



National Textile University

Department of Computer Science

Subject: Operating System

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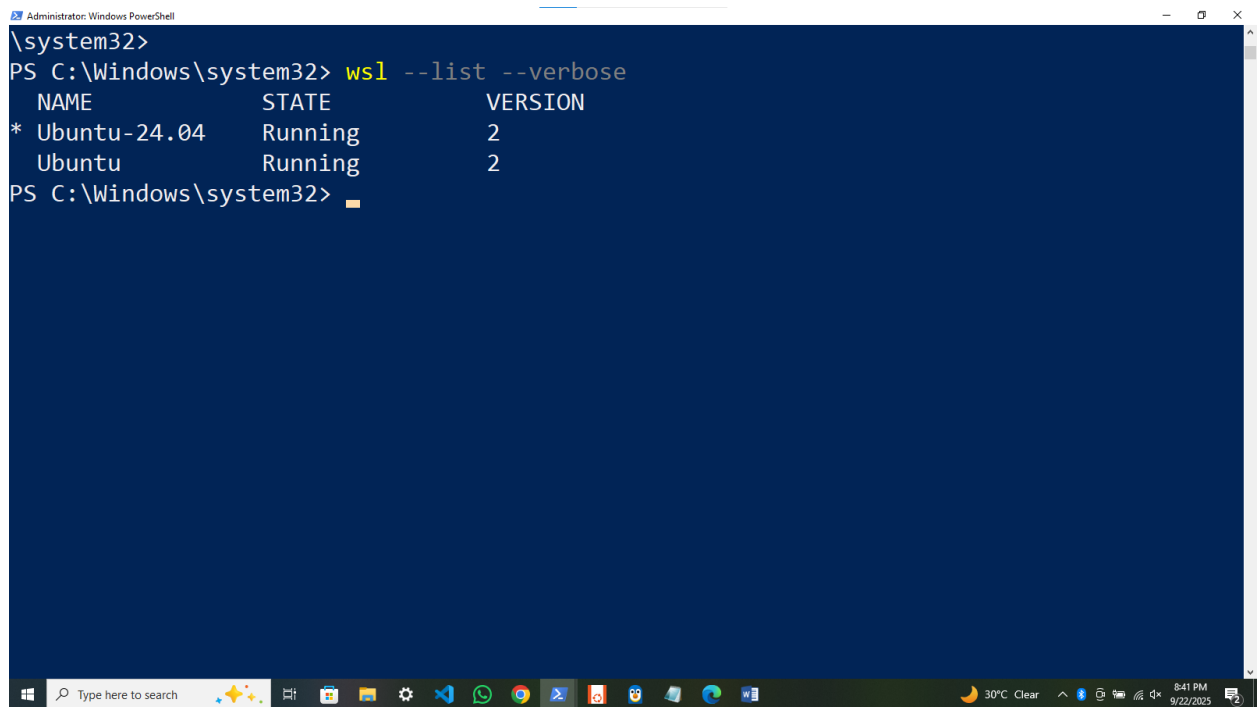
Reg. number: 23-NTU-CS-1170

Lab no.: lab1 (Home Task)

Semester:5th

Part A: WSL2 & Ubuntu Setup

- Verify WSL2 and Ubuntu installation



A screenshot of a Windows PowerShell terminal window titled "Administrator: Windows PowerShell". The terminal shows the command `wsl --list --verbose` being executed. The output is a table with three columns: NAME, STATE, and VERSION. It lists two Ubuntu distributions: "Ubuntu-24.04" and "Ubuntu", both in a "Running" state with version "2". 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 date and time as 8:41 PM on 9/22/2023.

```
\system32>
PS C:\Windows\system32> wsl --list --verbose
  NAME                STATE      VERSION
* Ubuntu-24.04        Running    2
  Ubuntu              Running    2
PS C:\Windows\system32>
```

- Update Ubuntu environment

Command:

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

```
maha@DESKTOP-S85PBS9: ~  
maha@DESKTOP-S85PBS9:~$ gcc hello.c -o hello.out  
maha@DESKTOP-S85PBS9:~$ ./hello.out  
maha@DESKTOP-S85PBS9:~$ ./hello.out  
hello worldmaha@DESKTOP-S85PBS9:~$  
maha@DESKTOP-S85PBS9:~$ sudo apt update && sudo apt upgrade -y  
[sudo] password for maha:  
Hit:1 http://archive.ubuntu.com/ubuntu noble InRelease  
Hit:2 http://security.ubuntu.com/ubuntu noble-security InRelease  
Hit:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease  
Hit:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
2 packages can be upgraded. Run 'apt list --upgradable' to see them.  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
Calculating upgrade... 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 packages have been kept back:  
  libgl1-amber-dri libglapi-mesa  
0 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.  
maha@DESKTOP-S85PBS9:~$
```

Part B: Git & GitHub SSH

Set your name and email && show your config

```
Week1-Home-Task.pdf x +  
maha@DESKTOP-S85PBS9: ~  
maha@DESKTOP-S85PBS9:~$ git config --global user.name "MahaAther15"  
maha@DESKTOP-S85PBS9:~$ git config --global user.email "mahaatherfiver22@gmail.com"  
maha@DESKTOP-S85PBS9:~$ git config --list  
user.name=MahaAther15  
user.email=mahaatherfiver22@gmail.com  
maha@DESKTOP-S85PBS9:~$
```

Submit a screenshot.

2. **Generate SSH Keys**

- Run:

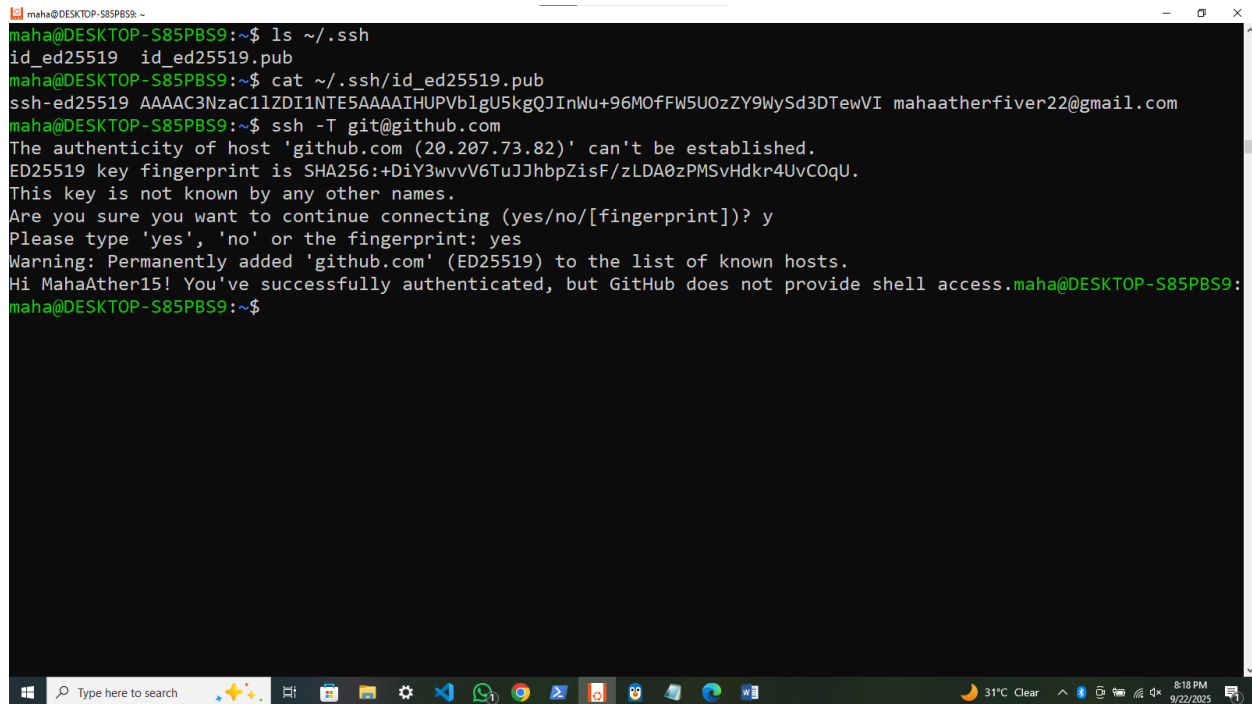
```
ssh-keygen -t ed25519
```
- Copy the public key:

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

Test Connection

Command:

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

A terminal window titled 'maha@DESKTOP-S85PBS9' showing the execution of an SSH command. The user lists the contents of the ~/.ssh directory, showing id_ed25519 and id_ed25519.pub. Then, they run 'ssh -T git@github.com'. The terminal displays the SSH fingerprint for github.com (20.207.73.82) and asks for confirmation to connect. The user responds with 'y'. A warning message states that 'github.com' (ED25519) has been permanently added to the list of known hosts. The terminal concludes with a message from GitHub: 'Hi MahaAther15! You've successfully authenticated, but GitHub does not provide shell access.' The prompt returns to 'maha@DESKTOP-S85PBS9:~\$'.

```
maha@DESKTOP-S85PBS9:~$ ls ~/.ssh
id_ed25519  id_ed25519.pub
maha@DESKTOP-S85PBS9:~$ cat ~/.ssh/id_ed25519.pub
ssh-ed25519 AAAAC3NzaC11ZDI1NTE5AAAAIHUPVb1gU5kgQJInWu+96MofFW5UOzZY9WySd3DTewVI mahaatherfiver22@gmail.com
maha@DESKTOP-S85PBS9:~$ 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/zLDA0zPMSvHdkr4UvCOqU.
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.
Hi MahaAther15! You've successfully authenticated, but GitHub does not provide shell access.maha@DESKTOP-S85PBS9:
maha@DESKTOP-S85PBS9:~$
```

Part C: C Programming Environment & Practice

Step 1: Install Build Tools

Command:

- `sudo apt update`

```
maha@DESKTOP-S85PBS9:~$ sudo apt update
[sudo] password for maha:
Hit:1 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:2 http://archive.ubuntu.com/ubuntu noble InRelease
Get:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Hit:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Fetched 126 kB in 3s (39.9 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
2 packages can be upgraded. Run 'apt list --upgradable' to see them.
maha@DESKTOP-S85PBS9:~$
```

- `sudo apt install build-essential -y`

```
maha@DESKTOP-S85PBS9:~$ 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 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.
0 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
maha@DESKTOP-S85PBS9:~$
```

- `gcc --version`

```
maha@DESKTOP-S85PBS9:~$ 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.

maha@DESKTOP-S85PBS9:~$
```

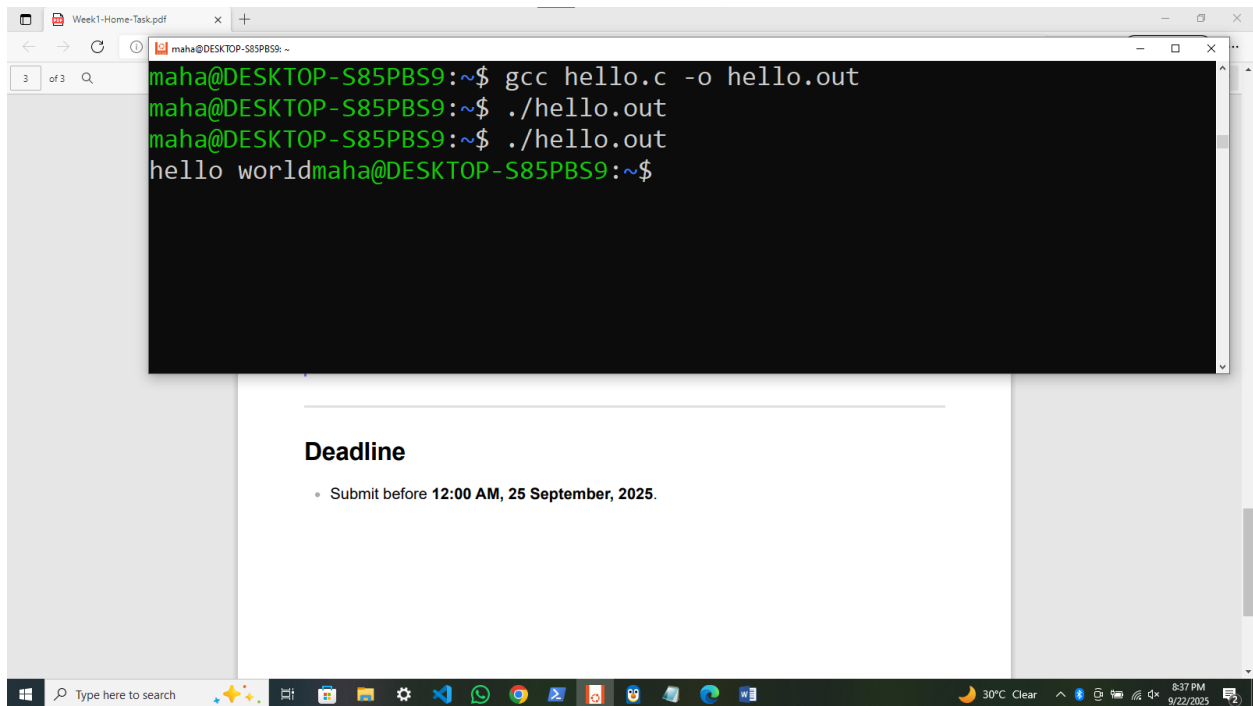
Step 2: How to run a C Program

The C source code (.c file).

```
GNU nano 7.2 hello.c
#include<stdio.h>
int main(){
    printf("hello world");
    return 0;
}
```

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/_ Go To Line

Screenshot of execution (./program)



The screenshot shows a Windows desktop environment. In the foreground, a terminal window is open, displaying the following commands and output:

```
maha@DESKTOP-S85PBS9:~$ gcc hello.c -o hello.out
maha@DESKTOP-S85PBS9:~$ ./hello.out
maha@DESKTOP-S85PBS9:~$ ./hello.out
hello worldmaha@DESKTOP-S85PBS9:~$
```

Below the terminal window, a PDF document titled "Week1-Home-Task.pdf" is visible. The document contains a section titled "Deadline" with the following text:

• Submit before 12:00 AM, 25 September, 2025.

The Windows taskbar at the bottom shows the system clock as 8:37 PM on 9/22/2025, with a weather widget indicating 30°C Clear.

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