## CS 342 / Project 2 Report

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Below we have provided the data we have gathered while running different experiments for project 2. All the below experiments are conducted in Virtual Machine with 4 core.

### Case 1

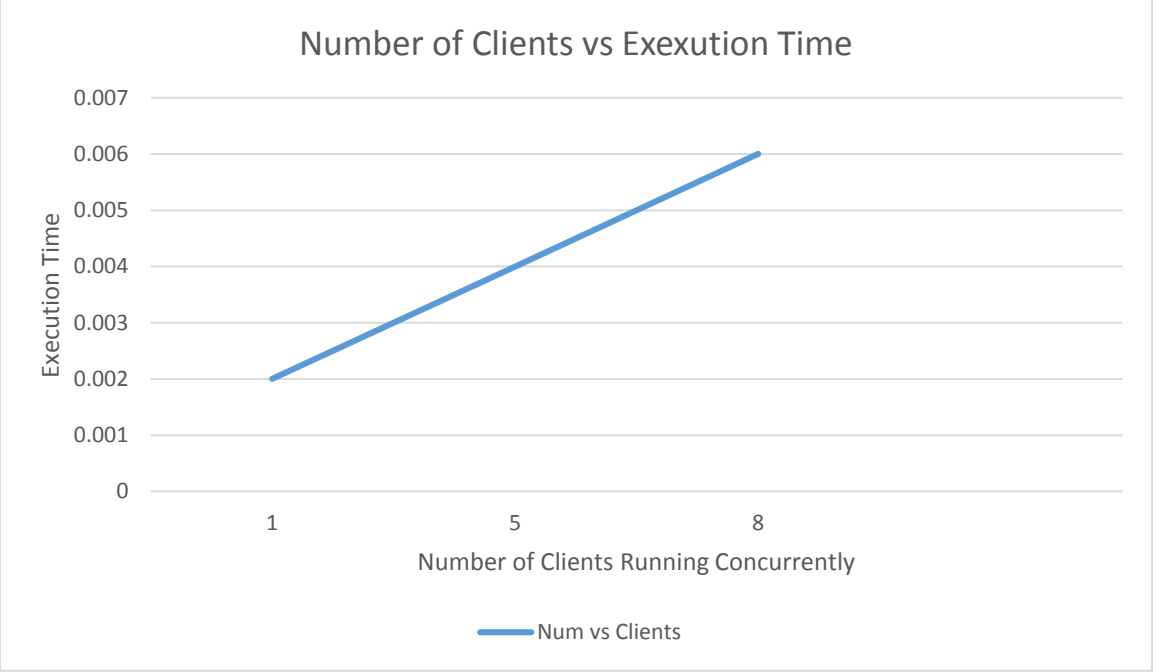
In the first experiment that we conducted, we keep the size of the file (lines of text) constant and change the number of clients concurrently running. In this scenario all the clients search for the keyword on the same file and we measure the average time it takes when different number of clients are running concurrently.

In the first case we alter the number of running clients because this permanent strongly affects the performance of the program.

*Parameters*

Length of file – 60 lines (The frequency of the keyword is same for all clients – keyword occurs 20 times)

Number of clients running - concurrently {1, 5, 8}



*Conclusion*

From the results of this experiment we see that when the number of clients running concurrently is increased the time the program takes to execute is also increased. This happens because more threads are created (one for each client) and each of them tries to access and search on the same file, hence more work is done at the same time which increases the overall execution time of the program.

## Case 2

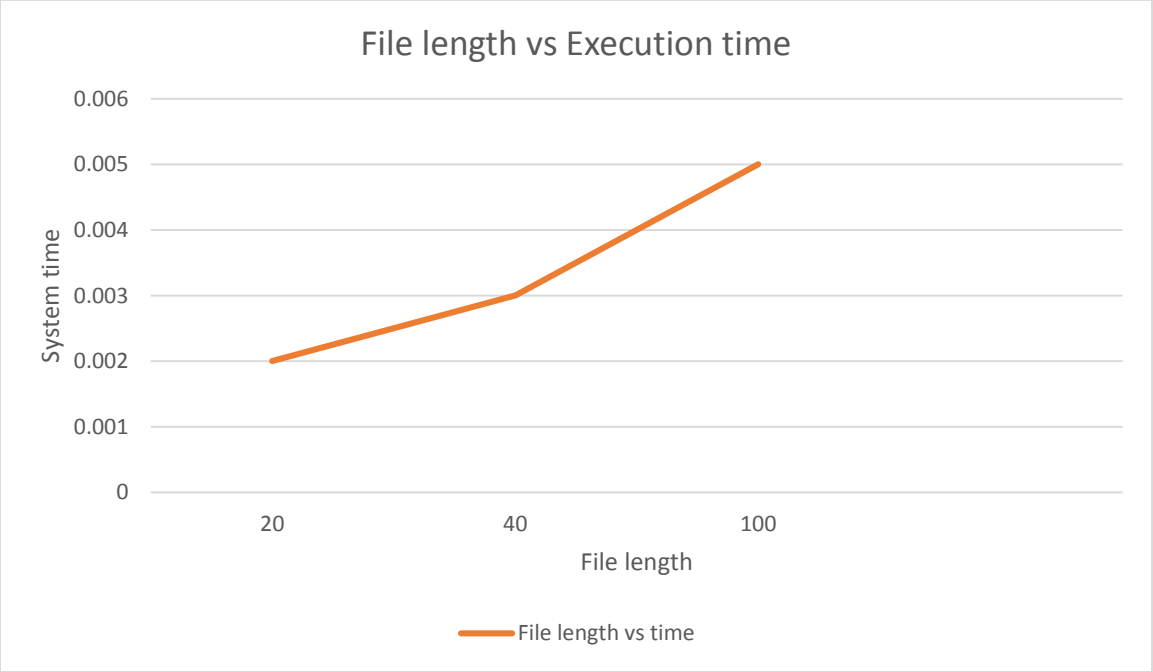
In this case we keep the number of clients running concurrently fixed to 5 and we change the size of the file form a 10 lines text to 100 lines. In this scenario all 5 clients will check for the keyword on 3 different size files.

In this case we alter the length of the file to check how it affects the performance of the system, since files with different lines of code affect the search time and hence the overall project execution time.

*Parameters*

Number of Clients - 5

Length of file - 20 lines, 40 lines, 70 lines (the frequency of keyword is again kept constant -20 times)



*Conclusion*

In this case we see that when we increase the lines of text in the file the time it takes to execute the code is also increased, slightly.  This happens because the client has to search more lines of text so it takes more time.

## Case 3

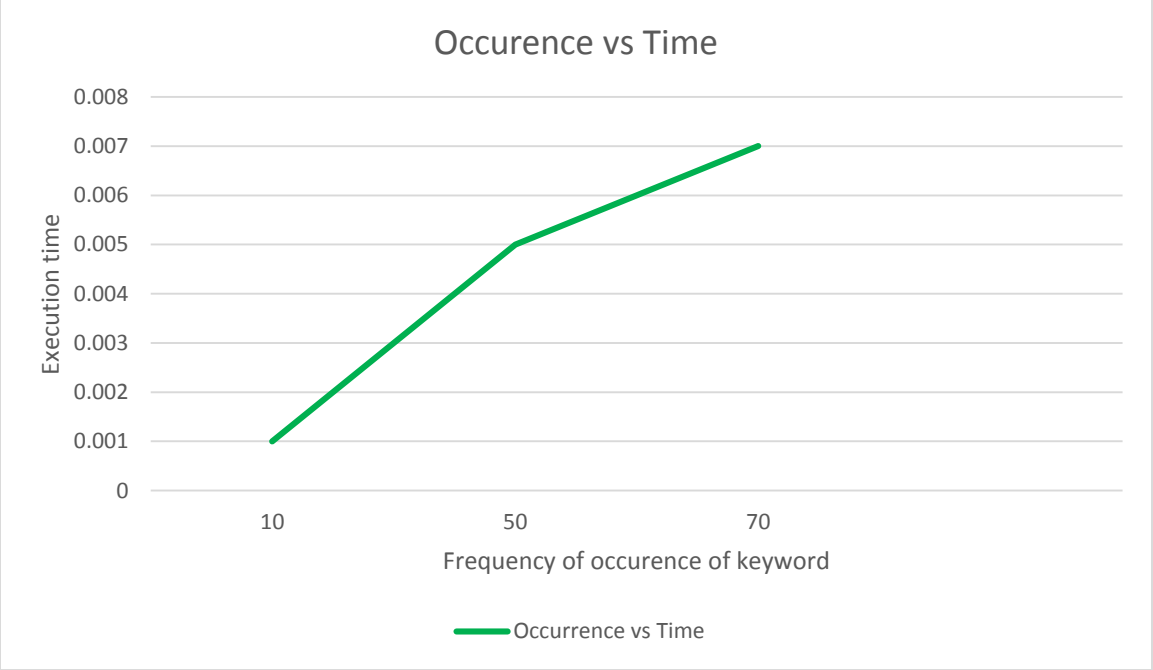
In this case we keep the number of clients running concurrently constant and the length of the file constant but we change the frequency of occurrence of the keyword that each client is searching for.

*Parameters*

Number of clients: 5

Lines of code: 60

Occurrence: 10, 50, 70 times




*Conclusion*

In this case we alter the frequency of occurrence of the keyword. Again, when we increase the frequency of occurrence of the keyword that clients are searching for the time it takes to

execute the program is increased. This happens because the threads are searching and finding the keyword more frequently and are also sending the corresponding results to the client, work which takes more time when more keywords are found.