Faculty of Computers and Artificial Intelligence

CS433: Internet of Things (IoT)

<u>Lab no 03 Part 1 – Intro Raspbian OS & Raspberry Pi</u>

This lab provides a basic guideline to install the Raspbian OS on the Raspberry Pi board and connect Raspberry Pi to a Wi-Fi network.

Parts: -

1. Download and Install Raspbian.

2. Create a Hotspot Network.

3. Connect Raspberry Pi Via Wi-Fi

4. Use VNC viewer to open Raspbian in Windows.

<u>Required Resources</u>

- Raspbian OS.
- Raspberry Pi imager.
- Putty application.
- Advanced IP Scanner.
- Virtual Network Computing (VNC).
- Raspberry Pi with a power adapter.
- SD card.

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Part 1: Download and Install Raspbian OS.

    a. Navigate to URL https://distrowatch.com/?newsid=11392 in your web browser and download Raspbian os.

    b. Navigate to URL https://www.raspberrypi.com/software/ in your web browser and download Raspberry pi imager to install Raspbian OS on an SD card.

- **Steps to Install Raspbian os in SD card**

    1. **Start** the Raspberry imager application. You should see the below screen,
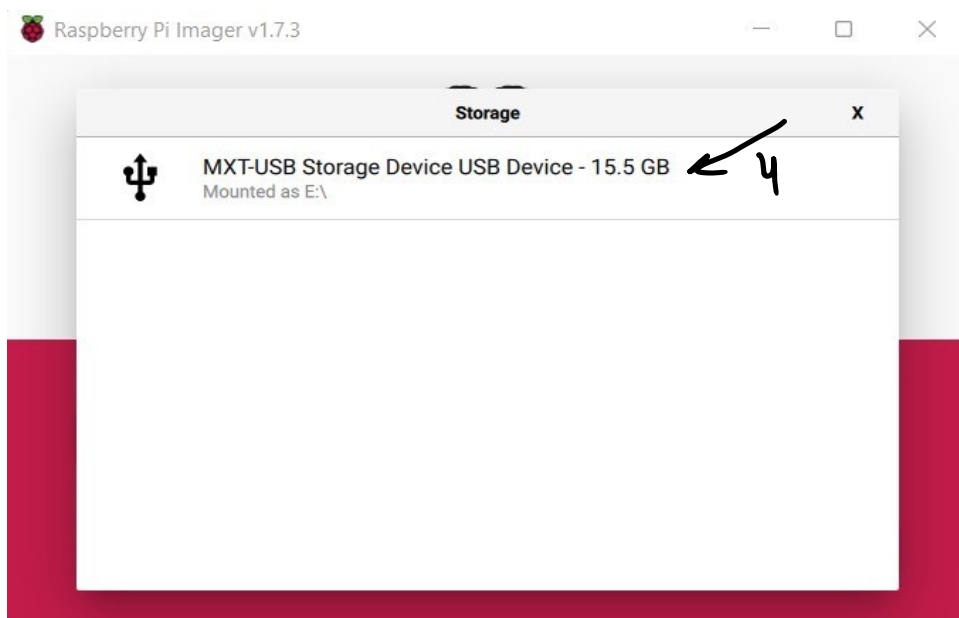
      Choose OS:
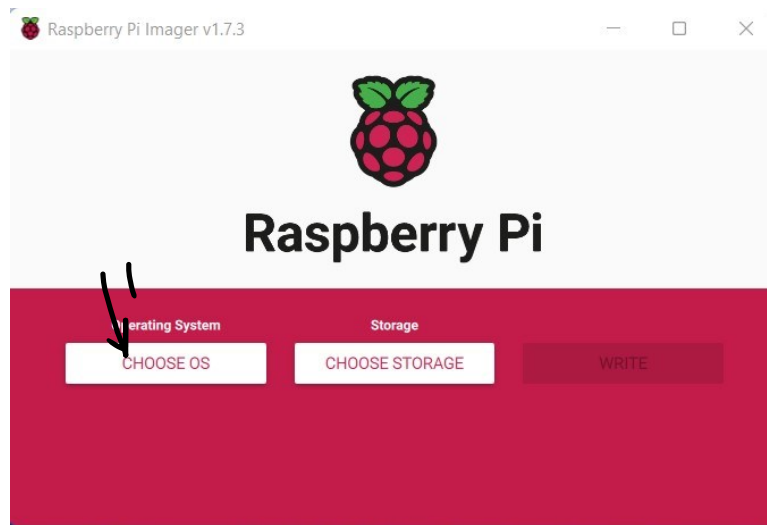
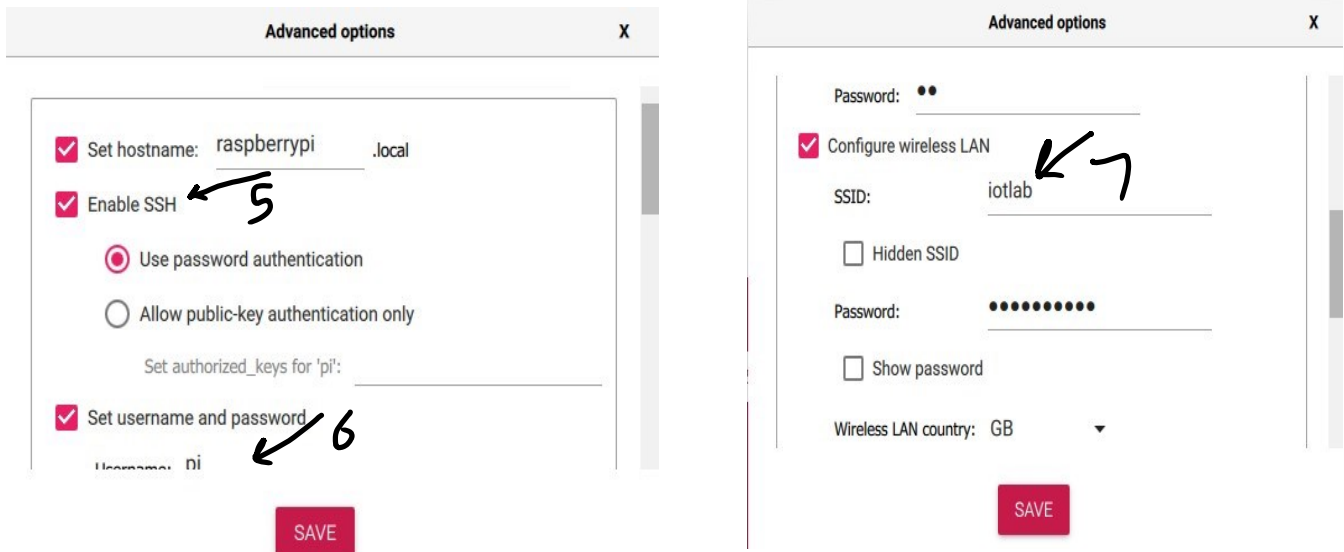   2. **Choose Use custom** image then choose Raspbian OS located on the computer.
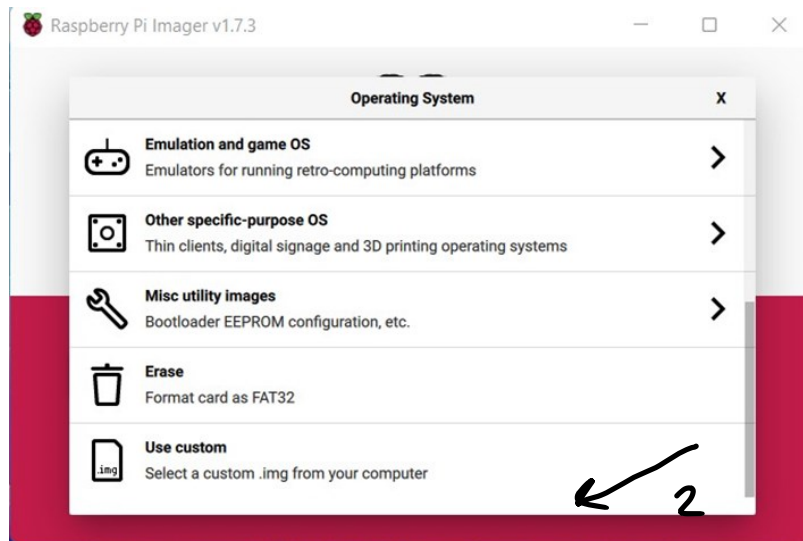
3. **Choose Storage** that SD card located.

4. **Choose SD** card to install Raspbian OS on the SD card.

5. **Configure** Settings of Raspberry Pi "**Username**", "**Password**", **Enable SSh**, and **Wi-Fi Setting.**
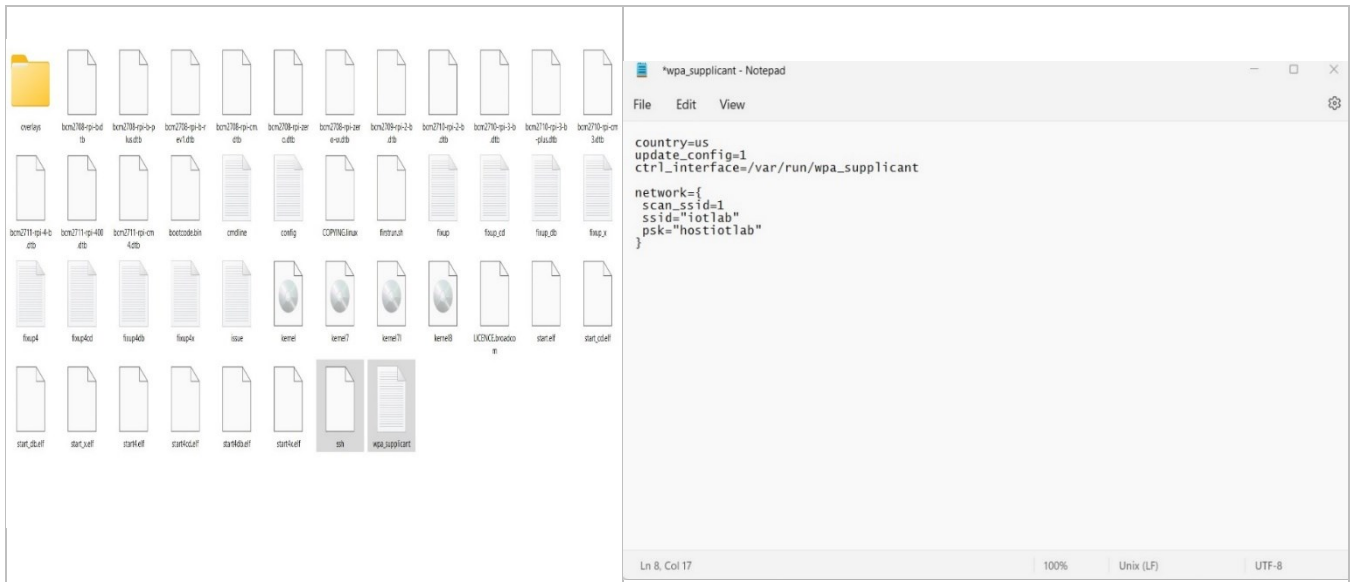
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6. **Write** Raspbian OS on the SD card.

7. After Raspbian OS installation, **Open** the SD card and add these files (SSh, WPA supplicant)

Note: WPA supplicant obtain the Wi-Fi configuration, Open this file and add the SSID and password of Wi-Fi that will be created in part 2
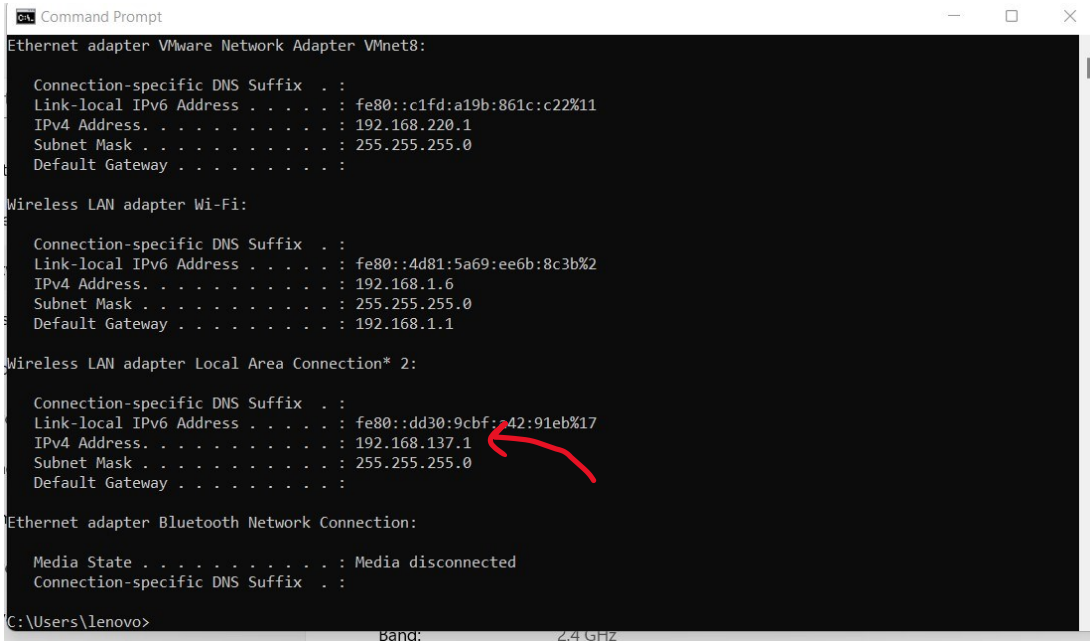
Part 2: Create a Hotspot Network.

1. **Open Network and internet** from search in windows,
   Open the **mobile hotspot** and **activate it**, then
   Edit properties, enter the SSID and password of the network and choose the **2.4 band**.
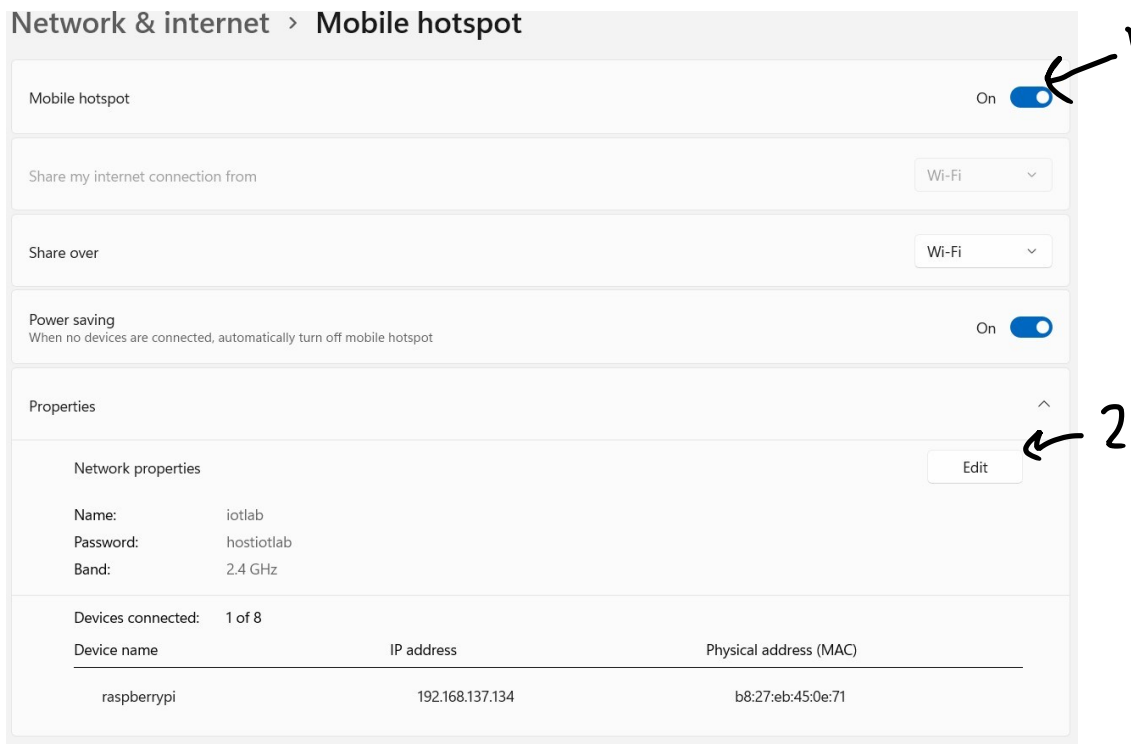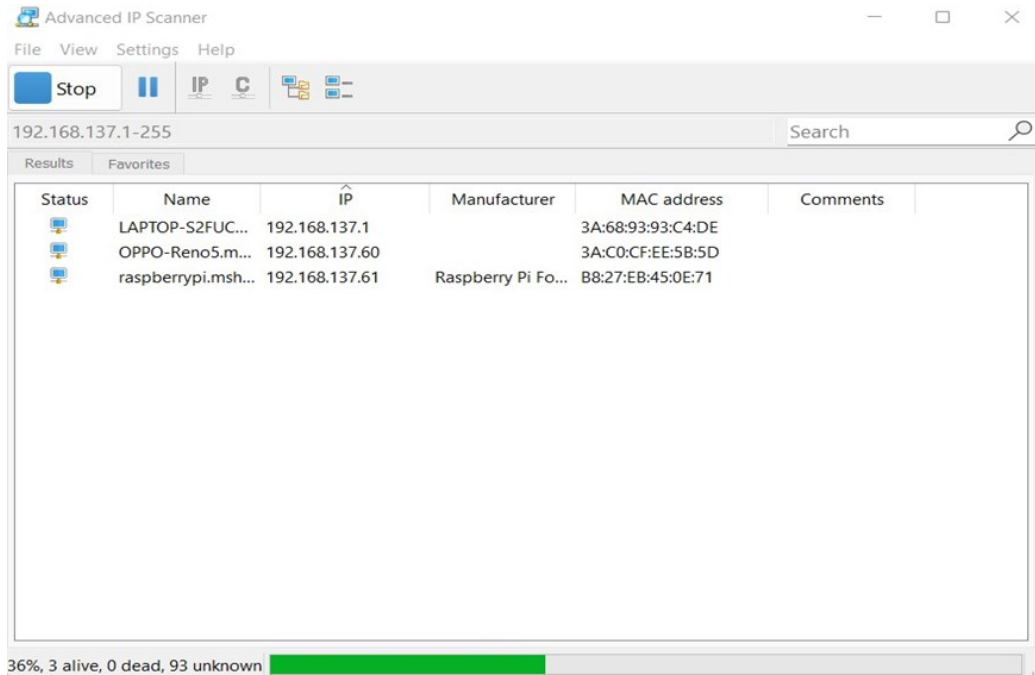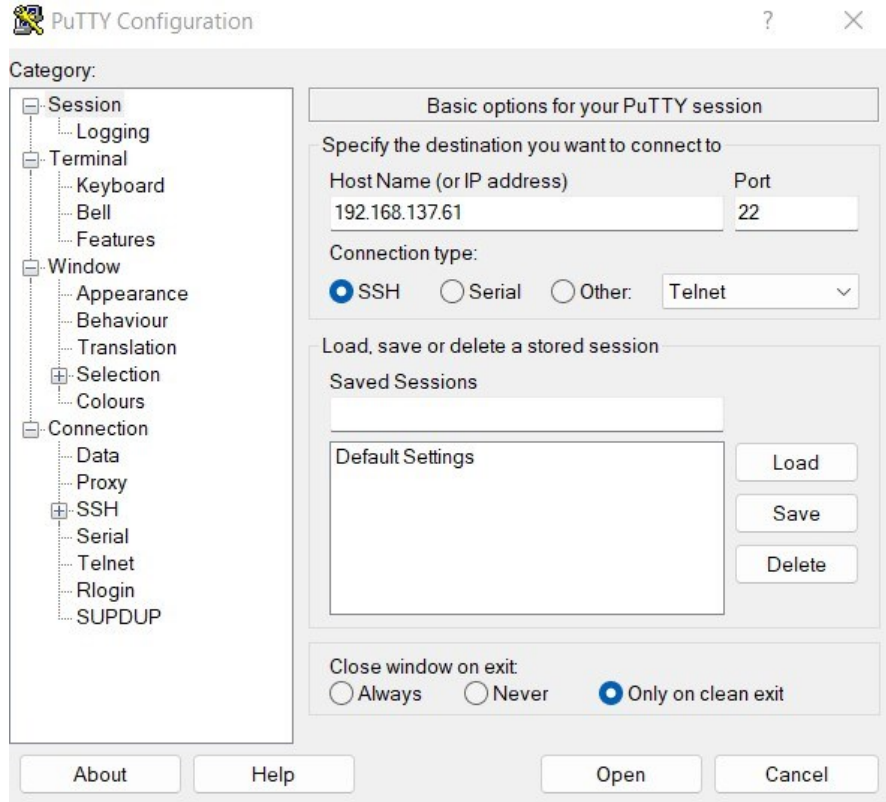
Part 3: connect Raspberry Pi Via Wi-Fi

1. Open **cmd** and write **ipconfig** to get the network IP address.

2. Copy the network **IP address** and open the **IP scanner program** to search for the **Raspberry IP address (192.168.137.61)**.
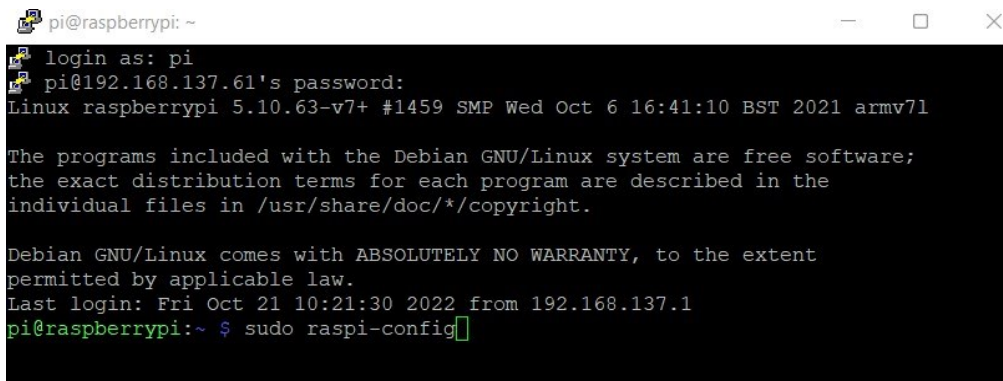
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3. **Open** the **PuTTY program**

    Add raspberry **IP address (192.168.137.61)** in **hostname** and click **Open**.
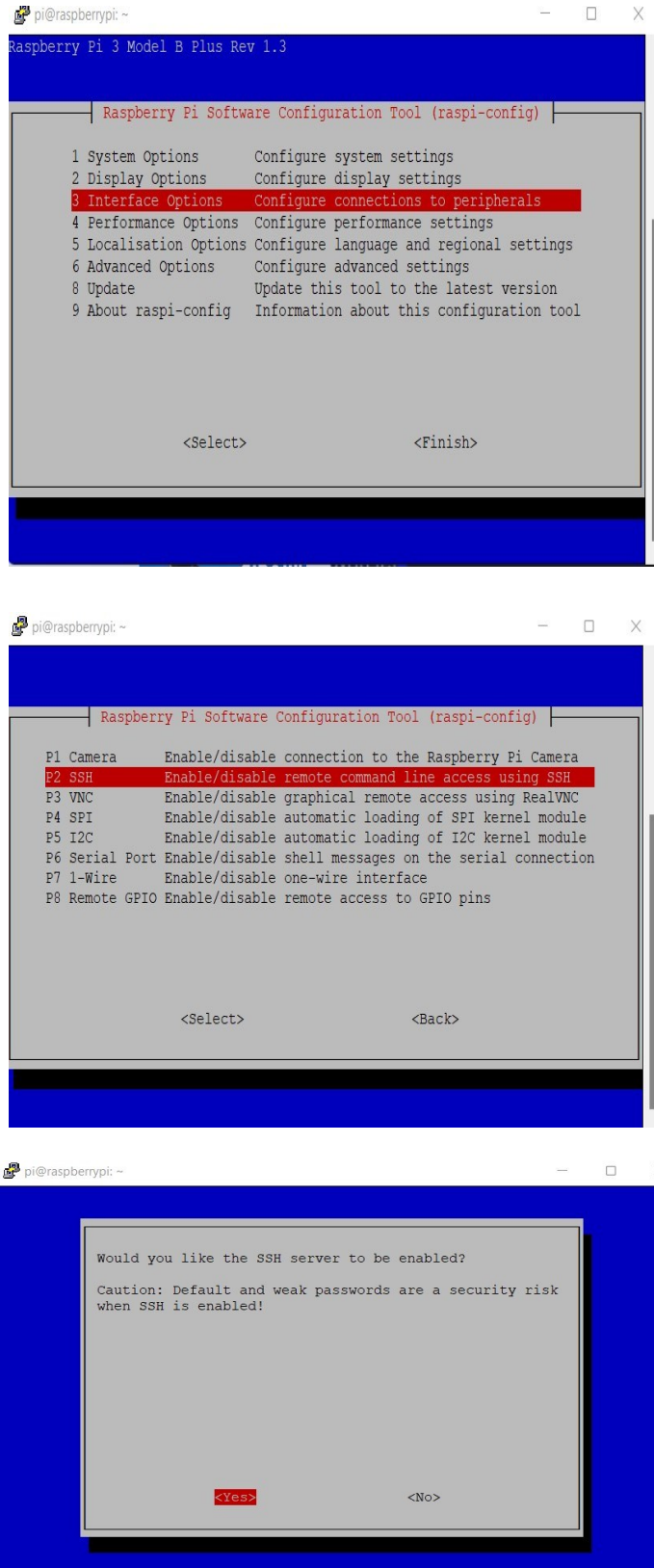

4. **Connect** to Raspberry Pi and Enter the password of the Raspberry Pi.

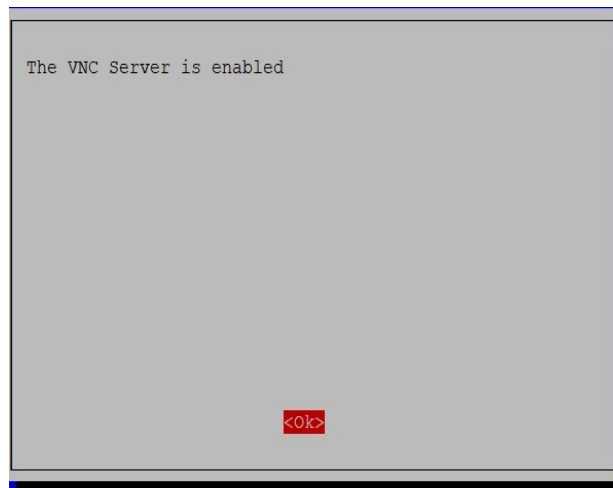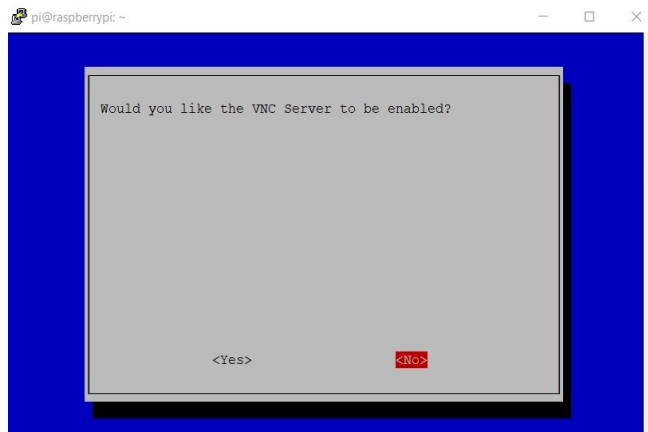5. **Write** in PuTTY terminal: command **sudo raspi-config** to configure the setting of the Raspberry Pi.

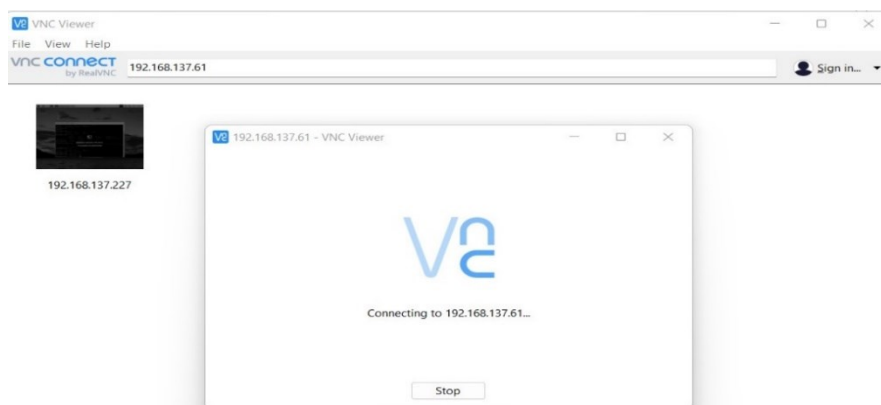6.   **Click** on **interface options**, **enable SSh,** and **click ok**.

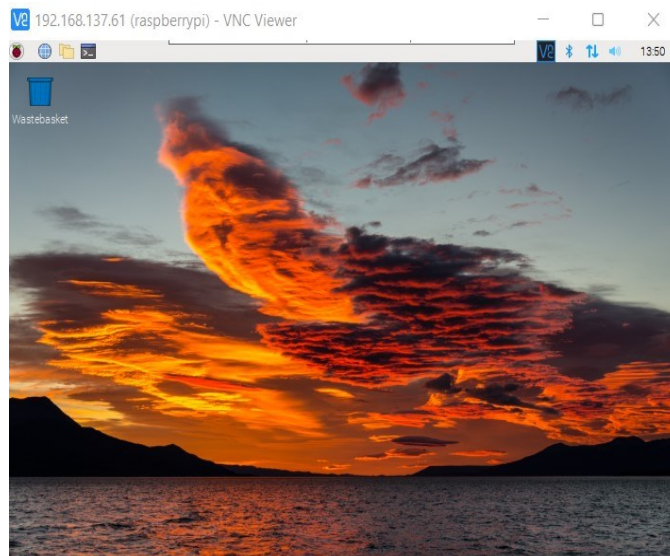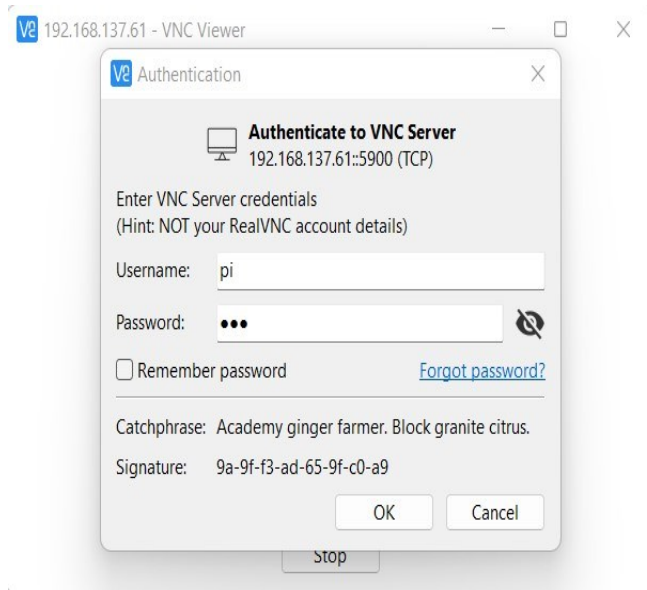7.   Click on **interface options, Enable VNC, and click ok**

Part 4: using VNC viewer to open Raspbian in Windows.

1. Open **VNC viewer**, enter raspberry Ip address 192.168.137.61 and **connect**.

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2. Enter raspberry **username** and **password** the open Raspbian os.

Resources:

- Setup Video link https://www.youtube.com/watch?v=MQVVSxXKLGI
- Raspbian OS link https://distrowatch.com/?newsid=11392
- Programs link https://drive.google.com/file/d/1NHtVy78JDU6kUVAMOoV5Jl-4WdkRl_7F/view?usp=sharing