



National Textile University

Department of Computer Science

Subject:

Operating System

Submitted to:

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Submitted by:

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Reg number:

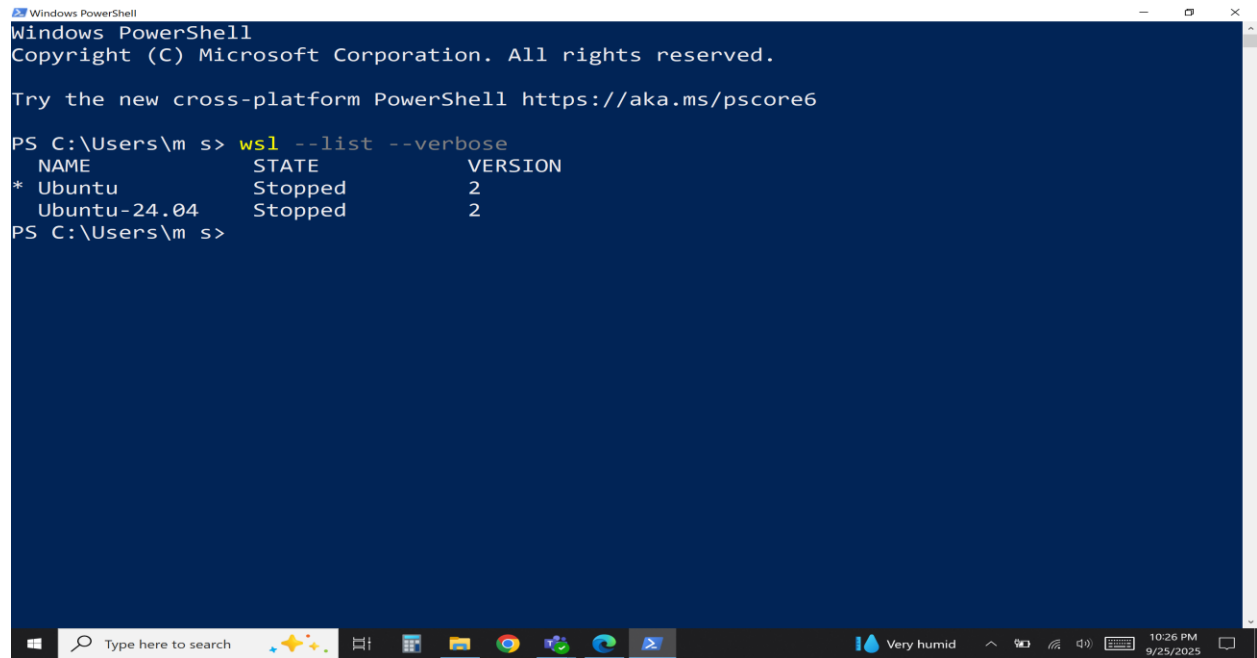
23-NTU-CS-1151

Lab no: **1**

Semester: **5th**

PART A:

1. Verify WSL2 & Ubuntu Setup:



A screenshot of a Windows PowerShell terminal window. The window title is "Windows PowerShell". The text inside the terminal shows the following commands and output:

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\m s> wsl --list --verbose
   NAME                STATE          VERSION
*  Ubuntu               Stopped        2
   Ubuntu-24.04         Stopped        2
PS C:\Users\m s>
```

The terminal window is dark blue with white text. The Windows taskbar is visible at the bottom, showing the search bar, task view button, and several application icons. The system tray on the right shows the weather as "Very humid" and the date/time as "10:26 PM 9/25/2025".

2. Update Ubuntu environment:

```
esha@ESHA-DELL: ~  
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.6.87.2-microsoft-standard-WSL2 x86_64)  
  
 * Documentation:  https://help.ubuntu.com  
 * Management:    https://landscape.canonical.com  
 * Support:       https://ubuntu.com/pro  
  
System information as of Thu Sep 25 22:33:33 PKT 2025  
  
System load:  0.6          Processes:      50  
Usage of /:   0.2% of 1006.85GB    Users logged in:  0  
Memory usage: 8%          IPv4 address for eth0: 172.19.200.170  
Swap usage:   0%  
  
This message is shown once a day. To disable it please create the  
/home/esha/.hushlogin file.  
esha@ESHA-DELL:~$ sudo apt update && sudo apt upgrade -y  
[sudo] password for esha:  
Hit:1 http://archive.ubuntu.com/ubuntu noble InRelease  
Get:2 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]  
Get:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]  
Get:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]  
Get:5 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1443 kB]  
Get:6 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [1171 kB]  
Get:7 http://archive.ubuntu.com/ubuntu noble-updates/main Translation-en [282 kB]  
Get:8 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [175 kB]  
Get:9 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [15.3 kB]  
Get:10 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1485 kB]  
Get:11 http://archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [299 kB]  
Get:12 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [378 kB]  
Get:13 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [31.1 kB]  
Get:14 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [1957 kB]  
Get:15 http://archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [441 kB]  
Get:16 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]  
Get:17 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B]  
Get:18 http://archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [7060 B]  
Get:19 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [19.2 kB]  
Get:20 http://archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]  
Get:21 http://archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]  
Get:22 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [198 kB]  
Get:23 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [21.6 kB]  
Get:24 http://security.ubuntu.com/ubuntu noble-security/main amd64 c-n-f Metadata [8744 B]  
Get:25 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [880 kB]  
Get:26 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [195 kB]  
Get:27 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [52.2 kB]  
Get:28 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [18.0 kB]  
Get:29 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [1872 kB]  
Get:30 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [423 kB]  
Get:31 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [208 B]
```

PART B:

- 1.Configure Git
- 2.Generate SSH keys
- 3.Test Connection

```
esha@ESHA-DELL: ~$ git config --list
user.name=Esha-Khan
esha@ESHA-DELL: ~$ git config --global user.email "eshakhann1209@gmail.com"
esha@ESHA-DELL: ~$ git config --list
user.name=Esha-Khan
user.email=eshakhann1209@gmail.com
esha@ESHA-DELL: ~$ ssh-keygen -t ed25519
Generating public/private ed25519 key pair.
Enter file in which to save the key (/home/esha/.ssh/id_ed25519):
Created directory '/home/esha/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/esha/.ssh/id_ed25519
Your public key has been saved in /home/esha/.ssh/id_ed25519.pub
The key fingerprint is:
SHA256:E93IfXcOuLyoktJrhFugb/pU27pYPWs5H55np58gR0Q esha@ESHA-DELL
The key's randomart image is:
+--[ED25519 256]--+
|
|      E
|    + + .
|  . = + o o
|    o . o +.
| . o. S . o .
| . ..O+ o.. .
| ..=O.=+...
| .=O.=*...
| .+OO+=O=.+O
+-----[SHA256]-----+
esha@ESHA-DELL: ~$
```

```
esha@ESHA-DELL: ~/.ssh$ cd ~/.ssh/
esha@ESHA-DELL: ~/.ssh$ ls
id_ed25519  id_ed25519.pub
esha@ESHA-DELL: ~/.ssh$ cat id_ed25519.pub
ssh-ed25519 AAAAC3NzaC1lZDI1NTE5AAAAIFX8Zqf21AaNdBUiBIOeLTzVJQuF5Dbpj8q1DwKCMOq esha@ESHA-DELL
esha@ESHA-DELL: ~/.ssh$ ssh -T git@github.com
The authenticity of host 'github.com (20.207.73.82)' can't be established.
ED25519 key fingerprint is SHA256:+DiY3wvvV6TuJJhbpZisF/zLDA0zPMSvHdkr4UvC0qU.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'github.com' (ED25519) to the list of known hosts.
Hi esha-1209! You've successfully authenticated, but GitHub does not provide shell access.
esha@ESHA-DELL: ~/.ssh$ git clone git@github.com:esha-1209/Operating-System.git
Cloning into 'Operating-System'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (3/3), done.
esha@ESHA-DELL: ~/.ssh$
```

PART C:

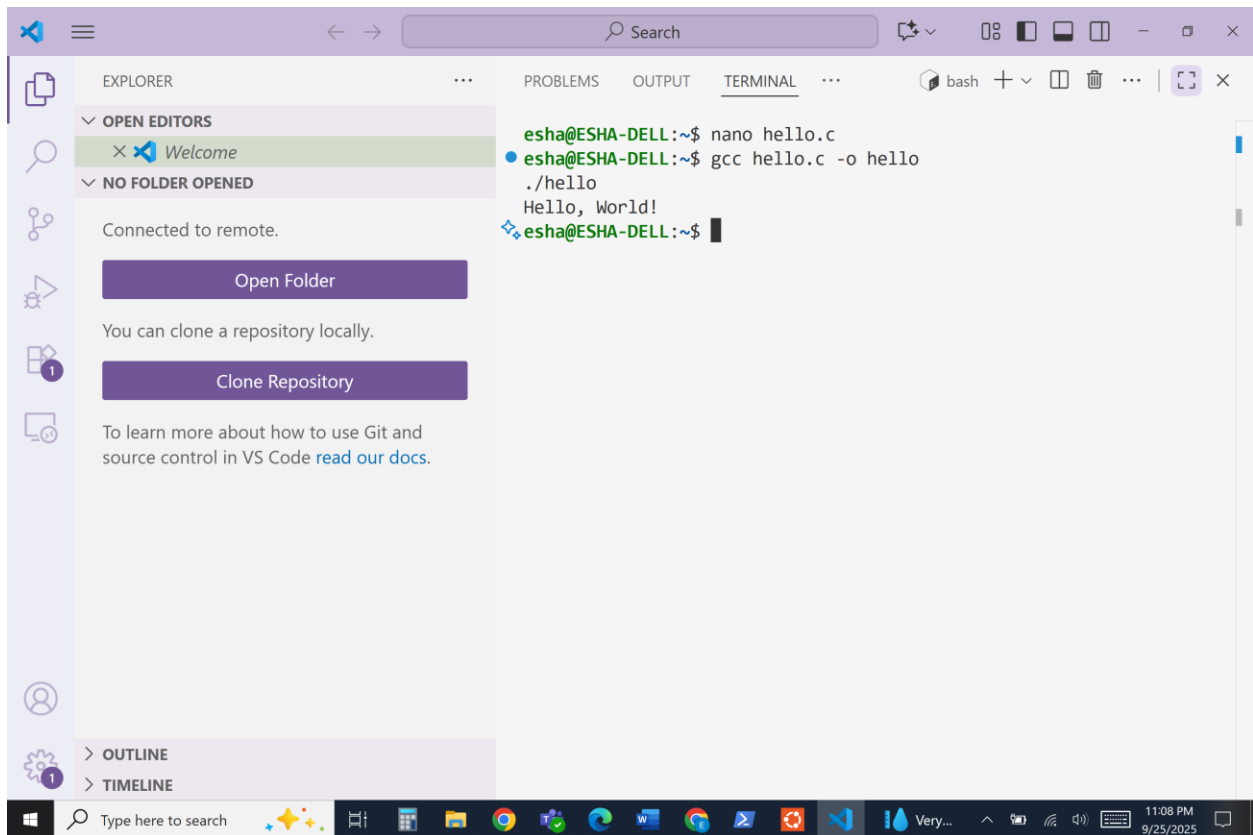
1.Install build tools and check version of gcc

```
esha@ESHA-DELL: ~/.ssh$ gcc --version
gcc (Ubuntu 13.3.0-6ubuntu2~24.04) 13.3.0
Copyright (C) 2023 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

esha@ESHA-DELL: ~/.ssh$
```

2. Steps to create C Program:

- Open Vs code
- Connect to **ubuntu** and **WSL**
- Open new terminal
- Write nano hello.c
- Write C code
- Press **Ctrl + O**
- Press Enter
- Write gcc hello.c -o hello. Out
- Write **./hello. Out** to check the file



Source code of c:

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

```
int main() {
```

```
    printf("Hello, World!\n");
```

```
    return 0;
```

```
}
```