

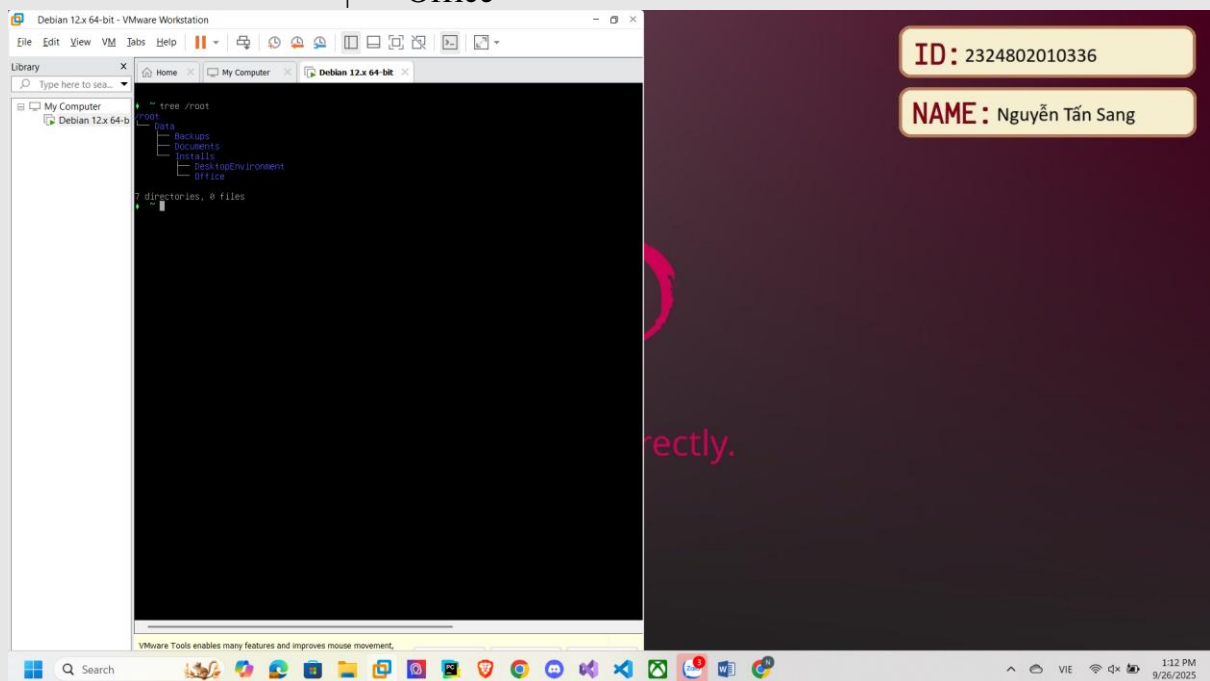
Mỗi vị trí chứa cụm từ **replace me** tương ứng 01 hoặc NHIỀU hình ảnh, hãy thực hiện yêu cầu và dán 01/các ảnh chụp toàn màn hình kết quả đạt được và mô tả tóm tắt ý nghĩa dưới mỗi hình ảnh. Thay "(Thực hiện theo yêu cầu trên)" bằng lời giải thích cho hình chụp đó (thường là nghĩa tiếng việt dịch được theo yêu cầu tiếng anh), hoặc giải thích ngắn gọn hơn theo ý sinh viên, không giải thích **-25%** điểm câu đó

1. Repository setup & Update (2 Points):

After VM successfully startup , login as root

- 1.1 Make directory and subdirectory as below structure by using “mkdir”. If you already created, show me the result when you go into the last subdirectory in the structure below and use the “pwd” command.

```
/|---- root
    |-- Data
    |   |-- Documents
    |   |-- Backups
    |   |-- Installs
    |   |-- DesktopEnvironment
    |   |-- Office
```

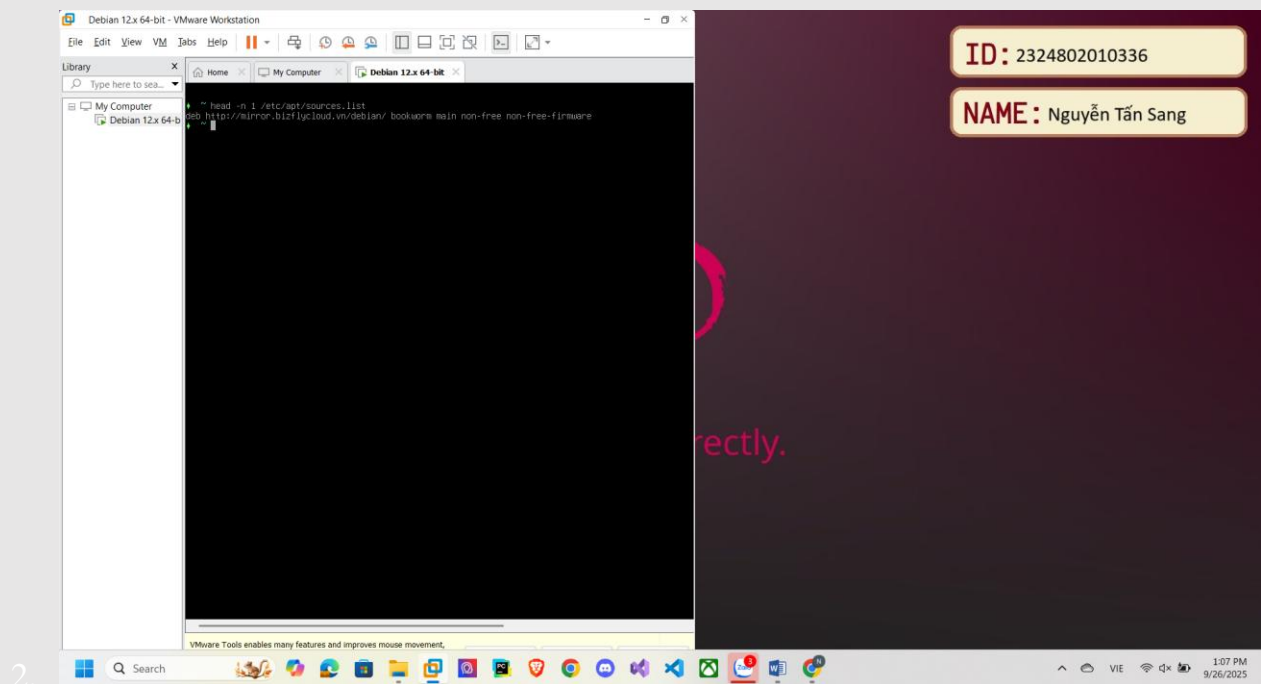


1. (màn hình sau khi thực hiện theo tạo thư mục theo yêu cầu)

- 1.2 Make sure the contents of the `/etc/apt/sources.list` file are similar to the contents below (otherwise edit it), show me some first lines and then save and exit:

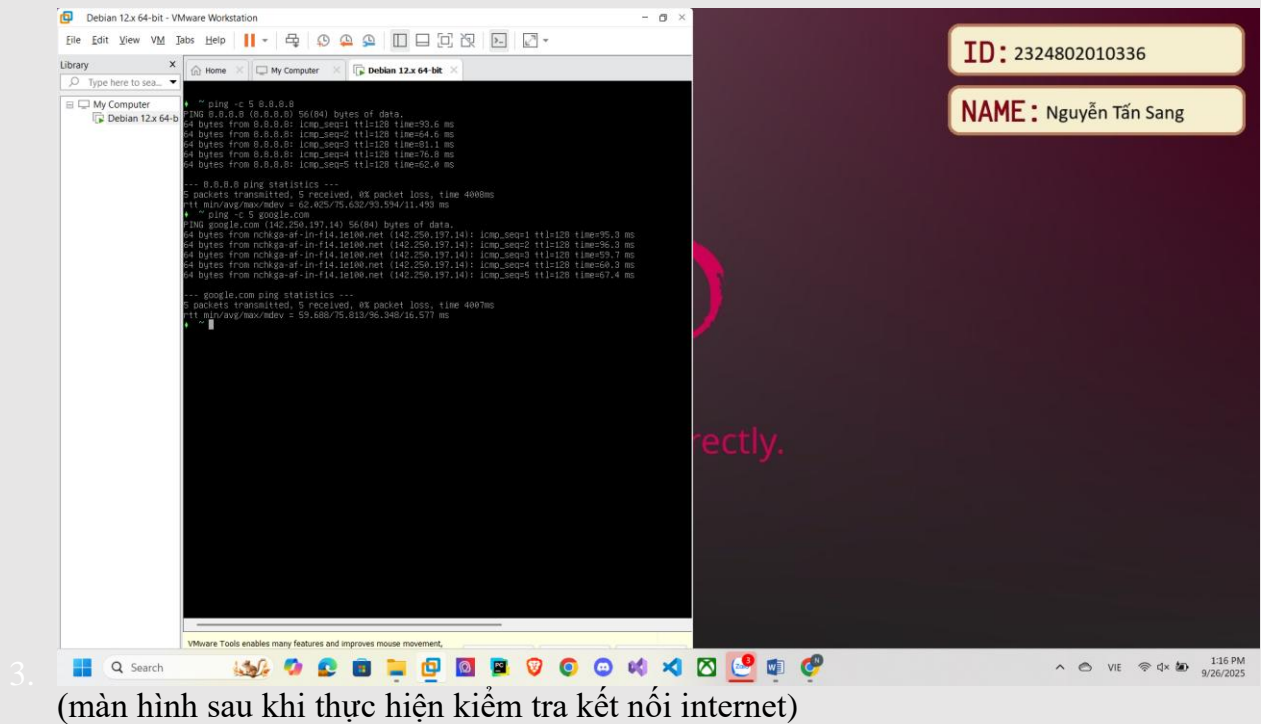
```
deb http://mirror.bizflycloud.vn/debian/ bookworm main
non-free non-free-firmware
deb-src http://mirror.bizflycloud.vn/debian/ bookworm main
non-free non-free-firmware
deb http://security.debian.org/debian-security bookworm-
security main non-free non-free-firmware
deb-src http://security.debian.org/debian-security
bookworm-security main non-free non-free-firmware
deb http://mirror.bizflycloud.vn/debian/ bookworm-updates
main non-free non-free-firmware
deb-src http://mirror.bizflycloud.vn/debian/ bookworm-
updates main non-free non-free-firmware
```

Note: The `#` symbol before any line is considered a comment and will be ignored when the related program or system reads this configuration file.

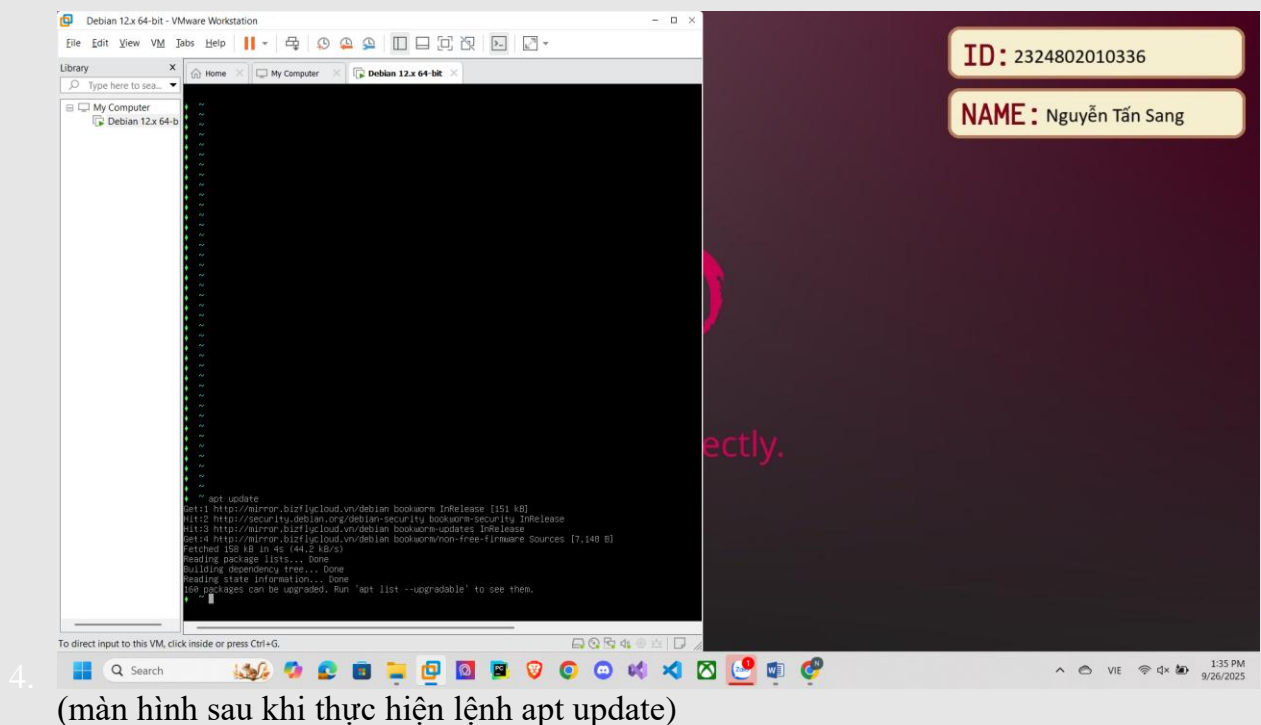


2. (màn hình sau khi thực hiện hiển thị dòng đầu tiên sau khi sửa nội dung trong `sources.list`)

1.3 Make sure the system is connected to the internet



1.4 Update the link definition repository in step 1.2 using the “apt update” command.

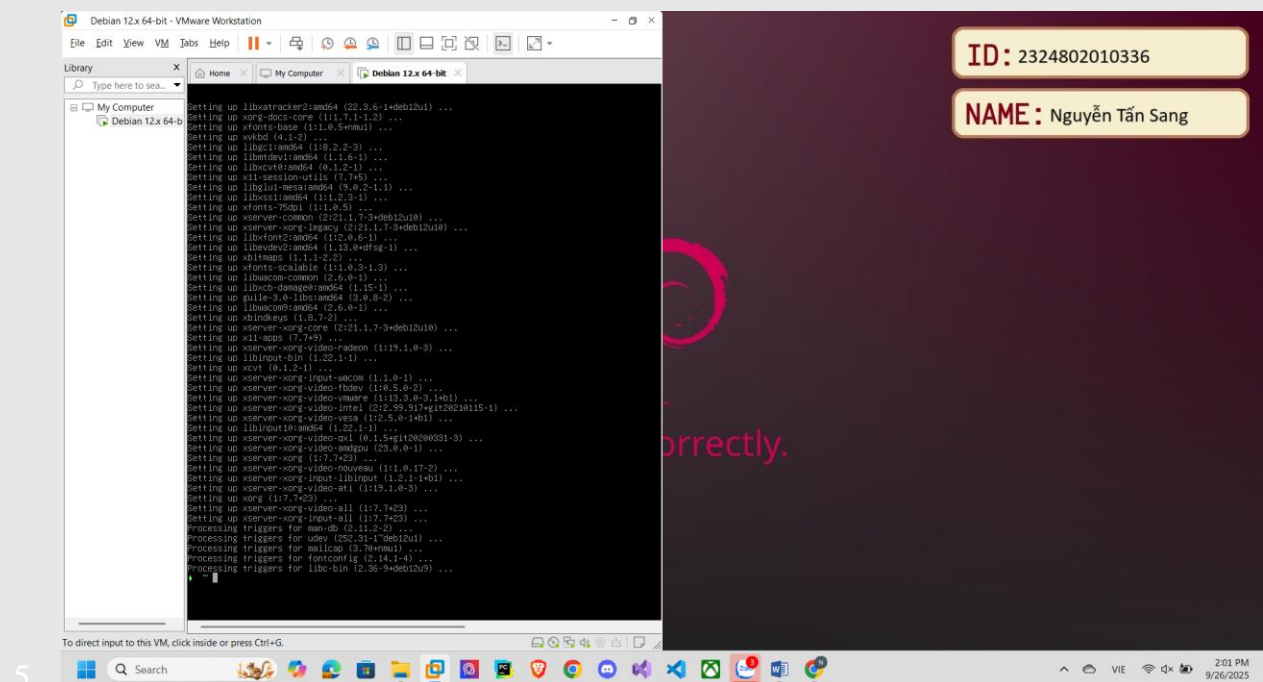
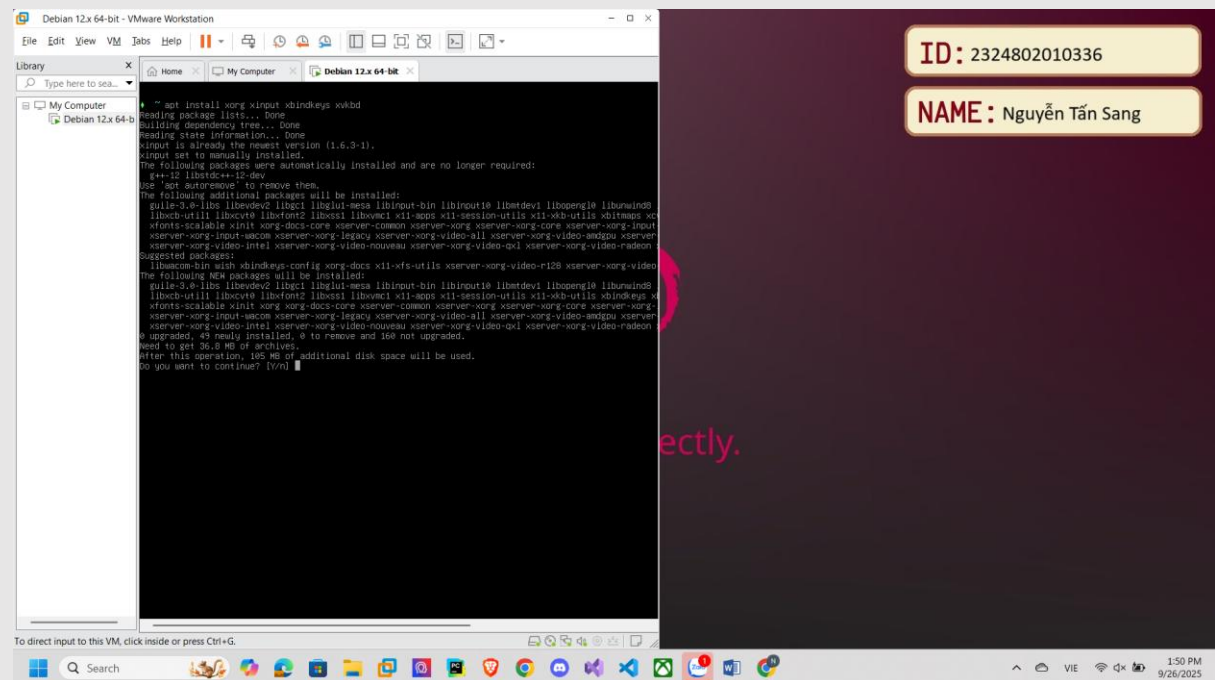


2. Install Graphic User Interface for Linux (3 Point):

Login as root

2.1 Install X Desktop, X keyboard mapping:

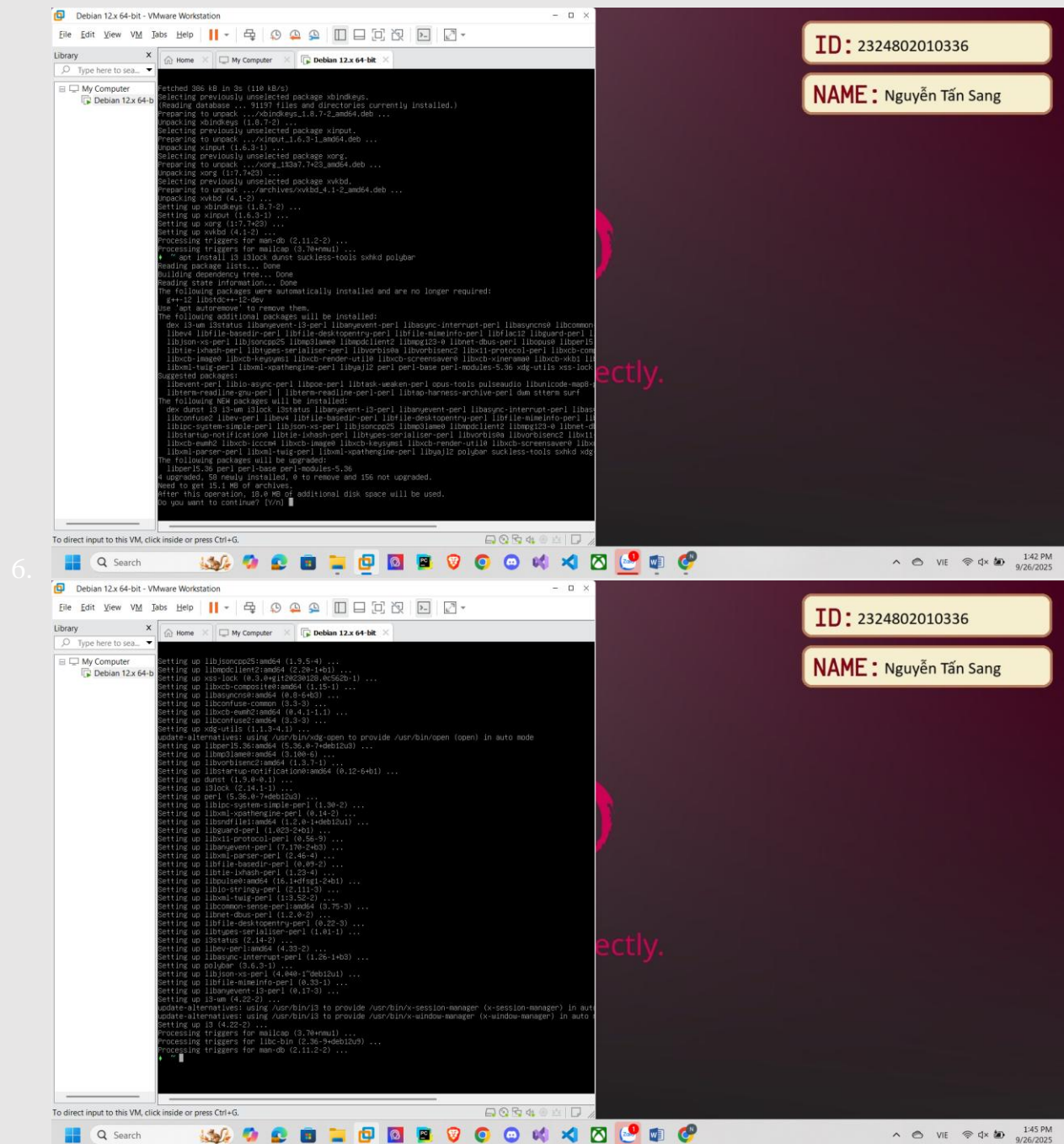
Tip: Packages to install: xorg, xinput, xbindkeys, xvkbd



5. (màn hình chọn xác nhận và màn hình sau khi thực hiện tải các gói xorg, xinput, xbindkeys, xvkbd)

2.2 Install i3 Windows Manager and common dependencies packages

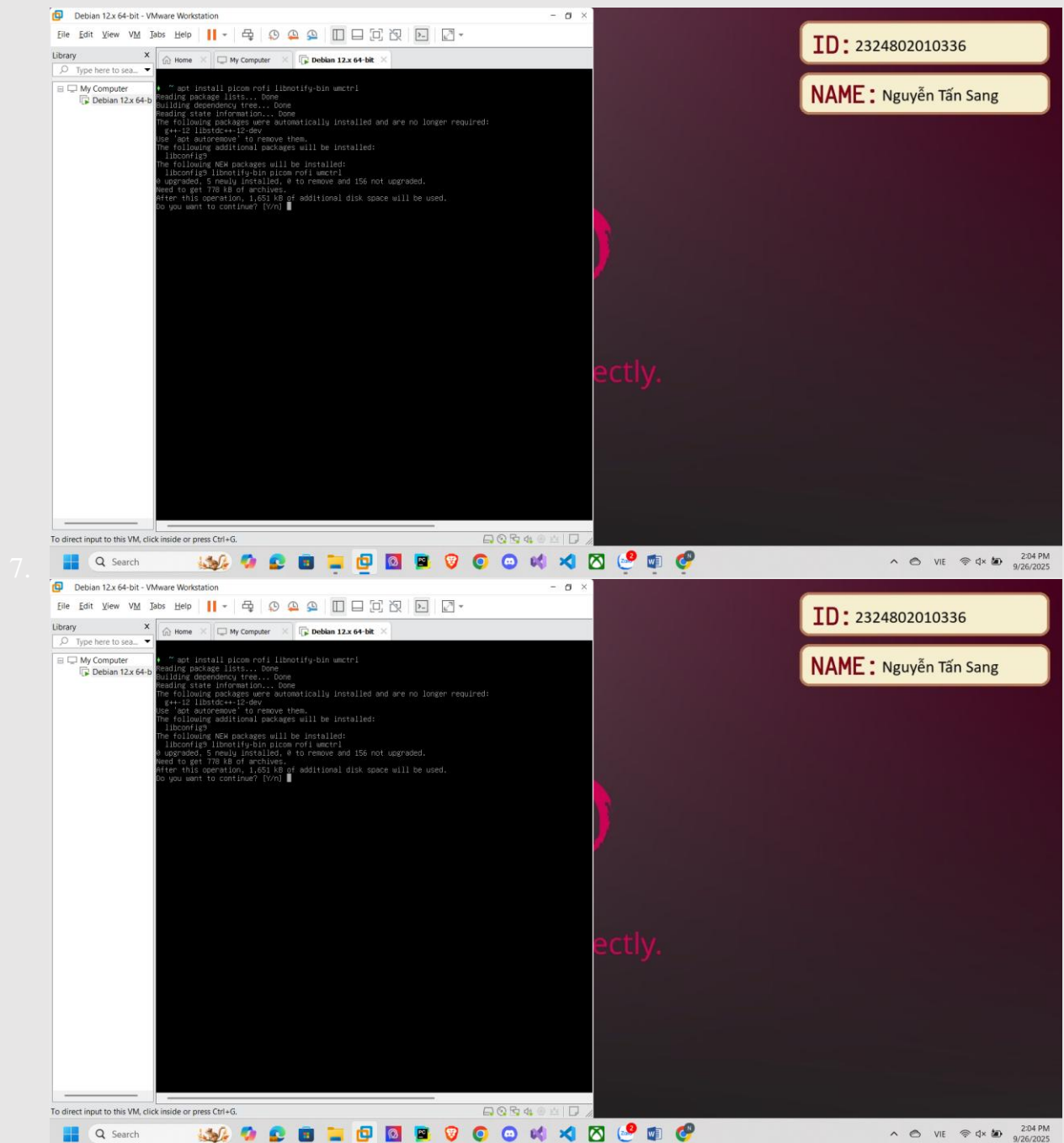
Tip: Packages to install: i3, i3lock, dunst, suckless-tools, sxhkd, polybar



(màn hình chọn xác nhận và màn hình sau khi thực hiện tải các gói i3, i3lock, dunst, suckless-tools, sxhkd, polybar)

2.3 Install i3 compositor and common dependencies components

Tip: Packages to install: `picom`, `rofi`, `libnotify-bin`, `wmctrl`



7. (màn hình chọn xác nhận và màn hình sau khi thực hiện tải các gói picom, rofi, libnotify-bin, wmctrl)

2.4 Install Graphic Login Interface, some new common apps as: Terminal, Z-Shell, File mandage, Web Browser, Image Manager, URL download/viewer, File versioning manager, Basic tools for uncompress zip file and killall command

Tip: Packages to install: lightdm, alacritty, zsh, zsh-syntax-highlighting, thunar, firefox-esr, feh, curl, git, psmisc, unzip

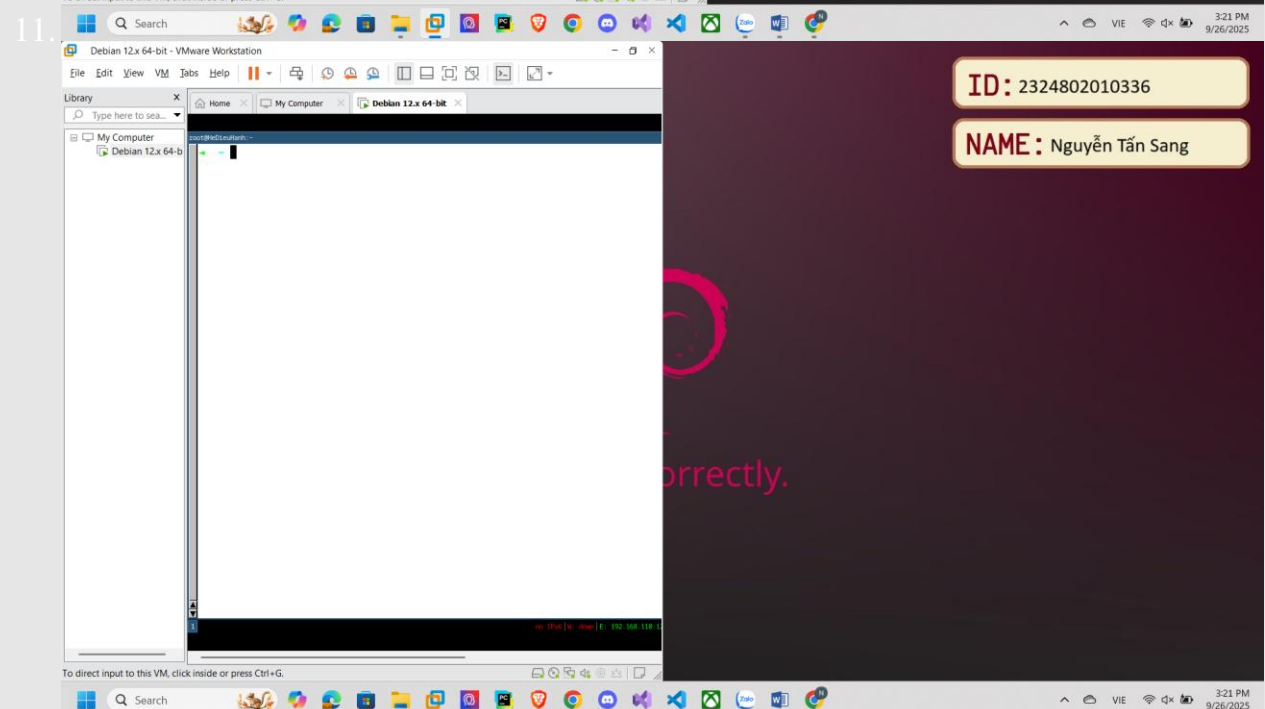
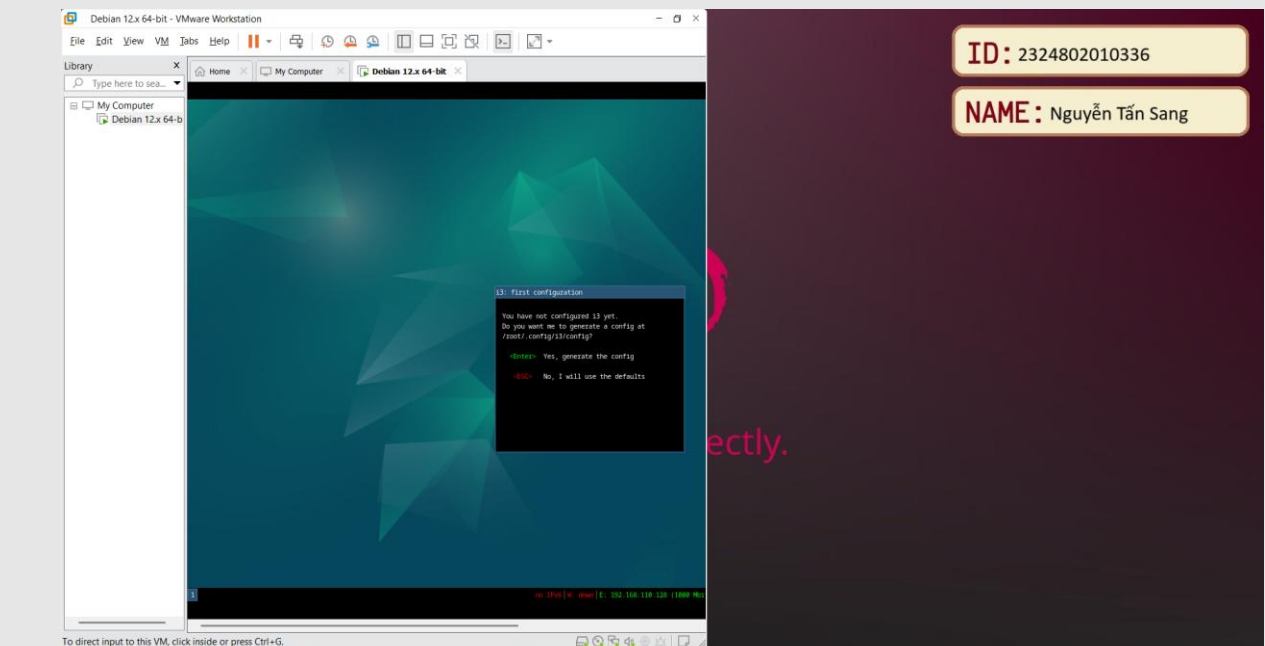
2.5 Reboot, login and first configuration

Tip: After reboot, login as root and configure i3wm for first times,

i3: First configuration ...

<Enter> Generate ...

→ <Win> <Enter>



3. Custom Linux Desktop (2 Point):

3.1 Edit i3 config file at ~/.config/i3/config

Tip: After login as ROOT, Open terminal by using <Window> + <Enter> , we can find some lines to change setting, add # and add new configuration line as below

```
#bindsym $mod+Return exec i3-sensible-terminal
bindsym $mod+Return exec alacritty --config-file
~/.config/alacritty.yml

#bindsym $mod+Shift+q kill
bindsym $mod+q kill

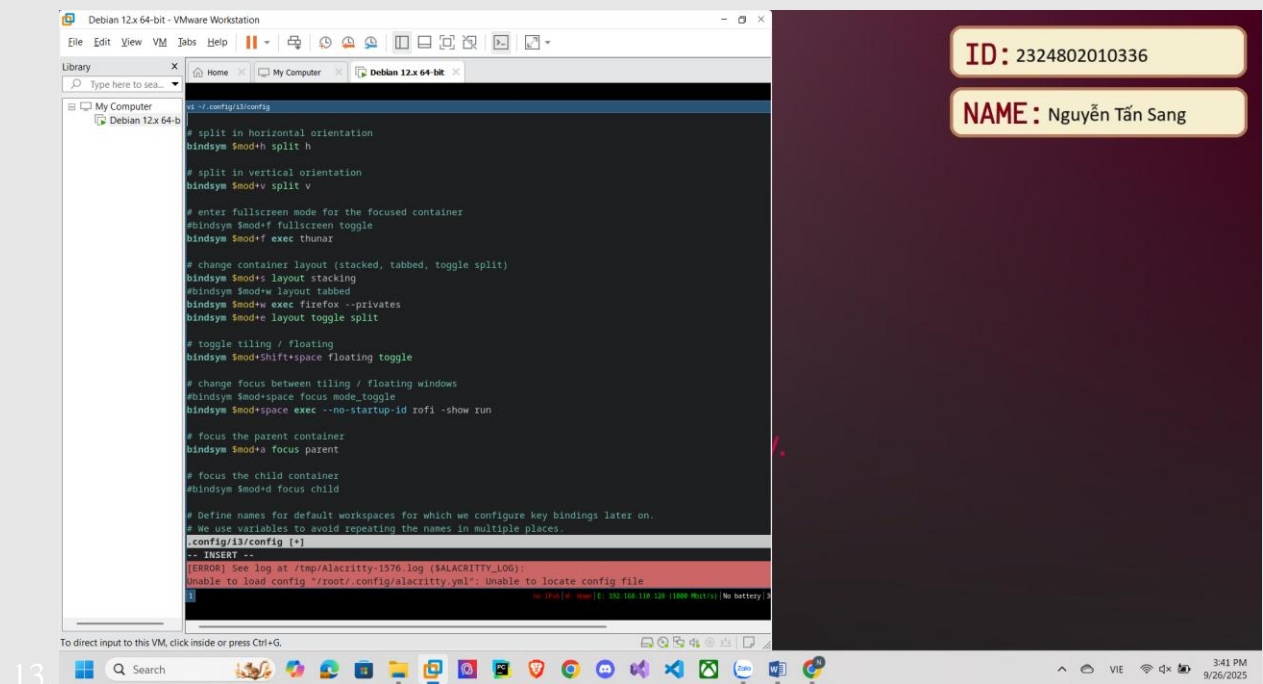
#bindsym $mod+d exec --no-startup-id dmenu_run
#bindsym $mod+f fullscreen toggle
bindsym $mod+f exec thunar

#bindsym $mod+w layout tabbed
bindsym $mod+w exec firefox --privates

#bindsym $mod+space focus mode_toggle
bindsym $mod+space exec --no-startup-id rofi -show run

##
exec ~/.config/i3/autostart.sh
new_window 1pixel
gaps inner 3
gaps outer 3
```

The lines after the `##` sign mean to add these lines to the end of the file content.



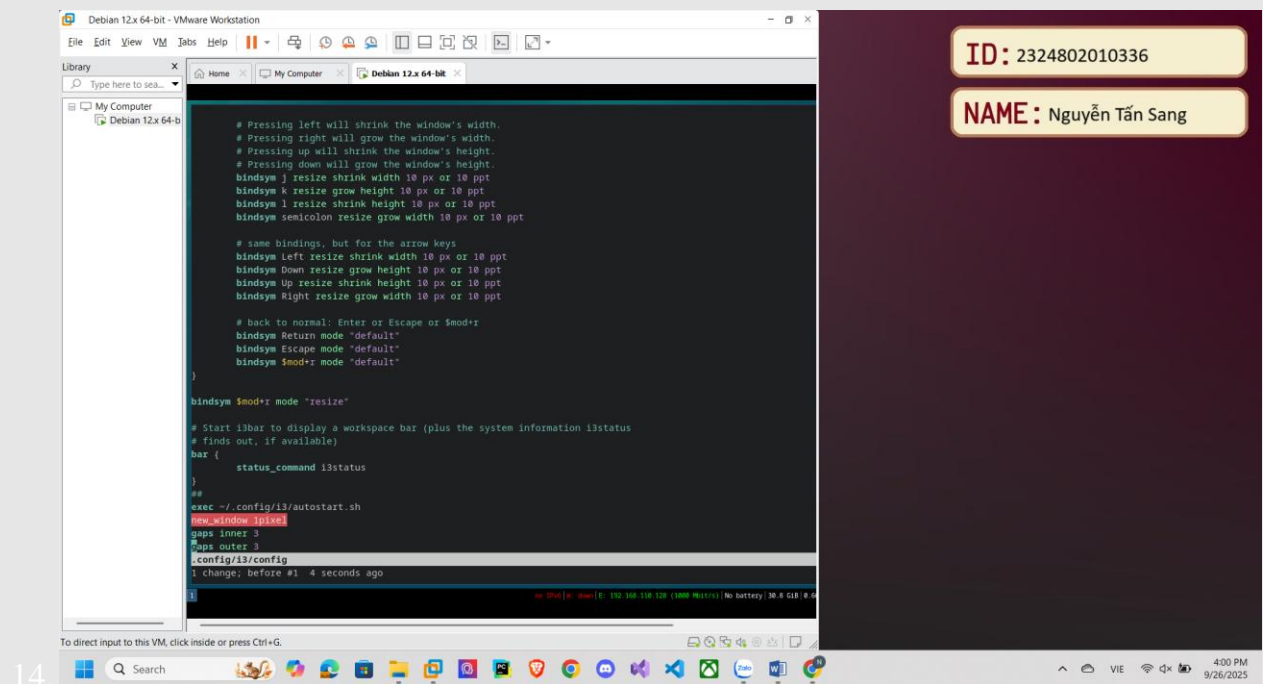
13. (màn hình đã chỉnh sửa của editor, đã chỉnh sửa xong)

3.2 Create file `~/.config/i3/autostart.sh`

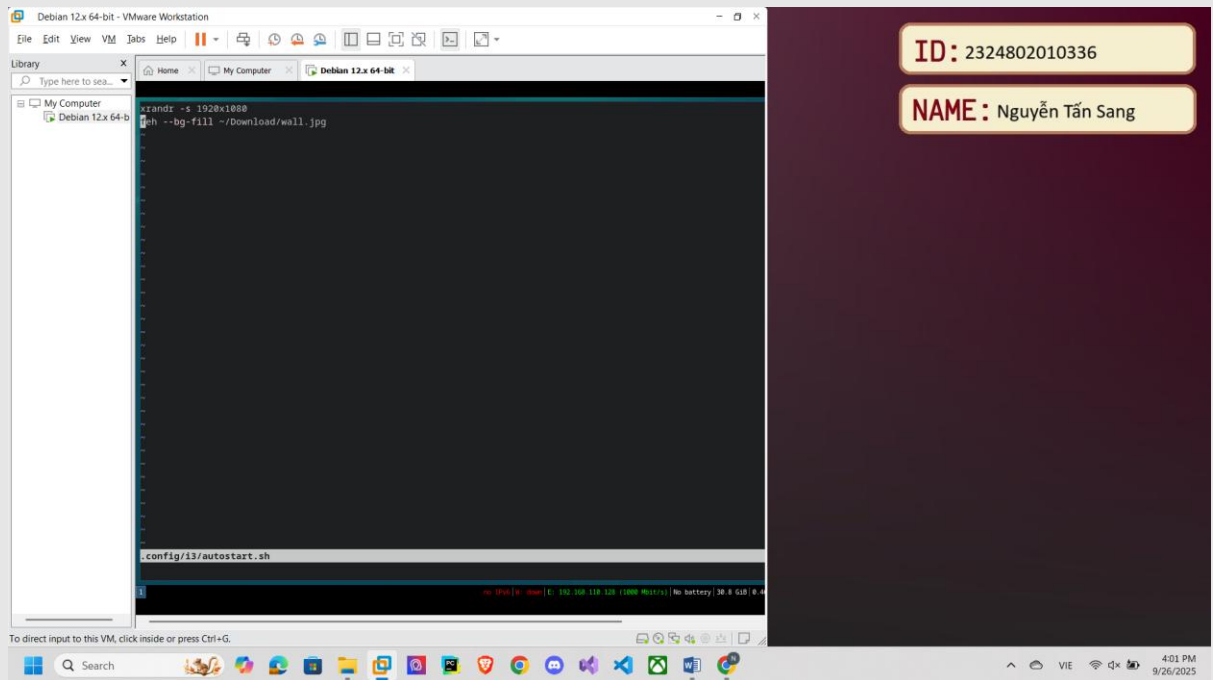
Tip: Using vim to creating new file `~/.config/i3/autostart.sh`

```
xrandr -s 1366x768
feh --bg-fill ~/Download/wall.jpg
```

The lines after the `##` sign mean to add these lines to the end of the file content.



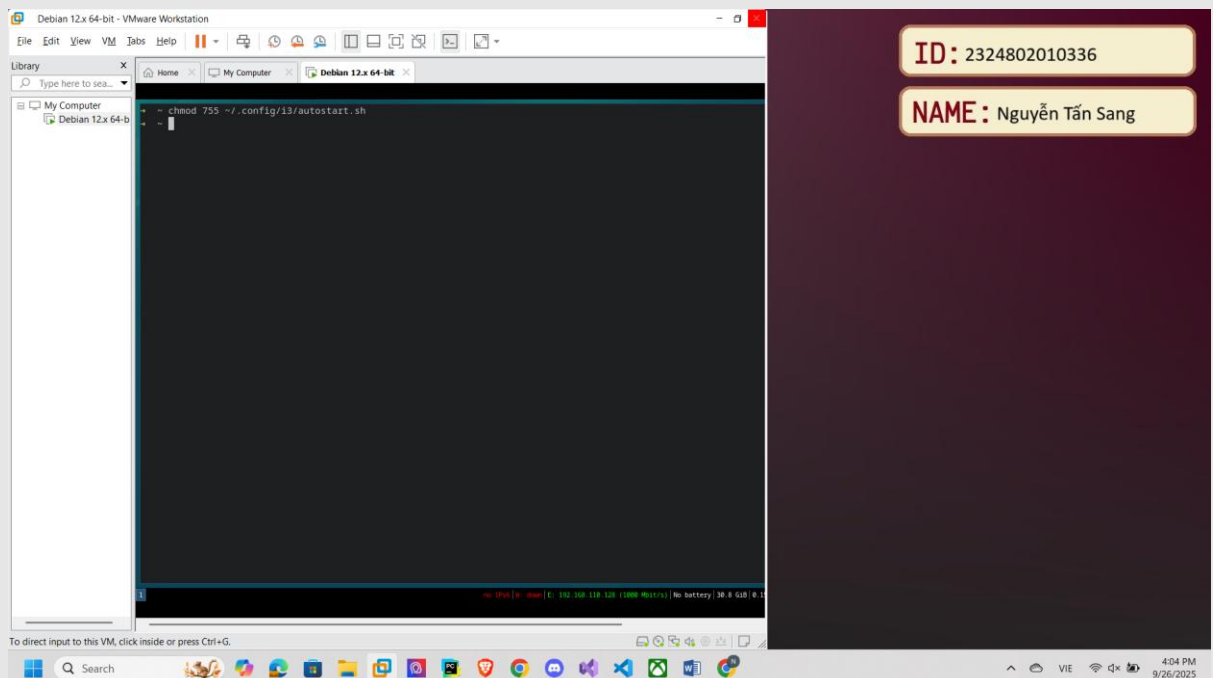
14.



15. (màn hình đã chỉnh sửa của editor, đã chỉnh sửa xong)

3.3 Add execute permission for file ~/.config/i3/autostart.sh

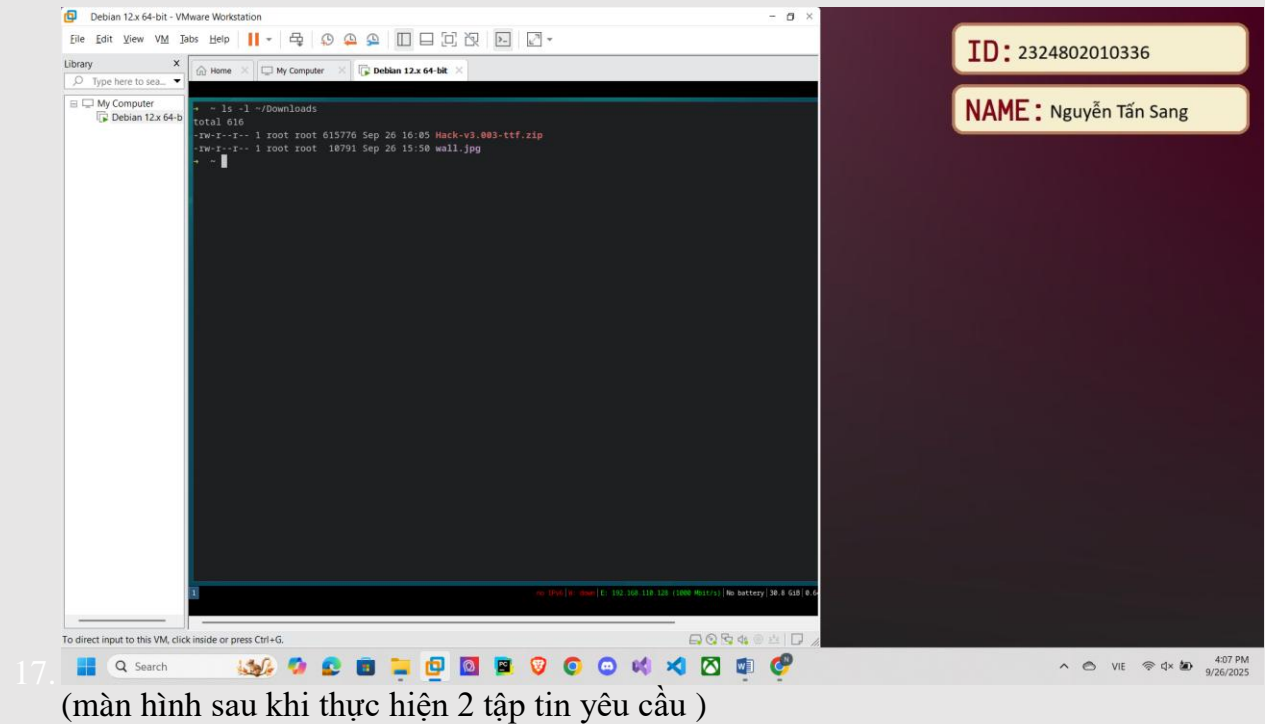
Tip: using chmod with 755 permission or +x permission



16. (màn hình sau khi thực hiện theo yêu cầu trên, dùng lệnh cho thấy quyền hiện tại của tập tin ~/.config/i3/autostart.sh)

- 3.4 Download new image with 1366x768 resolution on internet via firefox webbrowser. Download new font (Hack) on github.

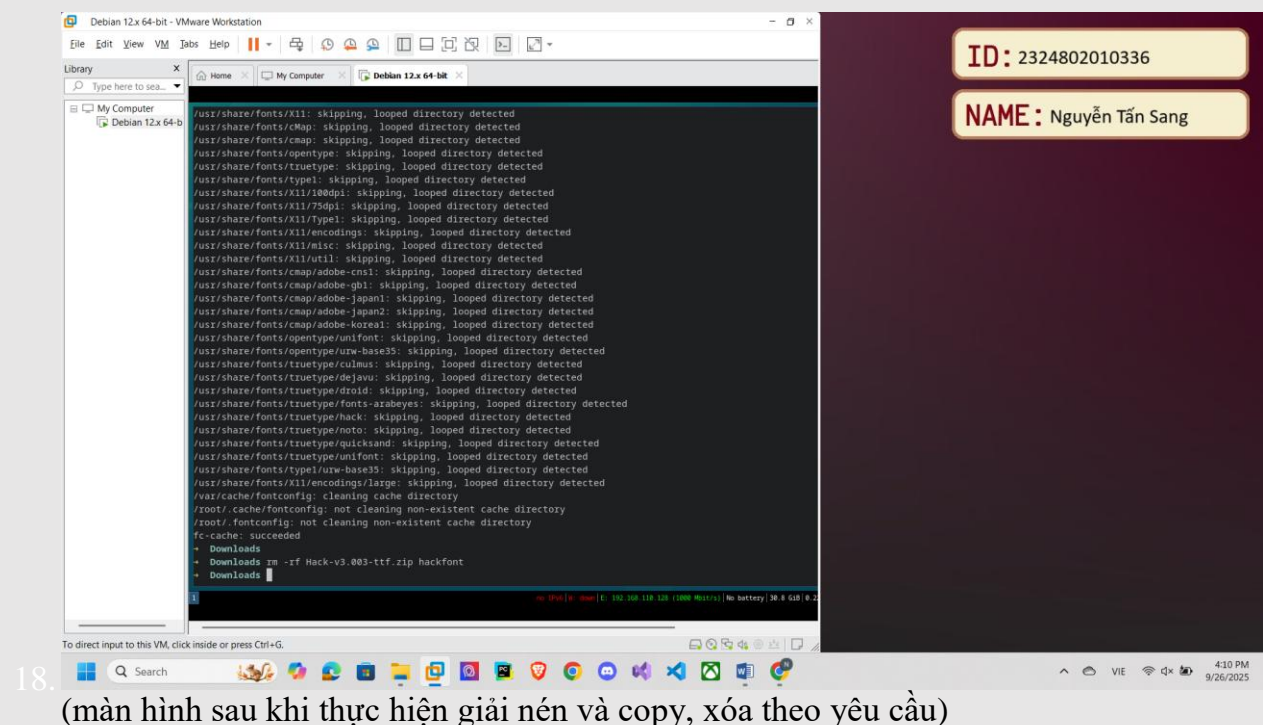
Tip: Open Web browser (firefox) by using <Window> + <w>



3.5 Install new font (Hack)

Tip: On terminal, following this commands:

```
cd ~/Downloads
unzip Hack-v3.003-ttf.zip -d hackfont
mkdir -p /usr/share/fonts/truetype/hack
cp hackfont/ttf/* /usr/share/fonts/truetype/hack/
fc-cache -fv
rm -rf Hack-v3.003-ttf.zip hackfont
```



4. Custom Linux Apps (3 Point):

4.1 Setting Alacritty Terminal font style and size

Tip: create new alacritty configuration file at ~/.config/alacritty.yml

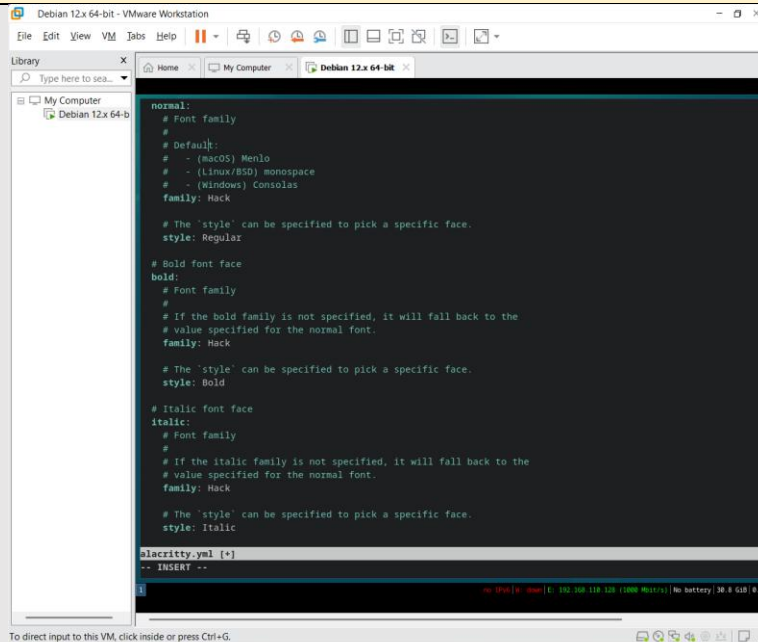
On terminal, following this commands:

```
cd ~/.config/
cp /usr/share/doc/alacritty/examples/alacritty.yml .
vi alacritty.yml
```

```
font:
  normal:
    family: Hack
    style: regular
  bold:
```

```
family: Hack
style: Bold
italic:
  family: Hack
  style: Italic
```

```
size: 18.9
```



```
normal:
# Font family
#
# Default:
# - (macOS) Menlo
# - (Linux/BSD) monospace
# - (Windows) Consolas
family: Hack

# The 'style' can be specified to pick a specific face.
style: Regular

# Bold font face
bold:
# Font family
#
# If the bold family is not specified, it will fall back to the
# value specified for the normal font.
family: Hack

# The 'style' can be specified to pick a specific face.
style: Bold

# Italic font face
italic:
# Font family
#
# If the italic family is not specified, it will fall back to the
# value specified for the normal font.
family: Hack

# The 'style' can be specified to pick a specific face.
style: Italic

blacritty.yml [+]
-- INSERT --
```

ID: 2324802010336

NAME: Nguyễn Tấn Sang

19.

(màn hình sau khi thực hiện chuyển font sang Hack)

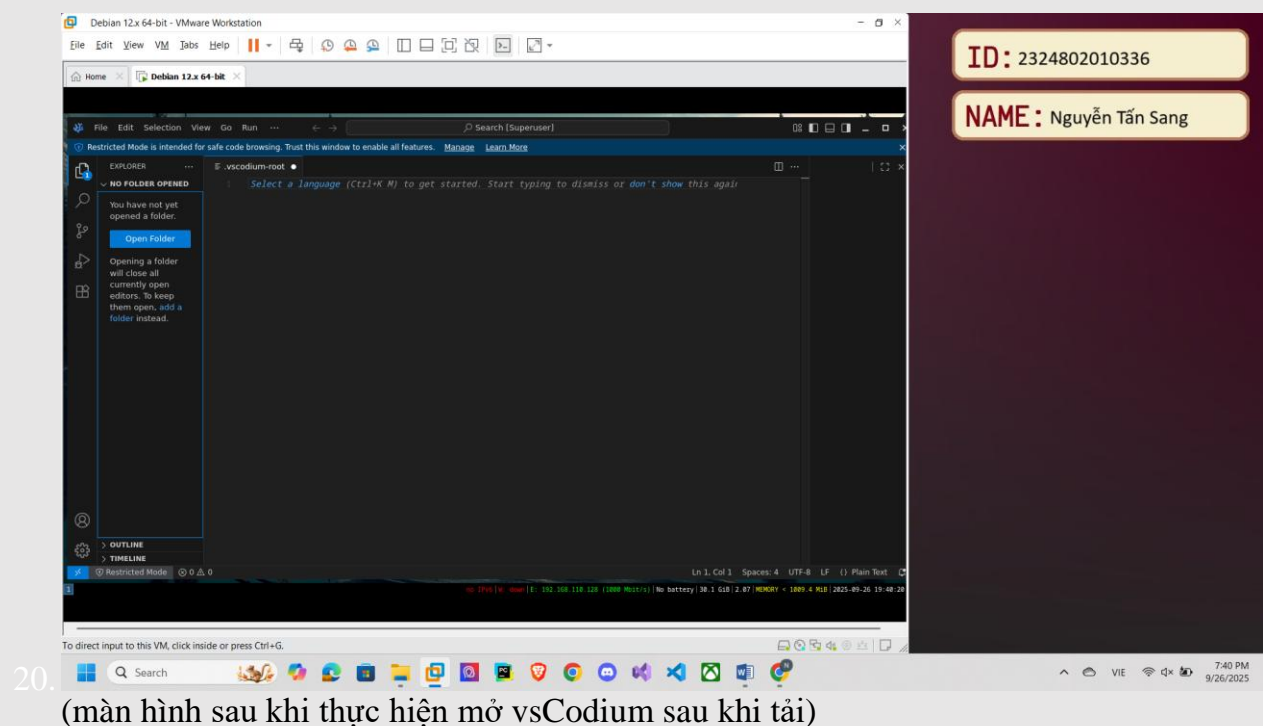
Tip: Reboot, after login as root we can

using <Windows> + <Q> to quit focus app, using <Windows> + <Shift> + <C> to reload i3 config file

using <Windows> + <Enter> to open Alacritty

4.2 How to install VSCodium

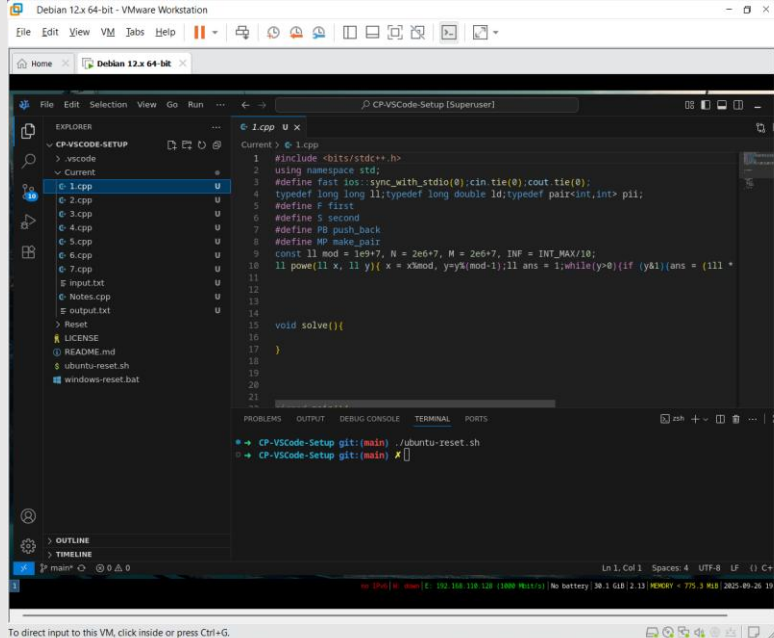
Tip: Using firefox and download .deb installer file on official visual studio code download page for linux. Using dpkg to insall .deb file.



4.3 How to config VSCodium for C++ competitive programming

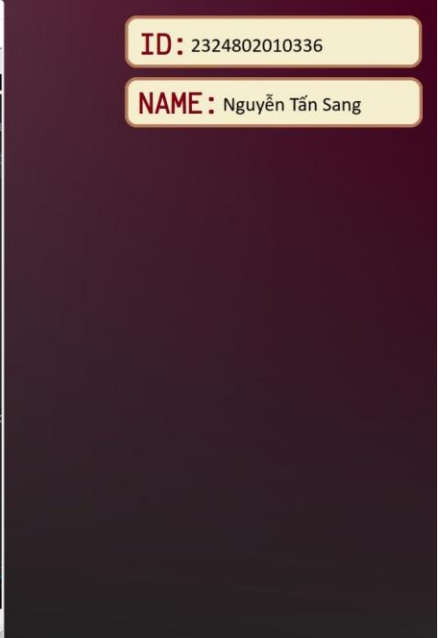
Tip: google “A Competitive Programming Setup (C++) in Windows and Ubuntu”

21.



The screenshot shows a VMware Workstation window titled "Debian 12.x 64-bit". Inside the VM, the VS Code editor is open with a file named "1.cpp". The code in the editor is a C++ program for competitive programming, featuring fast I/O, long long integers, and a sieve algorithm. The left sidebar shows the Explorer view with a folder named "CP-VSCode-Setup" containing files like "1.cpp", "2.cpp", "3.cpp", "4.cpp", "5.cpp", "6.cpp", "7.cpp", "input.txt", "Notes.cpp", "output.txt", "LICENSE", "README.md", "ubuntu-reset.sh", and "windows-reset.bat". The bottom status bar shows the file path "Ln 1, Col 1 Spaces: 4 UTF-8 LF (C++)".

22.



The screenshot shows a dark-themed background with two yellow boxes containing text. The first box contains "ID : 2324802010336" and the second box contains "NAME : Nguyễn Tấn Sang".

(màn hình sau khi thực hiện setup sẵn lập trình thi đấu cho c/c++)