs2rel  
aclocal  
aclocal-1.13  
acyclic  
addr2line  
afm2tfm  
agentxtrap  
alias  
allcm  
allec  
allneeded  
alpine  
alt-java  
animate  
ansible  
ansible-2  
ansible-2.7  
ansible-config  
ansible-connection  
--More--
```

The `ls /bin | more` command used to see the files and directories of `/bin` directory on the terminal screen and `|` (pipe operator) this symbol is used for run another command at the same time. The `more` command is a pager command which allows to view large amount of text in a terminal screen step by step.

2. Suppose you have a text file called `gpt.txt` having following text in it

On Windows run the command **TYPE gpt.txt | FIND "GPT"**

What is the output? Explain it:

(TYPE is equivalent to cat command on Linux)

Ans:-

```
C:\Users\Admin>type gpt.txt | find "GPT"
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The name "ChatGPT" combines "Chat", referring to its chatbot functionality, and "GPT", which stands for Generative Pre-trained
Transformer, a type of large language model.
ChatGPT has been trained on huge amount of data scraped from internet.
C:\Users\Admin>
```

The command **TYPE gpt.txt | FIND "GPT"** is used to display the lines of the file gpt.txt that contain the string "GPT".

3. Run and explain the command: **cat < gpt.txt | sort > out.txt**

Explain what is happening in above command?

Ans:-

```
[caroral8@mtrx-node06pd ~]$ cat<gpt.txt| sort > out.txt
[caroral8@mtrx-node06pd ~]$ cat out.txt

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n November 2022.
The name "ChatGPT" combines "Chat", referring to its chatbot functionality, and
"GPT", which stands for Generative Pre-trained Transformer, a type of large lang
uage model.
This has enabled us to develp artificial programes that can answer questions lik
e humans.
Wikipedia
[caroral8@mtrx-node06pd ~]$
```

The command **cat <gpt.txt | sort > out.txt** performs, it read the contents of gpt.txt file and sort the text by alphabetical order then store this new sorted text in out.txt file.

4. **tr 'a-z' 'A-Z' < words.txt** Will change all lower case to upper in words.txt

Ans:- Yes, This command will change all lower case letters to upper case in the file words.txt and display the output on the screen.

5. `sort < xyz.txt` Will sort xyz in ascending order Note: `-r` will do in reverse order

Ans:- Yes, this command will sort the lines of the file xyz.txt in ascending order (alphabetically or numerically, depending on the content) and display the output on the screen. The `-r` option can be used to sort the data in reverse order (descending).

6. `PWD 2> error-message.txt` for recording error message

Ans:- The `PWD 2> error-message.txt` command is used to print the current working directory to the output on terminal screen and redirect the error messages to the file error-message.txt.

7. `ls | grep Linux | head -5` To test make some files with Linux1, Linux2 etc.

Ans:- It will display the first five files or folders that have Linux in their name.

Activity 2: File Permissions

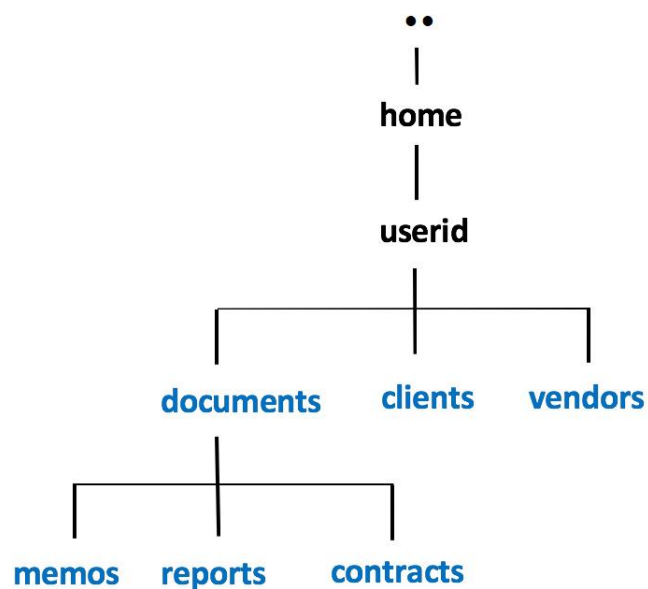
Practice: Convert 7, 6, 5 and 4 into binary

Ans:- 7 = 111, 6 = 110, 5 = 101, 4 = 100

Find octal value of 101, 001, 010, 011

Ans:- 101 = 5, 001 = 1, 010 = 2, 011 = 3

Consider following image for next tasks



Choose any way to create following files in the respective folders

Memos	Reports	Contracts	clients	vendors
memo1.txt	report1.txt	contract1.txt	linux.txt	seneca.txt
memo2.txt	report2.txt	contract2.txt	unix.txt	
memo3.txt		contract3.txt		

1. Issue the following Linux commands:

ls -ld ~/documents ~/clients ~/vendors

ls -lR ~/documents ~/clients ~/vendors

Ans:-

carora18@mtrx-node06pd:~

```
[carora18@mtrx-node06pd ~]$ ls -ld ~/documents ~/clients ~/vendors
drwxr-xr-x 2 carora18 users 39 Feb  4 13:35 /home/carora18/clients
drwxr-xr-x 5 carora18 users 51 Feb  4 13:30 /home/carora18/documents
drwxr-xr-x 2 carora18 users 24 Feb  4 13:35 /home/carora18/vendors
[carora18@mtrx-node06pd ~]$ ls -lR ~/documents ~/clients ~/vendors
/home/carora18/clients:
total 0
-rw-r--r-- 1 carora18 users 0 Feb  4 13:35 linux.txt
-rw-r--r-- 1 carora18 users 0 Feb  4 13:35 unix.txt

/home/carora18/documents:
total 0
drwxr-xr-x 2 carora18 users 69 Feb  4 13:33 contracts
drwxr-xr-x 2 carora18 users 57 Feb  4 13:32 memos
drwxr-xr-x 2 carora18 users 44 Feb  4 13:33 reports

/home/carora18/documents/contracts:
total 0
-rw-r--r-- 1 carora18 users 0 Feb  4 13:33 contract1.txt
-rw-r--r-- 1 carora18 users 0 Feb  4 13:33 contract2.txt
-rw-r--r-- 1 carora18 users 0 Feb  4 13:33 contract3.txt

/home/carora18/documents/memos:
total 0
-rw-r--r-- 1 carora18 users 0 Feb  4 13:32 memo1.txt
-rw-r--r-- 1 carora18 users 0 Feb  4 13:32 memo2.txt
-rw-r--r-- 1 carora18 users 0 Feb  4 13:32 memo3.txt

/home/carora18/documents/reports:
total 0
-rw-r--r-- 1 carora18 users 0 Feb  4 13:33 report1.txt
-rw-r--r-- 1 carora18 users 0 Feb  4 13:33 report2.txt

/home/carora18/vendors:
total 0
-rw-r--r-- 1 carora18 users 0 Feb  4 13:35 seneca.txt
[carora18@mtrx-node06pd ~]$
```

2. Let's limit access to the **clients** and **vendors** directories to only yourself and same group members.

Issue the following Linux command:

chmod 750 ~/clients ~/vendors

Ans:-

```
carora18@mtrx-node06pd:~  
[carora18@mtrx-node06pd ~]$ chmod 750 ~/clients ~/vendors  
[carora18@mtrx-node06pd ~]$ ls -lR ~/clients ~/vendors  
/home/carora18/clients:  
total 0  
-rw-r--r-- 1 carora18 users 0 Feb  4 13:35 linux.txt  
-rw-r--r-- 1 carora18 users 0 Feb  4 13:35 unix.txt  
  
/home/carora18/vendors:  
total 0  
-rw-r--r-- 1 carora18 users 0 Feb  4 13:35 seneca.txt  
[carora18@mtrx-node06pd ~]$ ls -ld ~/clients ~/vendors  
drwxr-x--- 2 carora18 users 39 Feb  4 13:35 /home/carora18/clients  
drwxr-x--- 2 carora18 users 24 Feb  4 13:35 /home/carora18/vendors  
[carora18@mtrx-node06pd ~]$
```

3. Issue the **ls -ld** and **ls -lR** commands (as you did in *step #8*) to confirm that the permissions for those directories have been changed.

NOTE: The **-R** option for the **chmod** command can change the file permissions recursively within a directory structure.

Ans:-

```
carora18@mtrx-node06pd:~  
[carora18@mtrx-node06pd ~]$ chmod 750 ~/clients ~/vendors  
[carora18@mtrx-node06pd ~]$ ls -lR ~/clients ~/vendors  
/home/carora18/clients:  
total 0  
-rw-r--r-- 1 carora18 users 0 Feb  4 13:35 linux.txt  
-rw-r--r-- 1 carora18 users 0 Feb  4 13:35 unix.txt  
  
/home/carora18/vendors:  
total 0  
-rw-r--r-- 1 carora18 users 0 Feb  4 13:35 seneca.txt  
[carora18@mtrx-node06pd ~]$ ls -ld ~/clients ~/vendors  
drwxr-x--- 2 carora18 users 39 Feb  4 13:35 /home/carora18/clients  
drwxr-x--- 2 carora18 users 24 Feb  4 13:35 /home/carora18/vendors  
[carora18@mtrx-node06pd ~]$
```

4. Issue the following Linux command: **chmod 750 -R ~/documents**

Ans:-

```
carora18@mtrx-node06pd:~  
[carora18@mtrx-node06pd ~]$ chmod 750 -R ~/documents  
[carora18@mtrx-node06pd ~]$
```


5. Issue the **ls -ld** command to confirm the permissions for the **~/documents**, **~/document/memos**, **~/documents/reports**, and **~/documents/contracts** directories.

Ans:-

```
carora18@mtrx-node06pd:~  
[carora18@mtrx-node06pd ~]$ chmod 750 -R ~/documents  
[carora18@mtrx-node06pd ~]$ ls -ld ~/documents  
drwxr-x--- 5 carora18 users 51 Feb  4 13:30 /home/carora18/documents  
[carora18@mtrx-node06pd ~]$ ls -ld ~/documents/memos  
drwxr-x--- 2 carora18 users 57 Feb  4 13:32 /home/carora18/documents/memos  
[carora18@mtrx-node06pd ~]$ ls -ld ~/documents/reports  
drwxr-x--- 2 carora18 users 44 Feb  4 13:33 /home/carora18/documents/reports  
[carora18@mtrx-node06pd ~]$ ls -ld ~/documents/contracts  
drwxr-x--- 2 carora18 users 69 Feb  4 13:33 /home/carora18/documents/contracts  
[carora18@mtrx-node06pd ~]$
```

6. Issue the following Linux command: **ls -lR ~/documents**
What do you noticed happened to the permissions for the regular files contained in those directories.
Did those regular file permissions change?

We will now change permissions for regular text file contained in subdirectories of the **documents** directory to: **r w - r - - - -**

Ans:-

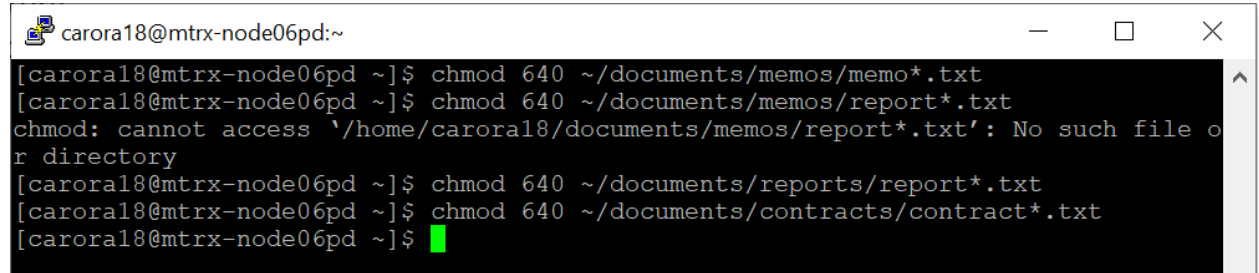
```
[carora18@mtrx-node06pd ~]$ ls -lR ~/documents  
/home/carora18/documents:  
total 0  
drwxr-x--- 2 carora18 users 69 Feb  4 13:33 contracts  
drwxr-x--- 2 carora18 users 57 Feb  4 13:32 memos  
drwxr-x--- 2 carora18 users 44 Feb  4 13:33 reports  
  
/home/carora18/documents/contracts:  
total 0  
-rwxr-x--- 1 carora18 users 0 Feb  4 13:33 contract1.txt  
-rwxr-x--- 1 carora18 users 0 Feb  4 13:33 contract2.txt  
-rwxr-x--- 1 carora18 users 0 Feb  4 13:33 contract3.txt  
  
/home/carora18/documents/memos:  
total 0  
-rwxr-x--- 1 carora18 users 0 Feb  4 13:32 memo1.txt  
-rwxr-x--- 1 carora18 users 0 Feb  4 13:32 memo2.txt  
-rwxr-x--- 1 carora18 users 0 Feb  4 13:32 memo3.txt  
  
/home/carora18/documents/reports:  
total 0  
-rwxr-x--- 1 carora18 users 0 Feb  4 13:33 report1.txt  
-rwxr-x--- 1 carora18 users 0 Feb  4 13:33 report2.txt  
[carora18@mtrx-node06pd ~]$
```

Yes, the permission of regular file has been changed.

7. Issue the following Linux commands:

```
chmod 640 ~/documents/memos/memo*.txt  
chmod 640 ~/documents/reports/report*.txt  
chmod 640 ~/documents/contracts/contract*.txt
```

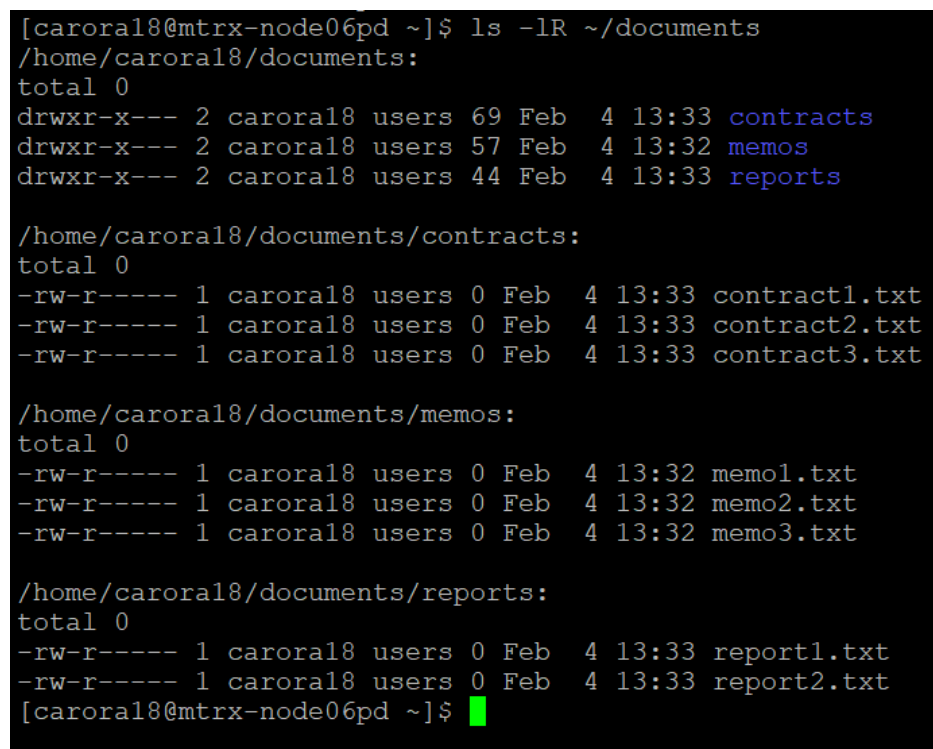
Ans:-



```
carora18@mtrx-node06pd:~  
[carora18@mtrx-node06pd ~]$ chmod 640 ~/documents/memos/memo*.txt  
[carora18@mtrx-node06pd ~]$ chmod 640 ~/documents/memos/report*.txt  
chmod: cannot access '/home/carora18/documents/memos/report*.txt': No such file or directory  
[carora18@mtrx-node06pd ~]$ chmod 640 ~/documents/reports/report*.txt  
[carora18@mtrx-node06pd ~]$ chmod 640 ~/documents/contracts/contract*.txt  
[carora18@mtrx-node06pd ~]$
```

8. Issue the **ls -lR** command for the **~/documents** directory to confirm that those regular file permissions have changed.

Ans:-



```
[carora18@mtrx-node06pd ~]$ ls -lR ~/documents  
/home/carora18/documents:  
total 0  
drwxr-x--- 2 carora18 users 69 Feb  4 13:33 contracts  
drwxr-x--- 2 carora18 users 57 Feb  4 13:32 memos  
drwxr-x--- 2 carora18 users 44 Feb  4 13:33 reports  
  
/home/carora18/documents/contracts:  
total 0  
-rw-r----- 1 carora18 users 0 Feb  4 13:33 contract1.txt  
-rw-r----- 1 carora18 users 0 Feb  4 13:33 contract2.txt  
-rw-r----- 1 carora18 users 0 Feb  4 13:33 contract3.txt  
  
/home/carora18/documents/memos:  
total 0  
-rw-r----- 1 carora18 users 0 Feb  4 13:32 memo1.txt  
-rw-r----- 1 carora18 users 0 Feb  4 13:32 memo2.txt  
-rw-r----- 1 carora18 users 0 Feb  4 13:32 memo3.txt  
  
/home/carora18/documents/reports:  
total 0  
-rw-r----- 1 carora18 users 0 Feb  4 13:33 report1.txt  
-rw-r----- 1 carora18 users 0 Feb  4 13:33 report2.txt  
[carora18@mtrx-node06pd ~]$
```

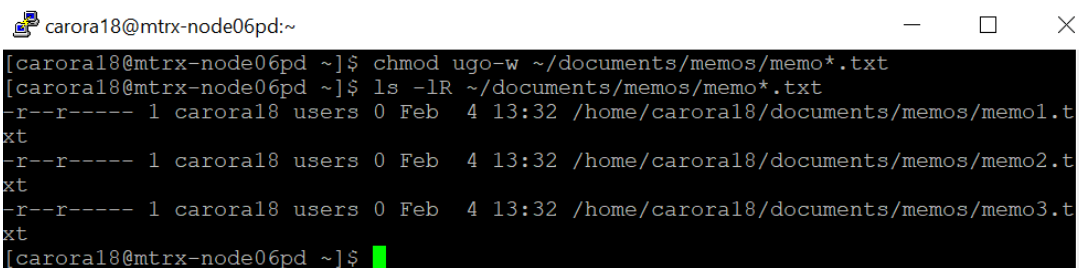
9. Issue the following Linux command to add write permissions for all files in the memos directory
for yourself (i.e. user): **chmod u+w ~/documents/memos/***

Ans:-

```
[caroral8@mtrx-node06pd ~]$ chmod u+w ~/documents/memos/*  
[caroral8@mtrx-node06pd ~]$ ls -lR ~/documents/memos/*  
-rw-r----- 1 caroral8 users 0 Feb  4 13:32 /home/caroral8/documents/memos/memo1.t  
xt  
-rw-r----- 1 caroral8 users 0 Feb  4 13:32 /home/caroral8/documents/memos/memo2.t  
xt  
-rw-r----- 1 caroral8 users 0 Feb  4 13:32 /home/caroral8/documents/memos/memo3.t  
xt  
[caroral8@mtrx-node06pd ~]$
```

10. **chmod ugo-w ~/documents/memos/memo*.txt** what this command will do.

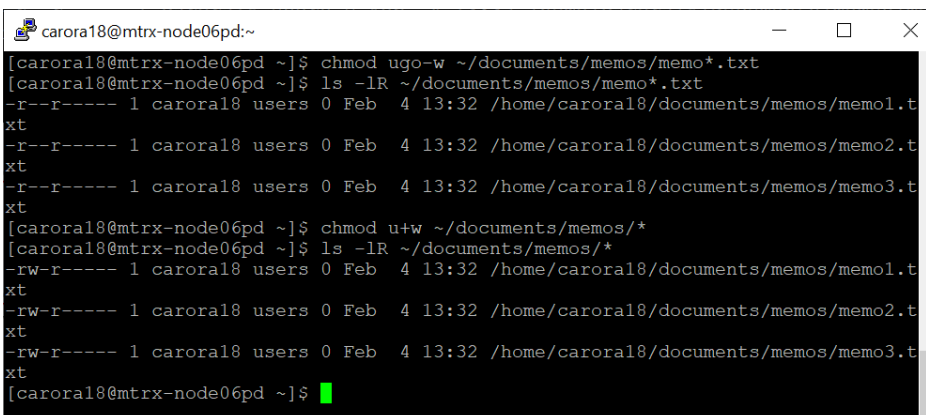
Ans:-



```
caroral8@mtrx-node06pd:~  
[caroral8@mtrx-node06pd ~]$ chmod ugo-w ~/documents/memos/memo*.txt  
[caroral8@mtrx-node06pd ~]$ ls -lR ~/documents/memos/memo*.txt  
-r--r----- 1 caroral8 users 0 Feb  4 13:32 /home/caroral8/documents/memos/memo1.t  
xt  
-r--r----- 1 caroral8 users 0 Feb  4 13:32 /home/caroral8/documents/memos/memo2.t  
xt  
-r--r----- 1 caroral8 users 0 Feb  4 13:32 /home/caroral8/documents/memos/memo3.t  
xt  
[caroral8@mtrx-node06pd ~]$
```

11. **chmod u+w ~/documents/memos/*** what this command will do.

Ans:-



```
caroral8@mtrx-node06pd:~  
[caroral8@mtrx-node06pd ~]$ chmod ugo-w ~/documents/memos/memo*.txt  
[caroral8@mtrx-node06pd ~]$ ls -lR ~/documents/memos/memo*.txt  
-r--r----- 1 caroral8 users 0 Feb  4 13:32 /home/caroral8/documents/memos/memo1.t  
xt  
-r--r----- 1 caroral8 users 0 Feb  4 13:32 /home/caroral8/documents/memos/memo2.t  
xt  
-r--r----- 1 caroral8 users 0 Feb  4 13:32 /home/caroral8/documents/memos/memo3.t  
xt  
[caroral8@mtrx-node06pd ~]$ chmod u+w ~/documents/memos/*  
[caroral8@mtrx-node06pd ~]$ ls -lR ~/documents/memos/*  
-rw-r----- 1 caroral8 users 0 Feb  4 13:32 /home/caroral8/documents/memos/memo1.t  
xt  
-rw-r----- 1 caroral8 users 0 Feb  4 13:32 /home/caroral8/documents/memos/memo2.t  
xt  
-rw-r----- 1 caroral8 users 0 Feb  4 13:32 /home/caroral8/documents/memos/memo3.t  
xt  
[caroral8@mtrx-node06pd ~]$
```

This command will add write permissions for the user (u) to all files (*) in the
~/documents/memos/ directory.

12. `chmod u=rwx,go=x ~/linux/content` what is the meaning of this command

Ans:- This command means to change the permissions of the file or directory named `~/linux/content`. The `u=rwx` part means to give the user who owns the file or directory the read, write, and execute permissions. The `go=x` part means to give the group and others only the execute permission.

13. What is the meaning if a directory has read, write and execute permissions.

Ans:- The meaning of read, write and execute permissions on a directory are as follows:

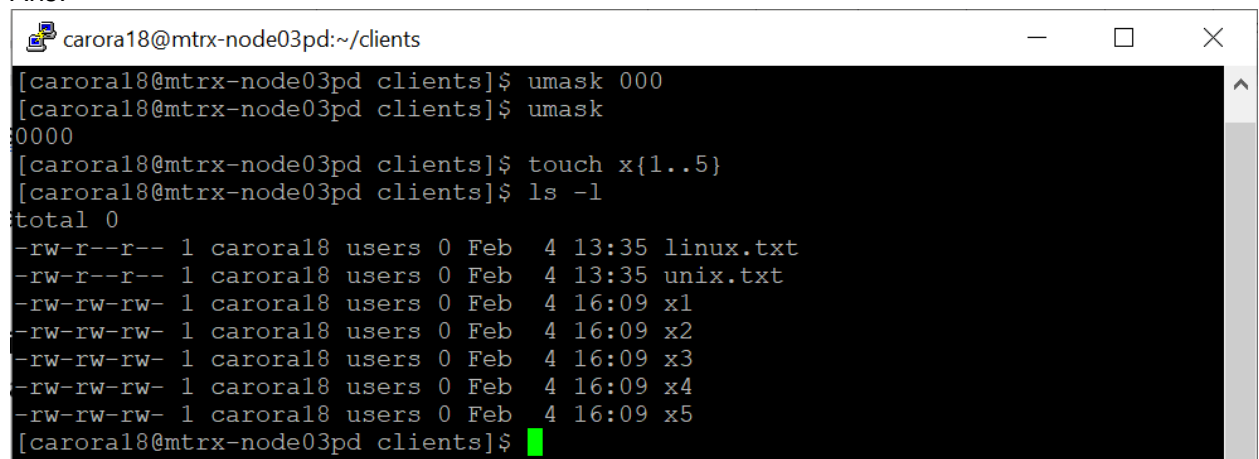
Read (r): This permission allows you to read the contents of the directory. You can see the names and attributes of the files and subdirectories inside the directory.

Write (w): This permission allows you to modify the contents of the directory. You can create, delete, rename, or move files and subdirectories inside the directory.

Execute (x): This permission allows you to access the files and subdirectories inside the directory. You can open, read, write, or execute the files, or change into the subdirectories, if you have the corresponding permissions on them.

14. Issue `umask 000`. Check `umask` value. Create some files and check the permissions.

Ans:-

A terminal window titled 'carora18@mtrx-node03pd:~/clients' with standard window controls. The terminal shows the following commands and output:

```
[carora18@mtrx-node03pd clients]$ umask 000
[carora18@mtrx-node03pd clients]$ umask
0000
[carora18@mtrx-node03pd clients]$ touch x{1..5}
[carora18@mtrx-node03pd clients]$ ls -l
total 0
-rw-r--r-- 1 carora18 users 0 Feb  4 13:35 linux.txt
-rw-r--r-- 1 carora18 users 0 Feb  4 13:35 unix.txt
-rw-rw-rw- 1 carora18 users 0 Feb  4 16:09 x1
-rw-rw-rw- 1 carora18 users 0 Feb  4 16:09 x2
-rw-rw-rw- 1 carora18 users 0 Feb  4 16:09 x3
-rw-rw-rw- 1 carora18 users 0 Feb  4 16:09 x4
-rw-rw-rw- 1 carora18 users 0 Feb  4 16:09 x5
[carora18@mtrx-node03pd clients]$
```

The command `umask 000` will set the file mode creation mask to 000, which means that no permissions will be denied for newly created files or directories. As shown above, the files have read and write permissions for the user, the group, and others. This is because the default permissions for files are 666, and the `umask 000` does not remove any permissions. If anyone create a directory, it will have read, write, and execute permissions for everyone.

Instructor Note: Use Windows Properties to show how to change file permissions