**Task 1:**

1. First, I set up the web server on my computer, in this case Tomcat. Apache’s Benchmark was already installed by default on my OS.(Apache Bench version 2.3) and then I execute the shell script that is inside the download Tomcat folder, ./startup.sh
2. Then, I have to find my hostname, for this I type the command: $ hostname
3. First, we type this command: ab -k -c 100 -n 10000 http://MacBook-Pro-de-Adrian.local:8080/ > 100c.txt

This prompt is testing tomcat server in localhost port 8080, sending 10000 requests with 100 requests at a time(in other words, the level of concurrency is 100) and redirecting the output to the file 100c.txt.

All the requests finishes without an error(uploaded files)

Now, we compute TPS(transactions per second) as TPS =Complete Requests/Time taken for Tests

So, we reach 11467,89 transactions per second.

So now, I’m going to try with some different values of concurrency level, for example from 50 to 101(I’ve tried above 101 and it doesn’t work because the server closes all the connections due to excess load or limited resources), to see if more level of concurrency implies better performance(maintaining always de same number of requests)

10 🡪 It lasts more than a second, so it is not worth

20 🡪 17452,01 transactions per second

30 🡪 17452,01 transactions per second

40 🡪 15948,96 transactions per second

50 🡪 17241,38 transactions per second

60 🡪 11312,22 transactions per second

70 🡪 14598,54 transactions per second

80 🡪 17953,32 transactions per second

90 🡪 17985,61 transactions per second

When I was executing the commands, I had another terminal open with

Command top for monitoring the consume of CPU. I see that por the best value of TPS, the ue of CPU was very high and, on the other hand, with 50 of concurrency level, the use of CPU was significant better than with 90 of concurrency level. Moreover, if we take in account the latency, that is the time per request across all concurrent requests, with 50 of concurrency level is lower than with 90 of concurrency level.

So, I think the best option is 50 of level concurrency, because of the explanation above, uses less CPU respect the second best value of TPS(90 concurrency level).