Encrypted Client-Server Chat

For my program I decided to incorporate a one time pad encryption option for extra credit. I don't know if that will count but it was fun!

To run my server program in **plaintext mode** run:

```
python3 server.py 20202
```

where "20202" is any free port.

To run my client program in **plaintext mode** run to connect to a server running on **localhost**:

```
python3 client.py 20202
```

where the port number is the same as the server.

There are several flag options to add functionality.

The **-i** "IPADDR" flag is an option for the client.py program that lets you pass in an ip address of the server you want to connect to. (I can only get this to work when the client and server are on the same network)

```
python3 client.py 20202 -i 10.197.138.235
```

?? QUESTION
I could actually only get this to work on osu's access.engr server. I had my roommate fork my program and connect to the vpn and it worked but I could not get it to work on our local wifi.

?? What would we need to do to make this work on our home network?

The **-k** (key) flag takes in a file containing a key for the one time pad and puts the program in **encrypted mode**.

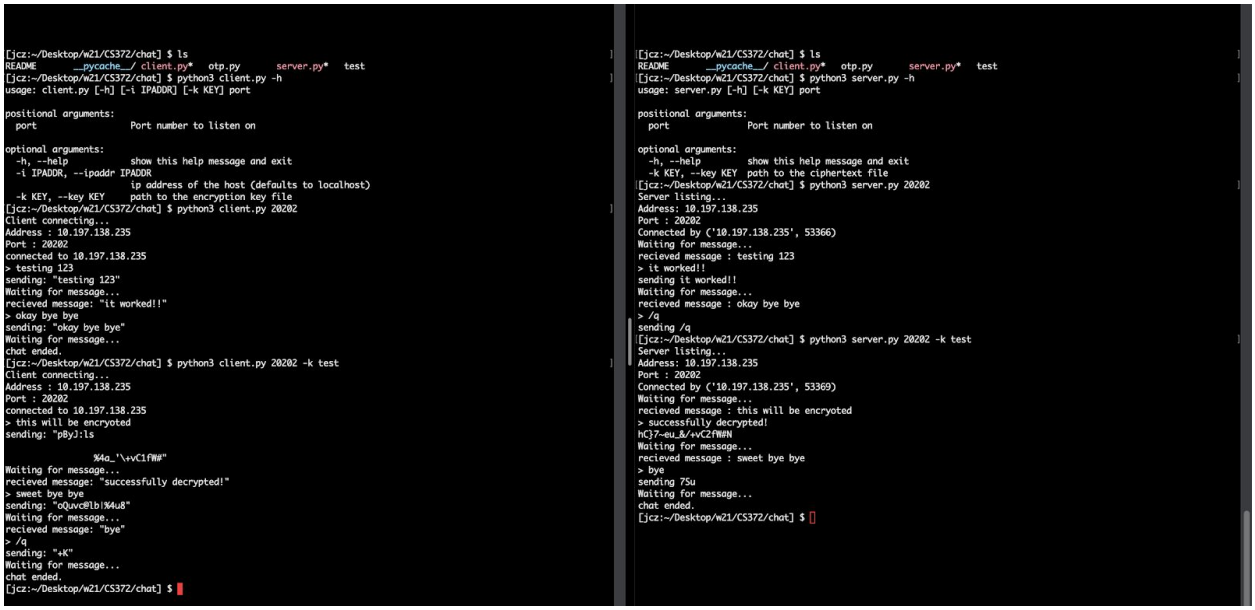
```
python3 client.py 20202 -k test
```

In this example "test" is a file in the same directory that was created by running the **otp.py** like this:

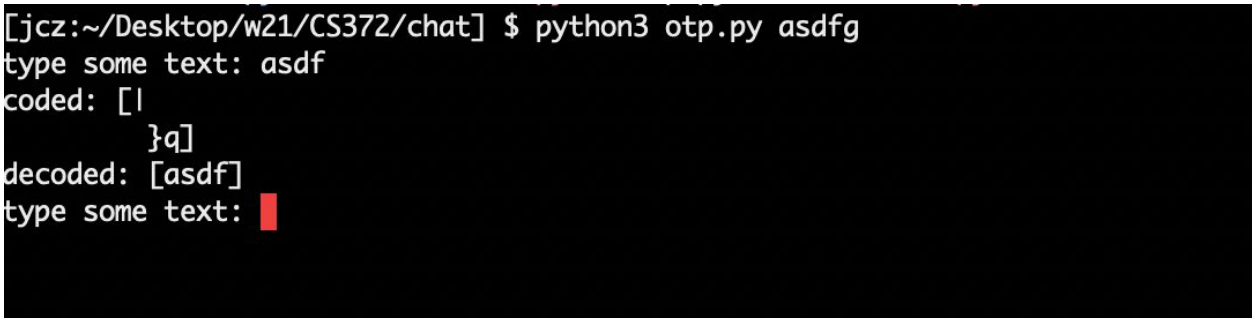
```
python3 otp.py test
```

When you run **otp.py** it will generate a key, create and write to the filename you passed in, then it will enter a demo mode where you can type test and watch it encrypt and decrypt it.

Here is a demo of the client and server running side-by-side on localhost:



Here is a demo of otp.py



Useful links I used along the way:

Argparse: https://docs.python.org/3/library/argparse.html#required

Server-Client stuff: https://realpython.com/python-sockets/

Sockets: https://docs.python.org/3.4/howto/sockets.html

Files: https://www.geeksforgeeks.org/reading-writing-text-files-python/

Mapping a lambda function and producing a string in python:
https://www.geeksforgeeks.org/python-map-function/
https://stackoverflow.com/a/50492545

Find index of element in list:
https://www.geeksforgeeks.org/python-list-index/