

# Lab3 Home Task

In the first question we used some basic commands of linux to make some directories and files and append some data in those files.

```
dawar@DESKTOP-EG875J4: ~  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ ls  
data docs scripts  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd docs  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ mkdir drafts  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ cd ..  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ ls  
data docs scripts  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd scripts/  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ ls  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ cd ..  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd docs  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ ls  
drafts  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ touch intro.txt notes.txt summary.txt  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ open intro.txt  
Command 'open' not found, but can be installed with:  
sudo apt install mailcap # version 3.70+nmulubuntul, or  
sudo apt install xdg-utils # version 1.1.3-4.1ubuntu3  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ echo "Hello world I'm working on linux ubuntu using wsl on my windows syste  
m .Its great experience to work with linux system its an amazing experience" >> intro.txt  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ ls  
drafts intro.txt notes.txt summary.txt  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ echo intro.txt  
intro.txt  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ echo "GitHub is a proprietary developer platform that allows developers to  
create, store, manage, and share their code. It uses Git to provide distributed version control and GitHub itself provides access con  
trol, bug tracking, software feature requests, task management, continuous integration, and wikis for every project." >> notes.txt  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ |  
  
dawar@DESKTOP-EG875J4: ~  
mylab operating-system-1144  
dawar@DESKTOP-EG875J4:~/operating-system-1144/  
dawar@DESKTOP-EG875J4:~/operating-system-1144$ ls  
README.md 'f25 os'  
dawar@DESKTOP-EG875J4:~/operating-system-1144$ mkdir Lab_3  
dawar@DESKTOP-EG875J4:~/operating-system-1144$ cd Lab_3/  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ mkdir docs data scripts  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ ;s  
-bash: syntax error near unexpected token `;'  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ ls  
data docs scripts  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd data  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data$ mkdir raw processed  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data$ ls  
processed raw  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data$ cd ./Lab_3  
-bash: cd: ./Lab_3: No such file or directory  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data$ cd  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ ls  
data docs scripts  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd docs  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ mkdir drafts  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ cd ..  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ ls  
data docs scripts  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd scripts/  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ ls  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ cd ..  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd docs  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ ls  
drafts
```

```
dawar@DESKTOP-EG875J4: ~ X + v
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ echo "GitHub is a proprietary developer platform that allows developers to
create, store, manage, and share their code. It uses Git to provide distributed version control and GitHub itself provides access con
trol, bug tracking, software feature requests, task management, continuous integration, and wikis for every project." >> notes.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ echo "GitHub is a proprietary developer platform that allows developers to
create, store, manage, and share their code." >> summary.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ cp summary.txt copy_summary.txt /home/dawar/operating-system-1144/Lab_3/doc
s/drafts/
cp: cannot stat 'copy_summary.txt': No such file or directory
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ cp summary.txt /home/dawar/operating-system-1144/Lab_3/docs/drafts/
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ cd drafts/
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs/drafts$ ls
summary.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs/drafts$ cs
Command 'cs' not found, but can be installed with:
sudo apt install csource
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs/drafts$ cd
dawar@DESKTOP-EG875J4:~$ cd operating-system-1144/Lab_3/
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ ls
data docs scripts
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd data
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data$ ls
processed raw
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data$ cd raw/
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data/raw$ ls
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data/raw$ touch raw1.txt raw2.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data/raw$ date >> raw1.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data/raw$ ls
raw1.txt raw2.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data/raw$ mv raw2.txt /home/dawar/operating-system-1144/Lab_3/data/processed/
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data/processed$ ls
raw2.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data/processed$

73°F Clear 8:56 AM 10/9/2025

dawar@DESKTOP-EG875J4: ~ X + v
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ cd ..
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ ls
data docs scripts
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd scripts/
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ ls
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ cd ..
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd docs
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ ls
drafts
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ touch intro.txt notes.txt summary.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ open intro.txt
Command 'open' not found, but can be installed with:
sudo apt install mailcap # version 3.70+nmulubuntu1, or
sudo apt install xdg-utils # version 1.1.3-4.lubuntu3
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ echo "Hello world I'm working on linux ubuntu using wsl on my windows syste
m .Its great experience to work with linux system its an amazing experience" >> intro.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ ls
drafts intro.txt notes.txt summary.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ echo intro.txt
intro.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ echo "GitHub is a proprietary developer platform that allows developers to
create, store, manage, and share their code. It uses Git to provide distributed version control and GitHub itself provides access con
trol, bug tracking, software feature requests, task management, continuous integration, and wikis for every project." >> notes.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ echo "GitHub is a proprietary developer platform that allows developers to
create, store, manage, and share their code." >> summary.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ cp summary.txt copy_summary.txt /home/dawar/operating-system-1144/Lab_3/doc
s/drafts/
cp: cannot stat 'copy_summary.txt': No such file or directory
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ cp summary.txt /home/dawar/operating-system-1144/Lab_3/docs/drafts/
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ cd drafts/
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs/drafts$ ls
summary.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs/drafts$

73°F Clear 8:47 AM 10/9/2025
```

In the second question we have seen on how to use some basic commands for details of files:

```
dawar@DESKTOP-EG875J4: ~  
sudo apt install csound  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs/drafts$ cd  
dawar@DESKTOP-EG875J4:~$ cd operating-system-1144/Lab_3/  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ ls  
data docs scripts  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd data  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data$ ls  
processed raw  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data$ cd raw/  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data/raw$ ls  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data/raw$ touch raw1.txt raw2.txt  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data/raw$ date >> raw1.txt  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data/raw$ ls  
raw1.txt raw2.txt  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data/raw$ mv raw2.txt /home/dawar/operating-system-1144/Lab_3/data/processed/  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data/raw$ cd /home/dawar/operating-system-1144/Lab_3/data/processed/  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data/processed$ ls  
raw2.txt  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data/processed$ cd ..  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data$ cd ..  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ ls  
data docs scripts  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd scripts/  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ ls  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ touch hello.sh  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ echo "hello world"  
hello world  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ pwd  
/home/dawar/operating-system-1144/Lab_3/scripts  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ ls -lh  
total 0  
-rw-r--r-- 1 dawar dawar 0 Oct 9 08:58 hello.sh  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ |
```

In the third question we have used some operations to change or set the file permissions so that for different users access should be different.

```
dawar@DESKTOP-EG875J4: ~  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data/processed$ cd ..  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data$ cd ..  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ ls  
data docs scripts  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd scripts/  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ ls  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ touch hello.sh  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ echo "hello world"  
hello world  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ pwd  
/home/dawar/operating-system-1144/Lab_3/scripts  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ ls -lh  
total 0  
-rw-r--r-- 1 dawar dawar 0 Oct 9 08:58 hello.sh  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ ls -r  
hello.sh  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ cd ..  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ pwd  
/home/dawar/operating-system-1144/Lab_3  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ whoami  
dawar  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ touch extra.txt  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cat intro.txt  
cat: intro.txt: No such file or directory  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd docs/  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ cat intro.txt  
Hello world I'm working on linux ubuntu using wsl on my windows system .Its great experience to work with linux system its an amazing  
experience  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ cd ..  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ rm extra.txt  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ ls  
data docs scripts  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ history
```

```
dawar@DESKTOP-EG875J4: ~  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ chmod ug+rw, o-rwx hello.sh  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ ls cat hello.sh  
ls: cannot access 'cat': No such file or directory  
hello.sh  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ ./hello.sh  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ ls  
hello.sh  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ echo "echo \"hello world\" pwd ls -lh" >> hello.sh  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ cat hello.sh  
echo hello world pwd ls -lh  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ ./hello.sh  
hello world pwd ls -lh  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ cd ..  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ ls  
data docs scripts  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ chmod 664  
chmod: missing operand after '664'  
Try 'chmod --help' for more information.  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd data  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data$ ls  
processed raw  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data$ cd ..  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd docs  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ ls  
drafts intro.txt notes.txt summary.txt  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ chmod 664 intro.txt  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ ls -l  
total 16  
drwxr-xr-x 2 dawar dawar 4096 Oct 9 08:46 drafts  
-rw-rw-r-- 1 dawar dawar 145 Oct 9 08:39 intro.txt  
-rw-r--r-- 1 dawar dawar 319 Oct 9 08:40 notes.txt  
-rw-r--r-- 1 dawar dawar 114 Oct 9 08:42 summary.txt  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ |
```

```
dawar@DESKTOP-EG875J4: ~  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ ls  
data docs scripts  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd scripts/  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ ls  
hello.sh  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ chmod ug+rw, o-rwx  
chmod: cannot access 'o-rwx': No such file or directory  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ chmod ug+rw, o-rwx hello.sh  
chmod: cannot access 'o-rwx': No such file or directory  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ chmod ug+rw, o-rwx hello.sh  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ ls cat hello.sh  
ls: cannot access 'cat': No such file or directory  
hello.sh  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ ./hello.sh  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ ls  
hello.sh  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/scripts$ |
```

In the next section we see how to search for or read files.



```
dawar@DESKTOP-EG875J4: ~ X + v
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd data
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data$ ls
processed raw
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/data$ cd ..
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd docs
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ ls
drafts intro.txt notes.txt summary.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ chmod 664 intro.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ ls -l
total 16
drwxr-xr-x 2 dawar dawar 4096 Oct 9 08:46 drafts
-rw-rw-r-- 1 dawar dawar 145 Oct 9 08:39 intro.txt
-rw-rw-r-- 1 dawar dawar 319 Oct 9 08:40 notes.txt
-rw-rw-r-- 1 dawar dawar 114 Oct 9 08:42 summary.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ cs
Command 'cs' not found, but can be installed with:
sudo apt install csound
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ cd ..
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ ls
data docs scripts
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd docs/
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ ls
drafts intro.txt notes.txt summary.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ wc notes.txt
 1 45 319 notes.txt
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ head -n 2 summary.txt
GitHub is a proprietary developer platform that allows developers to create, store, manage, and share their code.
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ tail -n 1 summary.txt
GitHub is a proprietary developer platform that allows developers to create, store, manage, and share their code.
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ grep "amazing" intro.txt
Hello world I'm working on linux ubuntu using wsl on my windows system .Its great experience to work with linux system its an amazin
experience
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$
```

In the 5<sup>th</sup> section of the task we have used and practiced some of the important linux process commands:

```
dawar@DESKTOP-EG875J4: ~ X + v
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ tail -n 1 summary.txt
GitHub is a proprietary developer platform that allows developers to create, store, manage, and share their code.
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ grep "amazing" intro.txt
Hello world I'm working on linux ubuntu using wsl on my windows system .Its great experience to work with linux system its an amazin
experience
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ pf -ef
pf: command not found
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ ps -ef
UID          PID    PPID  C STIME TTY          TIME CMD
root           1        0  0  08:17 ?        00:00:05 /sbin/init
root           2        1  0  08:17 ?        00:00:00 /init
root           7        2  0  08:17 ?        00:00:00 plan9 --control-socket 7 --log-level 4 --server-fd 8 --pipe-fd 10 --log-truncate
root          59        1  1  08:17 ?        00:01:09 /usr/lib/systemd/systemd-journald
root         108        1  0  08:17 ?        00:00:01 /usr/lib/systemd/systemd-udev
systemd+     140        1  0  08:17 ?        00:00:00 /usr/lib/systemd/systemd-resolved
systemd+     152        1  0  08:17 ?        00:00:01 /usr/lib/systemd/systemd-timesyncd
root         180        1  0  08:17 ?        00:00:00 /usr/sbin/cron -f -P
message+    181        1  0  08:17 ?        00:00:03 @dbus-daemon --system --address=systemd: --nofork --nopidfile --systemd-activatio
root        195        1  0  08:17 ?        00:00:01 /usr/lib/systemd/systemd-logind
root        199        1  0  08:17 ?        00:00:00 /usr/libexec/wsl-pro-service -vv
root        202        1  0  08:17 hvc0     00:00:00 /sbin/agetty -o -p -- \u --noclear --keep-baud - 115200,38400,9600 vt220
syslog      219        1  0  08:17 ?        00:00:00 /usr/sbin/rsyslogd -n -iNONE
root        222        1  0  08:17 tty1     00:00:00 /sbin/agetty -o -p -- \u --noclear - linux
root        225        1  0  08:17 ?        00:00:00 /usr/bin/python3 /usr/share/unattended-upgrades/unattended-upgrade-shutdown --wai
root        334        2  0  08:17 ?        00:00:00 /init
root        335       334  0  08:17 ?        00:00:00 /init
dawar       336       335  0  08:17 pts/0    00:00:01 -bash
root        337        2  0  08:17 pts/1    00:00:00 /bin/login -f
dawar       385        1  0  08:17 ?        00:00:00 /usr/lib/systemd/systemd --user
dawar       386       385  0  08:17 ?        00:00:00 (sd-pam)
dawar       414       337  0  08:17 pts/1    00:00:00 -bash
dawar      2267       336  0  09:32 pts/0    00:00:00 ps -ef
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$
```

```
dawar@DESKTOP-EG875J4: ~  
top - 09:34:49 up 1:17, 1 user, load average: 0.05, 0.01, 0.02  
Tasks: 23 total, 1 running, 22 sleeping, 0 stopped, 0 zombie  
%Cpu(s): 0.1 us, 0.6 sy, 0.0 ni, 98.6 id, 0.6 wa, 0.0 hi, 0.1 si, 0.0 st  
MiB Mem : 7858.2 total, 6939.4 free, 531.7 used, 542.4 buff/cache  
MiB Swap: 2048.0 total, 2048.0 free, 0.0 used, 7326.5 avail Mem  


| PID  | USER     | PR | NI | VIRT    | RES   | SHR   | S | %CPU | %MEM | TIME+   | COMMAND         |
|------|----------|----|----|---------|-------|-------|---|------|------|---------|-----------------|
| 59   | root     | 19 | -1 | 66820   | 15184 | 14288 | S | 4.3  | 0.2  | 1:12.23 | systemd-journal |
| 1    | root     | 20 | 0  | 21672   | 12192 | 9120  | S | 0.7  | 0.2  | 0:06.09 | systemd         |
| 181  | message+ | 20 | 0  | 9540    | 4608  | 4224  | S | 0.3  | 0.1  | 0:03.71 | dbus-daemon     |
| 2    | root     | 20 | 0  | 3072    | 1664  | 1664  | S | 0.0  | 0.0  | 0:00.03 | init-systemd(Ub |
| 7    | root     | 20 | 0  | 3088    | 1920  | 1920  | S | 0.0  | 0.0  | 0:00.01 | init            |
| 108  | root     | 20 | 0  | 25132   | 6016  | 4864  | S | 0.0  | 0.1  | 0:01.30 | systemd-udevd   |
| 140  | systemd+ | 20 | 0  | 21456   | 12288 | 10240 | S | 0.0  | 0.2  | 0:00.75 | systemd-resolve |
| 152  | systemd+ | 20 | 0  | 91024   | 7680  | 6784  | S | 0.0  | 0.1  | 0:01.22 | systemd-timesyn |
| 180  | root     | 20 | 0  | 4236    | 2432  | 2304  | S | 0.0  | 0.0  | 0:00.05 | cron            |
| 195  | root     | 20 | 0  | 17980   | 8192  | 7296  | S | 0.0  | 0.1  | 0:01.60 | systemd-logind  |
| 199  | root     | 20 | 0  | 1755840 | 12544 | 10496 | S | 0.0  | 0.2  | 0:00.58 | wsl-pro-service |
| 202  | root     | 20 | 0  | 3160    | 1920  | 1792  | S | 0.0  | 0.0  | 0:00.02 | agetty          |
| 219  | syslog   | 20 | 0  | 222508  | 5376  | 4352  | S | 0.0  | 0.1  | 0:00.49 | rsyslogd        |
| 222  | root     | 20 | 0  | 3116    | 1792  | 1664  | S | 0.0  | 0.0  | 0:00.01 | agetty          |
| 225  | root     | 20 | 0  | 107012  | 22144 | 12928 | S | 0.0  | 0.3  | 0:00.23 | unattended-upgr |
| 334  | root     | 20 | 0  | 3080    | 1024  | 896   | S | 0.0  | 0.0  | 0:00.00 | SessionLeader   |
| 335  | root     | 20 | 0  | 3096    | 1028  | 896   | S | 0.0  | 0.0  | 0:00.73 | Relay(336)      |
| 336  | dawar    | 20 | 0  | 6316    | 5248  | 3584  | S | 0.0  | 0.1  | 0:01.93 | bash            |
| 337  | root     | 20 | 0  | 6824    | 4224  | 3584  | S | 0.0  | 0.1  | 0:00.04 | login           |
| 385  | dawar    | 20 | 0  | 20108   | 10752 | 9088  | S | 0.0  | 0.1  | 0:00.64 | systemd         |
| 386  | dawar    | 20 | 0  | 21148   | 3516  | 1792  | S | 0.0  | 0.0  | 0:00.00 | (sd-pam)        |
| 414  | dawar    | 20 | 0  | 6072    | 4992  | 3456  | S | 0.0  | 0.1  | 0:00.05 | bash            |
| 2298 | dawar    | 20 | 0  | 9276    | 5376  | 3328  | R | 0.0  | 0.1  | 0:00.06 | top             |

  
$ NASDAQ  
-0.24%
```

```
dawar@DESKTOP-EG875J4: ~  
140 systemd+ 20 0 21456 12288 10240 S 0.0 0.2 0:00.75 systemd-resolve  
152 systemd+ 20 0 91024 7680 6784 S 0.0 0.1 0:01.22 systemd-timesyn  
180 root 20 0 4236 2432 2304 S 0.0 0.0 0:00.05 cron  
181 message+ 20 0 9540 4608 4224 S 0.0 0.1 0:03.71 dbus-daemon  
195 root 20 0 17980 8192 7296 S 0.0 0.1 0:01.60 systemd-logind  
199 root 20 0 1755840 12544 10496 S 0.0 0.2 0:00.58 wsl-pro-service  
202 root 20 0 3160 1920 1792 S 0.0 0.0 0:00.02 agetty  
219 syslog 20 0 222508 5376 4352 S 0.0 0.1 0:00.49 rsyslogd  
222 root 20 0 3116 1792 1664 S 0.0 0.0 0:00.01 agetty  
225 root 20 0 107012 22144 12928 S 0.0 0.3 0:00.23 unattended-upgr  
334 root 20 0 3080 1024 896 S 0.0 0.0 0:00.00 SessionLeader  
335 root 20 0 3096 1028 896 S 0.0 0.0 0:00.74 Relay(336)  
336 dawar 20 0 6316 5248 3584 S 0.0 0.1 0:01.93 bash  
337 root 20 0 6824 4224 3584 S 0.0 0.1 0:00.04 login  
385 dawar 20 0 20108 10752 9088 S 0.0 0.1 0:00.64 systemd  
386 dawar 20 0 21148 3516 1792 S 0.0 0.0 0:00.00 (sd-pam)  
414 dawar 20 0 6072 4992 3456 S 0.0 0.1 0:00.05 bash  
2298 dawar 20 0 9276 5376 3328 R 0.0 0.1 0:00.09 top  
  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ yes > /dev/null &  
[1] 2333  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ ps -ef | grep yes  
dawar 2333 336 99 09:36 pts/0 00:00:31 yes  
dawar 2343 336 0 09:37 pts/0 00:00:00 grep --color=auto yes  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ kill 2333  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ ps  
PID TTY TIME CMD  
336 pts/0 00:00:01 bash  
2356 pts/0 00:00:00 ps  
[1]+ Terminated yes > /dev/null  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ |
```

```
dawar@DESKTOP-EG875J4: ~  
[1] 2333  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ ps -ef | grep yes  
dawar 2333 336 99 09:36 pts/0 00:00:31 yes  
dawar 2343 336 0 09:37 pts/0 00:00:00 grep --color=auto yes  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ kill 2333  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ ps  
PID TTY TIME CMD  
336 pts/0 00:00:01 bash  
2356 pts/0 00:00:00 ps  
[1]+ Terminated yes > /dev/null  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ sleep 60  
^C  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ sleep 60 &  
[1] 2400  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ fg 2400  
-bash: fg: 2400: no such job  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ fg 1  
sleep 60  
^Z  
[1]+ Stopped sleep 60  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ bg 1  
[1]+ sleep 60 &  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ kill 2400  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ ps  
PID TTY TIME CMD  
336 pts/0 00:00:02 bash  
2407 pts/0 00:00:00 ps  
[1]+ Terminated sleep 60  
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3/docs$ |
```

In the last section of the task we have used c programs to achieve our objectives:  
First the child was executed with top command.

```
dawar@DESKTOP-EG875J4: ~ X + v
Looking for compatibility check script at /home/dawar/.vscode-server/bin/385651c938df8a906869babee516bffd0ddb9829/bin/helpers/check-r
equirements.sh
Running compatibility check script
Compatibility check successful (0)
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ cd ..
dawar@DESKTOP-EG875J4:~/operating-system-1144$ ;s
-bash: syntax error near unexpected token `;'
dawar@DESKTOP-EG875J4:~/operating-system-1144$ ls
Lab_3  README.md  'f25 os'
dawar@DESKTOP-EG875J4:~/operating-system-1144$ cd f25\ os/
dawar@DESKTOP-EG875J4:~/operating-system-1144/f25 os$ ;s
-bash: syntax error near unexpected token `;'
dawar@DESKTOP-EG875J4:~/operating-system-1144/f25 os$ ls
Lab3.pdf  lab3-task1-basic.c  p-execute.c  p-wait.c  simple-classes.c
dawar@DESKTOP-EG875J4:~/operating-system-1144/f25 os$ cat lab3-task1-basic.c
#include <stdio.h>
#include <unistd.h>
int main() {
    printf("My PID: %d\n", getpid());
    printf("My Parent PID: %d\n", getppid());
    return 0;
}
dawar@DESKTOP-EG875J4:~/operating-system-1144/f25 os$ cat p-execute.c
#include <stdio.h>
#include <unistd.h>
int main() {
    pid_t pid = fork();

    if (pid == 0) {
        execlp("ls", "ls", "-l", NULL);
        printf("This will not print if exec succeeds.\n");
    } else {
        printf("Parent still running...\n");
    }
}
```

```
dawar@DESKTOP-EG875J4: ~ X + v
336 dawar      20  0  6832  5760  3584 S  0.0  0.1  0:02.50 bash
337 root       20  0  6824  4224  3584 S  0.0  0.1  0:00.04 login
385 dawar      20  0  20108 10752 9088 S  0.0  0.1  0:01.00 systemd
386 dawar      20  0  21148 3516  1792 S  0.0  0.0  0:00.00 (sd-pam)
414 dawar      20  0  6072  4992  3456 S  0.0  0.1  0:00.05 bash
3167 root       20  0  3076   904   768 S  0.0  0.0  0:00.00 SessionLeader
3168 root       20  0  3092  1164  1024 S  0.0  0.0  0:00.00 Relay(3169)
3169 dawar      20  0  2800  1664  1664 S  0.0  0.0  0:00.02 sh
3170 dawar      20  0  2800  1664  1664 S  0.0  0.0  0:00.00 sh
3176 dawar      20  0  2800  1792  1792 S  0.0  0.0  0:00.00 sh
3191 root       20  0  3088  1032   896 S  0.0  0.0  0:00.00 SessionLeader
3192 root       20  0  3088  1040   896 S  0.0  0.0  0:00.45 Relay(3193)
3193 dawar      20  0 1018584 60868 44032 S  0.0  0.8  0:01.33 node
3200 root       20  0  3088  1032   896 S  0.0  0.0  0:00.00 SessionLeader
3201 root       20  0  3088  1040   896 S  0.0  0.0  0:00.93 Relay(3202)
3202 dawar      20  0 1012256 55488 44032 S  0.0  0.7  0:03.26 node
3222 dawar      20  0 1261796 59488 48000 S  0.0  0.7  0:00.90 node
3240 dawar      20  0  52.7g 870640 57120 S  0.0 10.8 2:01.66 node
5106 dawar      20  0 93996 37768 22016 S  0.0  0.5  0:10.20 cpptools
5157 dawar      20  0 4264144 23496 16764 S  0.0  0.3  0:03.43 cpptools-srv
6102 root       20  0  3080  1032   896 S  0.0  0.0  0:00.00 SessionLeader
6103 root       20  0  3096  1036   896 S  0.0  0.0  0:00.02 Relay(6107)
6107 dawar      20  0  6072  5120  3584 S  0.0  0.1  0:00.16 bash
^C
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ ls
data  docs  program2.c  program1  program1.c  scripts
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ gcc program2.c -o program2
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ ls
data  docs  program2  program2.c  program1  program1.c  scripts
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$ ./program2
Thu Oct  9 10:53:18 PDT 2025
Child finished
dawar@DESKTOP-EG875J4:~/operating-system-1144/Lab_3$
```