### Programming Assignment #1 (PA1): Due Monday, Sept 16th by 10 pm EST

### Install Ubuntu 22.04 (done in PA0) and then

### Install ROS 2 (Humble)

### See Instructions here:

### https://docs.ros.org/en/humble/Installation.html

### Go through the Tutorials that are found here:

### https://docs.ros.org/en/humble/Tutorials.html

### as outlined below. Note we are doing all the Tutorials in Python (so we have deleted the C++ versions of the tutorials in the list below)

* [Beginner: CLI tools](https://docs.ros.org/en/humble/Tutorials/Beginner-CLI-Tools.html)
  + [Configuring environment](https://docs.ros.org/en/humble/Tutorials/Beginner-CLI-Tools/Configuring-ROS2-Environment.html)
  + [Using turtlesim, ros2, and rqt](https://docs.ros.org/en/humble/Tutorials/Beginner-CLI-Tools/Introducing-Turtlesim/Introducing-Turtlesim.html)
  + [Understanding nodes](https://docs.ros.org/en/humble/Tutorials/Beginner-CLI-Tools/Understanding-ROS2-Nodes/Understanding-ROS2-Nodes.html)
  + [Understanding topics](https://docs.ros.org/en/humble/Tutorials/Beginner-CLI-Tools/Understanding-ROS2-Topics/Understanding-ROS2-Topics.html)
  + [Understanding services](https://docs.ros.org/en/humble/Tutorials/Beginner-CLI-Tools/Understanding-ROS2-Services/Understanding-ROS2-Services.html)
  + [Understanding parameters](https://docs.ros.org/en/humble/Tutorials/Beginner-CLI-Tools/Understanding-ROS2-Parameters/Understanding-ROS2-Parameters.html)
  + [Understanding actions](https://docs.ros.org/en/humble/Tutorials/Beginner-CLI-Tools/Understanding-ROS2-Actions/Understanding-ROS2-Actions.html)
  + [Using rqt\_console to view logs](https://docs.ros.org/en/humble/Tutorials/Beginner-CLI-Tools/Using-Rqt-Console/Using-Rqt-Console.html)
  + [Launching nodes](https://docs.ros.org/en/humble/Tutorials/Beginner-CLI-Tools/Launching-Multiple-Nodes/Launching-Multiple-Nodes.html)
  + [Recording and playing back data](https://docs.ros.org/en/humble/Tutorials/Beginner-CLI-Tools/Recording-And-Playing-Back-Data/Recording-And-Playing-Back-Data.html)
* [Beginner: Client libraries](https://docs.ros.org/en/humble/Tutorials/Beginner-Client-Libraries.html)
  + [Using colcon to build packages](https://docs.ros.org/en/humble/Tutorials/Beginner-Client-Libraries/Colcon-Tutorial.html)
  + [Creating a workspace](https://docs.ros.org/en/humble/Tutorials/Beginner-Client-Libraries/Creating-A-Workspace/Creating-A-Workspace.html)
  + [Creating a package](https://docs.ros.org/en/humble/Tutorials/Beginner-Client-Libraries/Creating-Your-First-ROS2-Package.html)
  + [Writing a simple publisher and subscriber (Python)](https://docs.ros.org/en/humble/Tutorials/Beginner-Client-Libraries/Writing-A-Simple-Py-Publisher-And-Subscriber.html)
  + [Writing a simple service and client (Python)](https://docs.ros.org/en/humble/Tutorials/Beginner-Client-Libraries/Writing-A-Simple-Py-Service-And-Client.html)
  + [Creating custom msg and srv files](https://docs.ros.org/en/humble/Tutorials/Beginner-Client-Libraries/Custom-ROS2-Interfaces.html)
* Assignments to check into Gitlab this week
* Assignment#2: Assignments to hand in by the deadline.
  + Write and test a publisher node that publishes a TOPIC and subscriber node that subscribes to this TOPIC.
  + Write and test a server node that provides a SERVICE and client node that calls this SERVICE
    - Check in the assignment into your gitlab account under PA1