CSCE-313

PA 5

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This lab introduced the separation of the server from the client. We created the TCP request file and then went on to add two flags, the a flag for the IP address and the r flag for the port number. We had to specify to actually allow the code to connect to the server. We also had to specify the bytes number on the server so that the server knows the amount of bytes we are going to request. We can then replace this in all the c writes and reads. After that, we have a few while loops to facilitate the data transfer and we are good to go. The header file was given in the lab manual and much of the code can be found in Lab 17.

We can see scaling in the file buffer capacity and the worker threads for the data points. There are no performance changes as the worker threads change for the file, probably because even though there are many worker threads, they can only pull so much data from the server at once due to the buffer capacity. This is also probably why the buffer capacity changes the performance because it does matter whether or not we are changing the buffer capacity so that the worker threads can pull more and more data on each iteration.

Next, we can see the difference made by the histogram threads, worker threads, and buffer capacity in the data points. The worker threads are the only thing that affect anything here, probably because it is the most important part of pulling data points in the first place. Histograms don’t take that long to make, which is why changing the number of histogram threads doesn’t change the amount of time taken by that much. Same with the buffer capacity, pulling the data doesn’t take as much time as actually writing it, and that’s why the worker threads most likely matter the most.

One insight I gained is that we can run the server and client on two VMs on the same machine. Although I knew that VMs operated independently, I had no idea the server and client could be run in this way. I also did not know that this needed to be run on a server with IPv4 capabilities. This was very interesting, and I realized that public networks would not work either because of the way that the code needs to be written and the capabilities of sending and receiving data.

Video: https://youtu.be/QOdgSVGRHAQ

Git Link: <https://github.com/CSCE-313-Tyagi-Fall-2021/pa5-the-server-moved-out-Preebie.git>