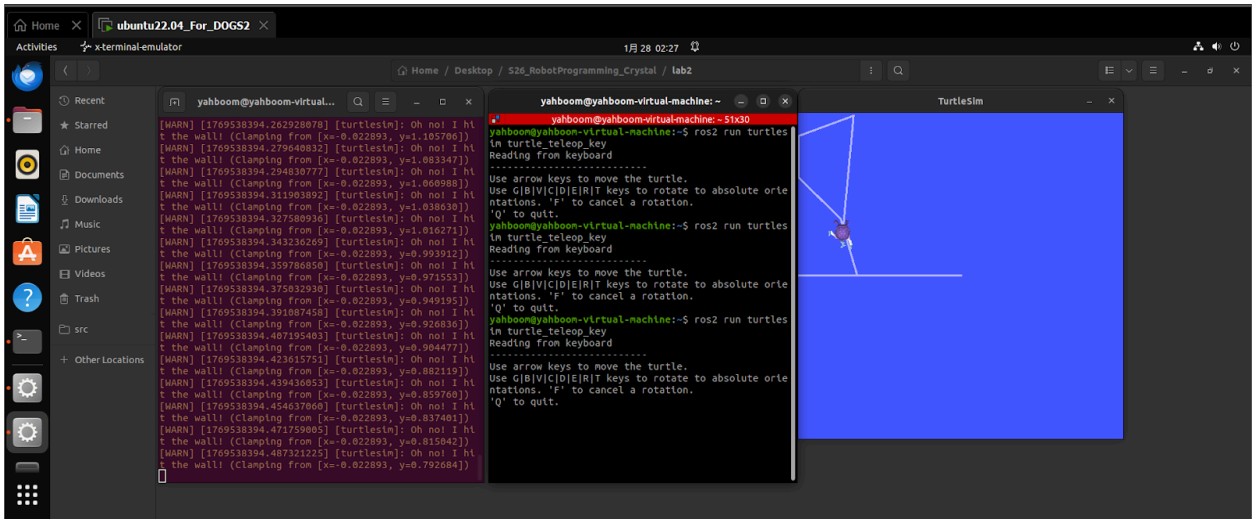
# Task 2:

## Starting Nodes

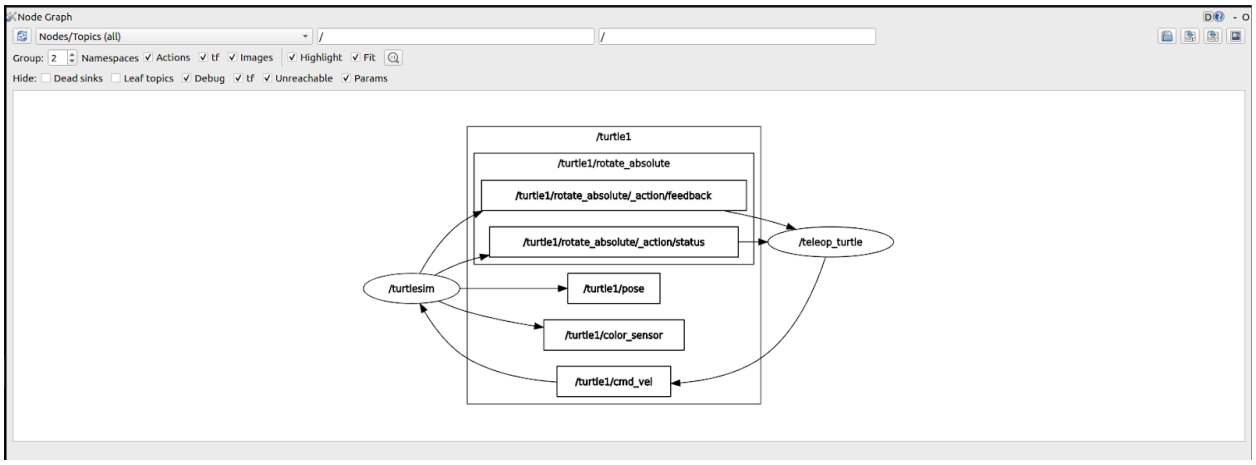



Screenshot of three windows open at the same time

## Exploring Components

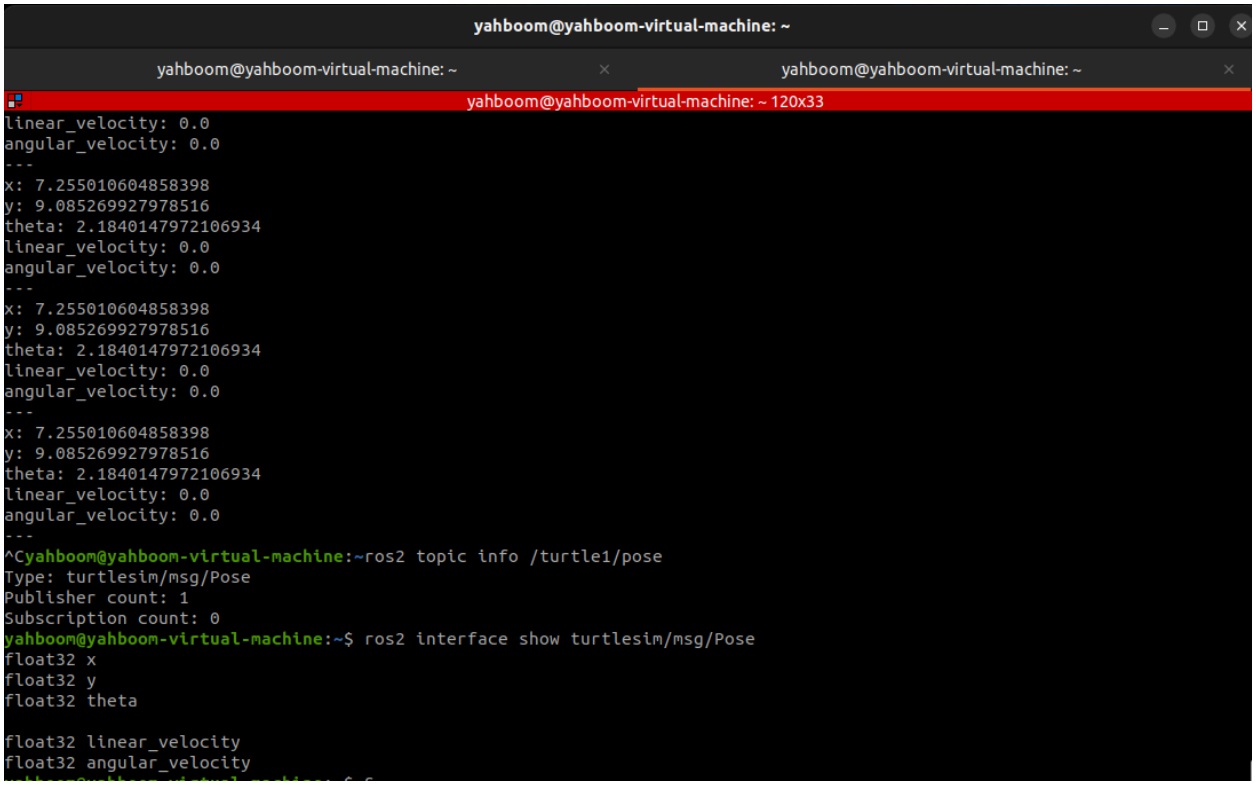
### Topics

#### Step 7:



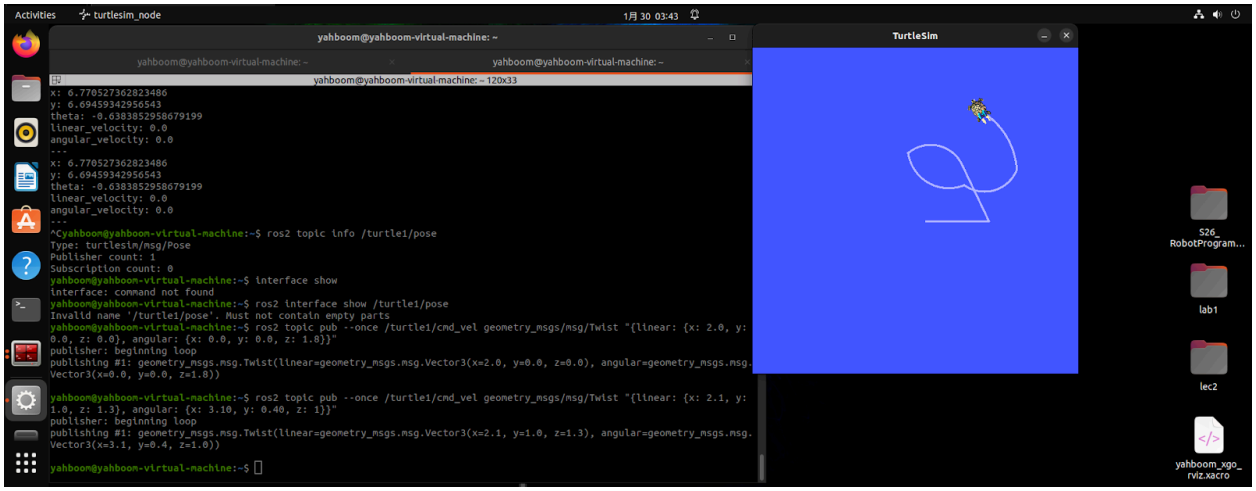

Flow diagram of turtle sim

Step 21:




Terminal outputs for three command lines

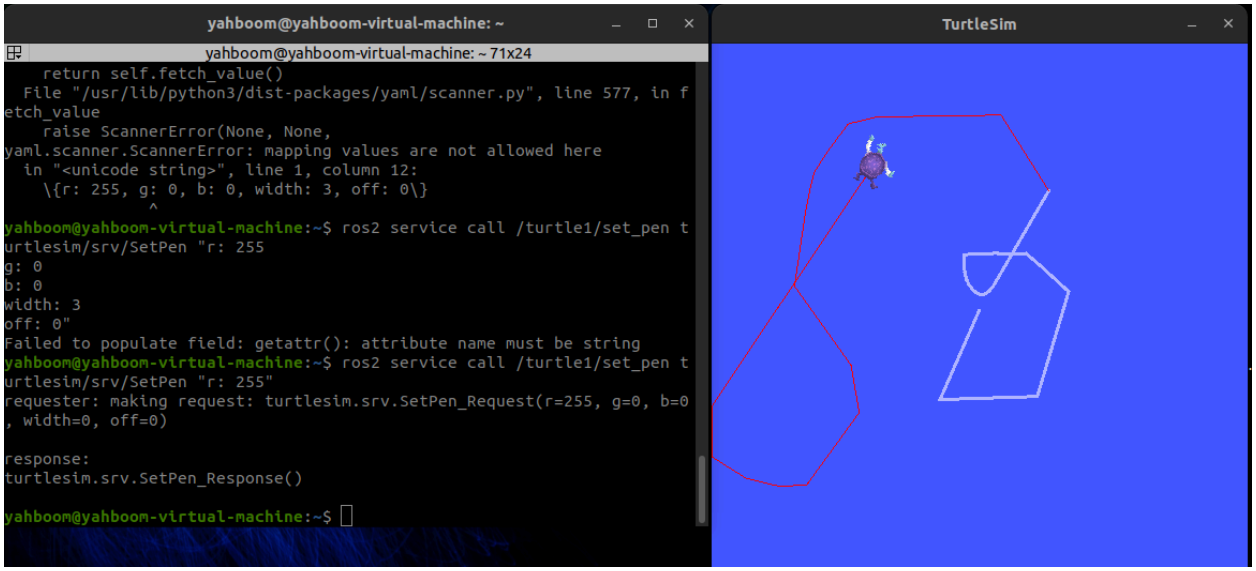
Step 25:




Screenshot of direct terminal control of the turtle

# Services

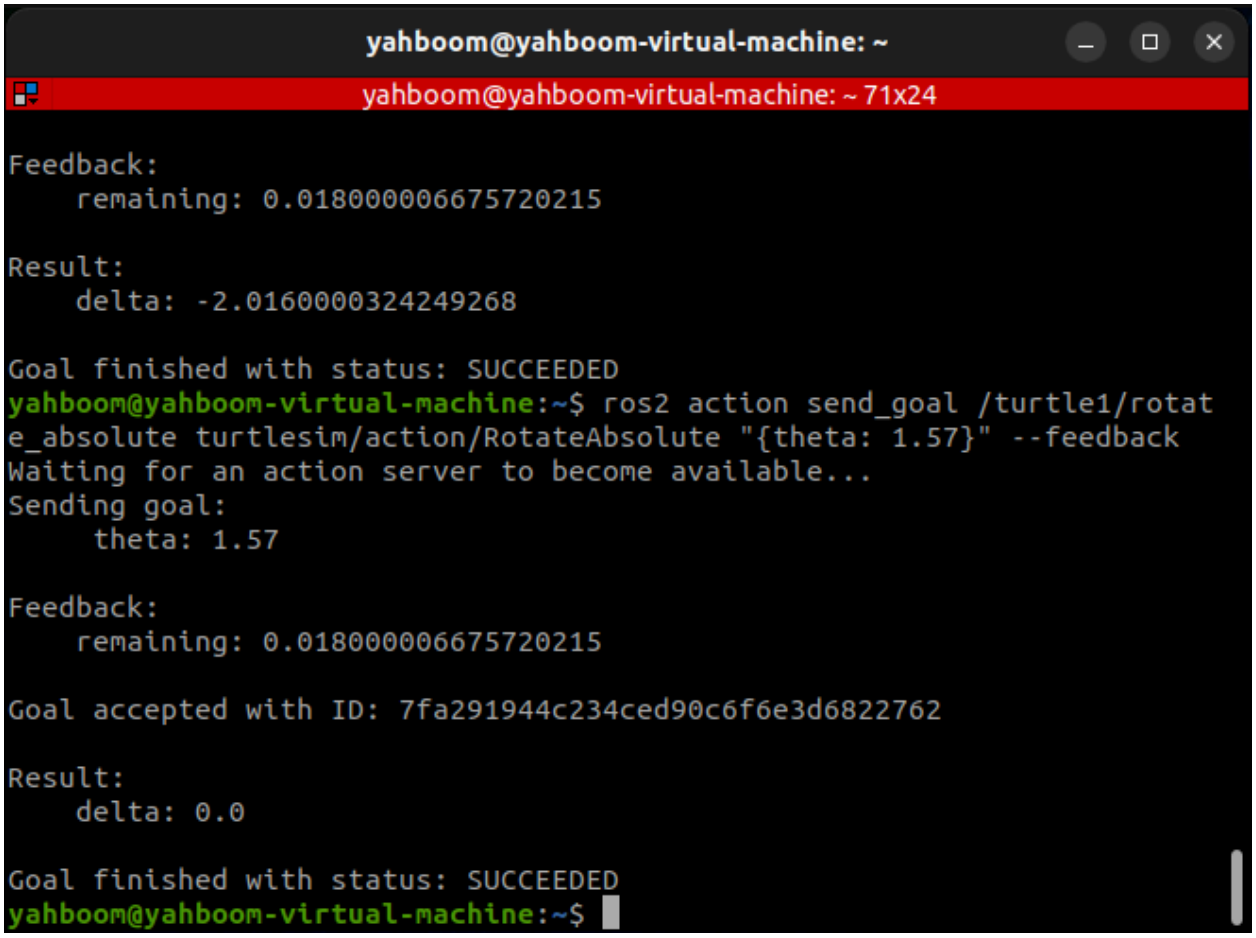
## Challenge:




Screenshot of the command to turn the line for the turtle's path red, and the subsequent red path

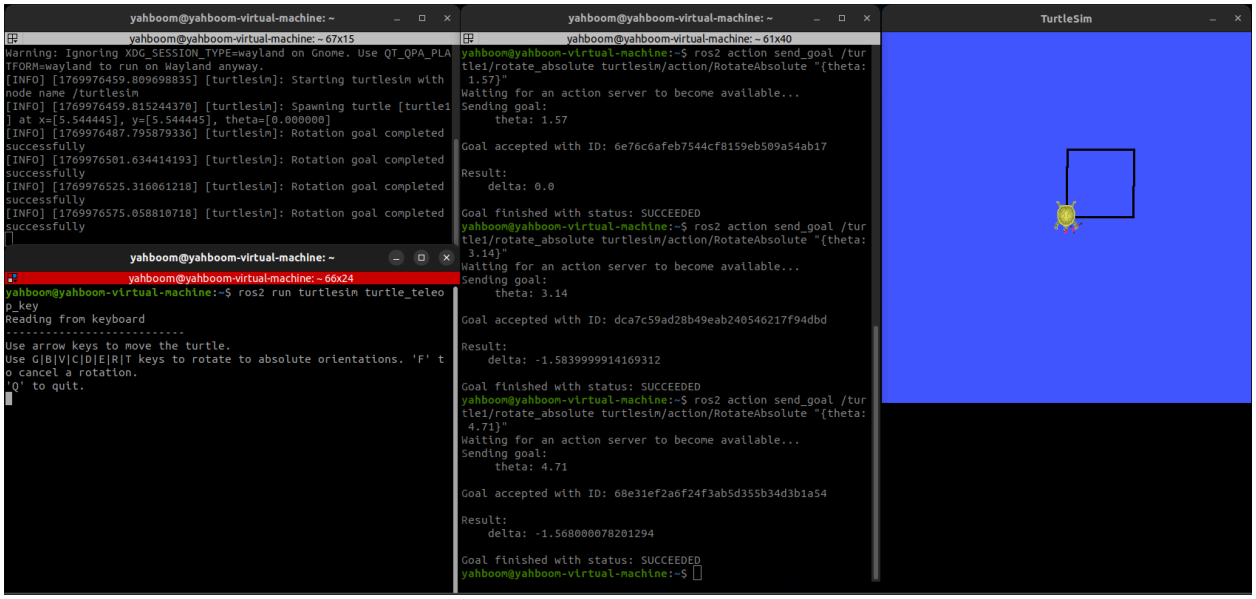
## Action

### Step 8:




Screenshot of terminal output with feedback

# Task 3:




| Command | Use |
|---|---|
| ros2 service call /turtle1/set_pen turtlesim/srv/SetPen "{r: 0, g: 0, b: 0, width: 3}" | Make line black |
| ros2 action send_goal /turtle1/rotate_absolute turtlesim/action/RotateAbsolute "{theta: 1.57}" | Turn turtle to 90 degrees |
| ros2 action send_goal /turtle1/rotate_absolute turtlesim/action/RotateAbsolute "{theta: 3.14}" | Turn turtle to 180 degrees |
| ros2 action send_goal /turtle1/rotate_absolute turtlesim/action/RotateAbsolute "{theta: 4.71}" | Turn turtle to 270 degrees |
| ros2 run turtlesim turtle_teleop_key | Allow use of arrow keys to make turn move forward in direction it is pointing |

My method involved using the telop command and rotate absolute commands to create a square in the turtle sim. I started by setting the line to black as specified in the lab instructions, and set the line width to 3 to allow it to be more easily seen. I then moved to the terminal containing the telop command, and hit the up arrow to move the turtle forward by one length. I then went back to my second terminal and entered the command required to rotate the turtle to face 90 degrees, then went back to the telop terminal to move it one length forward again. I repeated this process for 180 and 270 degrees, which finished the square