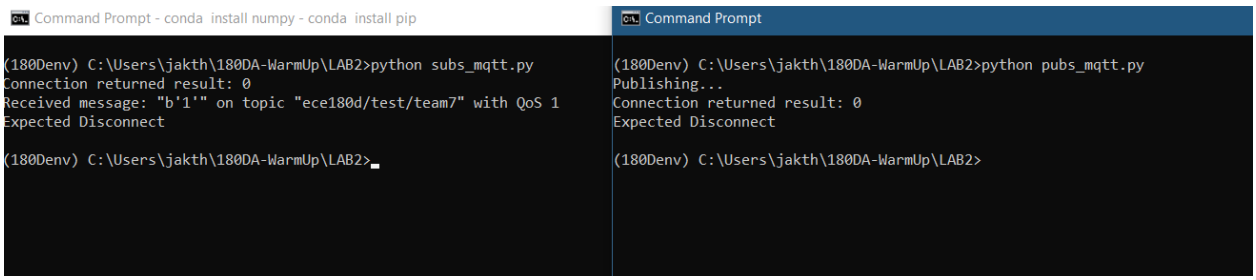
LAB2
Group 7
Jake Reilly 180DA – www.github.com/jathrei/180DA-WarmUp

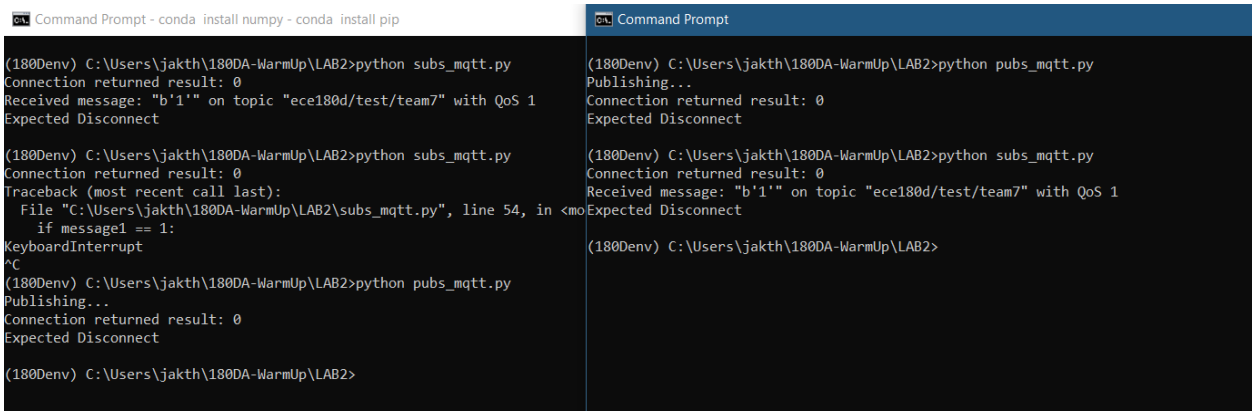
Task 1: 2 way communication using MQTT

*Note: I joined group 7 late and my partners had already finished lab2 while I was still working on lab 1. I created a connection between 2 separate terminals (see below).



Due to communicating between myself, I was not able to test communication lagging with more than one member.

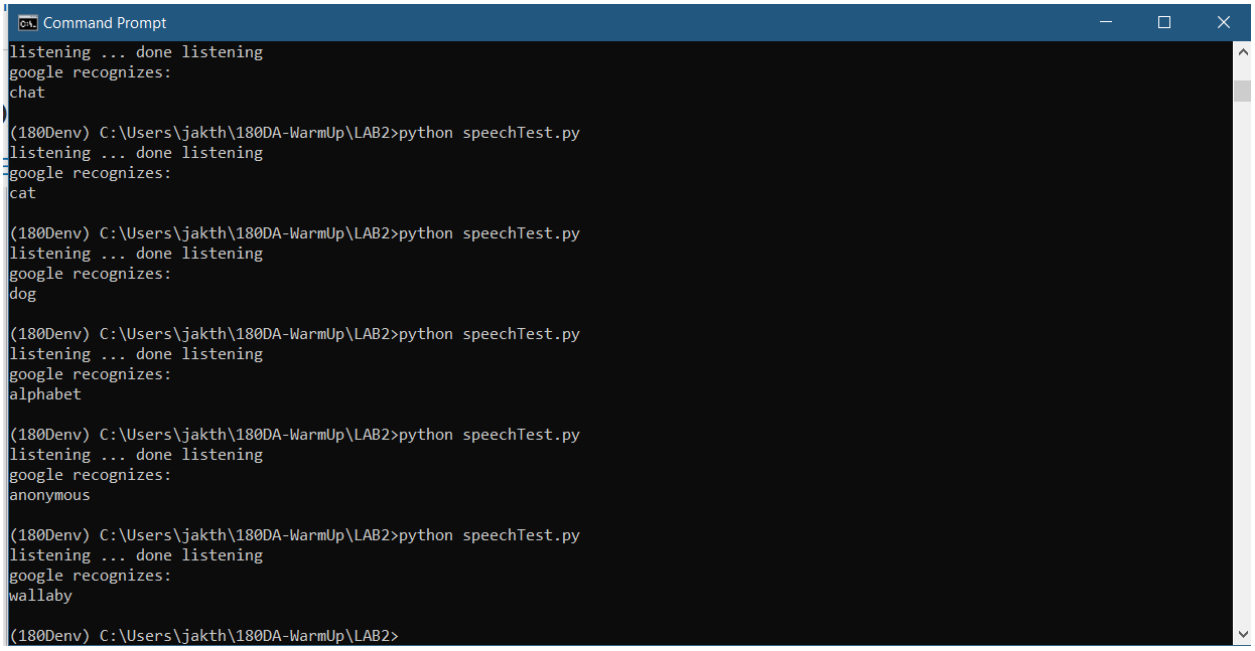
2 Way connection Established:



- Possible MQTT uses for project
    - For our specific project, MQTT can be utilized to send IMU data to a separate computer to determine velocity and angle for our cup pong style game. Because of MQTT, minimal set up is actually involved.
- Difficulty of MQTT
    - I suspect that transferring large data in a short amount of time would be difficult and cause lag in the MQTT communication protocol. Also, we are trusting that the information is correctly passed between subscriber and publisher (verifying through talking to the subscribers themselves; otherwise its just trust).
- Reasonable communication lag time with MQTT

    - For our project, any lag time longer than half a second would severely disrupt the flow of our game. So if using MQTT on our project and the lag is roughly half a second, it would work.
- Preference
    - We are still most likely going to use MQTT for small data sets (such as speech inputs, transferring those words to a separate computer), but for the large mathematical numbers and calculations, the risk of lag is too large, so we will use wired communication between devices.

Task 2: Speech



- For instance, choose two fairly different words (e.g. “cat” and “dog”). See how accurate your program can work for that.
    - For Cat, my program initially read Chat, but the second round it recognized Cat. Dog was recognized accurately
- Play some music in the background. Does it work under noise?
    - It works, but not as well. It messed up “animal” to alphabet
- What can you do with your given speech program in the project?
    - Since the latency is quite frustrating, and it works well with single words… single word inputs could be used for the program. For example: “Say desired setting: Park, Beach, Party” and the user would say the one word input.
- How complex can you reasonably expect your speech recognition to be? What level of speech accuracy do you need?
    - I don’t expect it to be complex, but truthfully we don’t need it to be complex. Just simple one word inputs to create the setting, environment, and establish gameplay.

- Do you need specific hardware, specific conditions, etc. to have a reasonable confidence that it works well enough?
    - I think it will work well enough. I have a microphone we can use that has low gain, so even in a loud room it should work very well.

Task 3: www.github.com/jathrei/180DA-WarmUp