a. After running the two programs, the no threaded file search gives faster speed than the threaded file search. I think the no threaded file search is faster because the no threaded file search just searching the directories and the threaded file search used resources and time to create each thread and then search the directories which takes more time.

i. I think that multi-threading version is not 4x speed up because it is using more resources to create these threads rather than just doing a simple search.

ii. I think that the performance of the multi-threaded version does not depend on the directory structure being searched because they are not related.

iii. Yes the performance can be improved. I believe I use the thread efficiently because each thread is assigned to a workload.

b. To change the workload of the program we should make the workload of the program lighter because the program is IO-bound and doing so makes the program perform some CPU-bound actions. Another way to change may be using less threads or make it more efficiently.

c. Running the same program twice in quick succession may sometimes result in better performance the second time because the second process can pick up at the state of the first process left.