



National Textile University

Department of Computer Science

Subject:

Operating System

Submitted To:

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Submitted By:

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Registration No:

23-NTU-CS-1163

Lab No:

1 - Home Task

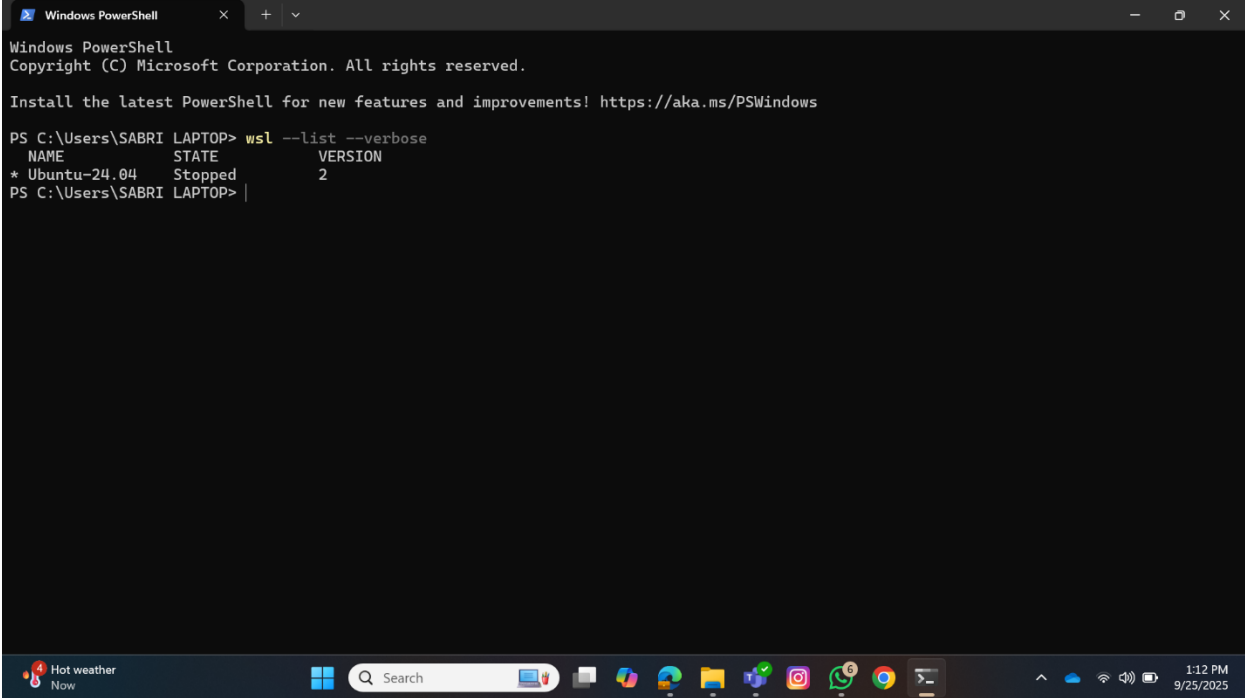
Semester:

5th

Lab 1 - Home task

Part A: WSL2 & Ubuntu Setup

1. Verify WSL2 and Ubuntu installation



A screenshot of a Windows PowerShell terminal window. The window title is "Windows PowerShell". The text inside shows the PowerShell version and copyright information, followed by a message to install the latest PowerShell. The user has entered the command `wsl --list --verbose`, which has produced the following output:

NAME	STATE	VERSION
* Ubuntu-24.04	Stopped	2

The terminal window is open on a Windows desktop. The taskbar at the bottom shows the Start button, a search bar, and several application icons including File Explorer, Microsoft Edge, and various social media apps. The system tray on the right shows the time as 1:12 PM on 9/25/2025.

2. Update Ubuntu environment

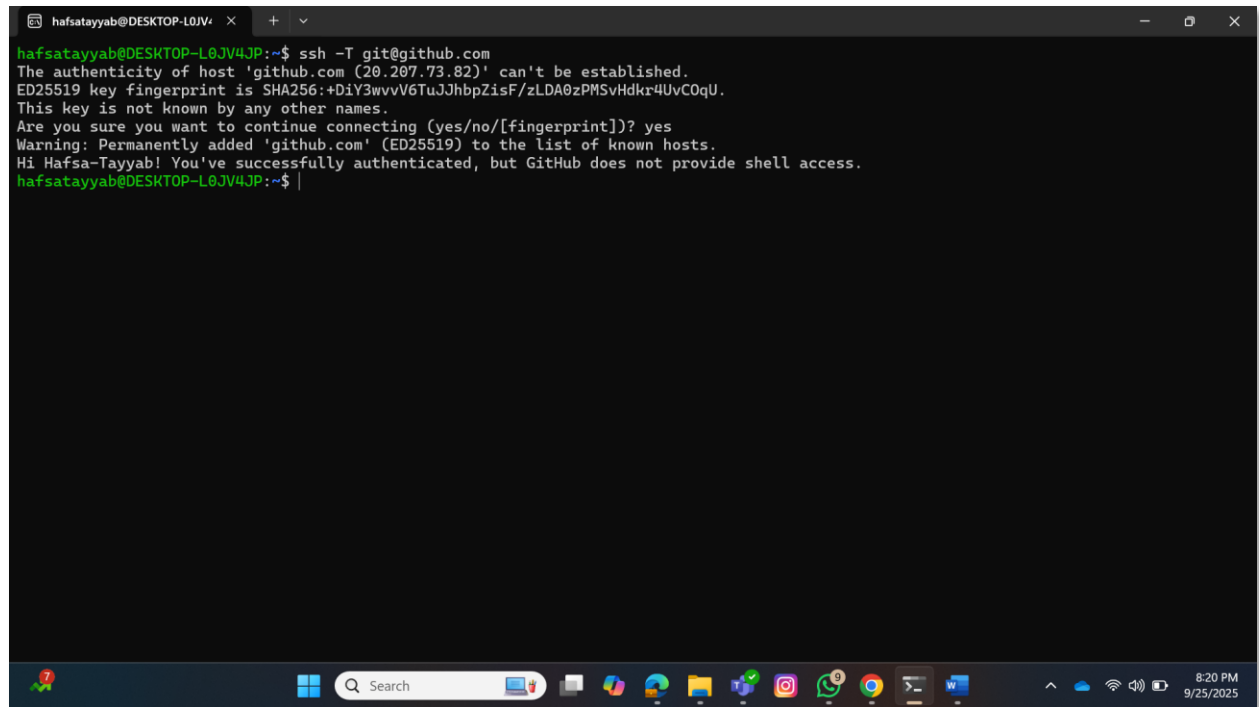
```
hafsatayyab@DESKTOP-L0JV4JP:~$ sudo apt update && sudo apt upgrade -y
[sudo] password for hafsatayyab:
Get:1 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Hit:2 http://archive.ubuntu.com/ubuntu noble InRelease
Get:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:4 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [1164 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:6 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1443 kB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [197 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [21.6 kB]
Get:9 http://security.ubuntu.com/ubuntu noble-security/main amd64 c-n-f Metadata [8744 B]
Get:10 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [880 kB]
Get:11 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [52.2 kB]
Get:12 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [18.0 kB]
Get:13 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [1855 kB]
Get:14 http://archive.ubuntu.com/ubuntu noble-updates/main Translation-en [282 kB]
Get:15 http://archive.ubuntu.com/ubuntu noble-security/restricted Translation-en [419 kB]
Get:16 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [175 kB]
Get:17 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:18 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]
Get:19 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [15.3 kB]
Get:20 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1485 kB]
Get:21 http://archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [299 kB]
Get:22 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [377 kB]
Get:23 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [31.1 kB]
Get:24 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [1957 kB]
Get:25 http://archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [441 kB]
Get:26 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
Get:27 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B]
Get:28 http://archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [7072 B]
Get:29 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [19.2 kB]
Get:30 http://archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]
Get:31 http://archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]
```

Part B: Git & GitHub SSH Setup

1. Configure Git

```
hafsatayyab@DESKTOP-L0JV4JP:~$ git config --list
user.name=Hafsa Tayyab
user.email=hafsatayyab681@gmail.com
hafsatayyab@DESKTOP-L0JV4JP:~$ |
```

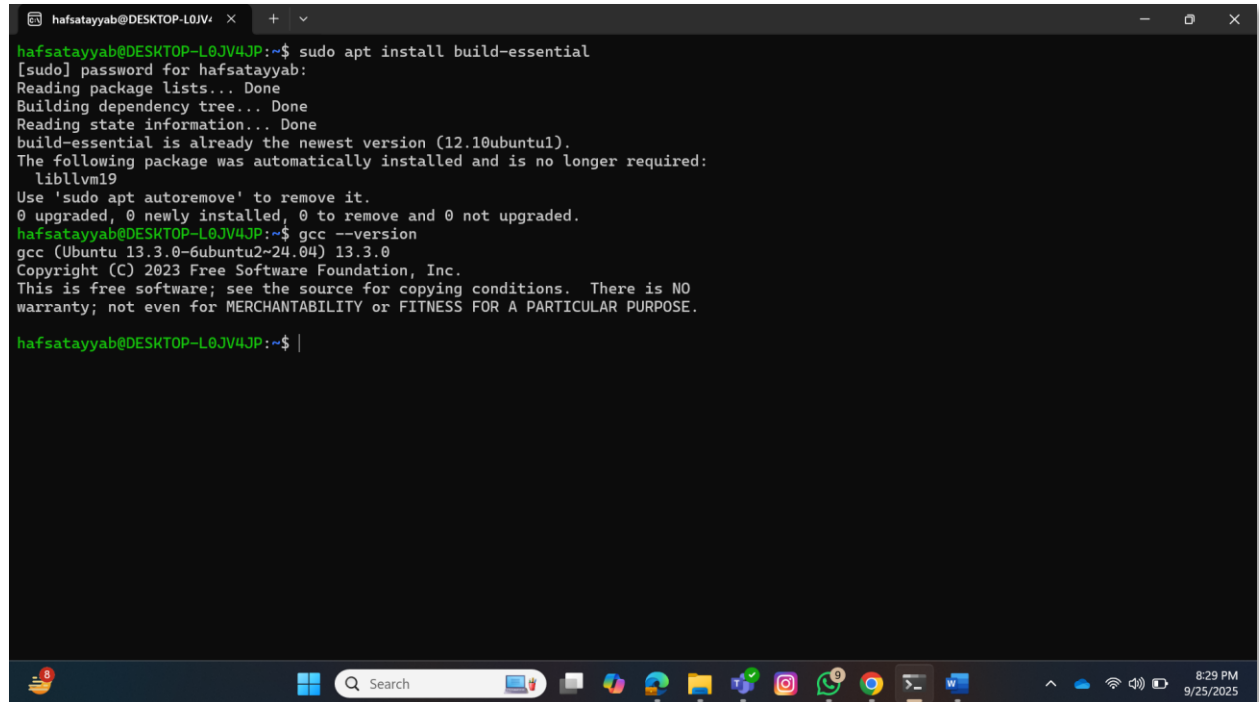
2. Generate SSH Keys

A terminal window titled 'hafsatayyab@DESKTOP-L0JV4JP' with a dark background. The user has executed the command 'ssh -T git@github.com'. The terminal displays the following text: 'The authenticity of host 'github.com (20.207.73.82)' can't be established. ED25519 key fingerprint is SHA256:+DiY3wvV6TuJJhbpZisF/zLDA0zPMSvHdkr4UvCOqU. This key is not known by any other names. Are you sure you want to continue connecting (yes/no/[fingerprint])? yes'. The user has responded with 'yes'. The terminal then shows: 'Warning: Permanently added 'github.com' (ED25519) to the list of known hosts. Hi Hafsa-Tayyab! You've successfully authenticated, but GitHub does not provide shell access. hafsatayyab@DESKTOP-L0JV4JP:~\$'. The Windows taskbar is visible at the bottom with the date '8:20 PM 9/25/2025'.

```
hafsatayyab@DESKTOP-L0JV4JP:~$ ssh -T git@github.com
The authenticity of host 'github.com (20.207.73.82)' can't be established.
ED25519 key fingerprint is SHA256:+DiY3wvV6TuJJhbpZisF/zLDA0zPMSvHdkr4UvCOqU.
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 Hafsa-Tayyab! You've successfully authenticated, but GitHub does not provide shell access.
hafsatayyab@DESKTOP-L0JV4JP:~$ |
```

Part C: C Programming Environment & Practice

Step 1: Install Build Tools

A terminal window titled 'hafsatayyab@DESKTOP-L0JV4JP' with a dark background. The user has executed the command 'sudo apt install build-essential'. The terminal displays the following text: '[sudo] password for hafsatayyab: Reading package lists... Done Building dependency tree... Done Reading state information... Done build-essential is already the newest version (12.10ubuntu1). The following package was automatically installed and is no longer required: libllvm19 Use 'sudo apt autoremove' to remove it. 0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded. hafsatayyab@DESKTOP-L0JV4JP:~\$ 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. hafsatayyab@DESKTOP-L0JV4JP:~\$ |'. The Windows taskbar is visible at the bottom with the date '8:29 PM 9/25/2025'.

```
hafsatayyab@DESKTOP-L0JV4JP:~$ sudo apt install build-essential
[sudo] password for hafsatayyab:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
build-essential is already the newest version (12.10ubuntu1).
The following package was automatically installed and is no longer required:
libllvm19
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
hafsatayyab@DESKTOP-L0JV4JP:~$ 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.
hafsatayyab@DESKTOP-L0JV4JP:~$ |
```

Step 2: Write a C Program

```
File Edit Selection View Go Run ... OS-Labs [WSL: Ubuntu-24.04]
EXPLORER
OS-LABS [WSL: UBUNTU-24.04]
  hello.c
  hello.out
  hello.pdf
  README.md
C hello.c M X
C hello.c > main()
1 #include <stdio.h>
2
3 int main() {
4     char name[50];
5
6     printf("Enter your name: ");
7     scanf("%s", name);
8
9     printf("Hello, %s! Welcome to C programming.\n", name);
10    return 0;
11 }
TERMINAL
bash - OS-Labs
hafsatayyab@DESKTOP-L0J43P:~/OS-Labs$ ./hello.out
Enter your name: Hafsa Tayyab
Hello, Hafsa! Welcome to C programming.
hafsatayyab@DESKTOP-L0J43P:~/OS-Labs$
```

