Assignment 2 Write Up

1. **Testing**

   The first part of testing I conducted was parsing the options from the command line in order to assure of proper logging and multithreading. I made sure to check to see if it defaults to 4 threads if not specified, and the required threads if specified. This was done by printing out the IDs of each thread when they were created and running a request. For some reason, however, if 2 PUT request are run concurrently, the code will be end up producing an error when writing content to a file. This was also a critical error when I implemented logging, since my multithreading resulted in an error in trying to synchronize. I ended up scrapping logging, in hopes that my code will be able to run multithreading more effectively.

2. **Answer**

   After running 4 different instances of the client with the same request and comparing that to multithreading on 4 threads, the multithreading is faster than using the former service. This also should be pretty obvious since multiple threads will be running at the same time and doesn't have to wait on other requests to finish before its able to run. One thing that I notice that may bottleneck my system are large files and also for logging since it would have to wait for one thread to finish logging before another thread could access the file to log it's request. If I had the time I would try to modularize my code even further to maybe have threads work on reading, writing, GET, and PUT individually to increase throughput.