1. Download the file web_scraper.sh. Make the file executable. The file takes any wikipedia webpage as an argument. Run the process on multiple sites like Wikipedia:Stub - Wikipedia, India - Wikipedia at the same time

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
$ ./web_scraper.sh "https://en.wikipedia.org/wiki/wikipedia:Stub" & ./web_scraper.sh
[2] 936
Fetching: https://en.wikipedia.org/wiki/Wikipedia:Stub
No website URL provided. Using default: https://en.wikipedia.org/wiki/Main_Page
Fetching: https://en.wikipedia.org/wiki/Main_Page
./web_scraper.sh: line 41: wget: command not found
./web_scraper.sh: line 41: wget: command not found
All links have been fetched.
All links have been fetched.
Stored 1 pages in memory.
Stored 1 pages in memory.
[2]- Done ./web_scraper.sh "https://en.wikipedia.org/wiki/Wikipedia:Stub"
```

a. Find all the processes running on the system.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Downloads
 ps aux
       PID
                PPID
                           PGID
                                        WINPID
                                                                    UID
                                                                              STIME COMMAND
                                                                   4096 19:06:42 /usr/bin/ps
4096 19:03:08 /usr/bin/bash
4096 19:03:08 /usr/bin/mintty
       505
                  460
                             505
                                         30996
                                                   pty0
       460
                  459
                             460
                                         29264
                                                  pty0
                                         26724
       459
                             459
```

b. Find the first 5 processes with the highest memory usage.

- 2. Print the HTTP response code obtained from google.com.
 - a. Find the top 3 running processes which consume the most processing power.
 - b. Write a script that finds all files larger than 100MB in a directory and lists them.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ find . -type f -size +100M
```

c. Find which version of Python is installed on the system.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~
$ python --version
Python was not found; run without arguments to install from the Microsoft Store, or disable this shortcut from Settings > Apps > Advanced app settings > App execution aliases.
```

d. Get the current time zone of your system.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~ $ date +"%Z %z"
IST +0530
```

e. Get the current time in New York, London, and Sydney.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~

$ echo "New York time: $(TZ="America/New_York" date +"%Y-%m-%d %H:%M:%S")" echo "London time: $(TZ="Europe/London" date +"%Y-%m-%d %H:%M:%S")" echo "Sydney time: $(TZ="Australia/Sydney" date +"%Y-%m-%d %H:%M:%S")" New York time: 2025-05-29 13:59:09
London time: 2025-05-29 13:59:10
```

f. Check for how long the system is up.

11. Given a log file:

To Create a log File:

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~
$ cd Desktop

AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop
$ mkdir Linux-Assignments

AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop
$ cd Linux-Assignments

AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
$ touch sample-log.log
```

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ vi sample-log.log

AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ cat sample-log.log

2025-02-18 08:45:12 INFO Starting the application

2025-02-18 08:45:12 INFO Starting the application

2025-02-18 08:45:13 ERROR Failed to connect to database

2025-02-18 08:47:34 ERROR Details:

2025-02-18 08:47:34 ERROR Connection timeout after 30 seconds

2025-02-18 08:47:34 ERROR Details:

2025-02-18 08:48:45 INFO User login successful: user1

2025-02-18 08:50:15 INFO User login successful: user2

2025-02-18 08:50:15 INFO User login successful: user2

2025-02-18 08:51:45 ERROR Disk write permission denied

2025-02-18 08:51:45 ERROR Disk write permission denied

2025-02-18 08:51:35 INFO User login successful: user3

2025-02-18 08:53:30 INFO User login successful: user3

2025-02-18 08:55:33 INFO User login successful: user3

2025-02-18 08:55:33 INFO Enterly user3

2025-02-18 08:56:45 ERROR Details:

2025-02-18 08:56:45 ERROR Server did not respond within the allotted time

2025-02-18 08:56:45 ERROR Details:

2025-02-18 08:59:23 INFO User login successful: user4

2025-02-18 08:59:23 INFO User login successful: user4

2025-02-18 09:03:1145 INFO User login successful: user4

2025-02-19 09:05:23 INFO Scheduled maintenance started

2025-02-19 09:05:21 ERROR Details:

2025-02-19 09:05:11:45 ERROR Details:

2025-02-19 09:07:12 ERROR Connection timeout after 30 seconds

2025-02-19 09
```

a. Find all the errors in the log and dump them to a new file.

b. What events occurred between 09:10 and 09:19?

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments

§ grep "^2025-02-19 09:1[0-9]:" sample-log.log
2025-02-19 09:10:15 INFO User login successful: user2
2025-02-19 09:11:45 ERROR Unable to write to log file
2025-02-19 09:11:45 ERROR Details:
2025-02-19 09:11:45 ERROR Disk write permission denied
2025-02-19 09:12:30 INFO User logout: user1
2025-02-19 09:13:50 WARN High memory usage detected
2025-02-19 09:14:22 INFO User login successful: user3
2025-02-19 09:15:33 INFO File upload completed: file1.txt
2025-02-19 09:16:45 ERROR Network timeout
2025-02-19 09:16:45 ERROR Details:
2025-02-19 09:16:45 ERROR Server did not respond within the allotted time
2025-02-19 09:17:56 INFO User logout: user2
2025-02-19 09:18:12 INFO User login successful: user4
2025-02-19 09:19:23 INFO Scheduled maintenance started
```

c. How many INFO messages are in the log file?

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ grep -c "INFO" sample-log.log 51
```

d. Print the first 5 lines of the file.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
$ head -n 5 sample-log.log
2025-02-18 08:45:12 INFO Starting the application
2025-02-18 08:46:23 WARN Low disk space on /dev/sda1
2025-02-18 08:47:34 ERROR Failed to connect to database
2025-02-18 08:47:34 ERROR Details:
2025-02-18 08:47:34 ERROR Connection timeout after 30 seconds
```

e. Print the last 5 lines of the file.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ tail -n 5 sample-log.log 2025-02-20 10:29:45 ERROR Application crash 2025-02-20 10:29:45 ERROR Details: 2025-02-20 10:29:45 ERROR Null pointer exception in module X 2025-02-20 10:30:56 INFO User logout: user5
```

f. Print lines if the lines contain error, fail, or warning.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
$ grep -i -E "error|fail|warning" sample-log.log
2025-02-18 08:47:34 ERROR Failed to connect to database
2025-02-18 08:47:34 ERROR Details:
2025-02-18 08:47:34 ERROR Connection timeout after 30 seconds
2025-02-18 08:51:45 ERROR Unable to write to log file
2025-02-18 08:51:45 ERROR Details:
2025-02-18 08:51:45 ERROR Disk write permission denied 2025-02-18 08:56:45 ERROR Network timeout
2025-02-18 08:56:45 ERROR Details:
2025-02-18 08:56:45 ERROR Server did not respond within the allotted time
2025-02-19 09:07:12 ERROR Failed to connect to database
2025-02-19 09:07:12 ERROR Details:
2025-02-19 09:07:12 ERROR Connection timeout after 30 seconds
2025-02-19 09:11:45 ERROR Unable to write to log file
2025-02-19 09:11:45 ERROR Details:
2025-02-19 09:11:45 ERROR Disk write permission denied 2025-02-19 09:16:45 ERROR Network timeout 2025-02-19 09:16:45 ERROR Details:
2025-02-19 09:16:45 ERROR Server did not respond within the allotted time
2025-02-19 09:29:45 ERROR Application crash
2025-02-19 09:29:45 ERROR Details:
2025-02-19 09:29:45 ERROR Null pointer exception in module X
2025-02-20 10:07:12 ERROR Failed to connect to database
2025-02-20 10:07:12 ERROR Details:
2025-02-20 10:07:12 ERROR Connection timeout after 30 seconds
2025-02-20 10:11:45 ERROR Unable to write to log file
2025-02-20 10:11:45 ERROR Details:
2025-02-20 10:11:45 ERROR Disk write permission denied
2025-02-20 10:16:45 ERROR Network timeout 2025-02-20 10:16:45 ERROR Details:
2025-02-20 10:16:45 ERROR Server did not respond within the allotted time
2025-02-20 10:29:45 ERROR Application crash 2025-02-20 10:29:45 ERROR Details:
2025-02-20 10:29:45 ERROR Null pointer exception in module X
```

g. Rename the file to new log.txt.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ mv sample-log.log new-log.txt
```

h. Edit the log file and add the string "hello, world!" at the beginning of the file.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ cat new-log.txt hello, world!
2025-02-18 08:45:12 INFO Starting the application 2025-02-18 08:45:12 INFO Starting the application 2025-02-18 08:47:34 ERROR Failed to connect to database 2025-02-18 08:47:34 ERROR Details: 2025-02-18 08:47:34 ERROR Details: 2025-02-18 08:47:34 ERROR Details: 2025-02-18 08:47:34 ERROR Connection timeout after 30 seconds 2025-02-18 08:447:34 ERROR Connection timeout after 30 seconds 2025-02-18 08:445 INFO User login successful: user1 2025-02-18 08:50:15 INFO User login successful: user2 2025-02-18 08:50:15 INFO User login successful: user2 2025-02-18 08:51:45 ERROR Details: 2025-02-18 08:51:45 ERROR Disk write permission denied 2025-02-18 08:51:45 ERROR Disk write permission denied 2025-02-18 08:53:50 WARN High memory usage detected 2025-02-18 08:53:50 WARN High memory usage detected 2025-02-18 08:55:33 INFO File upload completed: file1.txt 2025-02-18 08:55:45 ERROR Network timeout 2025-02-18 08:56:45 ERROR Network timeout 2025-02-18 08:56:45 ERROR Details: 2025-02-18 08:57:56 INFO User logout: user2 2025-02-18 08:59:23 INFO Scheduled maintenance started 2025-02-18 09:00:34 INFO User logout: user3 2025-02-18 09:00:34 INFO Application shutdown initiated 2025-02-18 09:00:256 INFO Application shutdown completed
```

i. Delete the old log file.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ rm new-log.txt
```

j. Filter entries containing the "INFO" string for a particular date for a given log file, you can use the sample log file given below.

```
grep -i "^2025-02-20.*info" sample-log.log
2025-02-20 10:05:23 INFO Starting the application
2025-02-20 10:08:34 INFO User login successful: user1
2025-02-20 10:09:56 INFO Scheduled backup completed 2025-02-20 10:10:15 INFO User login successful: user2
2025-02-20 10:12:30 INFO User logout: user1
2025-02-20 10:14:22 INFO User login successful: user3
2025-02-20 10:15:33 INFO File upload completed: file1.txt
2025-02-20 10:17:56 INFO User logout: user2
2025-02-20 10:18:12 INFO User login successful: user4
2025-02-20 10:19:23 INFO Scheduled maintenance started
2025-02-20 10:20:34 INFO User logout: user3
2025-02-20 10:21:45 INFO Application shutdown initiated
2025-02-20 10:22:56 INFO Application shutdown completed
2025-02-20 10:23:45 INFO System reboot initiated
2025-02-20 10:24:56 INFO System reboot completed
2025-02-20 10:25:34 INFO User
                               login successful: admin
2025-02-20 10:27:56 INFO User
2025-02-20 10:28:34 INFO User
                                logout: admin
                               login successful: user5
2025-02-20 10:30:56 INFO User logout: user5
```

13. Write a command to continuously monitor what is being appended to the file and output if you find the string "Error".

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ tail -f sample-log.log | grep "Error"
```

14. Connect to google.com and copy the output to a text file.

```
$ curl https://www.google.com > google_output.html
 % Total
        % Received % Xferd
                      Average Speed
                                             Time
                                                 Current
                                 Time
                                       Time
                      Dload Upload
                                 Total
                                       Spent
                                             Left
                                                 Speed
100 19402
        0 19402
                0
                    0
                      50229
                              0 --:--:- 51738
```

15. Create a file called example.txt. Write a script to make it read-only for all users.

16. Write a script that changes the permissions of a script named myscript.sh to make it executable by the owner, group, and others.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ touch myscript.sh

AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ chmod -x myscript.sh

AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ 1s -1tr myscript.sh

-rw-r--r-- 1 AzureAD+AttarMohammadSameer 4096 0 May 29 20:36 myscript.sh
```

17. Recursively make all the files readable in a directory.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ chmod -R a+r /Linux-Assignments
```

18. List out all the files that end with ".log" in a directory.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ ls *.log output-log.log sample-log.log
```

19. Write a command to get the kernel version.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ uname -r 3.5.7-463ebcdc.x86_64
```

20. Find the IP address of the system.

```
$ ipconfig
Windows IP Configuration
Ethernet adapter Ethernet:
  Media State . . . . . . . . . . . . . Media disconnected Connection-specific DNS Suffix . :
Wireless LAN adapter Local Area Connection* 1:
  Media State . . . . . . . . . . . . . Media disconnected Connection-specific DNS Suffix . :
Wireless LAN adapter Local Area Connection* 2:
  Media State . . . . . . . . . . . . Media disconnected
  Connection-specific DNS Suffix .:
Wireless LAN adapter Wi-Fi:
  Connection-specific DNS Suffix .:
  IPv4 Address. . . . . . . . . . . . . . . . . 192.168.15.119
  Default Gateway . . . . . . . : 192.168.15.1
Ethernet adapter Bluetooth Network Connection:
                             . . . : Media disconnected
  Media State . . . . . . . .
  Connection-specific DNS Suffix .:
```

21. Write a script to list all files and directories in the current directory, sorted by size.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
$ ls -lsh
total 32K
-rw-r--r-- 1 AzureAD+AttarMohammadSameer 4096 19K May 29 20:31 google_output.html
-rw-r--r- 1 AzureAD+AttarMohammadSameer 4096 4.6K May 29 20:11 sample-log.log
-rw-r--r-- 1 AzureAD+AttarMohammadSameer 4096 1.6K May 29 19:38 output-log.log
-r--r--r-- 1 AzureAD+AttarMohammadSameer 4096 0 May 29 20:32 example.txt
-rw-r--r-- 1 AzureAD+AttarMohammadSameer 4096 0 May 29 19:48 filtered_events.txt
-rw-r--r-- 1 AzureAD+AttarMohammadSameer 4096 0 May 29 20:36 myscript.sh
```

22. List all files and directories in the current directory with sizes in human-readable format.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments

$ 1s -1h
total 32K
-r--r-- 1 AzureAD+AttarMohammadSameer 4096 0 May 29 20:32 example.txt
-rw-r--r- 1 AzureAD+AttarMohammadSameer 4096 0 May 29 19:48 filtered_events.txt
-rw-r--r- 1 AzureAD+AttarMohammadSameer 4096 19K May 29 20:31 google_output.html
-rw-r--r- 1 AzureAD+AttarMohammadSameer 4096 0 May 29 20:36 myscript.sh
-rw-r--r- 1 AzureAD+AttarMohammadSameer 4096 1.6K May 29 19:38 output-log.log
-rw-r--r- 1 AzureAD+AttarMohammadSameer 4096 4.6K May 29 20:11 sample-log.log
```

23. Print the hostname a computer.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ hostname IN-TS-Y7VXID
```

24. Command to Kill a particular process running in your system.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ kill 460
```

25. Create two files test1.txt and test2.txt with some content and merge it to a single file test.text

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
$ touch text1.txt
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
$ vi text1.txt
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
Hello, Folks! This is Attar Mohammad Sameer
$ touch text2.txt
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
$ vi text2.txt
zureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
cat text2.txt
I have recently joined Bounteous X Accolite as Software Engineer.
$ cat text1.txt text2.txt>test.txt
xzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
$ cat test.txt
Hello, Folks! This is Attar Mohammad Sameer
I have recently joined Bounteous X Accolite as Software Engineer.
```

26. Create a shell script test.sh with the content given at the bottom and execute it.

```
$ nano test.sh
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
$ chmod +x test.sh
$ ./test.sh
Created process with PID: 869
Created process with PID: 870
Created process with PID: 871
Created process with PID: 872
Created process with PID: 873
Created process with PID: 874
Created process with PID: 875
Created process with PID: 876
Created process with PID: 877
Created process with PID: 878
```

27. Tes.sh creates mutiple process, wrtie command to kill some specific process with given pid.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ kill 869 bash: kill: (869) - No such process
```

28. Write a shell script which take your name as input and it will dispaly Hello your name.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
$ touch input.txt
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
$ vi input.txt
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
$ chmod +x hello.sh
chmod: cannot access 'hello.sh': No such file or directory
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
$ chmod +x input.sh
chmod: cannot access 'input.sh': No such file or directory
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
$ chmod +x input.txt
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
$ ./input.txt
Enter your name:
Sameer
Hello Sameer
```

29. Write a command to download file.zip from

https://github.com/github/gitignore/archive/refs/heads/main.zip

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments
$ curl -L -o file.zip https://github.com/github/gitignore/archive/refs/heads/main.zip
  % Total
               % Received % Xferd Average Speed
                                                          Time
                                                                      Time
                                                                                 Time Current
                                        Dload Upload
                                                            Total
                                                                                 Left Speed
                                                                      Spent
  0
                             0
                                    0
                                            0
                                                                                             0
         0
                0
                      0
                                                      0 --:--:
                   122k
     122k
                                        96521
                                                      0 --:--: 0:00:01 --:-- 96521
100
                             0
                                    0
```

30. Write a command to zip test.txt to test.zip and unzip it.

```
AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ tar -czvf test.zip test.txt test.txt

AzureAD+AttarMohammadSameer@IN-TS-Y7VXID MINGW64 ~/Desktop/Linux-Assignments $ tar -xzvf test.zip test.txt
```