Assignment 3, Part E)

* How did you test your code?
* I tested with multiple settings, with short text for both topic and data to start, 10 posts with 1 concurrent attempt from inside the same nodejs server. I then increased the number of posts and concurrent attempts to 100, I decreased the number of concurrent requests to 1, and finally ran a test with the maximum input for both topic and data of 255 characters each.
* How long does it take to process a single post?
* For low instances of concurrency I had mean latencies of 11.5-26.4 ms. For high concurrency I saw the mean increase to 501.6 ms.
* Does the size of the data submitted to the server impact the performance?
* There was a 14% difference in performance based on data submitted of the mean latency and a 75% difference in the maximum time taken for a request, for short strings the mean latency was 11.5 ms, with the longest request of 177ms compared to a mean latency of 13.1 ms and a maximum of 312 ms
* How does the number of requests impact the performance of the server?
* The number of requests lowers the mean, 10 requests with a concurrency of 1 had a mean of 26.4ms, 100 requests with a concurrency of 1 had a mean of 11.5ms, the longest requests were very similar at 177 and 180 ms.
* How does the level of concurrency impact the performance of the server?
* Concurrency significantly impacts the performance of the server, 100 requests at a concurrency of 1 had a mean of 11.5ms and a maximum of 177ms, 100 requests at a concurrency of 100 had a mean of 501.6ms and a maximum of 993ms.

Below are the results of the tests performed:

* root@0c2ad0170ba5:/usr/src/app# npx loadtest -n 10 -c 1 -m POST -T 'application/x-www-form-urlencoded' --data '{"Topic": "test", "Data": "test"}' http://localhost:8080/addPost
* [Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO Requests: 0 (0%), requests per second: 0, mean latency: 0 ms
* [Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO
* [Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO Target URL: http://localhost:8080/addPost
* [Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO Max requests: 10
* [Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO Concurrency level: 1
* [Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO Agent: none
* [Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO
* [Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO Completed requests: 10
* [Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO Total errors: 0
* [Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO Total time: 0.26693786399999997 s
* [Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO Requests per second: 37
* [Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO Mean latency: 26.4 ms
* [Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO
* [Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO Percentage of the requests served within a certain time
* [Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO 50% 9 ms
* [Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO 90% 180 ms
* [Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO 95% 180 ms
* [Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO 99% 180 ms

[Sat Apr 01 2023 02:01:34 GMT+0000 (Coordinated Universal Time)] INFO 100% 180 ms (longest request)

* root@0c2ad0170ba5:/usr/src/app# npx loadtest -n 100 -c 100 -m POST -T 'application/x-www-form-urlencoded' --data '{"Topic": "test", "Data": "test"}' http://localhost:8080/addPost
* [Sat Apr 01 2023 02:09:17 GMT+0000 (Coordinated Universal Time)] INFO Requests: 0 (0%), requests per second: 0, mean latency: 0 ms
* [Sat Apr 01 2023 02:09:18 GMT+0000 (Coordinated Universal Time)] INFO
* [Sat Apr 01 2023 02:09:18 GMT+0000 (Coordinated Universal Time)] INFO Target URL: http://localhost:8080/addPost
* [Sat Apr 01 2023 02:09:18 GMT+0000 (Coordinated Universal Time)] INFO Max requests: 100
* [Sat Apr 01 2023 02:09:18 GMT+0000 (Coordinated Universal Time)] INFO Concurrency level: 100
* [Sat Apr 01 2023 02:09:18 GMT+0000 (Coordinated Universal Time)] INFO Agent: none
* [Sat Apr 01 2023 02:09:18 GMT+0000 (Coordinated Universal Time)] INFO
* [Sat Apr 01 2023 02:09:18 GMT+0000 (Coordinated Universal Time)] INFO Completed requests: 100
* [Sat Apr 01 2023 02:09:18 GMT+0000 (Coordinated Universal Time)] INFO Total errors: 0
* [Sat Apr 01 2023 02:09:18 GMT+0000 (Coordinated Universal Time)] INFO Total time: 1.211577752 s
* [Sat Apr 01 2023 02:09:18 GMT+0000 (Coordinated Universal Time)] INFO Requests per second: 83
* [Sat Apr 01 2023 02:09:18 GMT+0000 (Coordinated Universal Time)] INFO Mean latency: 501.6 ms
* [Sat Apr 01 2023 02:09:18 GMT+0000 (Coordinated Universal Time)] INFO
* [Sat Apr 01 2023 02:09:18 GMT+0000 (Coordinated Universal Time)] INFO Percentage of the requests served within a certain time
* [Sat Apr 01 2023 02:09:18 GMT+0000 (Coordinated Universal Time)] INFO 50% 509 ms
* [Sat Apr 01 2023 02:09:18 GMT+0000 (Coordinated Universal Time)] INFO 90% 903 ms
* [Sat Apr 01 2023 02:09:18 GMT+0000 (Coordinated Universal Time)] INFO 95% 953 ms
* [Sat Apr 01 2023 02:09:18 GMT+0000 (Coordinated Universal Time)] INFO 99% 993 ms

[Sat Apr 01 2023 02:09:18 GMT+0000 (Coordinated Universal Time)] INFO 100% 993 ms (longest request)

* root@0c2ad0170ba5:/usr/src/app# npx loadtest -n 100 -c 1 -m POST -T 'application/x-www-form-urlencoded' --data '{"Topic": "test", "Data": "test"}' http://localhost:8080/addPost
* [Sat Apr 01 2023 02:09:48 GMT+0000 (Coordinated Universal Time)] INFO Requests: 0 (0%), requests per second: 0, mean latency: 0 ms
* [Sat Apr 01 2023 02:09:49 GMT+0000 (Coordinated Universal Time)] INFO
* [Sat Apr 01 2023 02:09:49 GMT+0000 (Coordinated Universal Time)] INFO Target URL: http://localhost:8080/addPost
* [Sat Apr 01 2023 02:09:49 GMT+0000 (Coordinated Universal Time)] INFO Max requests: 100
* [Sat Apr 01 2023 02:09:49 GMT+0000 (Coordinated Universal Time)] INFO Concurrency level: 1
* [Sat Apr 01 2023 02:09:49 GMT+0000 (Coordinated Universal Time)] INFO Agent: none
* [Sat Apr 01 2023 02:09:49 GMT+0000 (Coordinated Universal Time)] INFO
* [Sat Apr 01 2023 02:09:49 GMT+0000 (Coordinated Universal Time)] INFO Completed requests: 100
* [Sat Apr 01 2023 02:09:49 GMT+0000 (Coordinated Universal Time)] INFO Total errors: 0
* [Sat Apr 01 2023 02:09:49 GMT+0000 (Coordinated Universal Time)] INFO Total time: 1.1605723579999998 s
* [Sat Apr 01 2023 02:09:49 GMT+0000 (Coordinated Universal Time)] INFO Requests per second: 86
* [Sat Apr 01 2023 02:09:49 GMT+0000 (Coordinated Universal Time)] INFO Mean latency: 11.5 ms
* [Sat Apr 01 2023 02:09:49 GMT+0000 (Coordinated Universal Time)] INFO
* [Sat Apr 01 2023 02:09:49 GMT+0000 (Coordinated Universal Time)] INFO Percentage of the requests served within a certain time
* [Sat Apr 01 2023 02:09:49 GMT+0000 (Coordinated Universal Time)] INFO 50% 10 ms
* [Sat Apr 01 2023 02:09:49 GMT+0000 (Coordinated Universal Time)] INFO 90% 10 ms
* [Sat Apr 01 2023 02:09:49 GMT+0000 (Coordinated Universal Time)] INFO 95% 10 ms
* [Sat Apr 01 2023 02:09:49 GMT+0000 (Coordinated Universal Time)] INFO 99% 177 ms

[Sat Apr 01 2023 02:09:49 GMT+0000 (Coordinated Universal Time)] INFO 100% 177 ms (longest request)

* root@0c2ad0170ba5:/usr/src/app# npx loadtest -n 100 -c 1 -m POST -T 'application/x-www-form-urlencoded' --data '{"Topic": "hcrvmixzofxccmsqbukaklipgcnrvfhwzunwdmvsyseltkqlwaqebxrqrnsbnasvavxcustzhmmdmbmxmhjoscltggudhaogxemqubeybsefjfxkgrdfzlscuogfsgenhouptsgnclefbbcuvepsesblhraitlgbxttpydheibdfdvijwqvdmkezewaqkouilolhwphgaxfdputvykhgehrfwgpxrwtlgfchandwerfeaahgytejvoffvvhgqpi", "Data": "hcrvmixzofxccmsqbukaklipgcnrvfhwzunwdmvsyseltkqlwaqebxrqrnsbnasvavxcustzhmmdmbmxmhjoscltggudhaogxemqubeybsefjfxkgrdfzlscuogfsgenhouptsgnclefbbcuvepsesblhraitlgbxttpydheibdfdvijwqvdmkezewaqkouilolhwphgaxfdputvykhgehrfwgpxrwtlgfchandwerfeaahgytejvoffvvhgqpi"}' http://localhost:8080/addPost
* [Sat Apr 01 2023 02:12:35 GMT+0000 (Coordinated Universal Time)] INFO Requests: 0 (0%), requests per second: 0, mean latency: 0 ms
* [Sat Apr 01 2023 02:12:36 GMT+0000 (Coordinated Universal Time)] INFO
* [Sat Apr 01 2023 02:12:36 GMT+0000 (Coordinated Universal Time)] INFO Target URL: http://localhost:8080/addPost
* [Sat Apr 01 2023 02:12:36 GMT+0000 (Coordinated Universal Time)] INFO Max requests: 100
* [Sat Apr 01 2023 02:12:36 GMT+0000 (Coordinated Universal Time)] INFO Concurrency level: 1
* [Sat Apr 01 2023 02:12:36 GMT+0000 (Coordinated Universal Time)] INFO Agent: none
* [Sat Apr 01 2023 02:12:36 GMT+0000 (Coordinated Universal Time)] INFO
* [Sat Apr 01 2023 02:12:36 GMT+0000 (Coordinated Universal Time)] INFO Completed requests: 100
* [Sat Apr 01 2023 02:12:36 GMT+0000 (Coordinated Universal Time)] INFO Total errors: 0
* [Sat Apr 01 2023 02:12:36 GMT+0000 (Coordinated Universal Time)] INFO Total time: 1.3197502220000001 s
* [Sat Apr 01 2023 02:12:36 GMT+0000 (Coordinated Universal Time)] INFO Requests per second: 76
* [Sat Apr 01 2023 02:12:36 GMT+0000 (Coordinated Universal Time)] INFO Mean latency: 13.1 ms
* [Sat Apr 01 2023 02:12:36 GMT+0000 (Coordinated Universal Time)] INFO
* [Sat Apr 01 2023 02:12:36 GMT+0000 (Coordinated Universal Time)] INFO Percentage of the requests served within a certain time
* [Sat Apr 01 2023 02:12:36 GMT+0000 (Coordinated Universal Time)] INFO 50% 10 ms
* [Sat Apr 01 2023 02:12:36 GMT+0000 (Coordinated Universal Time)] INFO 90% 10 ms
* [Sat Apr 01 2023 02:12:36 GMT+0000 (Coordinated Universal Time)] INFO 95% 12 ms
* [Sat Apr 01 2023 02:12:36 GMT+0000 (Coordinated Universal Time)] INFO 99% 312 ms

[Sat Apr 01 2023 02:12:36 GMT+0000 (Coordinated Universal Time)] INFO 100% 312 ms (longest request)