ECE 4564 Assignment 1

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SECTION 1 - Objectives

Assignment 1 was to create a Twitter inquirer in which the user would tweet a question to the group's account, and get an answer that was found on Wolfram Alpha. This was achieved using two Raspberry Pis in a client/server model, and the Twitter and Wolfram Alpha APIs. The Client Raspberry Pi waits for a question to be tweeted to the account, and takes the Question Payload to the Server Raspberry Pi. The Server Pi sends the query to Wolfram Alpha, and then sends the Answer Payload to the Client Raspberry Pi, which tweets back to the user a response.

SECTION 2 - Team Member Responsibilities

Andrew Bryant - I worked with the Wolfram Alpha API. I took the question payload, sent the query to Wolfram Alpha, and then figured out which of the pods that were sent back were the needed text-based answers.

Josh Rehm - Because Hakeem and I live near each other, we took on the responsibility of the client-server interactions, including tupling and pickling the payloads, as well as generating and confirming checksums. I configured my raspberry with code to connect it as the client in the client server model, using sockets to connect the two pis together.

Hakeem Bisyir - I took the responsibilities of the server side programming for the socket interactions. This included unpickling data received from the client and separating the payload into the question and checksum. I then progressed the program to generate a checksum from the question received and compare it to the received checksum. This program also took on the responsibility of generating a payload tuple and pickling the data to be sent back to the client after an answer was received from wolfram alpha.

Jason Britton - I worked with the Twitter API using Twython. I wrote the portion of the client-side code responsible for listening for a Tweet and parsing it into the address, port, and question, and then Tweeting formatted answers once received by the server.

SECTION 3 - Conclusion

Throughout our time working on the project, we encountered a couple of issues, mostly with simply not having the correct packages installed, or having issues with the version of python we were using, often having the program work on python, but not on python3; this was resolved by using pip3 for installing packages, and changing our print commands to the syntax of python3. We also encountered some difficulties getting our checksums to be equivalent and consistent, but we fixed this by testing codes where md5 hash functions were called at different places until we found the correct configuration. After completing this project, I think we learned a lot about how to interface raspberry pi devices and how they can connect to each other, even over a network. Another thing we got out of this project was reading through API documentation and learning how to integrate other websites' API code into your own to improve what your project can do. We enjoyed doing this program because it was a good way to start connecting raspberry pis together; it was short, decently simple code that did something really cool, as well as API interfaces that have good documentation and were pretty simple to use. The only bad experiences we really had were bugs, and they were very manageable, so they weren't too much of a problem.