



National Textile University

Department of Computer Science

Name:	Ayeza Naseem
Class:	SE-A (5 th)
Roll no.	23-NTU-CS-1143
Subject:	Operating System
Lab report:	Hometask 1
Date:	25-09-2025

Operating Systems – COC 3071L

SE 5th A – Fall 2025

Objective

The purpose of this assignment is to:

1. Configure **Ubuntu** inside **WSL2 (Windows Subsystem for Linux v2)**.
 2. Install and configure **Git** in Ubuntu.
 3. Generate and set up **SSH keys** to connect with GitHub.
 4. Install the **C development environment** in Ubuntu.
 5. Write a **Hello World** program in **C**.
-

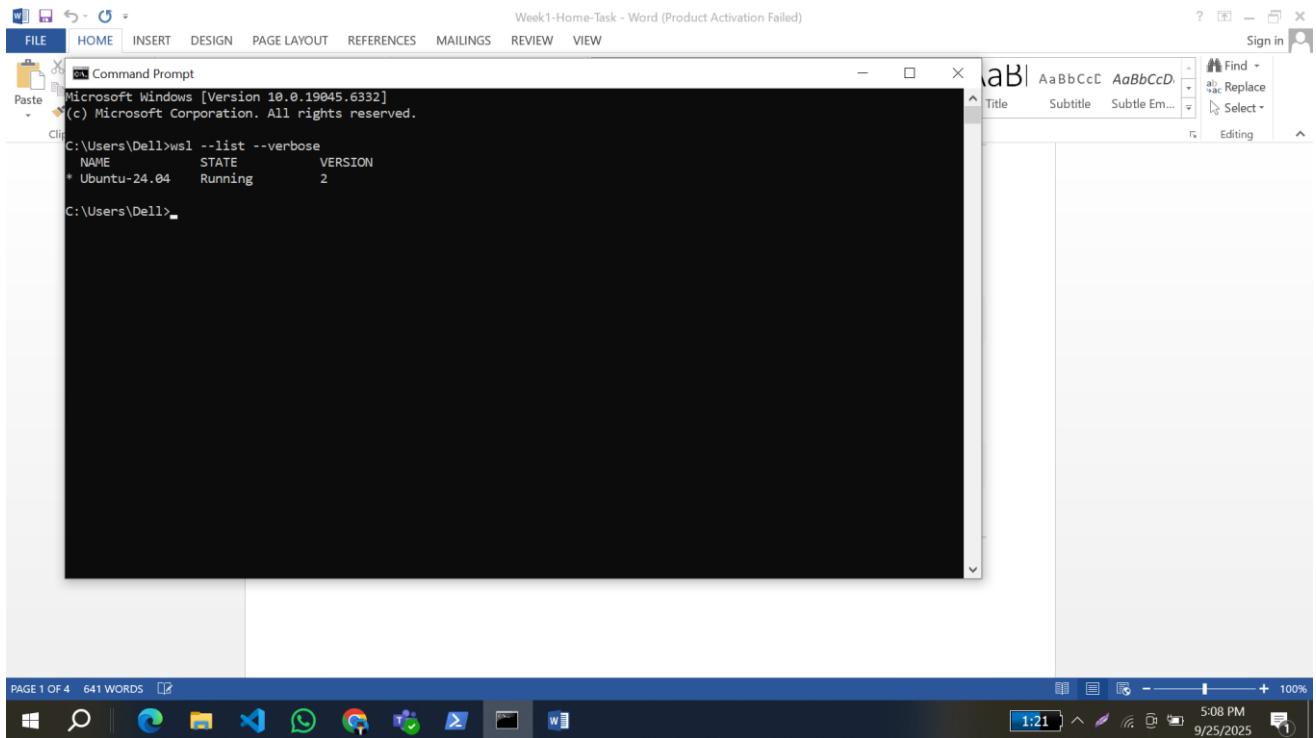
Part A: WSL2 & Ubuntu Setup

1. Verify WSL2 and Ubuntu installation

- Verify installation by running the following command in powershell:

```
wsl --list --verbose
```

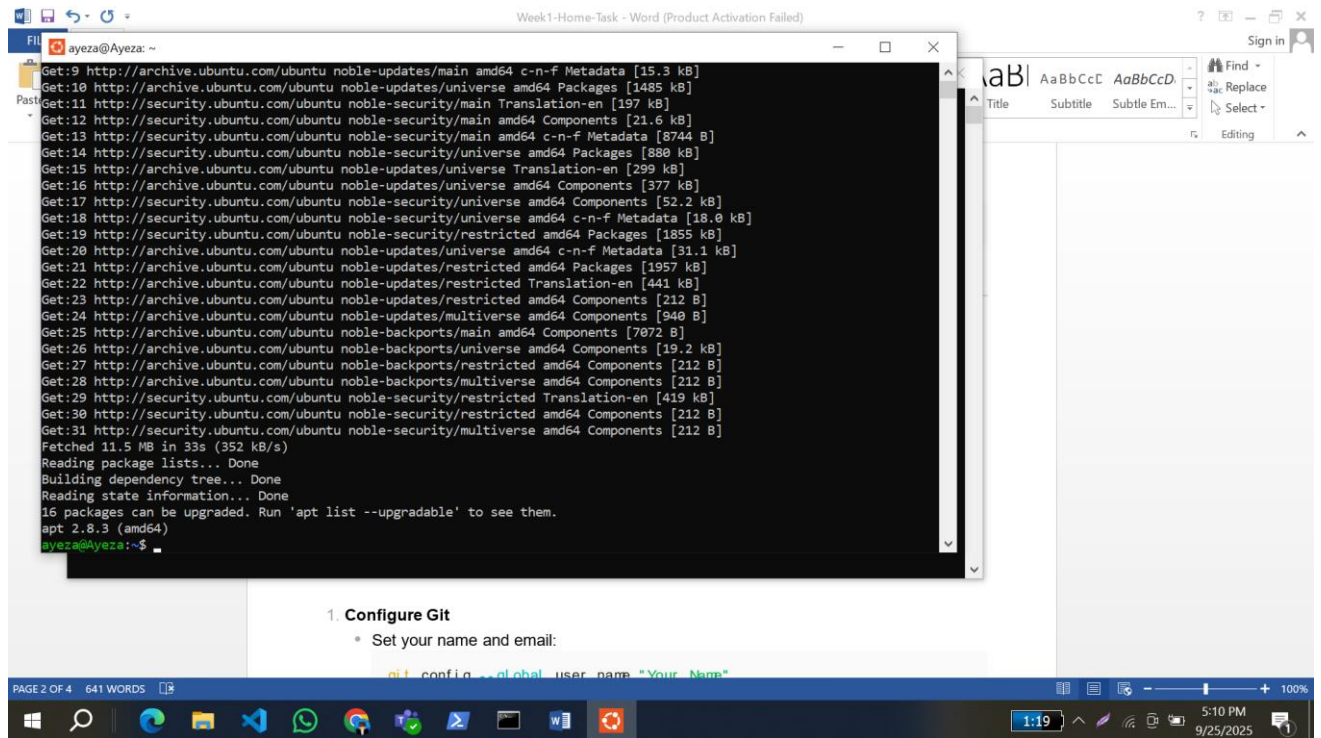
Submit a screenshot showing Ubuntu installed and running on WSL2.



2. Update Ubuntu environment

- Run the following command in Ubuntu:

```
sudo apt update && sudo apt upgrade -y
```



Part B: Git & GitHub SSH Setup

Submit a screenshot.

2. Generate SSH Keys

- Run:

```
ssh-keygen -t ed25519
```

- Copy the public key:

```
cat ~/.ssh/id_ed25519.pub
```

- Add this key to your GitHub account under **Settings** → **SSH and GPG keys**.

3. Test Connection

```
ssh -T git@github.com
```

- Submit a screenshot showing successful authentication.

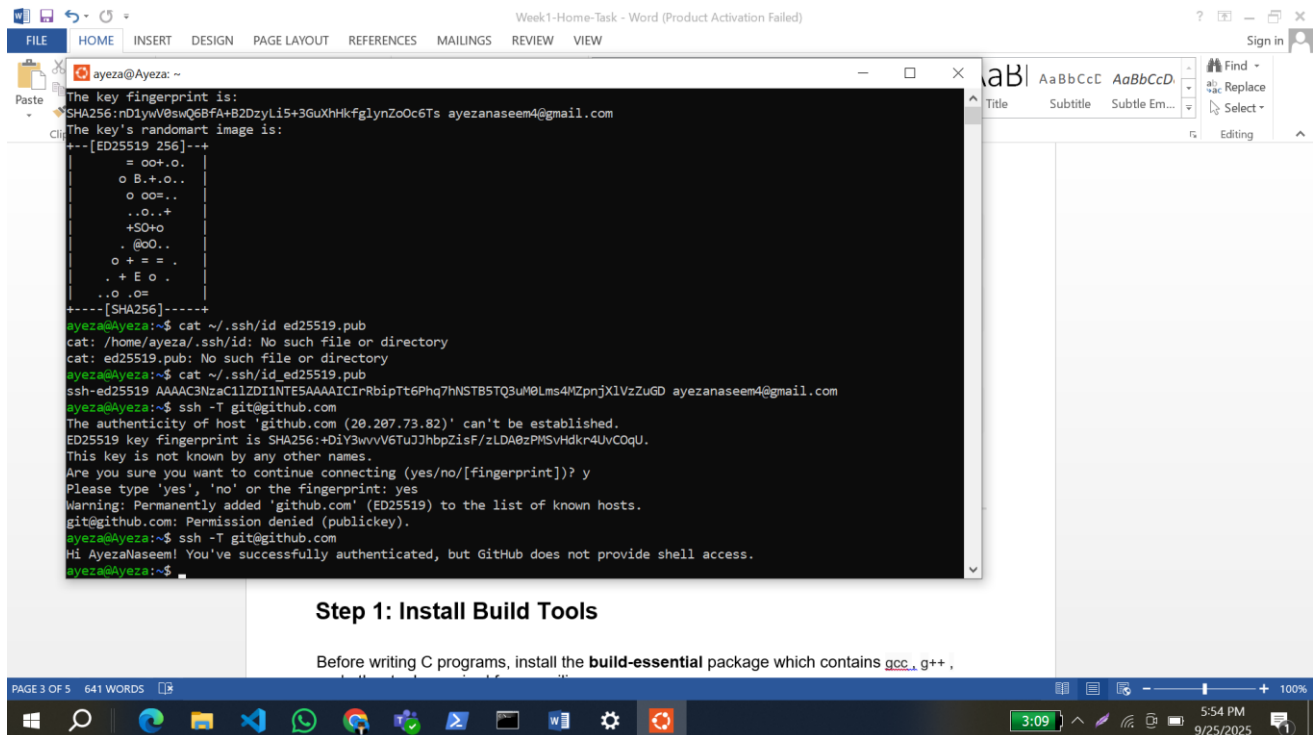
1. Configure Git

- Set your name and email:

```
git config --global user.name "Your Name"
git config --global user.email "your@email.com"
```

- Show your config:

```
git config --list
```



Part C: C Programming Environment & Practice

Step 1: Install Build Tools

Before writing C programs, install the **build-essential** package which contains gcc , g++ , and other tools required for compiling.

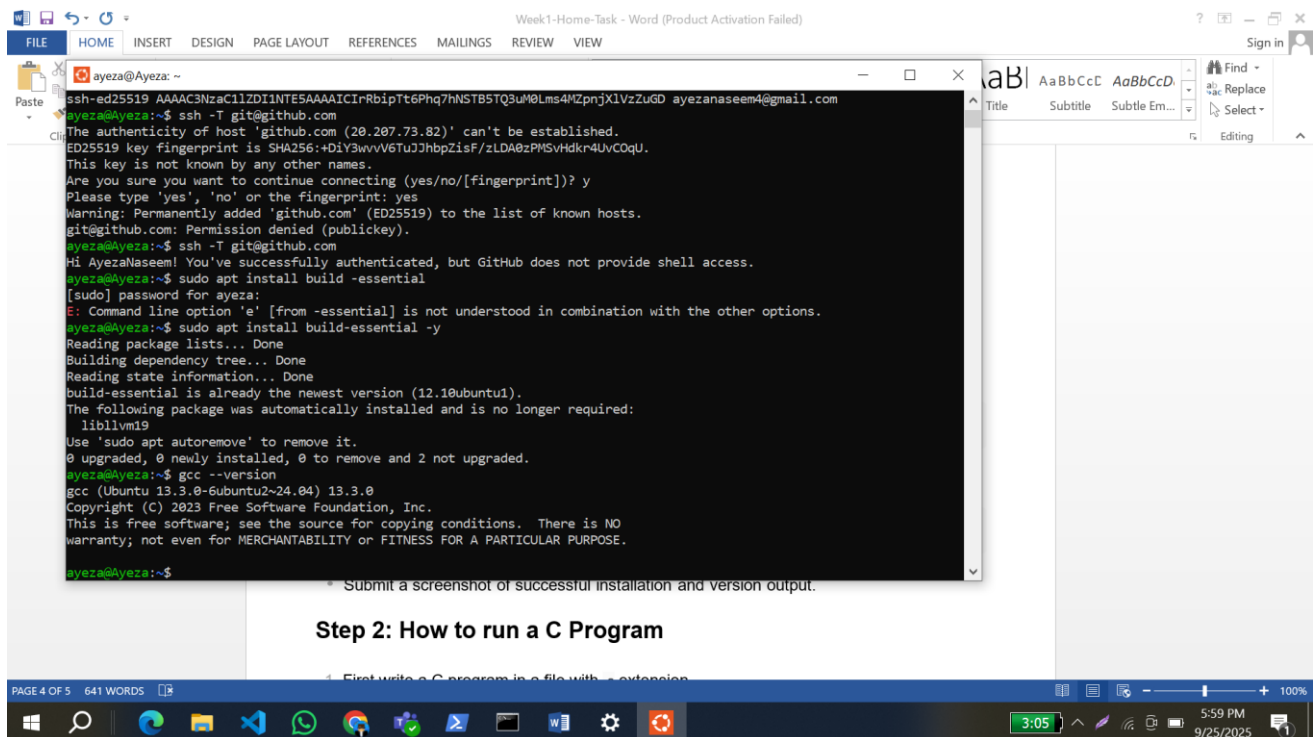
Run:

```
sudo apt install build-essential
```

Verify installation by checking the version of gcc :

```
gcc --version
```

- Submit a screenshot of successful installation and version output.



Step 2: How to run a C Program

1. First write a C program in a file with .c extension.
2. Compile the file using `gcc filename.c -o filename.out`
3. Execute it using `./filename.out`

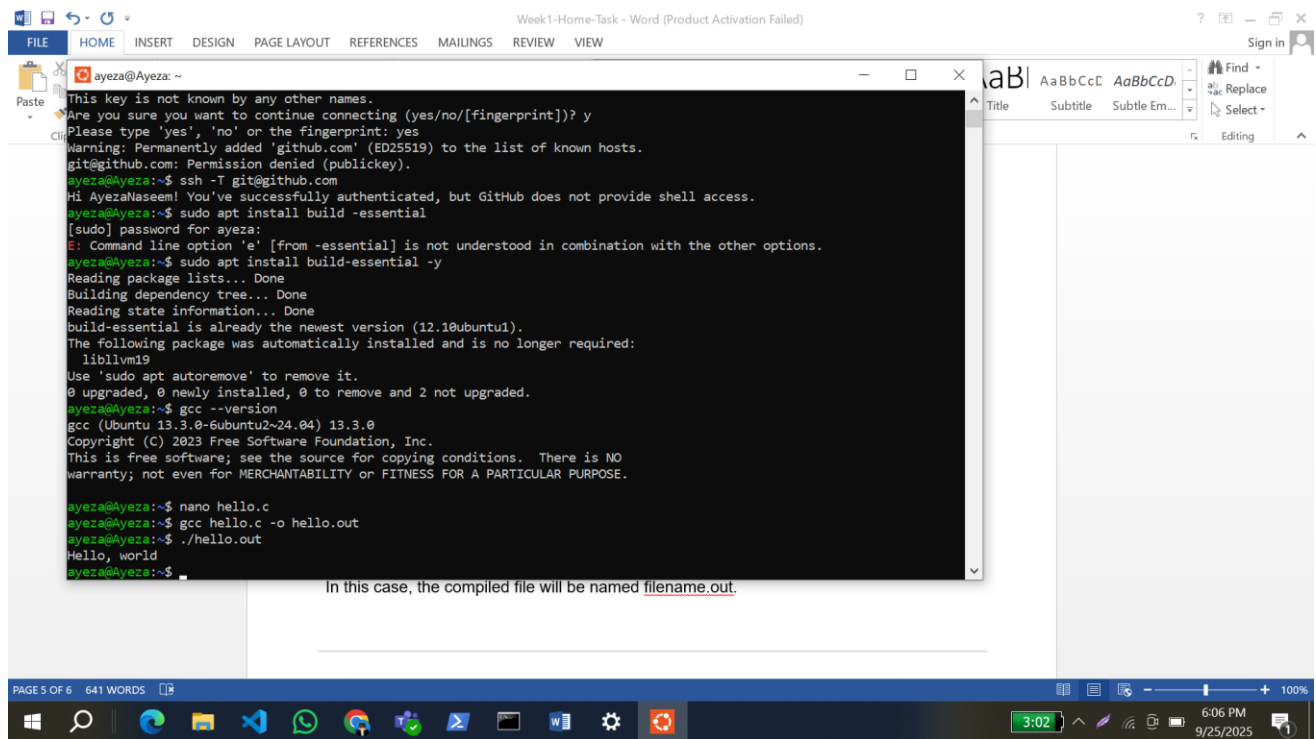
Breakdown

- gcc
 - This is the GNU Compiler Collection command.
 - It compiles C (and other languages like C++) programs into machine code that can be executed by the computer.
- filename.c
 - This is the source code file you wrote in C.
 - Example: hello.c contains your C program.
- -o filename.out
 - The option -o means “output.”
 - By default, gcc creates an executable file named a.out if you don't specify anything.
 - With -o, you can choose the name of the output executable.

In this case, the compiled file will be named filename.out.

Step 3: Write a C Program

Write a simple C program of your choice. It can be a **Hello World** program or any other.



The screenshot shows a Windows desktop environment. In the foreground, a Microsoft Word document titled "Week1-Home-Task - Word (Product Activation Failed)" is open. The document content is partially visible, showing a terminal window's output. The terminal window is titled "ayezza@Ayeza: ~" and displays the following commands and output:

```
ayezza@Ayeza: ~  
This key is not known by any other names.  
Are you sure you want to continue connecting (yes/no/[fingerprint])? y  
Please type 'yes', 'no' or the fingerprint: yes  
Warning: Permanently added 'github.com' (ED25519) to the list of known hosts.  
git@github.com: Permission denied (publickey).  
ayezza@Ayeza:~$ ssh -T git@github.com  
Hi AyezaNaseem! You've successfully authenticated, but GitHub does not provide shell access.  
ayezza@Ayeza:~$ sudo apt install build-essential  
[sudo] password for ayeza:  
E: Command line option 'e' [from -essential] is not understood in combination with the other options.  
ayezza@Ayeza:~$ sudo apt install build-essential -y  
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 2 not upgraded.  
ayezza@Ayeza:~$ 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.  
  
ayezza@Ayeza:~$ nano hello.c  
ayezza@Ayeza:~$ gcc hello.c -o hello.out  
ayezza@Ayeza:~$ ./hello.out  
Hello, world  
ayezza@Ayeza:~$
```

Below the terminal window, a text box contains the instruction: "In this case, the compiled file will be named filename.out." The Word document's status bar at the bottom indicates "PAGE 5 OF 6" and "641 WORDS". The system tray at the bottom right shows the time as 3:02 PM on 9/25/2025.