



National Textile University

Department of Computer Science

Subject: Operating System

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Section: BS SE A

Semester: 5th

Home task 3:

Task 1:

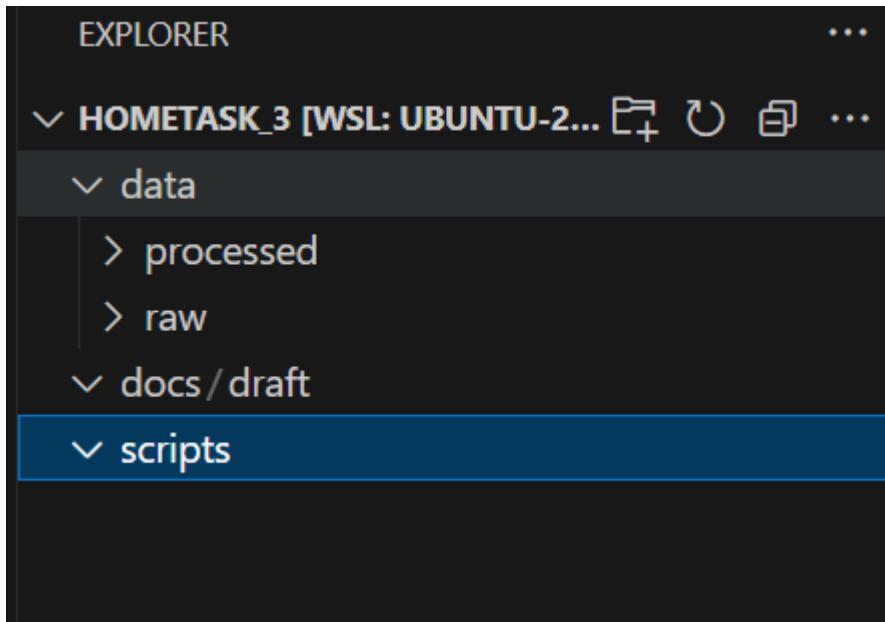
1. Create the following directory structure in your home directory:

```
Lab_3/
├── docs/
│   └── drafts/
└── data/
    ├── raw/
    └── processed/
        └── scripts/
```

Answer :

The screenshot shows the Visual Studio Code interface running in a Windows Subsystem for Linux (WSL) environment. The terminal tab displays the following command history:

```
● emanfatima@Eman:~/operating-system-/hometask_3$ mkdir -p docs/draft
● emanfatima@Eman:~/operating-system-/hometask_3$ mkdir -p data/raw
● emanfatima@Eman:~/operating-system-/hometask_3$ mkdir -p data/processed
● emanfatima@Eman:~/operating-system-/hometask_3$ mkdir -p scripts
```



Task 2:

2. Inside docs/ :

- Create three files: `intro.txt` , `notes.txt` , `summary.txt` .
 - Add at least **two lines of text** into each using `echo >>` .
 - Copy `summary.txt` into the `drafts/` folder using `cp` command.

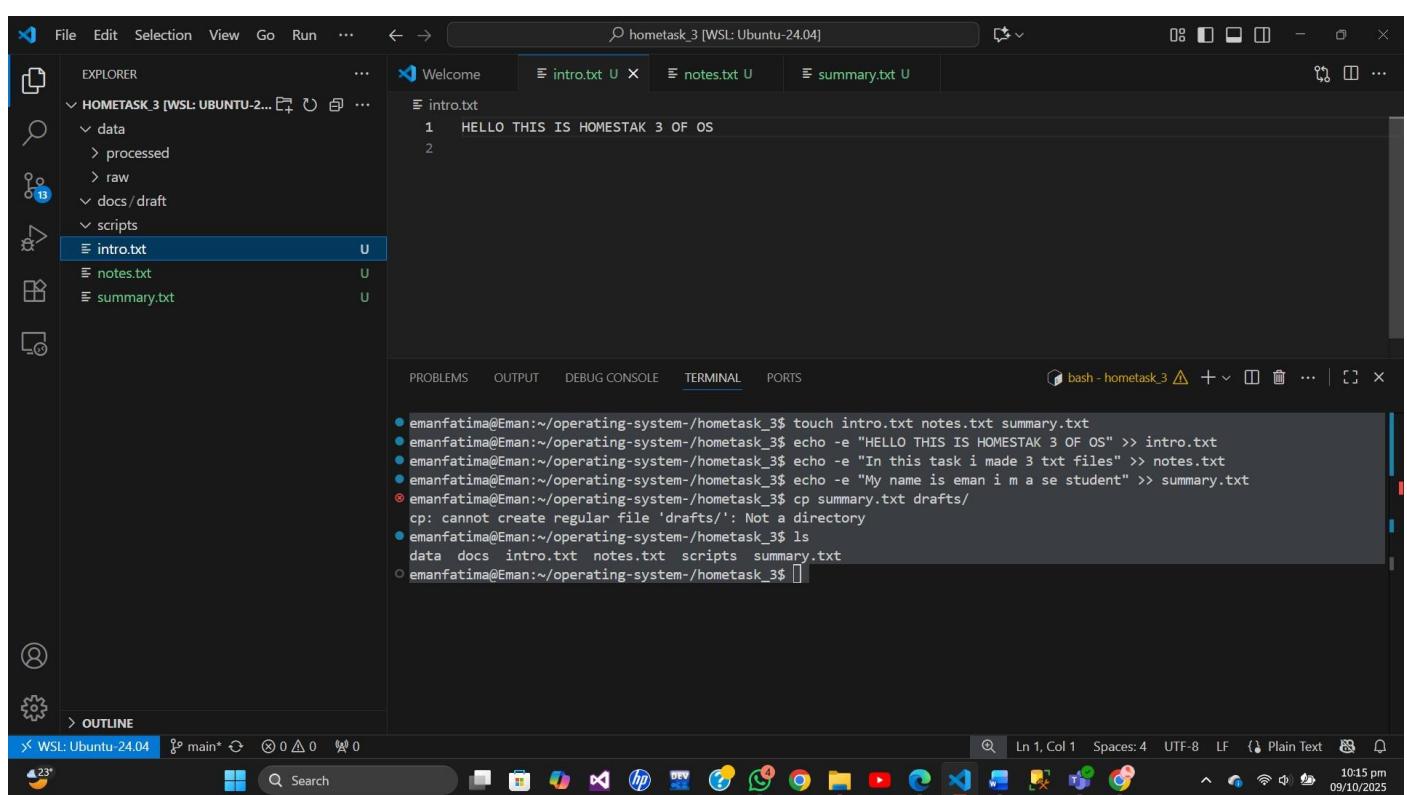
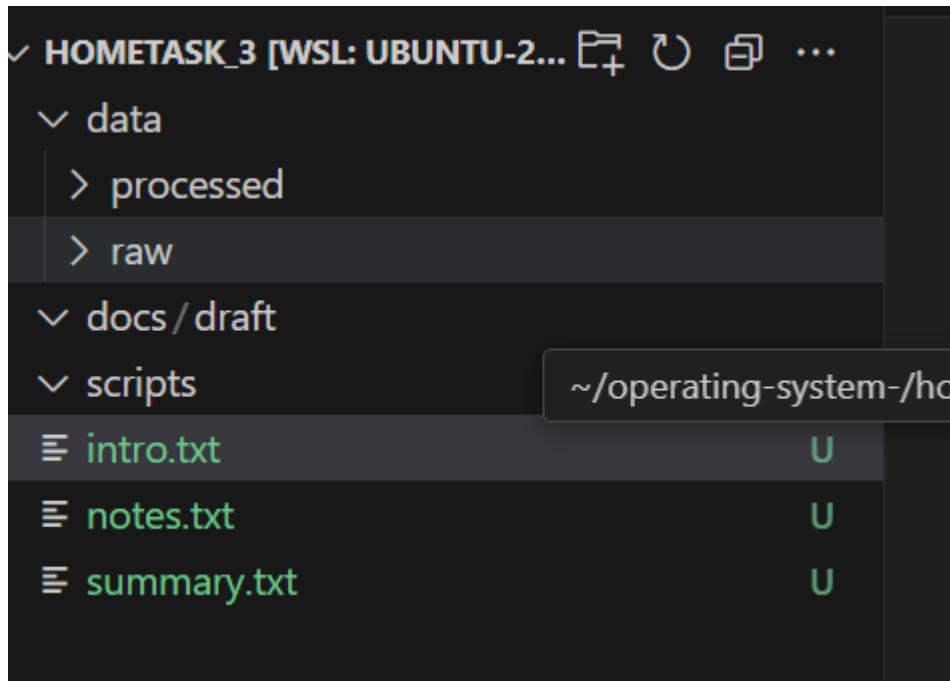
Answer :

The screenshot shows a Microsoft Visual Studio Code (VS Code) interface running on a Windows host. The title bar indicates the current workspace is 'hometask_3 [WSL: Ubuntu-24.04]'. The left sidebar contains the 'EXPLORER' view, which shows a directory tree for 'HOMETASK_3 [WSL: UBUNTU-24.04]'. Inside 'data', there are 'processed' and 'raw' sub-directories. Under 'scripts', there are four files: 'intro.txt' (selected), 'notes.txt', and 'summary.txt', all marked as 'U' (Untracked). The main editor area displays the contents of 'intro.txt':

```
1 HELLO THIS IS HOMESTAK 3 OF OS
```

Below the editor are tabs for 'PROBLEMS', 'OUTPUT', 'DEBUG CONSOLE', 'TERMINAL', and 'PORTS'. The 'TERMINAL' tab is active, showing a bash session history:

```
emanfatima@Eman:~/operating-system-/hometask_3$ touch intro.txt notes.txt summary.txt
emanfatima@Eman:~/operating-system-/hometask_3$ echo -e "HELLO THIS IS HOMESTAK 3 OF OS" >> intro.txt
emanfatima@Eman:~/operating-system-/hometask_3$ echo -e "In this task i made 3 txt files" >> notes.txt
emanfatima@Eman:~/operating-system-/hometask_3$ echo -e "My name is eman i m a se student" >> summary.txt
emanfatima@Eman:~/operating-system-/hometask_3$ cp summary.txt drafts/
cp: cannot create regular file 'drafts/': Not a directory
emanfatima@Eman:~/operating-system-/hometask_3$ ls
data docs intro.txt notes.txt scripts summary.txt
emanfatima@Eman:~/operating-system-/hometask_3$
```



The screenshot shows the Visual Studio Code interface running in WSL (Ubuntu-24.04). The terminal tab is active, displaying the following command-line session:

```
emanfatima@Eman:~/operating-system-/hometask_3$ touch intro.txt notes.txt summary.txt
emanfatima@Eman:~/operating-system-/hometask_3$ echo -e "HELLO THIS IS HOMESTAK 3 OF OS" >> intro.txt
emanfatima@Eman:~/operating-system-/hometask_3$ echo -e "In this task i made 3 txt files" >> notes.txt
emanfatima@Eman:~/operating-system-/hometask_3$ echo -e "My name is eman i m a se student" >> summary.txt
emanfatima@Eman:~/operating-system-/hometask_3$ cp summary.txt drafts/
cp: cannot create regular file 'drafts/': Not a directory
emanfatima@Eman:~/operating-system-/hometask_3$ ls
data docs intro.txt notes.txt scripts summary.txt
emanfatima@Eman:~/operating-system-/hometask_3$
```

The screenshot shows the Visual Studio Code interface running in WSL (Ubuntu-24.04). The terminal tab is active, displaying the same command-line session as the previous screenshot, but with a different file structure in the Explorer sidebar:

```
emanfatima@Eman:~/operating-system-/hometask_3$ touch intro.txt notes.txt summary.txt
emanfatima@Eman:~/operating-system-/hometask_3$ echo -e "HELLO THIS IS HOMESTAK 3 OF OS" >> intro.txt
emanfatima@Eman:~/operating-system-/hometask_3$ echo -e "In this task i made 3 txt files" >> notes.txt
emanfatima@Eman:~/operating-system-/hometask_3$ echo -e "My name is eman i m a se student" >> summary.txt
emanfatima@Eman:~/operating-system-/hometask_3$ cp summary.txt drafts/
cp: cannot create regular file 'drafts/': Not a directory
emanfatima@Eman:~/operating-system-/hometask_3$ ls
data docs intro.txt notes.txt scripts summary.txt
emanfatima@Eman:~/operating-system-/hometask_3$
```

Task 3:

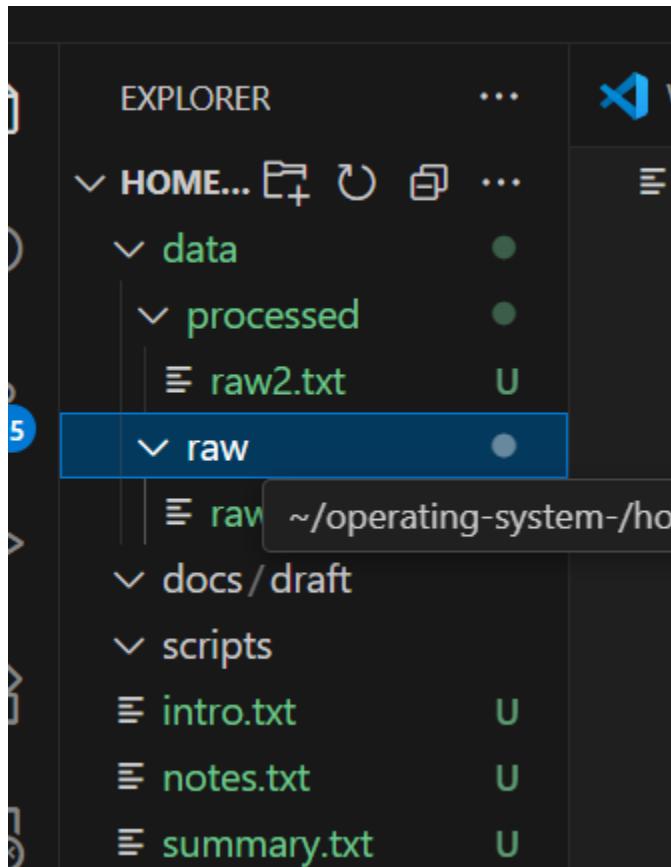
3. Inside `data/raw/`:

- Create two files: `raw1.txt`, `raw2.txt`.
- Append the **current date** into `raw1.txt` using the `date` command.
- Move `raw2.txt` into `processed/` using `mv`. The syntax is:

```
mv source destination
```

Answer :

```
emanfatima@Eman:~/operating-system-/hometask_3$ cd data
emanfatima@Eman:~/operating-system-/hometask_3/data$ cd raw
emanfatima@Eman:~/operating-system-/hometask_3/data/raw$ touch raw1.txt raw2.txt
emanfatima@Eman:~/operating-system-/hometask_3/data/raw$ date >> raw1.txt
emanfatima@Eman:~/operating-system-/hometask_3/data/raw$ cat raw1.txt
Thu Oct  9 22:22:38 PKT 2025
emanfatima@Eman:~/operating-system-/hometask_3/data/raw$ mv raw2.txt ..../processed/
emanfatima@Eman:~/operating-system-/hometask_3/data/raw$
```



Task 4:

4. Inside `scripts/` :

- Create a script named `hello.sh` with the following content:

```
echo "Hello World"  
pwd  
ls -lh
```

Answer :

A screenshot of the Visual Studio Code interface running in a Windows environment. The terminal window shows a nano session in a file named hometask3.sh. The content of the file is:

```
GNU nano 7.2
echo "hi my name is eman!"
pwd
ls -lh
```

The status bar at the bottom right indicates the date and time as 10:27 pm on 09/10/2025.

A screenshot of the Visual Studio Code interface running in a Windows environment. The terminal window shows a bash session in a file named hometask3.shq. The content of the file is:

```
data > raw > hometask3.shq
1 echo "hi my name is eman!"
2 pwd
3 ls -lh
4
```

The status bar at the bottom right indicates the date and time as 10:29 pm on 09/10/2025.

Task 5:

The screenshot shows the VS Code interface with the terminal tab selected. The terminal window displays the following command-line session:

```
emanfatima@Eman:~/operating-system-/hometask_3$ ls -R
.:
data docs intro.txt notes.txt scripts summary.txt

./data:
processed raw

./data/processed:
raw2.txt

./data/raw:
hometask3.shq raw1.txt

./docs:
draft

./docs/draft:

./scripts:
draft

./scripts:
emanfatima@Eman:~/operating-system-/hometask_3$
```

The Explorer sidebar shows a file tree for 'HOMETASK_3 [WSL: UBUN...]' containing directories 'data', 'docs', 'scripts', and files 'intro.txt', 'notes.txt', and 'summary.txt'. The terminal output shows the execution of the 'ls -R' command, listing the contents of each directory.

Task 6:

The screenshot shows the VS Code interface with the terminal tab selected. The terminal window displays the following command-line session:

```
emanfatima@Eman:~/operating-system-/hometask_3$ pwd
/home/emanfatima/operating-system-/hometask_3
emanfatima@Eman:~/operating-system-/hometask_3$ whoami
emanfatima
emanfatima@Eman:~/operating-system-/hometask_3$ touch extra.txt
emanfatima@Eman:~/operating-system-/hometask_3$ cat intro.txt
HELLO THIS IS HOMESTAK 3 OF OS
emanfatima@Eman:~/operating-system-/hometask_3$ rm extra.txt
emanfatima@Eman:~/operating-system-/hometask_3$ history
1 wsl --list--verbose
2 ls -l ~
3 whoami
4 cd /home/emanfatima
5 ls -l
6 clear
7 wsl --list--verbose
8 sudo apt update && sudo apt upgrade -y
9 git config --global user.name "Eman fatima"
10 git config --global user.email eman14132004@gmail.com
11 git config --list
12 ssh-keygen -t ed25519 -C "emanfatima.com"
13 cd ~/.ssh/
14 ls
15 cat id_ed25519.pub
16 ssh -T git@github.com
17 git clone git@github.com:Eemaan76/1146-eman-.git
18 gcc --version
19 g++ version
20 git clone git@github.com:Eemaan76/operating-system-.git
21 nano task1.c
22 gcc task1.c -o task1.out
23 ./task1.out
24 git remote -v
```

The Explorer sidebar shows a file tree for 'HOMETASK_3 [WSL: UBUN...]' containing directories 'data', 'docs', and 'scripts', and files 'intro.txt', 'notes.txt', and 'summary.txt'. The terminal output shows various system commands like 'pwd', 'whoami', 'touch', 'cat', 'rm', and a history of previous commands.

```
313 cd ../data/raw
314 ls
315 cd ../data
316 clear
317 cd data
318 cd raw
319 touch raw1.txt raw2.txt
320 date >> raw1.txt
321 cat raw1.txt
322 mv raw2.txt ..processed/
323 clear
324 nano hometask3.sh
325 clear
326 ls -R
327 ls
328 cd ..
329 cd ..
330 clear
331 ls -R
332 clear
333 pwd
334 whoami
335 touch extra.txt
336 cat intro.txt
337 rm extra.txt
338 history
339 history | tail -n 5
emanfatima@Eman:~/operating-system-/hometask_3$ history | tail -n 5
335 touch extra.txt
336 cat intro.txt
337 rm extra.txt
338 history
339 history | tail -n 5
emanfatima@Eman:~/operating-system-/hometask_3$ clear
```

Task 7:

1. Change the permissions of `hello.sh` so that:

- Owner → Read, Write & Execute
- Group → Read, Write & Execute
- Others → No permissions
- Run the script using:

```
./hello.sh
```

```
data > raw > hometask3.shq
1 echo "hi my name is eman!"
2 pwd
3 ls -lh
4

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
```

```
● emanfatima@Eman:~/operating-system-/hometask_3/data$ cd raw
● emanfatima@Eman:~/operating-system-/hometask_3/data/raw$ chmod 770 hometask3.shq
chmod: cannot access 'hometask3.shq': No such file or directory
● emanfatima@Eman:~/operating-system-/hometask_3/data/raw$ chmod 770 hometask3.shq
● emanfatima@Eman:~/operating-system-/hometask_3/data/raw$ ls -l hometask3.shq
-rwxrwx--- 1 emanfatima emanfatima 38 Oct  9 22:29 hometask3.shq
● emanfatima@Eman:~/operating-system-/hometask_3/data/raw$ ./hometask3.shq
hi my name is eman!
/home/emanfatima/operating-system-/hometask_3/data/raw
total 8.0K
-rwxrwx--- 1 emanfatima emanfatima 38 Oct  9 22:29 hometask3.shq
-rw-r--r--  1 emanfatima emanfatima 29 Oct  9 22:22 raw1.txt
○ emanfatima@Eman:~/operating-system-/hometask_3/data/raw$
```

WSL Ubuntu-24.04

Task 8 :

Take a screenshot of its output.

2. Change the permissions of `intro.txt` using **numeric notation** so that:
 - Owner → Read & Write
 - Group → Read & Write
 - Others → Read only

A screenshot of the Visual Studio Code interface running on a Windows host. The title bar indicates the window is titled "hometask_3 [WSL: Ubuntu-24.04]". The Explorer sidebar shows a file tree for a directory named "HOMETASK_3 [WSL: UBUNTU-24.04]". The tree includes files like "data", "intro.txt", "notes.txt", and "summary.txt", along with sub-directories "docs/draft" and "scripts". The "data" folder is expanded, showing its contents. The main editor area displays a terminal session in a file named "hometask3.shq". The session shows the following commands and output:

```
data > raw > hometask3.shq
1 echo "hi my name is eman!"
2 pwd
3 ls -lh
4
```

The terminal tab is active at the bottom of the interface, showing a command-line session in a bash shell:

```
emanfatima@Eman:~/operating-system-/hometask_3$ chmod 664 intro.txt
emanfatima@Eman:~/operating-system-/hometask_3$ ls -l intro.txt
-rw-rw-r-- 1 emanfatima emanfatima 31 Oct  9 22:11 intro.txt
o emanfatima@Eman:~/operating-system-/hometask_3$
```

Task 9:

3. Change the permissions of `notes.txt` using **symbolic notation** so that `others` don't have any permission on it.

The screenshot shows a Microsoft Visual Studio Code (VS Code) interface running on Windows. The title bar indicates the window is titled "hometask_3 [WSL: Ubuntu-24.04]". The left sidebar contains icons for Explorer, Search, Problems, and Outline. The Explorer view shows a file tree with a folder named "data" containing "hometask3.shq", "intro.txt", "notes.txt", and "summary.txt". The "data" folder is expanded. The "TERMINAL" tab is active, displaying a terminal session in WSL:

```
emanfatima@Eman:~/operating-system-/hometask_3$ chmod o= notes.txt
emanfatima@Eman:~/operating-system-/hometask_3$ ls -l notes.txt
-rw-r----- 1 emanfatima emanfatima 32 Oct  9 22:11 notes.txt
```

Task 10:

- Verify all changes with:

```
ls -l
```

The screenshot shows a terminal window within a code editor interface. The terminal tab is active, displaying the command `ls -l` and its output. The output shows a directory structure with files and their permissions, sizes, and modification times. The terminal window has a dark theme and includes status bars at the top and bottom.

```
data > raw > hometask3.shq
1 echo "hi my name is eman!"
2 pwd
3 ls -lh
4

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
● emanfatima@Eman:~/operating-system-/hometask_3$ ls -l
total 24
drwxr-xr-x 4 emanfatima emanfatima 4096 Oct  9 22:06 data
drwxr-xr-x 3 emanfatima emanfatima 4096 Oct  9 22:06 docs
-rw-r--r-- 1 emanfatima emanfatima   31 Oct  9 22:11 intro.txt
-rw-r----- 1 emanfatima emanfatima   32 Oct  9 22:11 notes.txt
drwxr-xr-x 2 emanfatima emanfatima 4096 Oct  9 22:06 scripts
-rw-r--r-- 1 emanfatima emanfatima  33 Oct  9 22:13 summary.txt
○ emanfatima@Eman:~/operating-system-/hometask_3$
```

WSL: Ubuntu-24.04 main* 0 △ 0 0 0

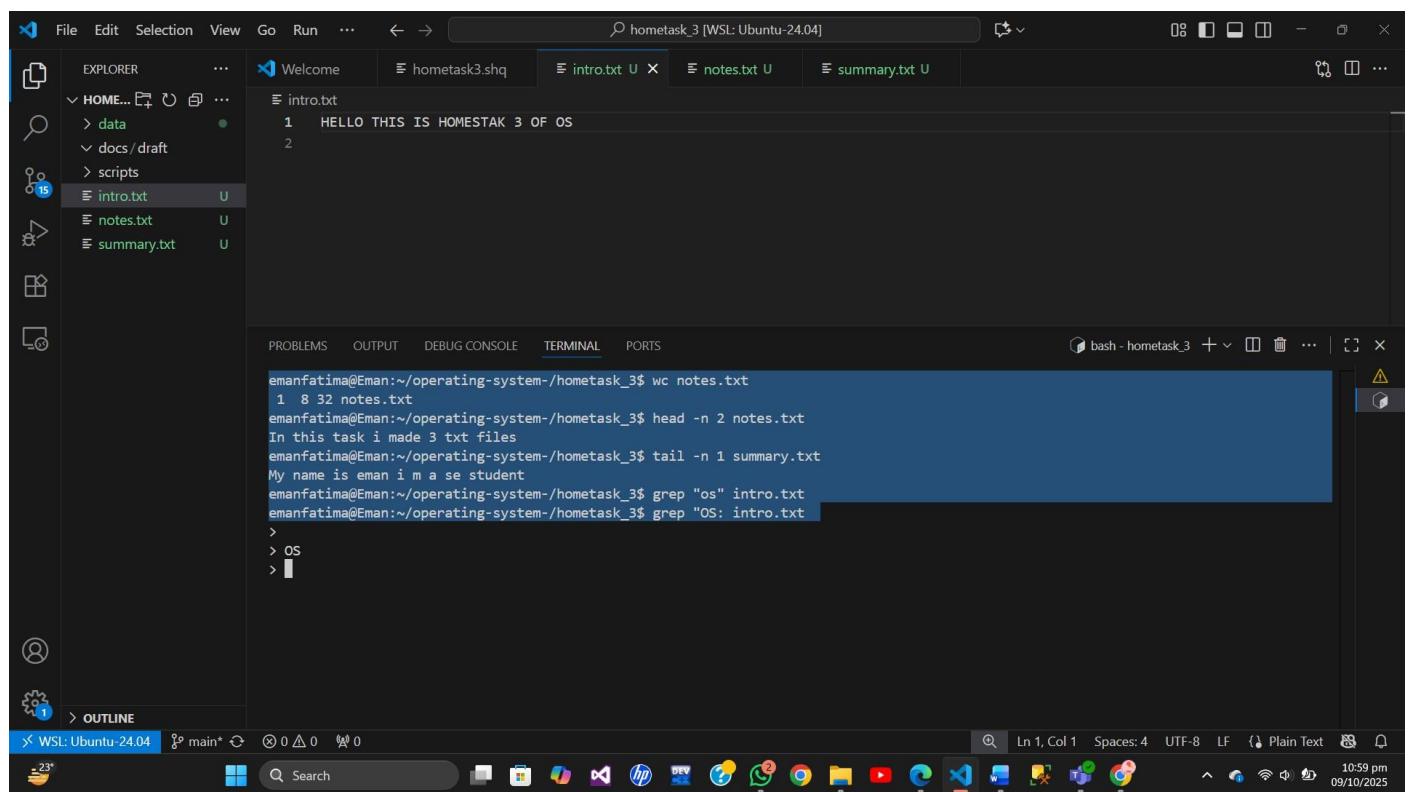
Ln 1, Col 1 Spaces: 4 UTF-8 LF Plain Text

10:56 pm 09/10/2025

Task 11:

1. Count the number of lines, words, and characters in `notes.txt` using `wc`.
 2. Show only the **first 2 lines** of `summary.txt` using `head -n 2`.
-
3. Show the **last line** of `summary.txt` using `tail -n 1`.
 4. Search for a keyword (of your choice) in `intro.txt` using `grep`.

Take screenshots.



```
File Edit Selection View Go Run ... ← → hometask_3 [WSL: Ubuntu-24.04]
EXPLORER ... Welcome hometask3.shq intro.txt U notes.txt U summary.txt U
HOME... data docs/draft scripts intro.txt U notes.txt U summary.txt U
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
bash - hometask_3 + ...
emanfatima@Eman:~/operating-system-/hometask_3$ wc notes.txt
1 8 32 notes.txt
emanfatima@Eman:~/operating-system-/hometask_3$ head -n 2 notes.txt
In this task i made 3 txt files
emanfatima@Eman:~/operating-system-/hometask_3$ tail -n 1 summary.txt
My name is eman i m a se student
emanfatima@Eman:~/operating-system-/hometask_3$ grep "os" intro.txt
emanfatima@Eman:~/operating-system-/hometask_3$ grep "OS: intro.txt"
>
> OS
> |
```

The screenshot shows the VS Code interface with a terminal window open in the bottom right corner. The terminal window title is "bash - hometask_3". It displays the following command-line session:

```

emanfatima@Eman:~/operating-system-/hometask_3$ wc notes.txt
1 8 32 notes.txt
emanfatima@Eman:~/operating-system-/hometask_3$ head -n 2 notes.txt
In this task i made 3 txt files
emanfatima@Eman:~/operating-system-/hometask_3$ tail -n 1 summary.txt
My name is eman i m a se student
emanfatima@Eman:~/operating-system-/hometask_3$ grep "os" intro.txt
emanfatima@Eman:~/operating-system-/hometask_3$ grep "OS: intro.txt
>
> OS
> "

```

Task 12:

1. Exploring Processes

- Use `ps -ef` and identify 3 processes running on your system. Note their **PID**, **PPID**, and **command**.

The screenshot shows the VS Code interface with a terminal window open in the bottom right corner. The terminal window title is "bash - operating-system-". It displays the following command-line session:

```

root      225      1  0 21:55 ?    00:00:00 /usr/bin/python3 /usr/share/unattended-upgrade
root      322      2  0 21:55 pts/1  00:00:00 /bin/login -f
emanfatim+ 368      1  0 21:55 ?    00:00:00 /usr/lib/systemd/systemd --user
emanfatim+ 371     368  0 21:55 ?    00:00:00 (sd-pam)
emanfatim+ 389     322  0 21:55 pts/1  00:00:00 -bash
root      439      2  0 21:55 ?    00:00:00 /init
root      440     439  0 21:55 ?    00:00:00 /init
emanfatim+ 441     440  0 21:55 pts/0  00:00:00 sh -c "$VS CODE_WSL_EXT_LOCATION/scripts/
emanfatim+ 442     441  0 21:55 pts/0  00:00:00 sh /mnt/c/Users/emanf/.vscode/extensions
emanfatim+ 448     442  0 21:55 pts/0  00:00:00 sh /home/emanfatima/.vscode-server/bin/3856
emanfatim+ 452     448  0 21:55 pts/0  00:00:28 /home/emanfatima/.vscode-server/bin/3856
emanfatim+ 554     452  0 21:55 pts/0  00:00:18 /home/emanfatima/.vscode-server/bin/3856
root      3758     2  0 22:06 ?    00:00:00 /init
root      3759     3758  0 22:06 ?    00:00:01 /init
emanfatim+ 3760     3759  0 22:06 pts/2  00:00:03 /home/emanfatima/.vscode-server/bin/3856
emanfatim+ 3767     452  0 22:06 pts/0  00:00:00 /home/emanfatima/.vscode-server/bin/3856
root      3773     3773  0 22:06 ?    00:00:00 /init
root      3774     3773  0 22:06 ?    00:00:00 /init
emanfatim+ 3776     3774  0 22:06 pts/3  00:00:03 /home/emanfatima/.vscode-server/bin/3856
emanfatim+ 3790     452  3 22:06 pts/0  00:01:50 /home/emanfatima/.vscode-server/bin/3856
emanfatim+ 3825     554  0 22:06 pts/4  00:00:00 /bin/bash --init-file /home/emanfatima/
emanfatim+ 8533     3790  0 22:24 pts/0  00:00:00 git fetch
emanfatim+ 8534     8533  0 22:24 pts/0  00:00:00 /usr/bin/ssh -o SendEnv=GIT_PROTOCOL git
emanfatim+ 13151    554  0 22:41 pts/5  00:00:00 /bin/bash --init-file /home/emanfatima/
emanfatim+ 18986    554  0 23:00 pts/6  00:00:00 /bin/bash --init-file /home/emanfatima/
emanfatim+ 19979    18986  0 23:03 pts/6  00:00:00 ps -ef

```

PID: 3790 is consuming cpu more .

Task 13:

- Run `top` for 20–30 seconds. Write down:
 - Which process is consuming the most CPU.
 - Which process is consuming the most memory.

```
%Cpu(s): 0.3 us, 0.3 sy, 0.0 ni, 99.2 id, 0.0 wa, 0.0 hi, 0.2 si, 0.0 st
Mib Mem : 3751.2 total, 2266.6 free, 1330.7 used, 229.6 buff/cache
Mib Swap: 1024.0 total, 1024.0 free, 0.0 used. 2420.5 avail Mem

PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
3790 emanfat+ 20 0 52.4g 747676 55168 S 3.7 19.5 2:00.59 node
452 emanfat+ 20 0 11.3g 161936 50816 S 0.3 4.2 0:29.64 node
554 emanfat+ 20 0 1295064 82268 46976 S 0.3 2.1 0:19.71 node
3760 emanfat+ 20 0 1018732 60728 42880 S 0.3 1.6 0:04.22 node
1 root 20 0 21792 12448 9376 S 0.0 0.3 0:01.79 systemd
2 root 20 0 3072 1664 1664 S 0.0 0.0 0:00.03 init-systemd(Ub
7 root 20 0 3120 1960 1792 S 0.0 0.1 0:00.38 init
46 root 19 -1 50356 15872 14976 S 0.0 0.4 0:00.63 systemd-journal
95 root 20 0 25272 6400 4864 S 0.0 0.2 0:00.75 systemd-udevd
111 systemd+ 20 0 21456 11776 9984 S 0.0 0.3 0:00.28 systemd-resolve
113 systemd+ 20 0 91024 7680 6784 S 0.0 0.2 0:00.36 systemd-timesync
164 root 20 0 4236 2560 2432 S 0.0 0.1 0:00.03 cron
165 message+ 20 0 9636 4864 4480 S 0.0 0.1 0:00.22 dbus-daemon
182 root 20 0 17964 8192 7424 S 0.0 0.2 0:00.33 systemd-logind
184 root 20 0 1755840 12160 10240 S 0.0 0.3 0:00.59 wsl-pro-service
201 root 20 0 3160 1920 1792 S 0.0 0.0 0:00.01 getty
206 syslog 20 0 222508 5248 4480 S 0.0 0.1 0:00.25 rsyslogd
208 root 20 0 3116 1792 1664 S 0.0 0.0 0:00.01 getty
225 root 20 0 107012 22144 13056 S 0.0 0.6 0:00.34 unattended-upgr
322 root 20 0 6660 4224 3712 S 0.0 0.1 0:00.01 login
```

Task 14:

2. Practice with Infinite Process

- Start:

```
yes > /dev/null &
```

- Locate its PID using `ps -ef | grep yes`.
- Kill it using `kill <PID>` and verify using `ps`.

```
File Edit Selection View Go Run ... ← → ⚡ hometask_3 [WSL: Ubuntu-24.04] PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS bash - operating-system- + ⚡ ... intro.txt U notes.txt U summary.txt U

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS bash - operating-system- + ⚡ ... intro.txt U notes.txt U summary.txt U

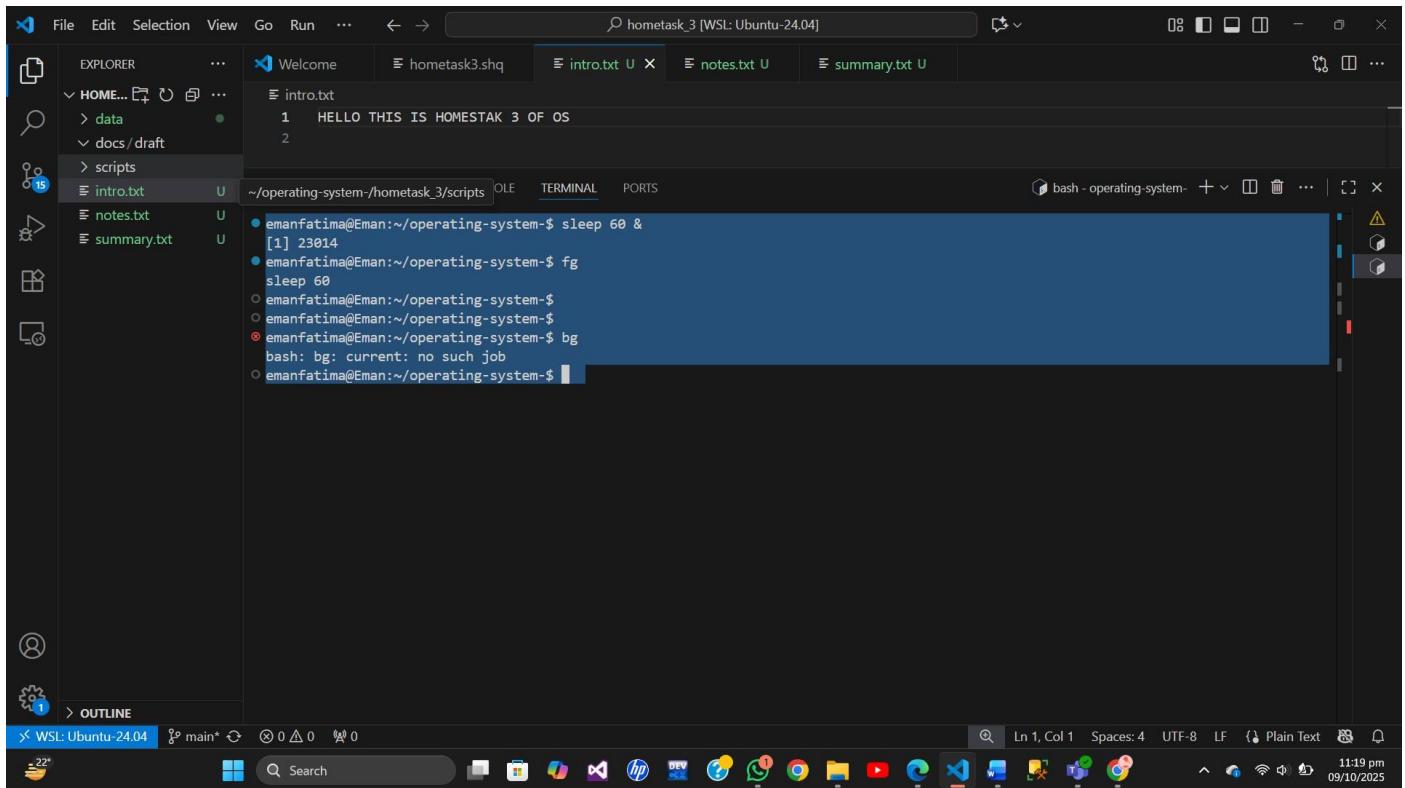
intro.txt
1 HELLO THIS IS HOMESTAK 3 OF OS
2

emanfatima@Eman:~/operating-system-$ yes > /dev/null &
[1] 22085
emanfatima@Eman:~/operating-system-$ ps -ef | grep yes
emanfatma 22085 18986 99 23:11 pts/6 00:00:17 yes
emanfatma 22226 18986 0 23:12 pts/6 00:00:00 grep yes
emanfatima@Eman:~/operating-system-$ kill 22085
[1]+ Terminated yes > /dev/null
emanfatma 22442 18986 0 23:13 pts/6 00:00:00 grep yes
emanfatima@Eman:~/operating-system-$
```

Task 15 :

3. Foreground & Background Jobs

- Run `sleep 60` in **foreground** and terminate it with **Ctrl + C**.
- Run `sleep 60 &` in **background**, bring it to foreground with `fg` , stop with **Ctrl + Z**, then resume in background using `bg` .



Task 16 :

Code :

```
#include <unistd.h>
#include <stdio.h>
#include <stdlib.h>

int main() {
    pid_t pid = fork();

    if (pid == -1) {
        perror("fork failed");
        exit(1);
    }

    else if (pid == 0) {
        // Child process: create a new session and execute 'top'
        if (setsid() == -1) {
            perror("setsid failed");
        }
    }
}
```

```
    exit(1);

}

execl("/usr/bin/top", "top", NULL);

// If execl fails, this line will execute
perror("execl failed");

exit(1);

}

else {
    // Parent process
    printf("Child PID: %d\n", pid);
}

return 0;
}
```

File Edit Selection View Go Run ... ← → ⌂ hometask_3 [WSL: Ubuntu-24.04]

EXPLORER HOMETASK_3 [WSL: UBUN... > data > docs/draft > scripts & ans

Welcome hometask3.shq intro.txt task15.c notes.txt summary.txt

task15.c

```
1 #include <unistd.h>
2 #include <stdio.h>
3 #include <stdlib.h>
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

bash - hometask_3

```
emanfatima@Eman:~/operating-system-/hometask_3$ ./ans
Child PID: 26981
emanfatima@Eman:~/operating-system-/hometask_3$ top
top - 23:31:08 up 1:36, 1 user, load average: 0.05, 0.09, 0.08
Tasks: 41 total, 1 running, 40 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.3 us, 0.4 sy, 0.0 ni, 99.1 id, 0.1 wa, 0.0 hi, 0.1 si, 0.0 st
MiB Mem : 3751.2 total, 2257.3 free, 1340.2 used, 229.6 buff/cache
MiB Swap: 1024.0 total, 1024.0 free, 0.0 used. 2411.1 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
3790	emanfat+	20	0	52.4g	748316	55168	S	3.3	19.5	2:34.62	node
113	systemd+	20	0	91024	7680	6784	S	0.7	0.2	0:00.42	systemd-timesyn
452	emanfat+	20	0	11.3g	162064	50816	S	0.7	4.2	0:33.86	node
46	root	19	-1	50356	15872	14976	S	0.3	0.4	0:00.71	systemd-journal
554	emanfat+	20	0	1297624	85596	46976	S	0.3	2.2	0:26.26	node
3759	root	20	0	3096	1160	1024	S	0.3	0.0	0:01.77	Relay(3760)
3760	emanfat+	20	0	1018732	60728	42880	S	0.3	1.6	0:05.62	node
26981	emanfat+	20	0	9264	5376	3328	R	0.3	0.1	0:00.02	top
1	root	20	0	21792	12448	9376	S	0.0	0.3	0:01.82	systemd
2	root	20	0	3072	1664	1664	S	0.0	0.0	0:00.03	init-systemd(ub
7	root	20	0	3120	1960	1792	S	0.0	0.1	0:00.38	init
95	root	20	0	25272	6400	4864	S	0.0	0.2	0:00.85	systemd-udevd
111	systemd+	20	0	21456	11776	9984	S	0.0	0.3	0:00.29	systemd-resolve
164	root	20	0	4236	2560	2432	S	0.0	0.1	0:00.05	cron
165	message+	20	0	9636	4864	4480	S	0.0	0.1	0:00.25	dbus-daemon
182	root	20	0	17964	8192	7424	S	0.0	0.2	0:00.34	systemd-logind
184	root	20	0	1755840	12160	10240	S	0.0	0.3	0:00.67	wsl-pro-service

WSL: Ubuntu-24.04 main* ↻ ⌂ 0 △ 0 ⌂ 0

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File Edit Selection View Go Run ... ← → ⌂ hometask_3 [WSL: Ubuntu-24.04]

EXPLORER HOMETASK_3 [WSL: UBUN... > data > docs/draft > scripts & ans

Welcome hometask3.shq intro.txt task15.c notes.txt summary.txt

task15.c

```
1 #include <unistd.h>
2 #include <stdio.h>
3 #include <stdlib.h>
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

bash - hometask_3

```
emanfatima@Eman:~/operating-system-/hometask_3$ ps -ef | grep top
emanfat+ 28213 26350 0 23:34 pts/7 00:00:00 grep top
emanfatima@Eman:~/operating-system-/hometask_3$ kill -9 28213
bash: kill: (28213) - No such process
emanfatima@Eman:~/operating-system-/hometask_3$
```

WSL: Ubuntu-24.04 main* ↻ ⌂ 0 △ 0 ⌂ 0

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