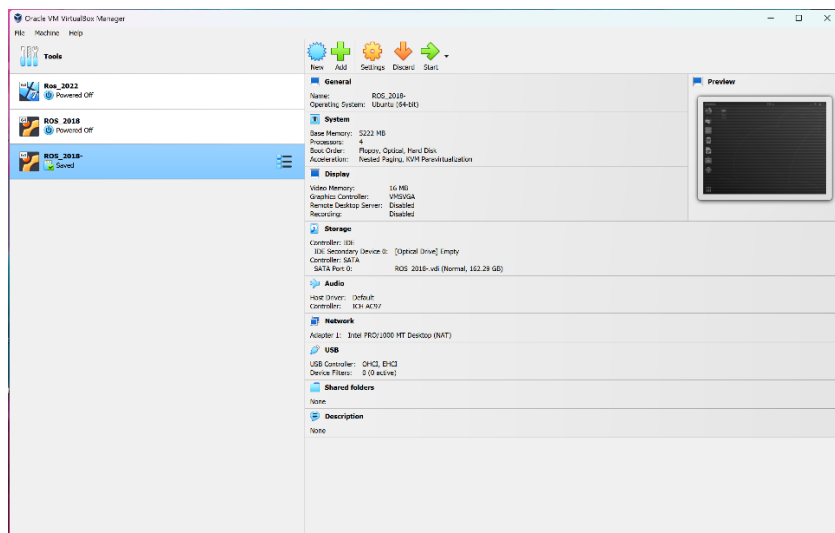


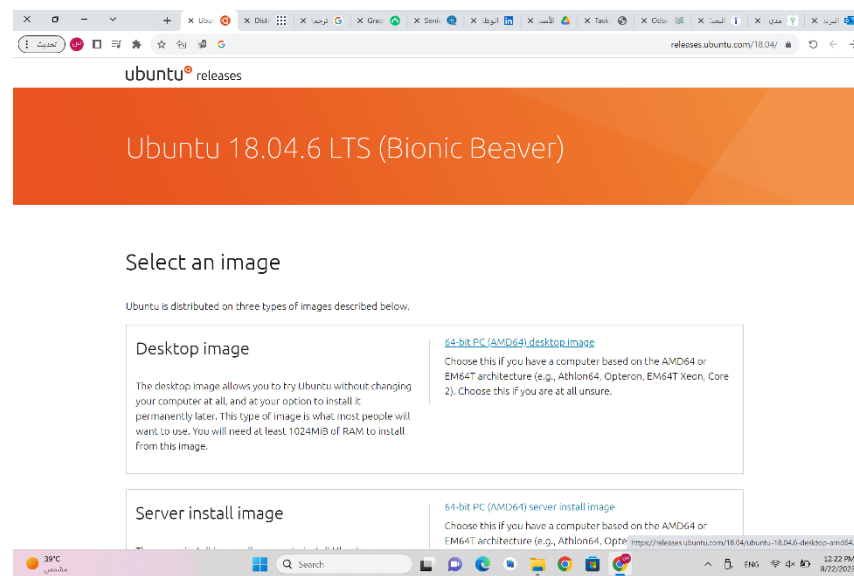
# 1/Downloading and Installing Oracle VM VirtualBox



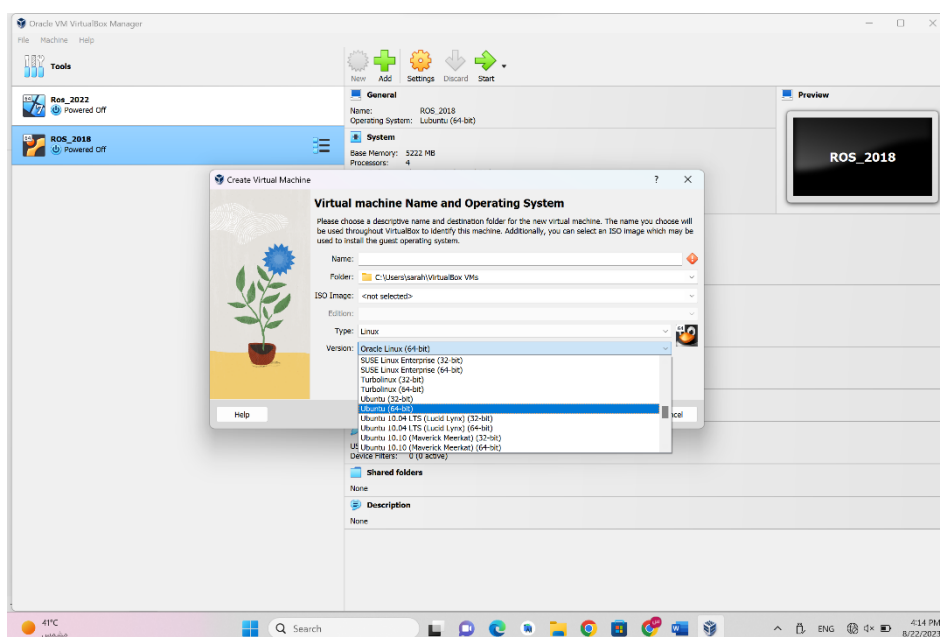
## 2/Downloading and Installing Ubuntu 18

my Computer are:

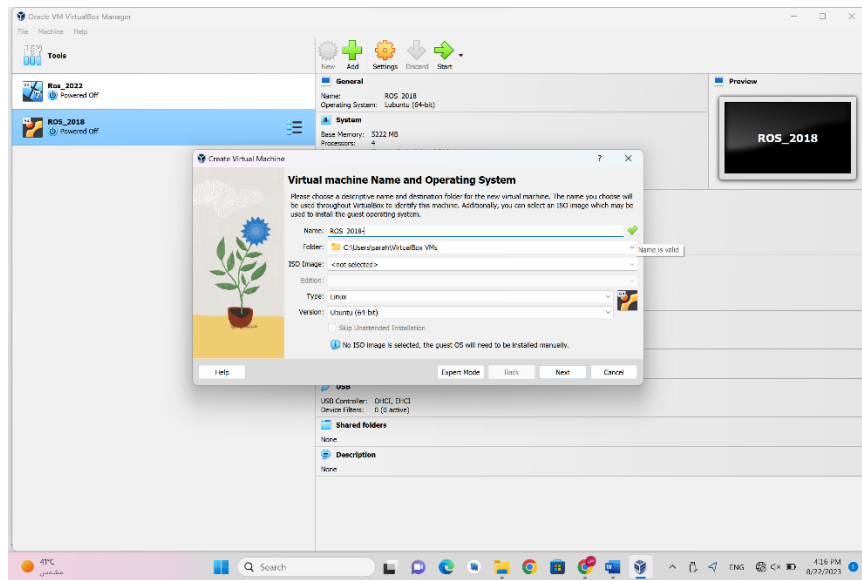
- Windows 11- 64 bit
- Intel Core i5
- RAM capacity with 8 GB



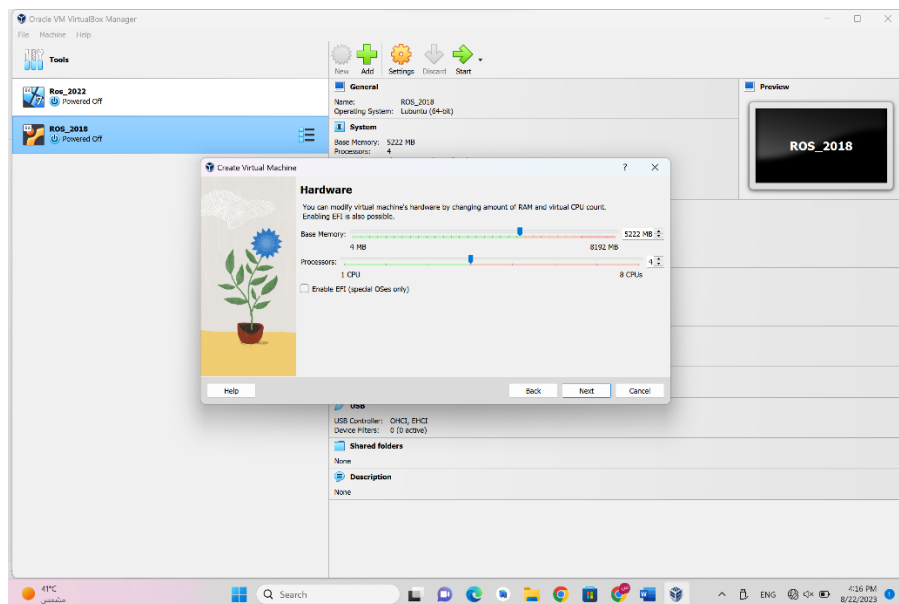
I chosed Ubuntu 64 bit

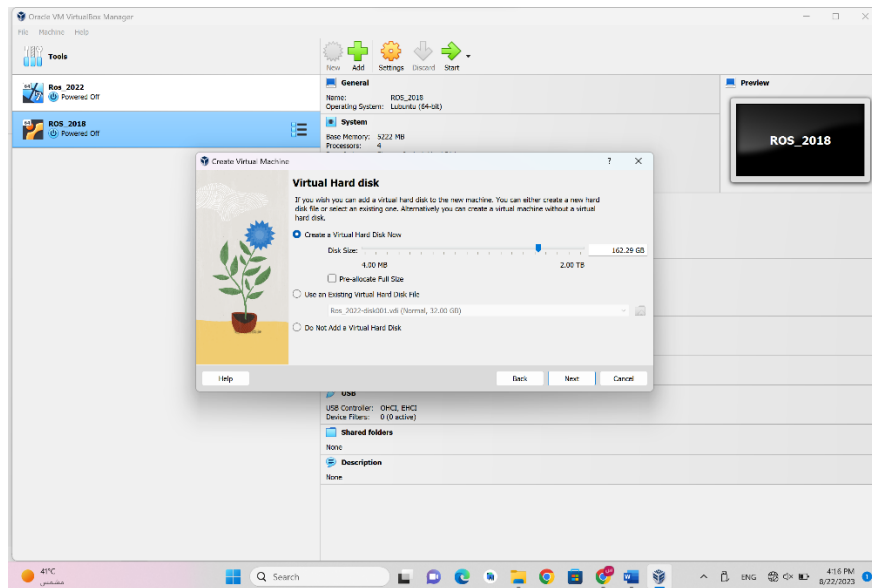


Writing name of the virtual machine

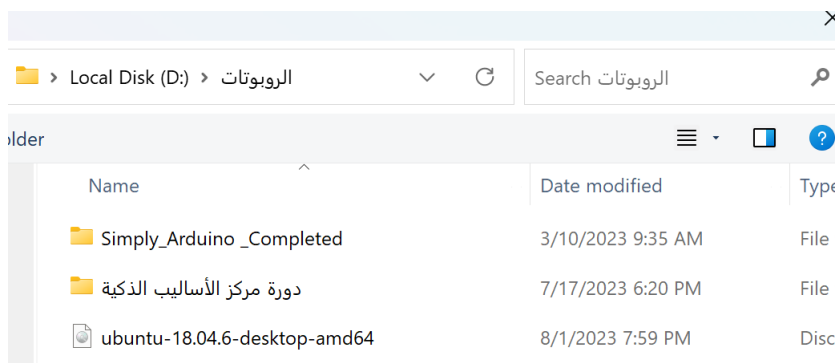


I increased setting until up range

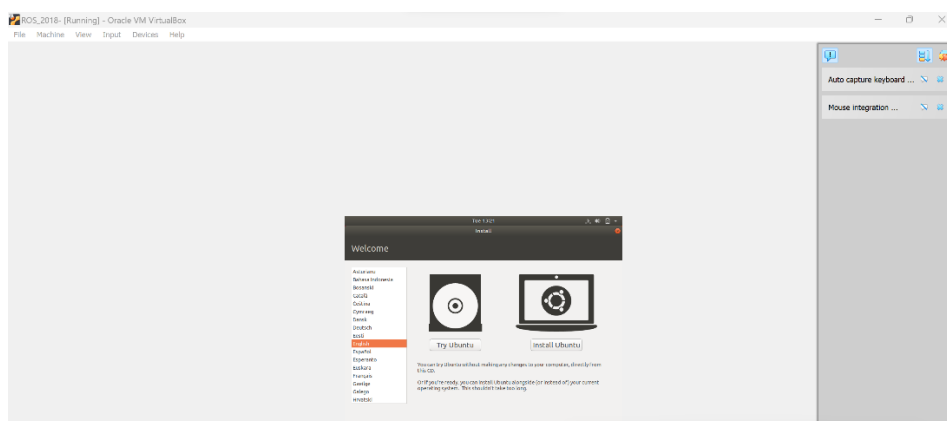


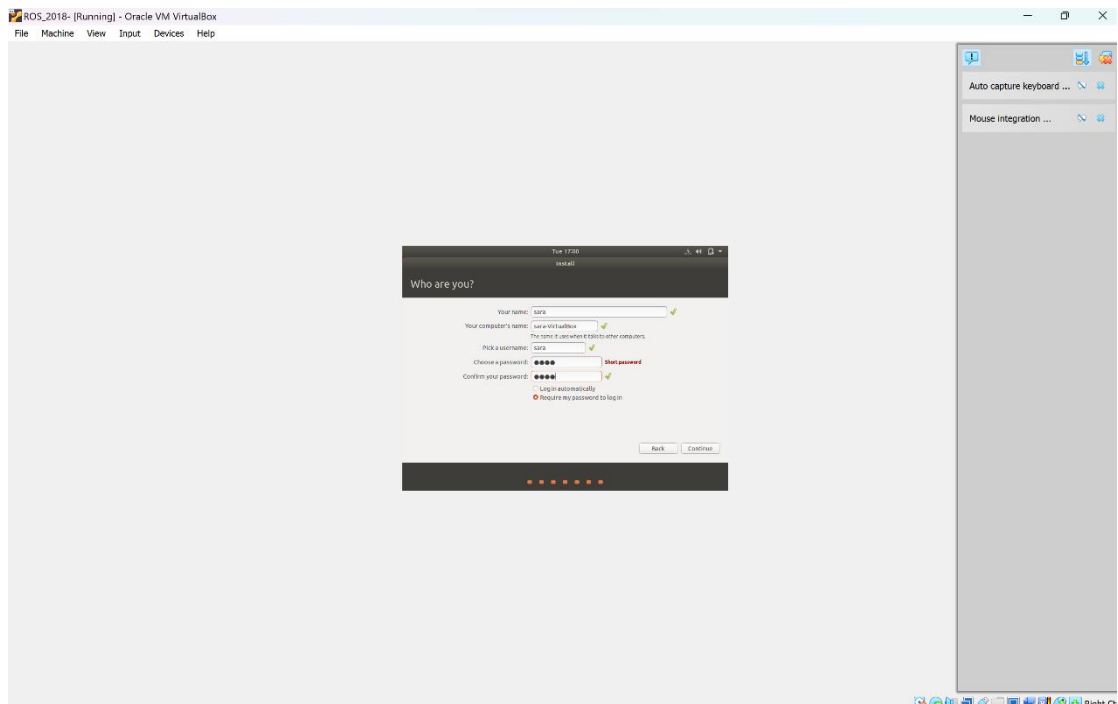
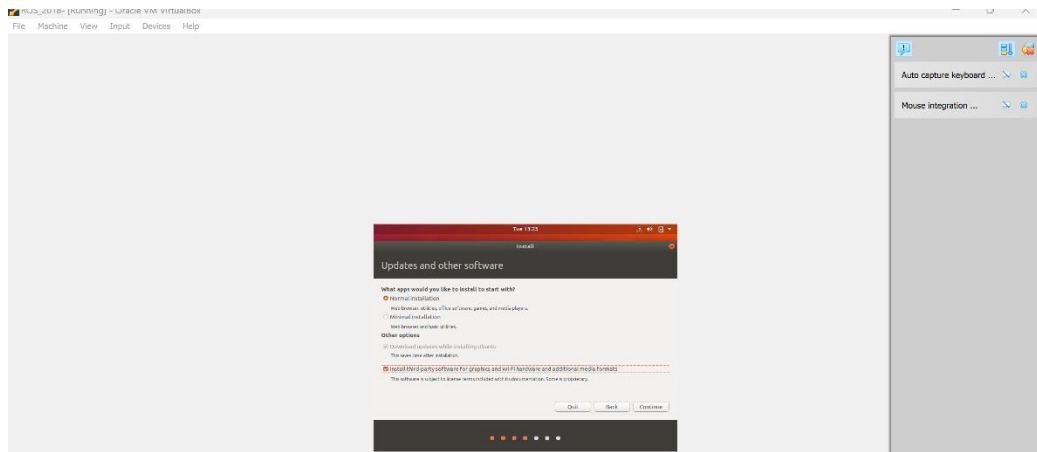


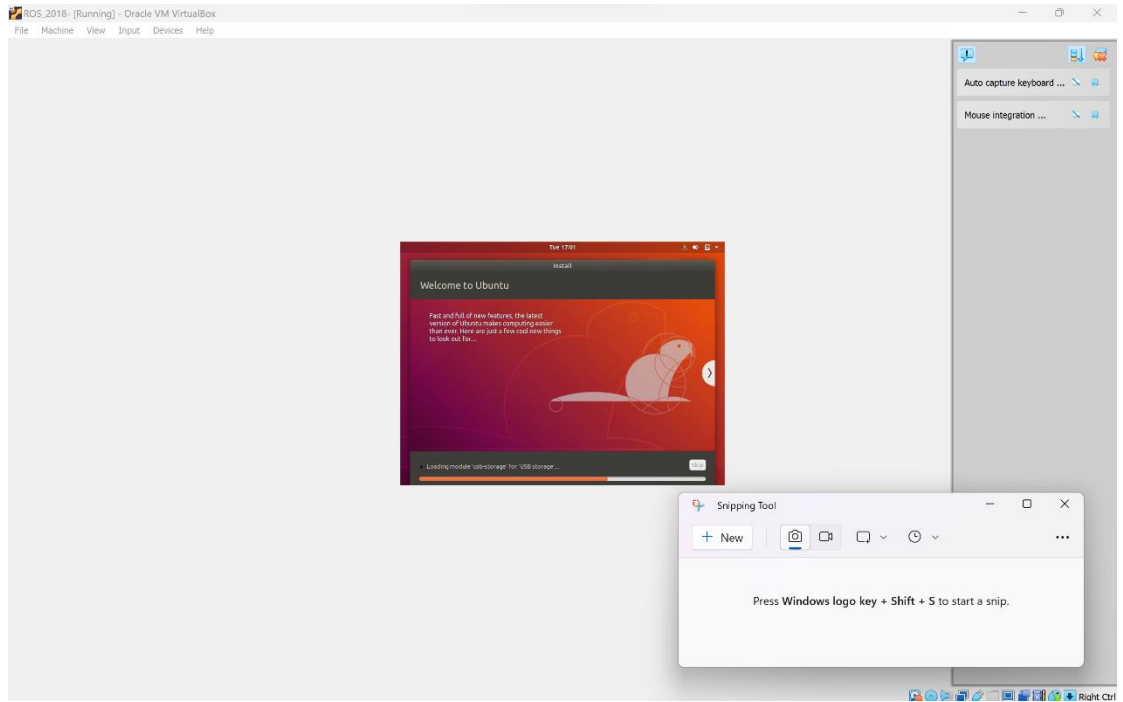
Pressing on add then choosing ubuntu 18 file

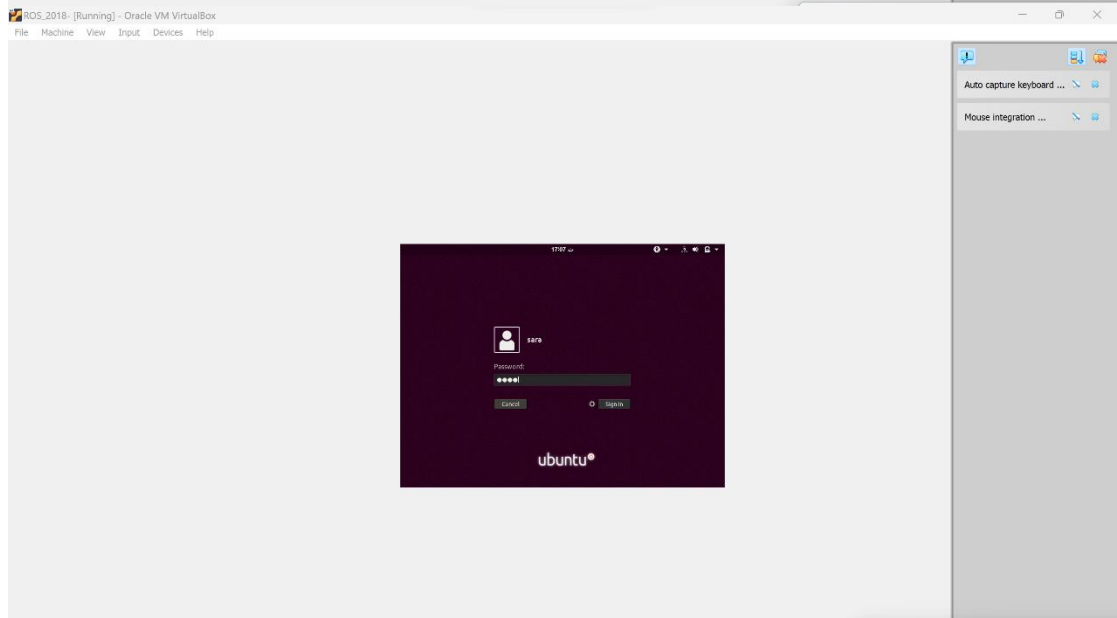
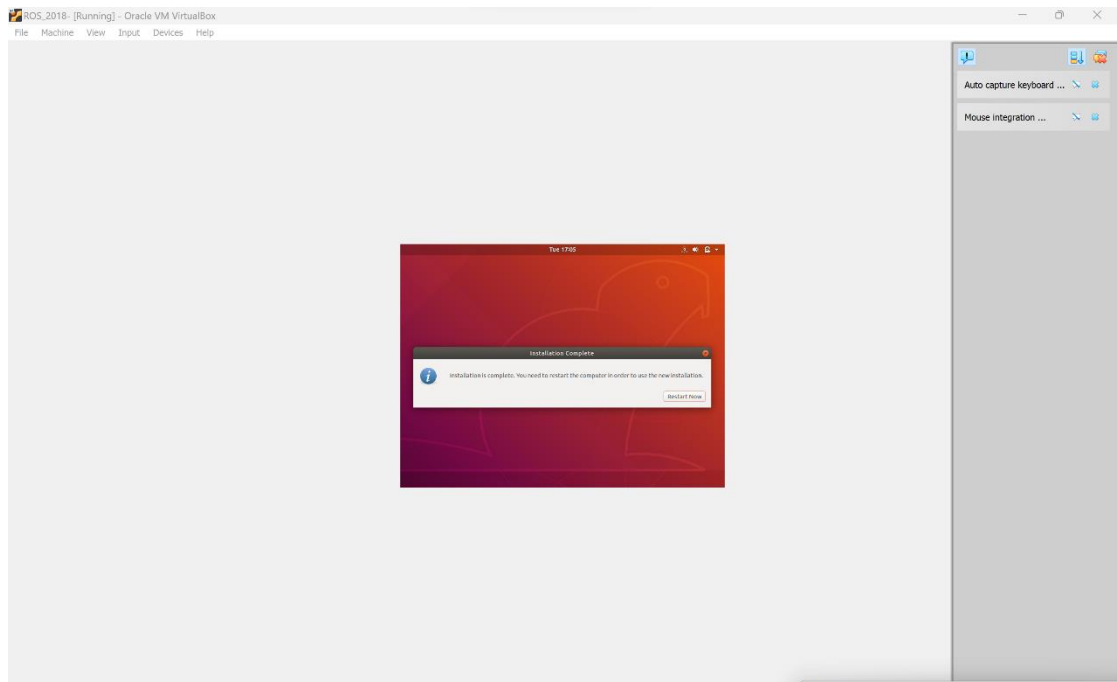


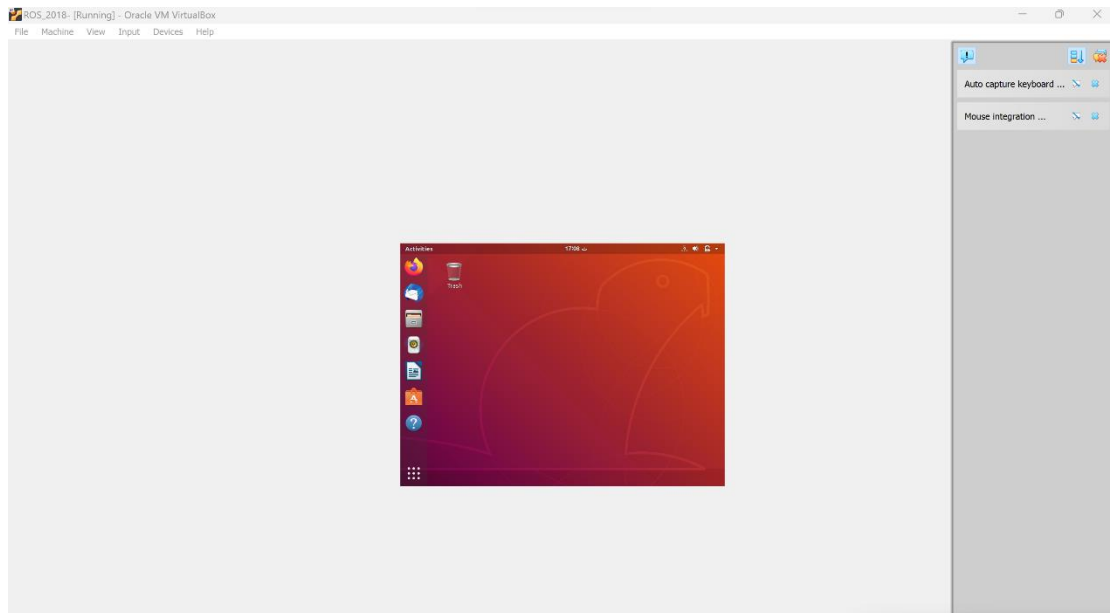
I completed installation





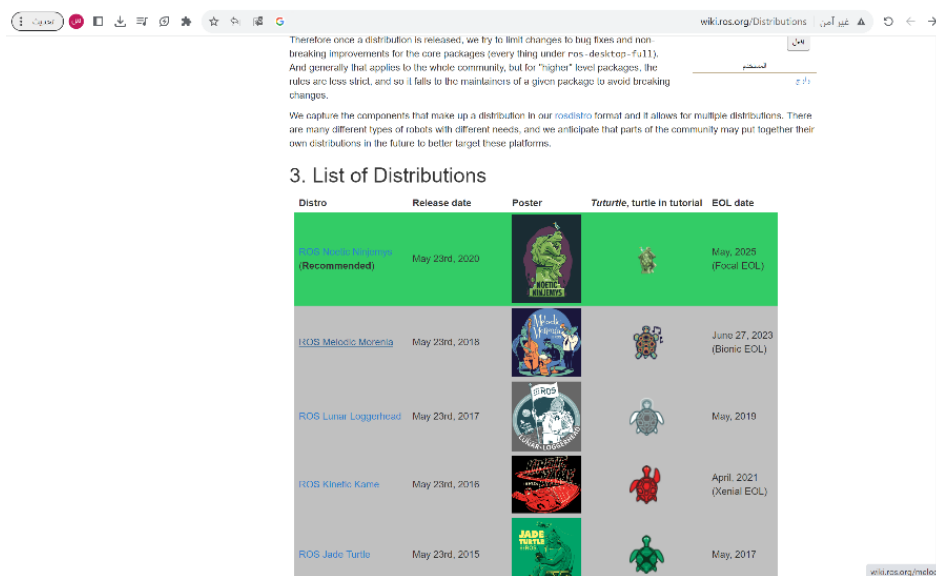






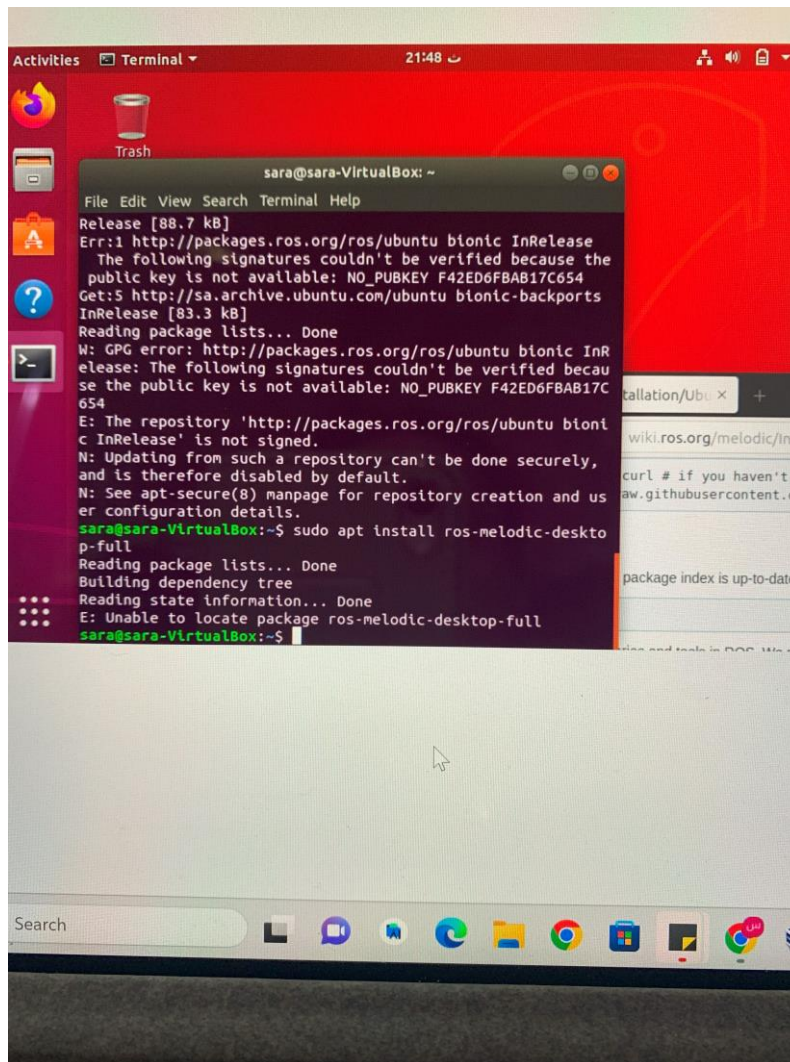
### 3/ Installation ROS

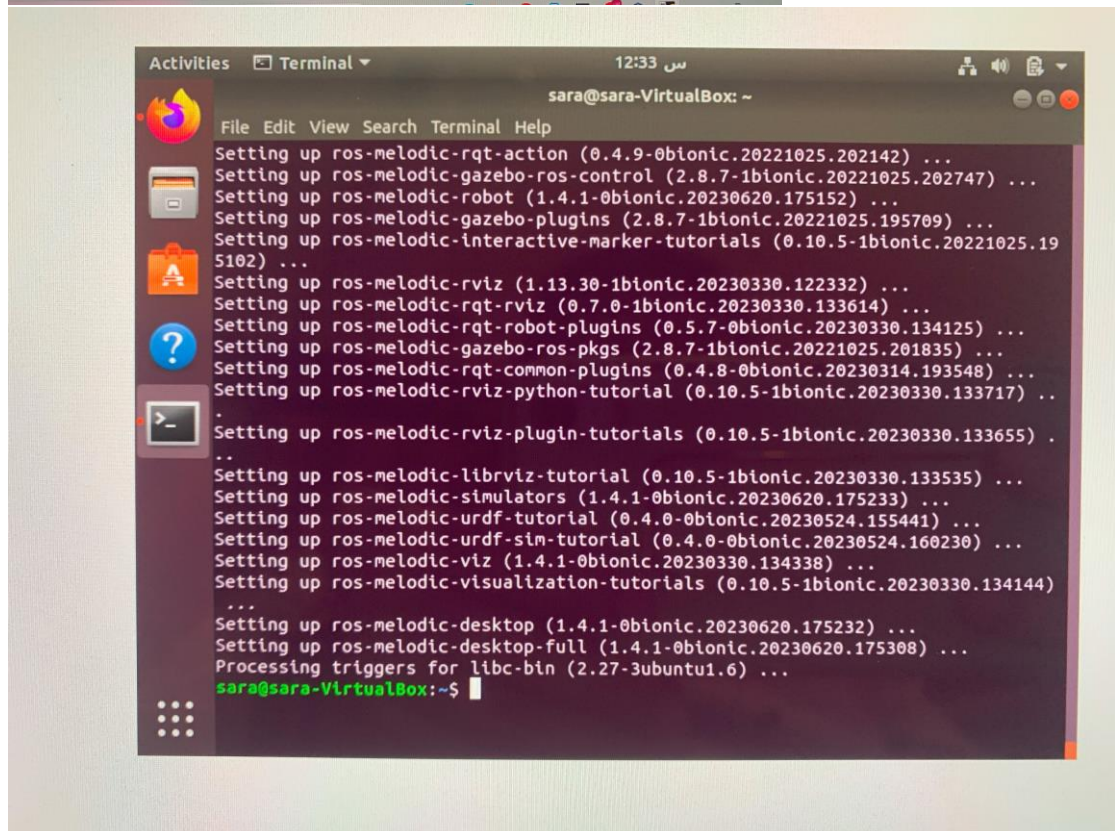
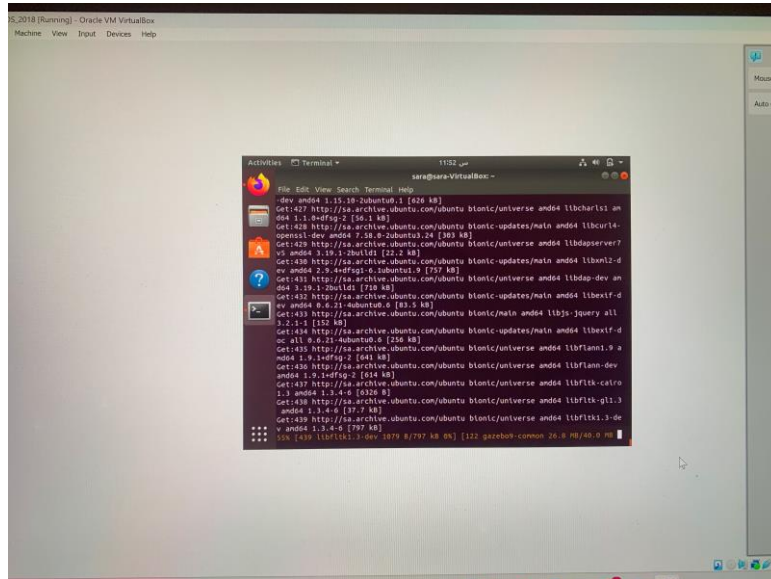
I installed melodic version that with ubuntu 18



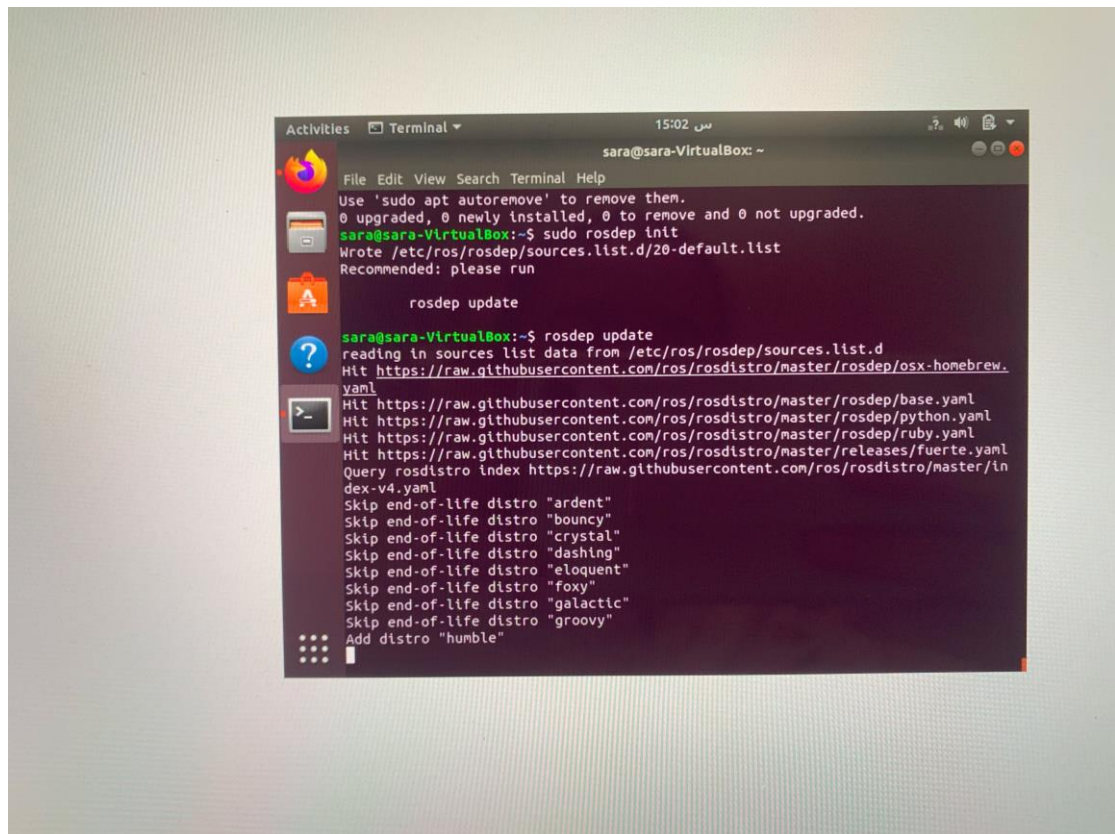
Opening Terminal and writting installation instructions



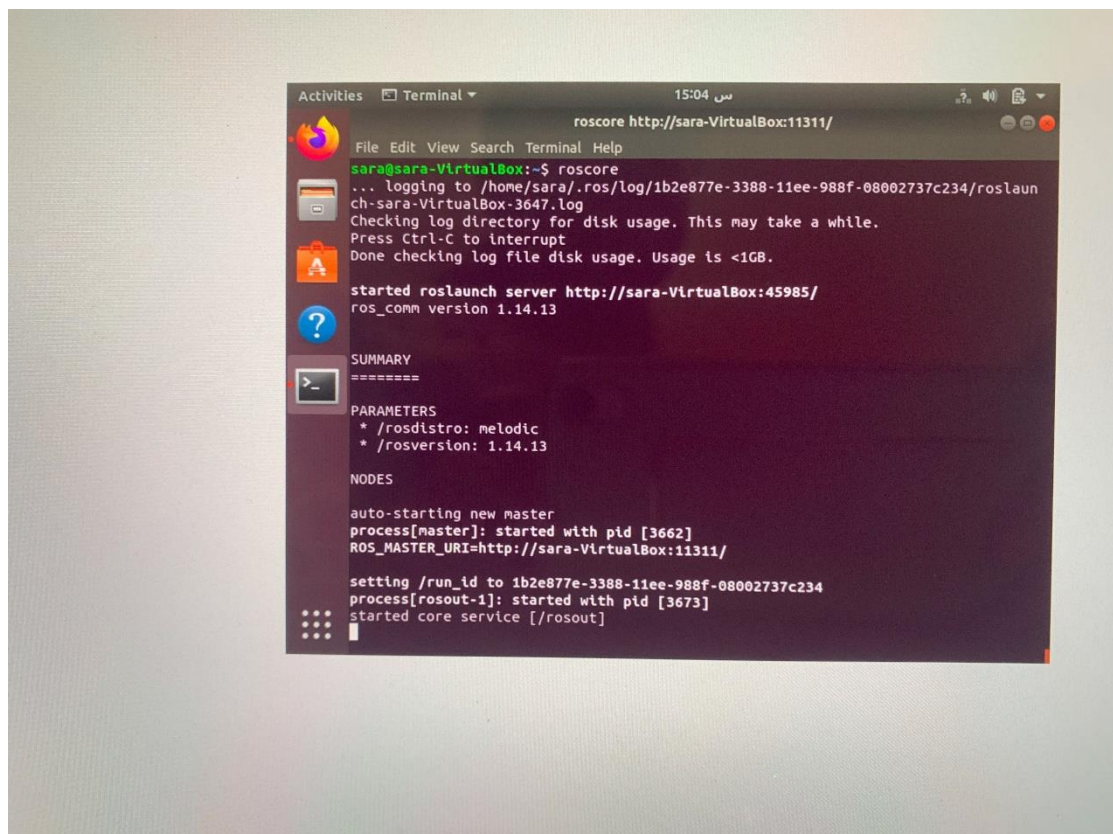








To sure installation, I wrote ( roscore) instruction



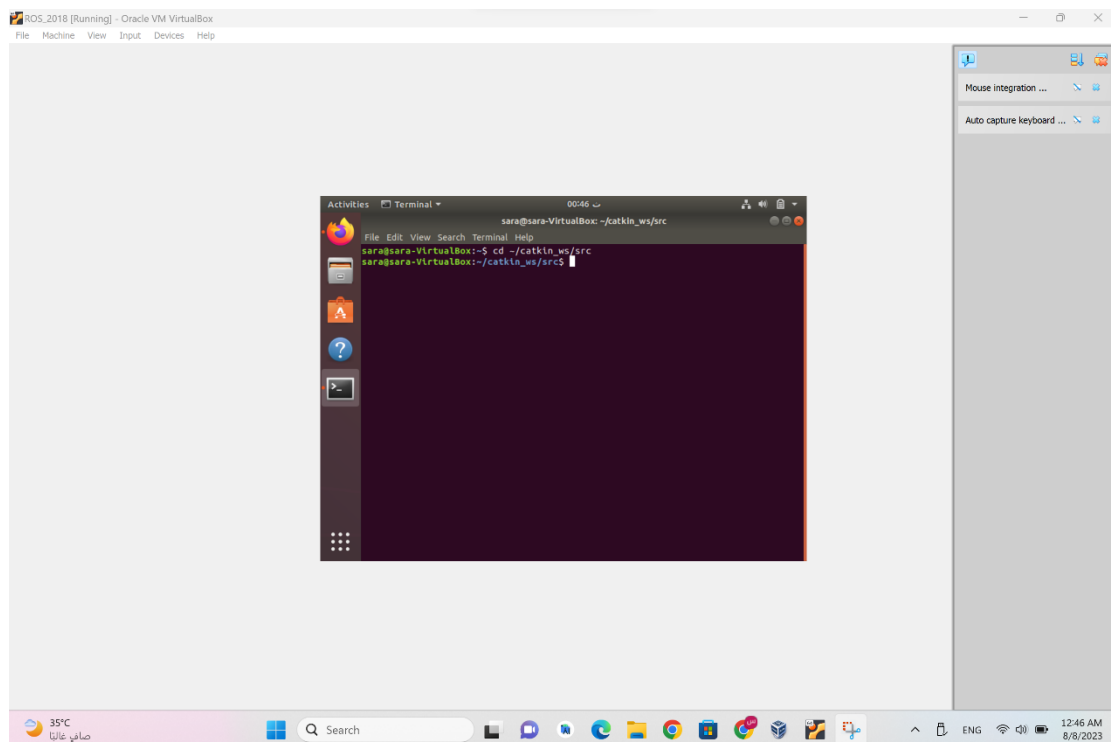
## 4/ Creating a workspace for catkin

I installed catkin via apt-get for ROS melodic, your command would look like this:

```
$ source /opt/ros/melodic/setup.bash
```

I created and built a catkin workspace:

```
$ mkdir -p ~/catkin_ws/src
$ cd ~/catkin_ws/
$ catkin_make
```



## 5/Installing the package arduino\_robot\_arm

- I added the "arduino\_robot\_arm" package to "src" folder

```
$ cd ~/catkin_ws/src
```

```
$ sudo apt install git
```

```
$ git clone https://github.com/smart-methods/arduino\_robot\_arm
```

- I installed all the dependencies

```
$ cd ~/catkin_ws
```

```
$ rosdep install --from-paths src --ignore-src -r -y
```

```
$ sudo apt-get install ros-melodic-moveit
```

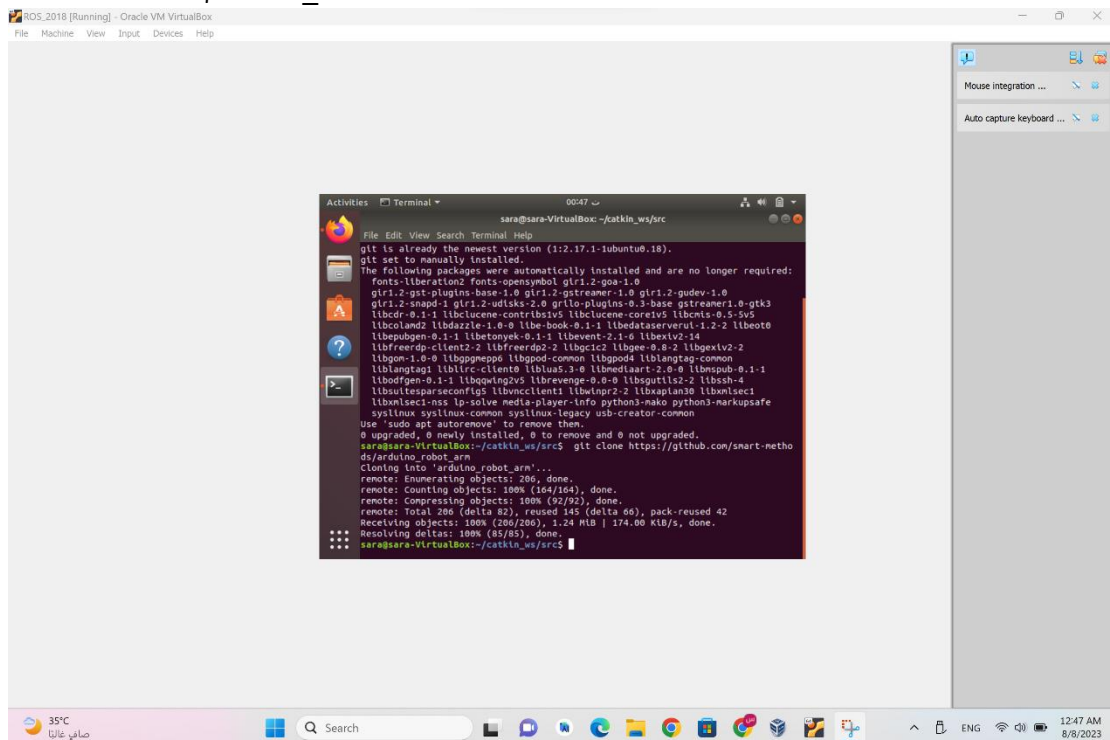
```
$ sudo apt-get install ros-melodic-joint-state-publisher ros-melodic-joint-state-publisher-gui
```

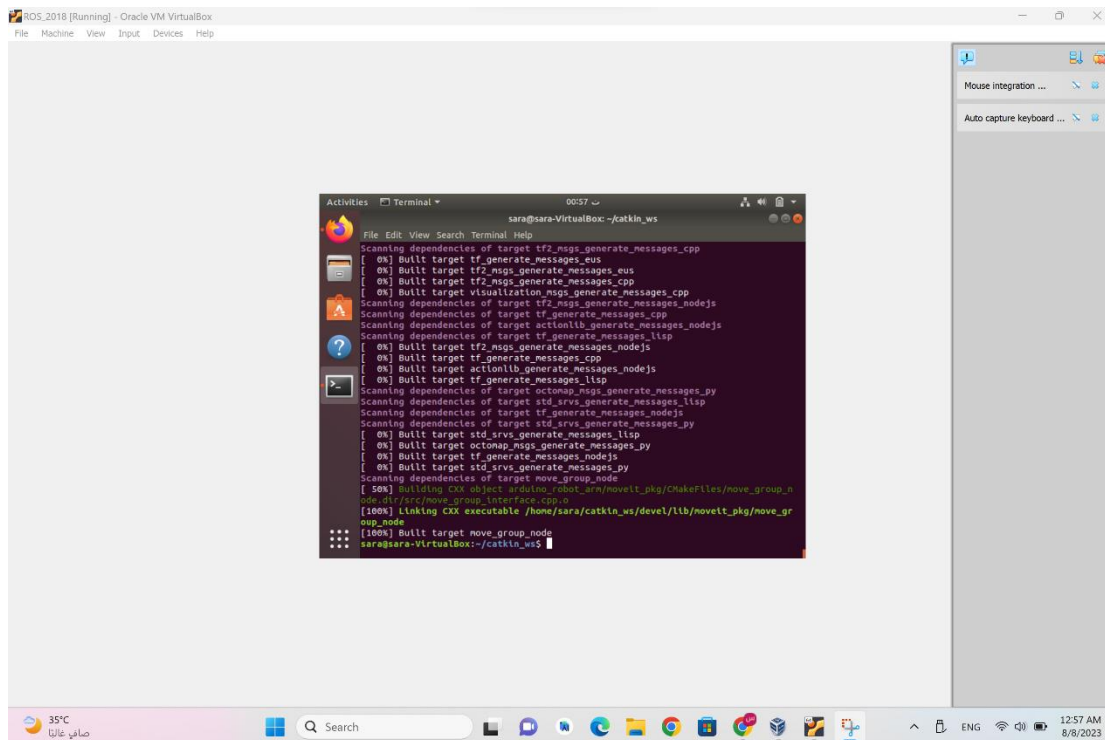
```
$ sudo apt-get install ros-melodic-gazebo-ros-control joint-state-publisher
```

```
$ sudo apt-get install ros-melodic-ros-controllers ros-melodic-ros-control
```

- Compiling the package

```
$ catkin_make
```





## 6/ Controlling the motors in simulation

```
$ roslaunch robot_arm_pkg check_motors.launch
```

```
$ roslaunch robot_arm_pkg check_motors_gazebo.launch
```

```
$ rosruncatkin robot_arm_pkg joint_states_to_gazebo.py
```

You may need to change the permission

```
$ cd catkin/src/arduino_robot_arm/robot_arm_pkg/scripts
```

```
$ sudo chmod +x joint_states_to_gazebo.py
```

