

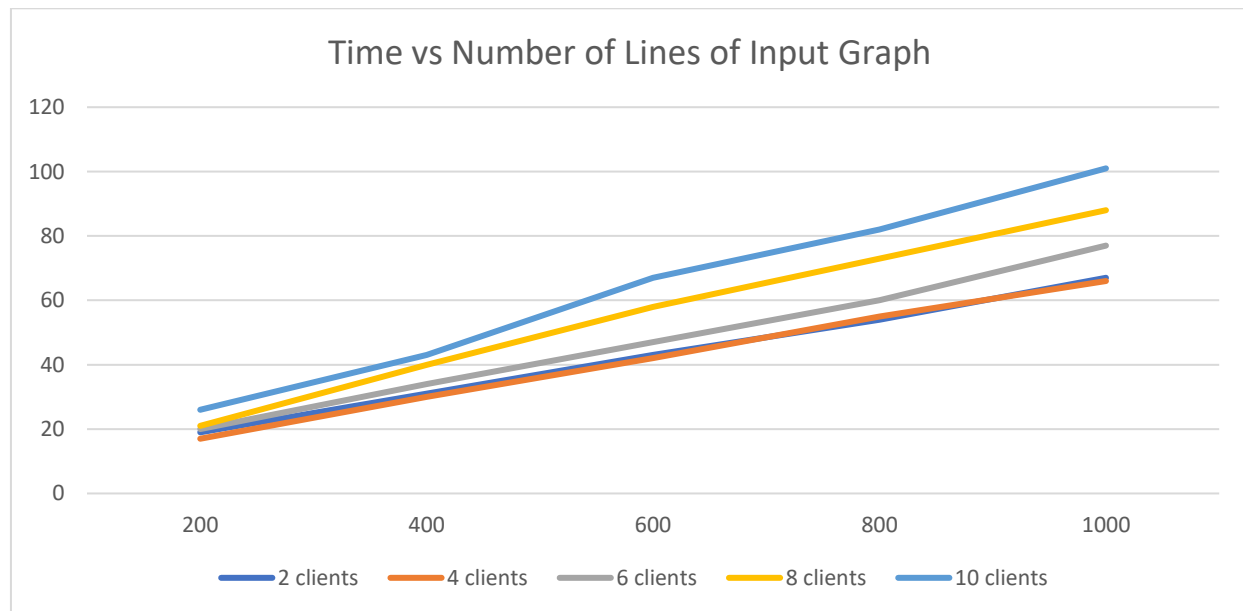
### Project 2 – Report

I made the inputs such that difference between the average duration of processes result from only the values of number of lines and processes, not the input style. For each input, lines with odd id are the same. Also, lines with even id are the same, too. For each line, length of the line is equal to 1000. Each line starts with 'a' with 50 times, then 'b' with 50 times, then 'a' with 50 times, then 'b' with 50 times, and so on. This sequence ends until the number of the characters in the line is 900. The suffixes are different for lines with odd ids and even ids. If the id of the line is an odd number, for instance 371, then the suffix is 'a' with 100 times. Otherwise, 'b' with 100 times.

Keywords are chosen in a similar way. Fixed length of the keywords is equal to 100. If the id, order in processes, of the process is an odd number, for instance 7, then it consists of only 'a'. Otherwise, it is a string full of 'b's. So, for each test, the number of lines that have the given keyword is equal to number of lines over 2. For each kind of sample, I made 5 to 10 tests.

Total Line / Process	2	4	6	8	10
200	19	17	20	21	26
400	31	30	34	40	43
600	43	42	47	58	67
800	54	55	60	73	82
1000	67	66	77	88	101

Table: Average duration (in milliseconds) of processes for each combination of total line and process



## Conclusion

By the number of clients increase, the average duration of processes increases. Also, this is true for the number of processes. However, the relation between the duration and the number of lines is much stronger than the relation which is between the duration and the number of processes. This situation was highly expected. It is obvious that the server will consume an approximately similar time for the new lines, compared to old ones. However, it is observed that, almost all the time the ratio duration / number of lines decreases. Let's consider the case where the number of processes is 2. If we look the cases where the number of lines are 200 and 1000, we see that  $67/1000$  is smaller than  $19/200$ . It means that, the service solves the problem faster by time. If the speed was the same, instead of 67 ms, we would measure something close to 85 ms. However, this increase in speed is not so big. Now, let's consider the samples where the number of lines are the same. As it is mentioned before, there is a weak relation between the duration and the number of processes. For each number of lines, the duration for the number of processes is 10 over the duration for the number of processes is 2 is about 1.5.