



National Textile University

Department of Computer Science

Subject:

Operating system

Submitted to:

Dr. Nasir Mehmood

Submitted by:

Dawar Abbas

Reg number:

1144

Lab no. :

1

Semester:

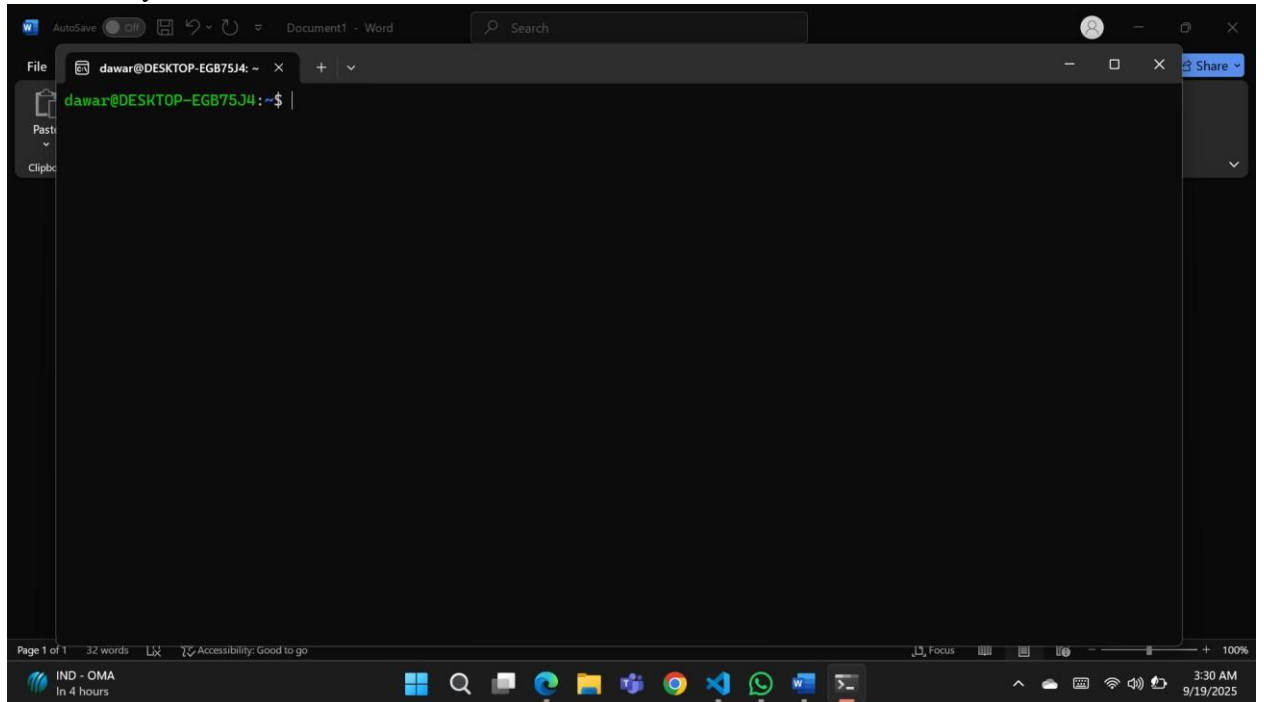
5th

LAB 1

OPERATING SYSTEM

Pre-Lab task:

- Successfully installed wsl and ubuntu.



- Configured with vs code and run the basic commands like
- Sudo apt update && sudo upgrade -y

The image shows a Windows 11 desktop environment. In the foreground, a terminal window titled "WSL: Ubuntu" is open, displaying the output of the commands "sudo apt update" and "sudo apt upgrade -y". The terminal output lists various Ubuntu packages being updated, including security updates, main amd64 packages, and backports, along with their respective sizes. The desktop background is a dark blue gradient. On the left side, there is a vertical dock with icons for File Explorer, Edge, and the terminal window. The taskbar at the bottom features the Start button, a search bar, and several pinned applications: File Explorer, Edge, the terminal window, and a few others. The system tray on the right shows the date and time as 3:32 AM on 9/19/2025.

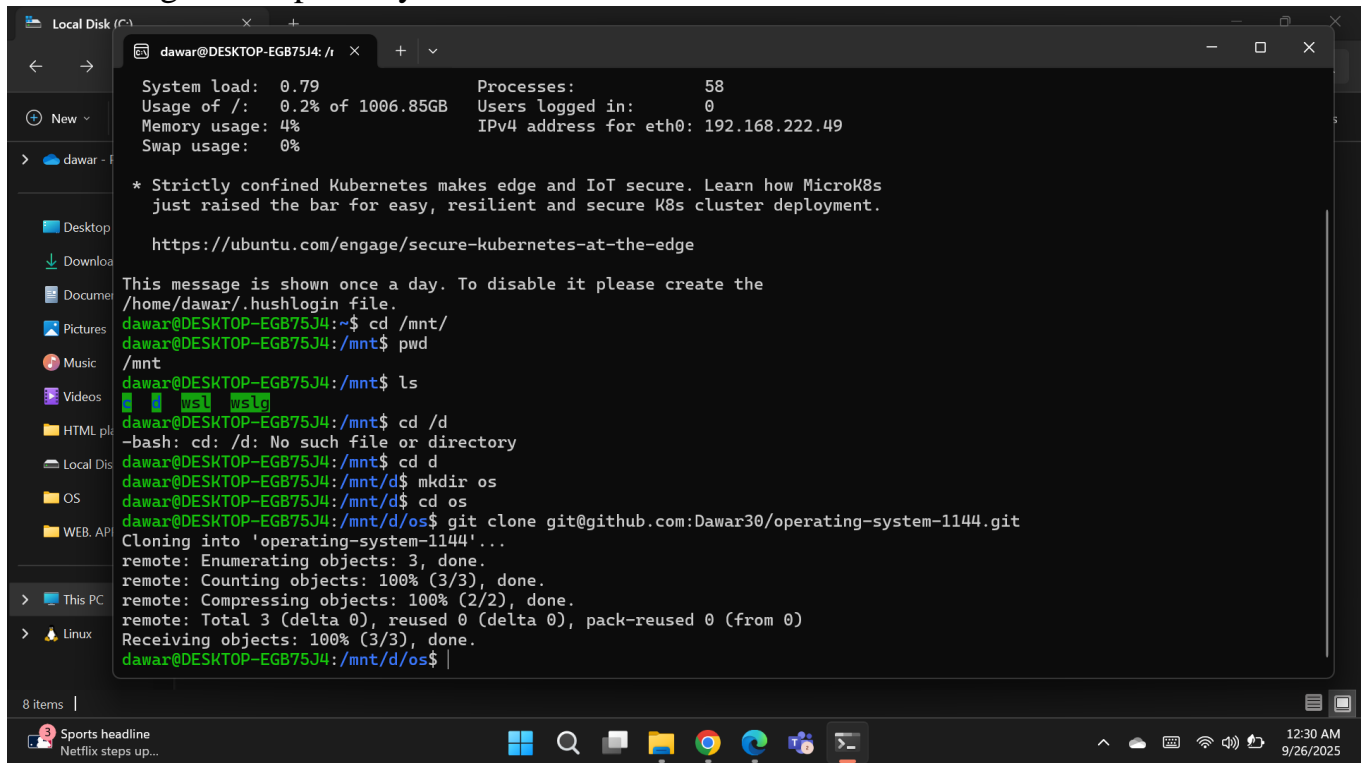
- Sudo apt build-essential -y

```
File Edit Selection View ... Search
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
bash

dawar@DESKTOP-EG875J4:~$ sudo apt install build-essential -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libdrm-nouveau2 libdrm-radeon1 libgl1-amber-dri libglapi-mesa libllvm17t64 libxcb-dri2-0
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  bzip2 cpp cpp-13 cpp-13-x86-64-linux-gnu cpp-x86-64-linux-gnu dpkg-dev fakeroot g++ g++-13 g++-13-x86-64-linux-gnu
g++-x86-64-linux-gnu gcc gcc-13 gcc-13-base gcc-13-x86-64-linux-gnu gcc-x86-64-linux-gnu libalgorithm-diff-perl
libalgorithm-diff-xs-perl libalgorithm-merge-perl libaom3 libasan8 libatomic1 libc-dev-bin libc-devtools libc6-dev libcc1-0
libcrypt-dev libdeb265-0 libdpkg-perl libfakeroot libfile-fcntllock-perl libgcc-13-dev libgd3 libgomp1 libheif-plugin-aomdec
libheif-plugin-aomenc libheif-plugin-libde265 libheif1 libhwasan0 libisl23 libitm1 liblsan0 libmpc3 libquadmath0 libstdc++-13-dev
libtsan2 libubsan1 libxpm4 linux-libc-dev lto-disabled-list make manpages-dev rpcsvc-proto
Suggested packages:
  bzip2-doc cpp-doc gcc-13-locales cpp-13-doc debiana-keyring g++-multilib g++-13-multilib gcc-13-doc gcc-multilib autoconf automake
libtool flex bison gdb gcc-doc gcc-13-multilib gdb-x86-64-linux-gnu glibc-doc bzip libgd-tools libheif-plugin-x265
libheif-plugin-fmpgdec libheif-plugin-jpegdec libheif-plugin-jpegenc libheif-plugin-j2kdec libheif-plugin-j2kenc
libheif-plugin-rav1e libheif-plugin-svtenc libstdc++-13-doc make-doc
The following NEW packages will be installed:
  build-essential bzip2 cpp cpp-13 cpp-13-x86-64-linux-gnu cpp-x86-64-linux-gnu dpkg-dev fakeroot g++ g++-13 g++-13-x86-64-linux-gnu
g++-x86-64-linux-gnu gcc gcc-13 gcc-13-base gcc-13-x86-64-linux-gnu gcc-x86-64-linux-gnu libalgorithm-diff-perl
libalgorithm-diff-xs-perl libalgorithm-merge-perl libaom3 libasan8 libatomic1 libc-dev-bin libc-devtools libc6-dev libcc1-0
libcrypt-dev libdeb265-0 libdpkg-perl libfakeroot libfile-fcntllock-perl libgcc-13-dev libgd3 libgomp1 libheif-plugin-aomdec
libheif-plugin-aomenc libheif-plugin-libde265 libheif1 libhwasan0 libisl23 libitm1 liblsan0 libmpc3 libquadmath0 libstdc++-13-dev
libtsan2 libubsan1 libxpm4 linux-libc-dev lto-disabled-list make manpages-dev rpcsvc-proto
0 upgraded, 54 newly installed, 0 to remove and 2 not upgraded.
```

WSL: Ubuntu Watchlist Ideas 3:33 AM 9/19/2025

Clone the github repository:



A terminal window titled 'dawar@DESKTOP-EG875J4: /t' showing system status and a git clone command. The system status includes: System load: 0.79, Usage of /: 0.2% of 1006.85GB, Memory usage: 4%, Swap usage: 0%, Processes: 58, Users logged in: 0, and IPv4 address for eth0: 192.168.222.49. A message about MicroK8s is displayed, followed by a URL: https://ubuntu.com/engage/secure-kubernetes-at-the-edge. The terminal shows the user navigating to /mnt, creating a directory 'os', and cloning the repository 'git@github.com:Dawar30/operating-system-1144.git' into 'operating-system-1144'.

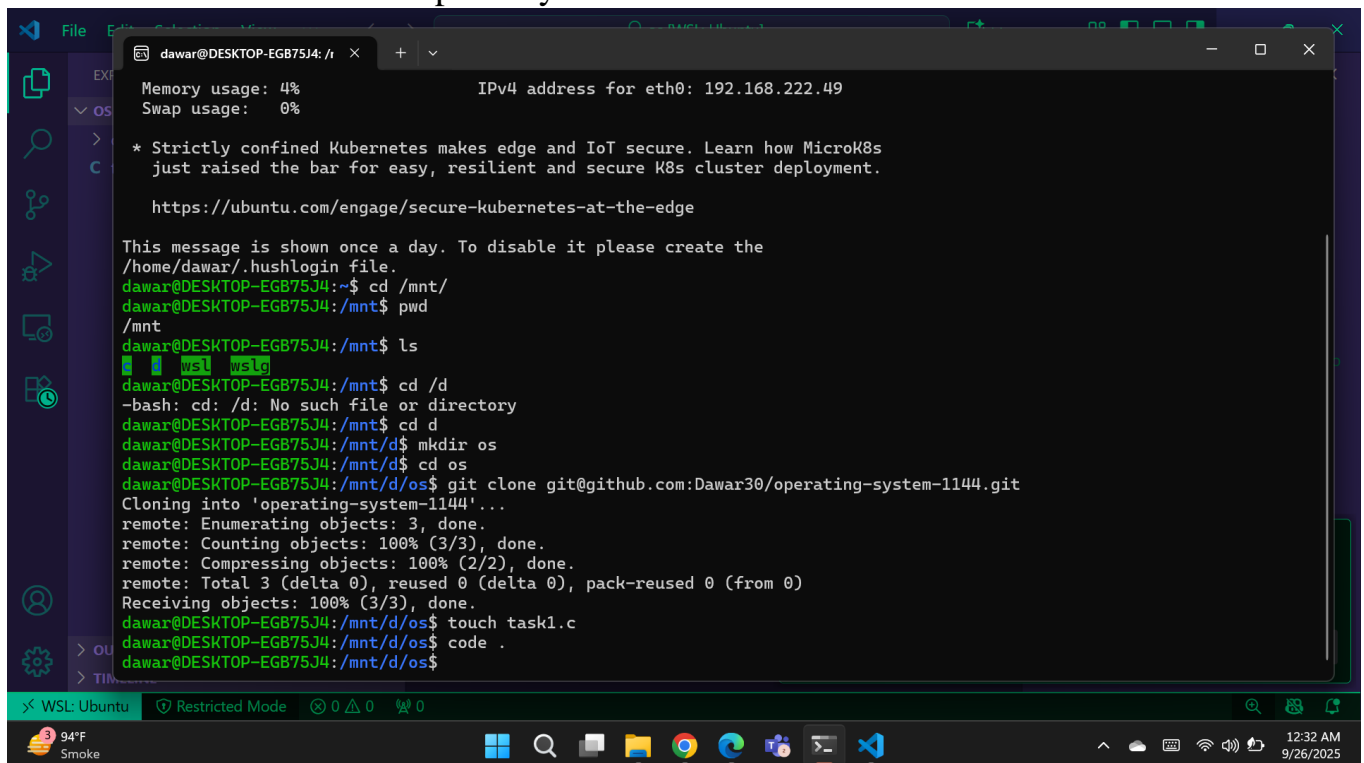
```
dawar@DESKTOP-EG875J4: /t
System load: 0.79          Processes:            58
Usage of /: 0.2% of 1006.85GB Users logged in:      0
Memory usage: 4%          IPv4 address for eth0: 192.168.222.49
Swap usage: 0%

* Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
just raised the bar for easy, resilient and secure K8s cluster deployment.

https://ubuntu.com/engage/secure-kubernetes-at-the-edge

This message is shown once a day. To disable it please create the
/home/dawar/.hushlogin file.
dawar@DESKTOP-EG875J4:~$ cd /mnt/
dawar@DESKTOP-EG875J4:/mnt$ pwd
/mnt
dawar@DESKTOP-EG875J4:/mnt$ ls
.  ..  wsl  wslc
dawar@DESKTOP-EG875J4:/mnt$ cd /d
-bash: cd: /d: No such file or directory
dawar@DESKTOP-EG875J4:/mnt$ cd d
dawar@DESKTOP-EG875J4:/mnt/d$ mkdir os
dawar@DESKTOP-EG875J4:/mnt/d$ cd os
dawar@DESKTOP-EG875J4:/mnt/d/os$ git clone git@github.com:Dawar30/operating-system-1144.git
Cloning into 'operating-system-1144'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (3/3), done.
dawar@DESKTOP-EG875J4:/mnt/d/os$
```

Create the files inside that repository:



A terminal window titled 'dawar@DESKTOP-EG875J4: /t' showing the same system status as the previous image. The terminal shows the user navigating to /mnt, creating a directory 'os', and cloning the repository 'git@github.com:Dawar30/operating-system-1144.git' into 'operating-system-1144'. The user then creates a file 'task1.c' and runs the command 'code .' to open the file in a code editor.

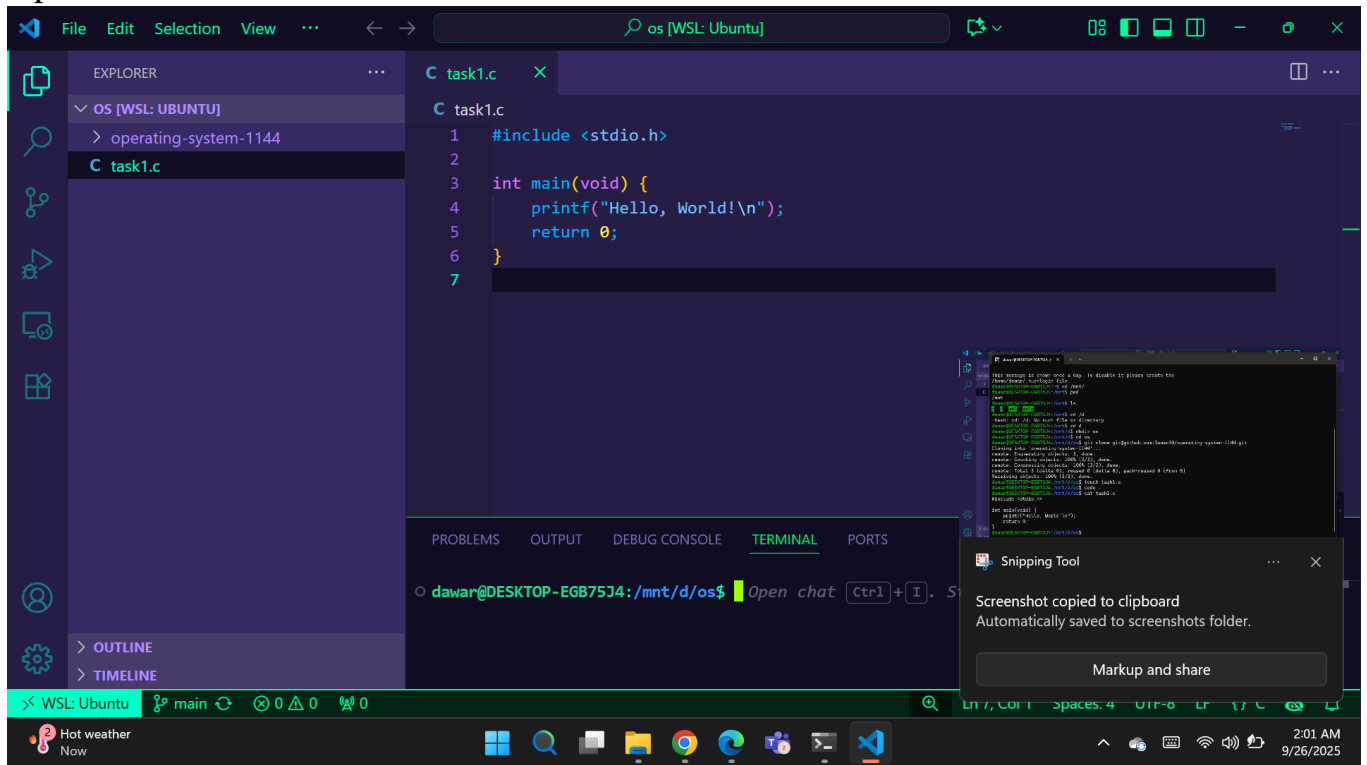
```
dawar@DESKTOP-EG875J4: /t
Memory usage: 4%          IPv4 address for eth0: 192.168.222.49
Swap usage: 0%

* Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
just raised the bar for easy, resilient and secure K8s cluster deployment.

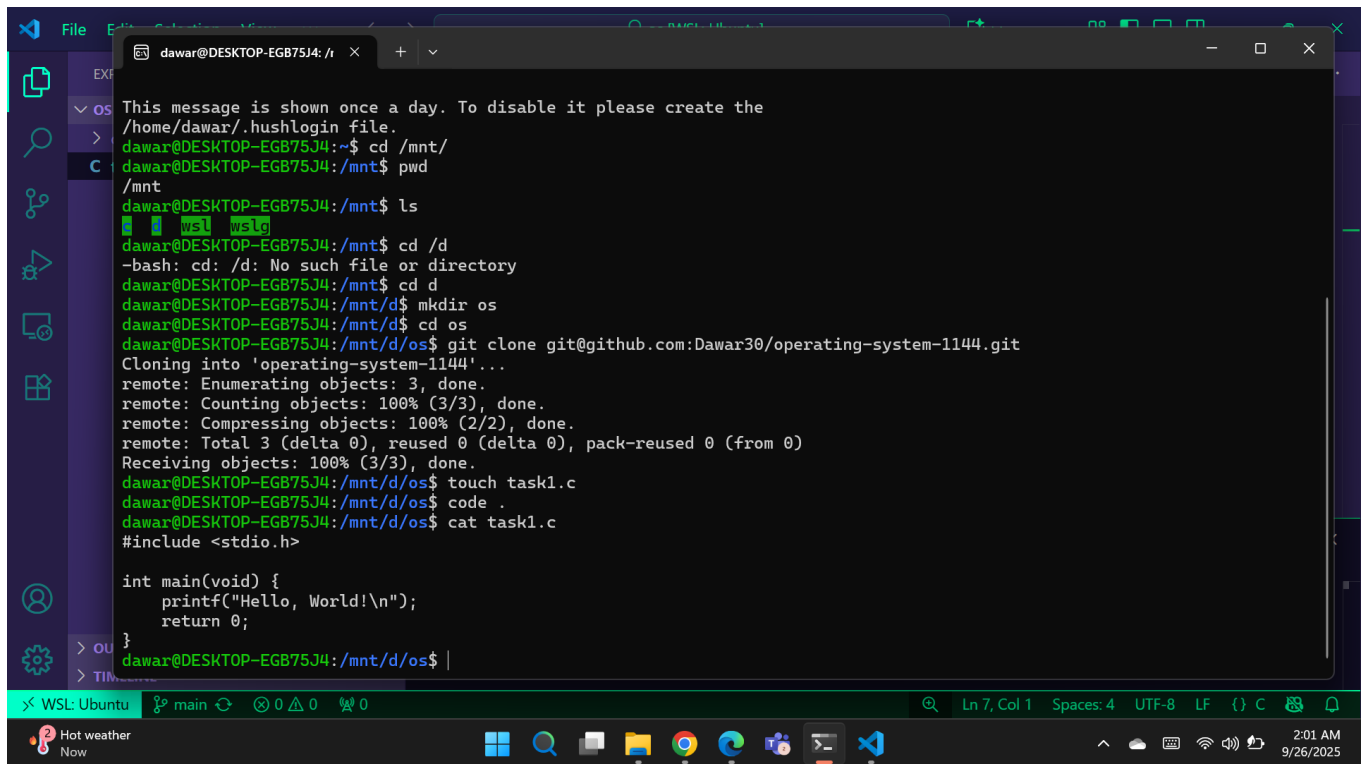
https://ubuntu.com/engage/secure-kubernetes-at-the-edge

This message is shown once a day. To disable it please create the
/home/dawar/.hushlogin file.
dawar@DESKTOP-EG875J4:~$ cd /mnt/
dawar@DESKTOP-EG875J4:/mnt$ pwd
/mnt
dawar@DESKTOP-EG875J4:/mnt$ ls
.  ..  wsl  wslc
dawar@DESKTOP-EG875J4:/mnt$ cd /d
-bash: cd: /d: No such file or directory
dawar@DESKTOP-EG875J4:/mnt$ cd d
dawar@DESKTOP-EG875J4:/mnt/d$ mkdir os
dawar@DESKTOP-EG875J4:/mnt/d$ cd os
dawar@DESKTOP-EG875J4:/mnt/d/os$ git clone git@github.com:Dawar30/operating-system-1144.git
Cloning into 'operating-system-1144'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (3/3), done.
dawar@DESKTOP-EG875J4:/mnt/d/os$ touch task1.c
dawar@DESKTOP-EG875J4:/mnt/d/os$ code .
dawar@DESKTOP-EG875J4:/mnt/d/os$
```

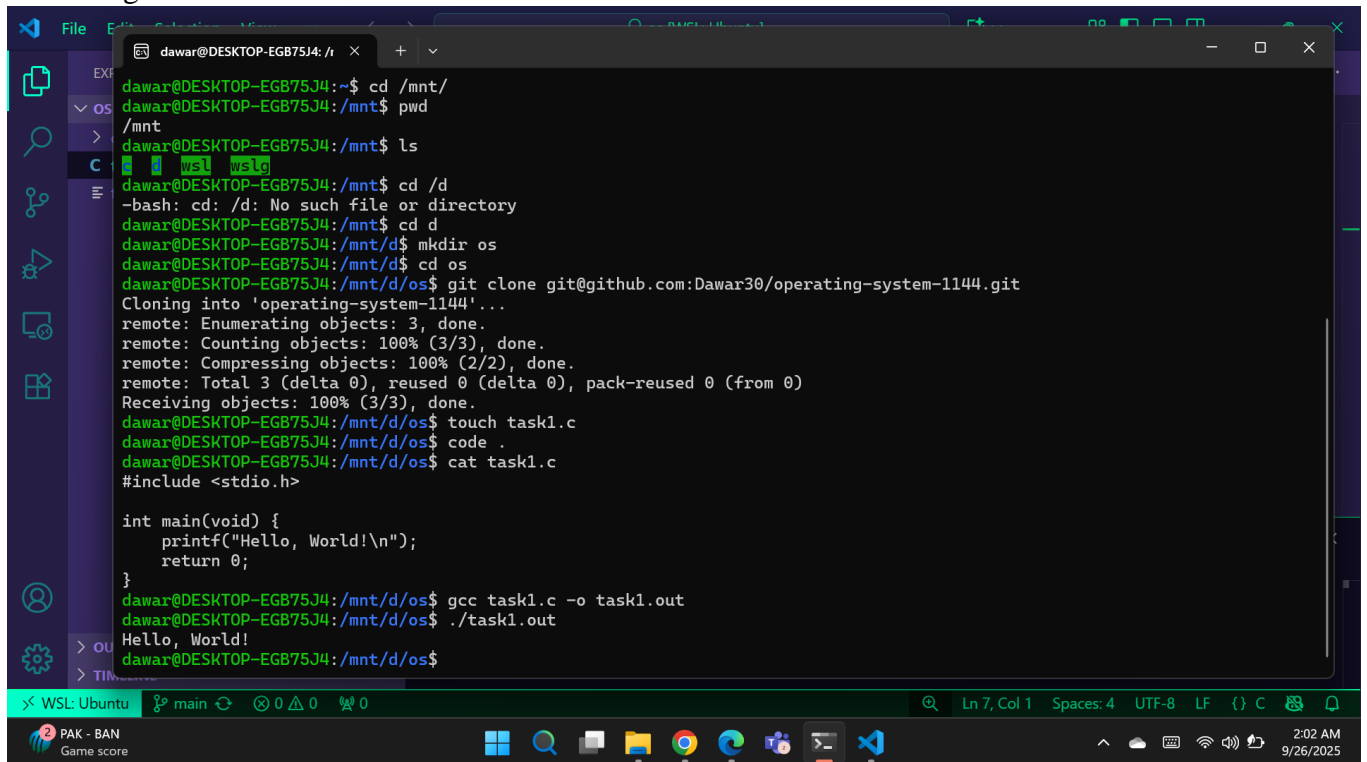
Open inside the vs code:



To see the file contents use the cat command:



And using the command we run this code:



```
dawar@DESKTOP-EG875J4: ~$ cd /mnt/
dawar@DESKTOP-EG875J4: /mnt$ pwd
/mnt
dawar@DESKTOP-EG875J4: /mnt$ ls
  wsl  wslc
dawar@DESKTOP-EG875J4: /mnt$ cd /d
-bash: cd: /d: No such file or directory
dawar@DESKTOP-EG875J4: /mnt$ cd d
dawar@DESKTOP-EG875J4: /mnt/d$ mkdir os
dawar@DESKTOP-EG875J4: /mnt/d$ cd os
dawar@DESKTOP-EG875J4: /mnt/d/os$ git clone git@github.com:Dawar30/operating-system-1144.git
Cloning into 'operating-system-1144'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (3/3), done.
dawar@DESKTOP-EG875J4: /mnt/d/os$ touch task1.c
dawar@DESKTOP-EG875J4: /mnt/d/os$ code .
dawar@DESKTOP-EG875J4: /mnt/d/os$ cat task1.c
#include <stdio.h>

int main(void) {
    printf("Hello, World!\n");
    return 0;
}
dawar@DESKTOP-EG875J4: /mnt/d/os$ gcc task1.c -o task1.out
dawar@DESKTOP-EG875J4: /mnt/d/os$ ./task1.out
Hello, World!
dawar@DESKTOP-EG875J4: /mnt/d/os$
```

The screenshot shows a Windows terminal window with a WSL (Ubuntu) environment. The user navigates to the /mnt directory, then to /mnt/d, and creates a directory named 'os'. They then clone a repository from GitHub to /mnt/d/os. After creating a file named 'task1.c' and opening it in the 'code' editor, they view its contents, which is a simple C program that prints 'Hello, World!'. Finally, they compile the program using 'gcc' and run it, resulting in the output 'Hello, World!'.