

1. Download the file [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 and

```
MINGW64~/Downloads
$ cd ~/Downloads

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ chmod
+chmod: missing operand
Try 'chmod --help' for more information.

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ +chmod +x web_scraper.sh
bash: +chmod: command not found

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ chmod +x web_scraper.sh

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ ./scraper.sh "https://en.wikipedia.org/wiki/Wikipedia:Stub" &
./scraper.sh "https://en.wikipedia.org/wiki/India" &
[1] 1134
bash: ./scraper.sh: No such file or directory
[1]+ Exit 127 ./scraper.sh "https://en.wikipedia.org/wiki/Wikipedia:Stub"
[1] 1138
bash: ./scraper.sh: No such file or directory
[1]+ Exit 127 ./scraper.sh "https://en.wikipedia.org/wiki/India"

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ ^C

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ ./web_scraper.sh "https://en.wikipedia.org/wiki/Wikipedia:Stub" &
./web_scraper.sh "https://en.wikipedia.org/wiki/India" &
[1] 1148
[2] 1157
Fetching: https://en.wikipedia.org/wiki/Wikipedia:Stub
./web_scraper.sh: line 41: wget: command not found
[1]+ Done ./web_scraper.sh "https://en.wikipedia.org/wiki/Wikipedia:Stub"
[2]+ Done ./web_scraper.sh "https://en.wikipedia.org/wiki/India"

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ |
```

- a. Find all the processes running on the system.
- b. Find the first 5 processes with the highest memory usage.

```
AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ ps aux
  PID   PPID    PGID   WINPID   TTY          UID     STIME  COMMAND
  1096     1    1096    19944    ?           4096  20:22:32 /usr/bin/mintty
  1097   1096    1097     5364   pty0        4096  20:22:33 /usr/bin/bash
  1169   1097    1169    25380   pty0        4096  20:26:41 /usr/bin/ps

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ ps aux --sort=-%mem | head -n 6
ps: unknown option -- sort=-%mem
Try `ps --help' for more information.

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ ps aux | sort -nrk 4 | head -n 5
  PID   PPID    PGID   WINPID   TTY          UID     STIME  COMMAND
  1096     1    1096    19944    ?           4096  20:22:32 /usr/bin/mintty
  1181   1097    1181    18648   pty0        4096  20:29:06 /usr/bin/ps
  1097   1096    1097     5364   pty0        4096  20:22:33 /usr/bin/bash
  PID   PPID    PGID   WINPID   TTY          UID     STIME  COMMAND
```

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

```
AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ curl -o /dev/null -s -w "%{http_code}\n" https://www.google.com/
200

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ ps aux --sort=-%cpu | head -n 4
ps: unknown option -- sort=-%cpu
Try `ps --help' for more information.

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ ps aux | sort=-%cpu | head -n 4

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ find . -type f -size +100M
./jdk-21_windows-x64_bin.exe
./mysql-installer-community-8.0.42.0.msi
```

5. Find which version of Python is installed on the system.
6. Get the current time zone of your system.

```
AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ python --version
Python was not found; run without arguments to install
es.

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ date
Sun Jun 15 20:35:35 IST 2025
```

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

```
AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ echo "New York: $(TZ='America/New_York' date)"
echo "London: $(TZ='Europe/London' date)"
echo "Sydney: $(TZ='Australia/Sydney' date)"
New York: Sun Jun 15 15:06:38 GMT 2025
London: Sun Jun 15 15:06:39 GMT 2025
Sydney: Sun Jun 15 15:06:39 GMT 2025
```

8. Check for how long the system is up.

11. Given a log file:

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

```
AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ vim sample.log

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ grep "ERROR" sample.log > errors.log

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ cat errors.log
2025-06-15 10:02:15 ERROR Failed to connect to database
2025-06-15 10:07:30 ERROR Timeout while contacting external API

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$
```

- b. What events occurred between 09:10 and 09:19?
- c. How many INFO messages are in the log file?

```
AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ grep -E "2025-06-15 09:1[0-9]" sample.log

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ ^[[200~grep -c "INFO" sample.log
bash: $'\E[200~grep': command not found

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ grep -c "INFO" sample.log
5

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ |
```

- d. Print the first 5 lines of the file
- e. Print the last 5 lines of the file.

```
AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ head -n 5 sample.log
cat <<EOL > sample.log
2025-06-15 10:00:01 INFO Starting the application
2025-06-15 10:01:05 WARN Low disk space on /dev/sda1
2025-06-15 10:02:15 ERROR Failed to connect to database
2025-06-15 10:03:20 INFO Retrying database connection

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ tail -n 5 sample.log
2025-06-15 10:04:00 INFO Database connection established
2025-06-15 10:05:10 DEBUG Fetching user data
2025-06-15 10:06:25 INFO User data processed successfully
2025-06-15 10:07:30 ERROR Timeout while contacting external API
2025-06-15 10:08:45 INFO Application shutting don
```

- f. Rename the file to new_log.txt.
- g. Edit the log file and add the string "hello, world!" at the beginning of the file.
- h. Delete the old log file.

```
AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ mv sample.log new_log.txt

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ sed -i '1i hello, world!' new_log.txt

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ rm sample.log
rm: cannot remove 'sample.log': No such file or directory

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ |
```

13. Connect to google.com and copy the output to a text file.
14. Create a file called example.txt. Write a script to make it read-only for all users.
15. Recursively make all the files readable in a directory.

```
AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ curl https://www.google.com > google_output.txt
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload  Total   Spent    Left     Speed
100 19961    0 19961    0     0   78053      0  --:--:-- --:--:-- --:--:--  79210

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ touch example.txt

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ chmod 444 example.txt

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ chmod -R a+r /path/to/directory
chmod: cannot access '/path/to/directory': No such file or directory

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$
```

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

```
AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ find -type f -name "*.log"
./errors.log
```

17. Write a command to get the kernel version.
18. Find the IP address of the system.

```
AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ uname -r
3.5.7-463ebcdc.x86_64

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ ip addr show
bash: ip: command not found

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ ip -4 addr show | grep inet
bash: ip: command not found

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ |
```

- 19.

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

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

22. Print the hostname a computer.

```
AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ #!/bin/bash
ls -ls
total 624919
-rw-r--r-- 1 AzureAD+ManavShah 4096 370843648 May 28 21:55 mysql-install
-rwxr-xr-x 1 AzureAD+ManavShah 4096 172330096 May 23 12:45 jdk-21_window
-rwxr-xr-x 1 AzureAD+ManavShah 4096 70287136 May 23 13:35 Git-2.49.0-64
-rwxr-xr-x 1 AzureAD+ManavShah 4096 25654736 May 23 13:36 SourceTreeSet
-rw-r--r-- 1 AzureAD+ManavShah 4096 320361 May 27 09:25 Manav_Resume.
-rw-r--r-- 1 AzureAD+ManavShah 4096 216816 May 25 22:30 'Problem Solvi
-rw-r--r-- 1 AzureAD+ManavShah 4096 213846 May 22 17:10 'Asset Declara
-rw-r--r-- 1 AzureAD+ManavShah 4096 19961 Jun 15 21:20 google_output
-rw-r--r-- 1 AzureAD+ManavShah 4096 6780 Jun 12 11:57 ctc_proration
-rwxr-xr-x 1 AzureAD+ManavShah 4096 2101 Jun 15 20:19 web_scraper.sh
-rw-r--r-- 1 AzureAD+ManavShah 4096 536 Jun 15 20:50 new_log.txt
-rw-r--r-- 1 AzureAD+ManavShah 4096 282 May 22 16:41 desktop.ini
-rw-r--r-- 1 AzureAD+ManavShah 4096 162 May 22 17:10 '~$set Declara
-rw-r--r-- 1 AzureAD+ManavShah 4096 120 Jun 15 20:45 errors.log
-r--r--r-- 1 AzureAD+ManavShah 4096 0 Jun 15 21:20 example.txt

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ ls -lh
total 611M
-rw-r--r-- 1 AzureAD+ManavShah 4096 209K May 22 17:10 'Asset Declaration
-rwxr-xr-x 1 AzureAD+ManavShah 4096 68M May 23 13:35 Git-2.49.0-64-bit.
-rw-r--r-- 1 AzureAD+ManavShah 4096 313K May 27 09:25 Manav_Resume.pdf
-rw-r--r-- 1 AzureAD+ManavShah 4096 212K May 25 22:30 'Problem Solving Wo
-rwxr-xr-x 1 AzureAD+ManavShah 4096 25M May 23 13:36 SourceTreeSetup-3.
-rw-r--r-- 1 AzureAD+ManavShah 4096 6.7K Jun 12 11:57 ctc_proration_9368
-rw-r--r-- 1 AzureAD+ManavShah 4096 282 May 22 16:41 desktop.ini
-rw-r--r-- 1 AzureAD+ManavShah 4096 120 Jun 15 20:45 errors.log
-r--r--r-- 1 AzureAD+ManavShah 4096 0 Jun 15 21:20 example.txt
-rw-r--r-- 1 AzureAD+ManavShah 4096 20K Jun 15 21:20 google_output.txt
-rwxr-xr-x 1 AzureAD+ManavShah 4096 165M May 23 12:45 jdk-21_windows-x64
-rw-r--r-- 1 AzureAD+ManavShah 4096 354M May 28 21:55 mysql-installer-co
-rw-r--r-- 1 AzureAD+ManavShah 4096 536 Jun 15 20:50 new_log.txt
-rwxr-xr-x 1 AzureAD+ManavShah 4096 2.1K Jun 15 20:19 web_scraper.sh*
-rw-r--r-- 1 AzureAD+ManavShah 4096 162 May 22 17:10 '~$set Declaration

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ hostname
Manav
```

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

```

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ echo "This is content of test1.txt" > test1.txt
echo "This is content of test2.txt" > test2.txt

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ cat test1.txt test2.txt > test.txt

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ cat test.txt
This is content of test1.txt
This is content of test2.txt

AzureAD+ManavShah@Manav MINGW64 ~/Downloads
$ |

```

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

```

AzureAD+ManavShah@Manav MINGW64 ~
$ ps aux
  PID   PPID   PGID   WINPID   TTY        UID    STIME  COMMAND
  1149   1148   1149    2360    pty0       4096   21:30:43 /usr/bin/bash
  1171   1149   1171    14788   pty0       4096   21:30:49 /usr/bin/ps
  1148     1   1148    3836     ?         4096   21:30:43 /usr/bin/mintty

AzureAD+ManavShah@Manav MINGW64 ~
$ kill 1171
bash: kill: (1171) - No such process

AzureAD+ManavShah@Manav MINGW64 ~
$ |

```

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

```

AzureAD+ManavShah@Manav MINGW64 ~
$ #!/bin/bash

echo "Enter your name:"
read name
echo "Hello, $name"
Enter your name:
manav
Hello, manav

```

26.

27. Write a command to download file.zip from
<https://github.com/github/gitignore/archive/refs/heads/main.zip>

```
$ 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   Spent    Left     Speed
  0     0    0     0    0     0      0      0  --:--:-- --:--:-- --:--:--    0
100 122k    0 122k    0     0 84209    0  --:--:-- 0:00:01 --:--:-- 84209
```

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

```
$ "/c/Program Files/7-Zip/7z.exe" x file.zip
7-Zip 24.09 (x64) : Copyright (c) 1999-2024 Igor Pavlov : 2024-11-29

Scanning the drive for archives:
1 file, 125224 bytes (123 KiB)

Extracting archive: file.zip
--
Path = file.zip
Type = zip
Physical Size = 125224
Comment = 84c765dc71e59b8d115f1b7b162ee87a1d9b1158

ERROR: Cannot create symbolic link : A required privilege is not held by the client. : .\gitignore-main\Clojure.gitignore
ERROR: Cannot create symbolic link : A required privilege is not held by the client. : .\gitignore-main\Fortran.gitignore
ERROR: Cannot create symbolic link : A required privilege is not held by the client. : .\gitignore-main\Global\Octave.gitignore

Sub items Errors: 3

Archives with Errors: 1

Sub items Errors: 3
```

Sample log file:

```
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
2025-02-18 08:48:45 INFO User login successful: user1
2025-02-18 08:49:56 INFO Scheduled backup completed
2025-02-18 08:50:15 INFO User login successful: user2
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 08:52:30 INFO User logout: user1
2025-02-18 08:53:50 WARN High memory usage detected
```


2025-02-18 08:54:22 INFO User login successful: user3
2025-02-18 08:55:33 INFO File upload completed: file1.txt
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
2025-02-18 08:57:56 INFO User logout: user2
2025-02-18 08:58:12 INFO User login successful: user4
2025-02-18 08:59:23 INFO Scheduled maintenance started
2025-02-18 09:00:34 INFO User logout: user3
2025-02-18 09:01:45 INFO Application shutdown initiated
2025-02-18 09:02:56 INFO Application shutdown completed

2025-02-19 09:05:23 INFO Starting the application
2025-02-19 09:06:45 WARN Low disk space on /dev/sda1
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 09:08:34 INFO User login successful: user1
2025-02-19 09:09:56 INFO Scheduled backup completed
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
2025-02-19 09:20:34 INFO User logout: user3
2025-02-19 09:21:45 INFO Application shutdown initiated
2025-02-19 09:22:56 INFO Application shutdown completed
2025-02-19 09:23:45 INFO System reboot initiated
2025-02-19 09:24:56 INFO System reboot completed
2025-02-19 09:25:34 INFO User login successful: admin
2025-02-19 09:26:45 WARN CPU temperature high
2025-02-19 09:27:56 INFO User logout: admin
2025-02-19 09:28:34 INFO User login successful: user5
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
2025-02-19 09:30:56 INFO User logout: user5

2025-02-20 10:05:23 INFO Starting the application
2025-02-20 10:06:45 WARN Low disk space on /dev/sda1
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 10:08:34 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 10:11:45 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 10:12:30 INFO User logout: user1
2025-02-20 10:13:50 WARN High memory usage detected
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 10:16:45 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 10:17:56 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 10:26:45 WARN CPU temperature high
2025-02-20 10:27:56 INFO User logout: admin
2025-02-20 10:28:34 INFO User login successful: user5
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
