Final Project Report

Data Structure (COMP6048001)

Text Editor

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Project Report

Problem Description

A text editor is a program that allows the user to open and view files. To achieve high efficiency, we need a fast data structure for insertion and modification. The outcomes of this project are to attain faster concatenation than the usual text editor by occupying smaller contiguous memory space.

Our goal for the text editor was to be able to write text files, and also to be able to delete, print, and save into a .txt file.

By using Stacks and Linked list, we hope to solve the problem of the usual text editor. Using Stacks, we implemented it by using it to 'push' string(words) to the text that will be inserted into a file.

Alternative

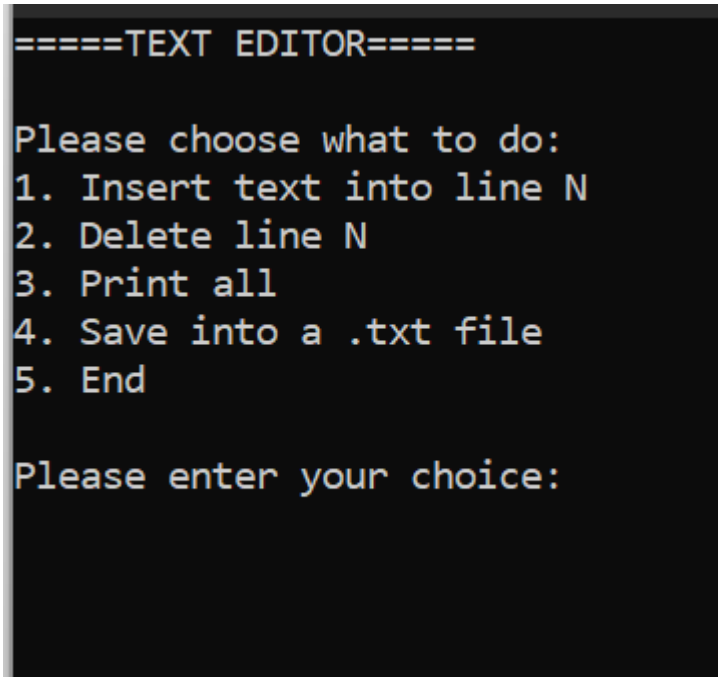
It might be possible to implement the text editor with an array queue as it also allows us to push and pop data into an array. It is also speculated to be faster than using linked lists, although using queue is harder to implement than linked lists. By using queue, it is faster because of the random access that the queue has, while linked list has to look at the data from the very top and then work the way to the correct element that the user has chosen to choose.

Analysis

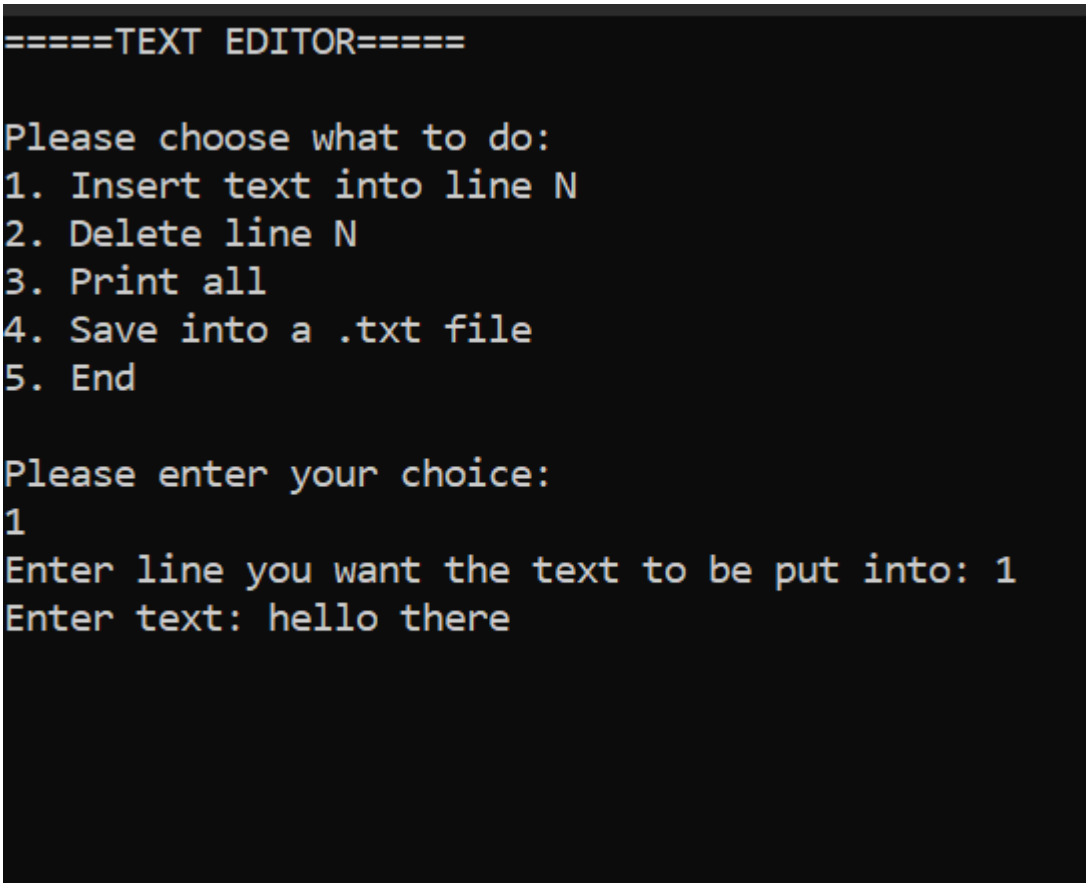
From the tests that we have done, we can conclude that by using linked lists and stacks we can achieve the result slightly slower than expected. Although using queues is faster, the fact that by using linked lists we can add or remove an element is a plus point, since queue only allows the user to add from the rear of the data and remove only from the front.

Executing

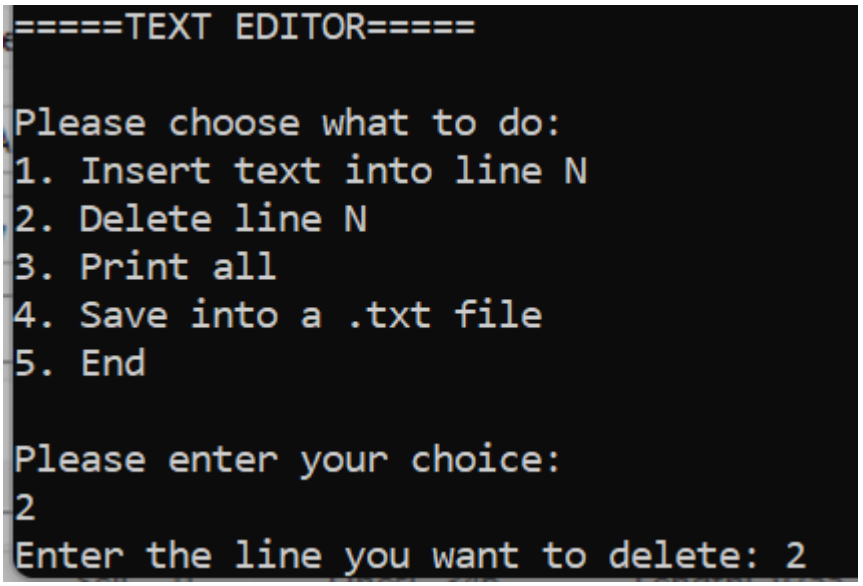
By running the program, this window will open, it is the main screen that will show when you run the code.



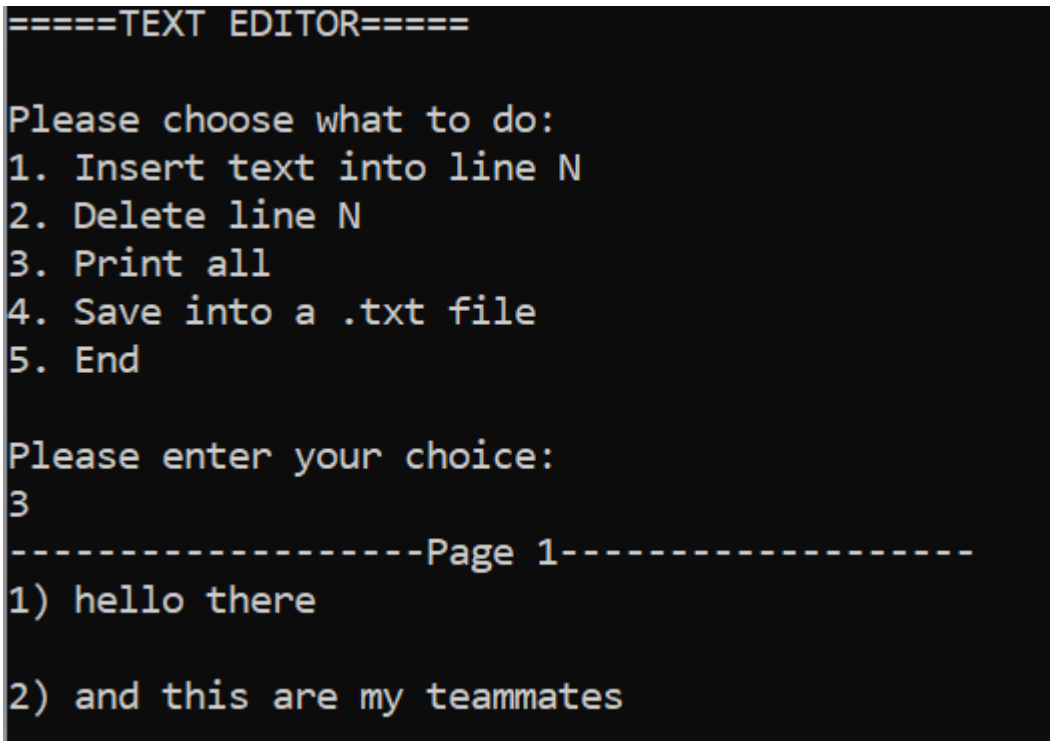
Then, the user will have to choose which option they want to pick. From number 1 to number 5. By choosing number 1, this window will show. The window will tell the user to enter the number of lines to put the text into. Then, the program will ask the user to enter the text that the user wants to put in.



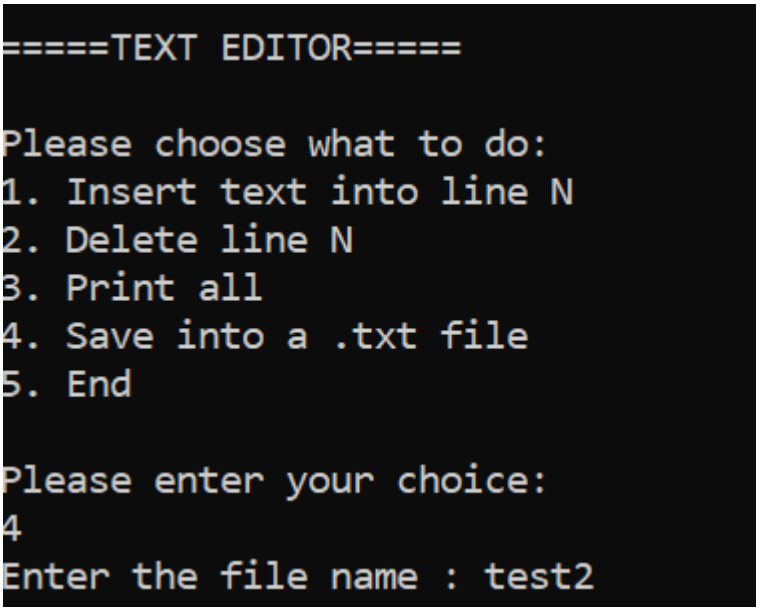
By choosing number 2, this window will show. The program will ask the user to enter the number of the line that the user wants to delete. Then, the program will delete the line that the user asks.

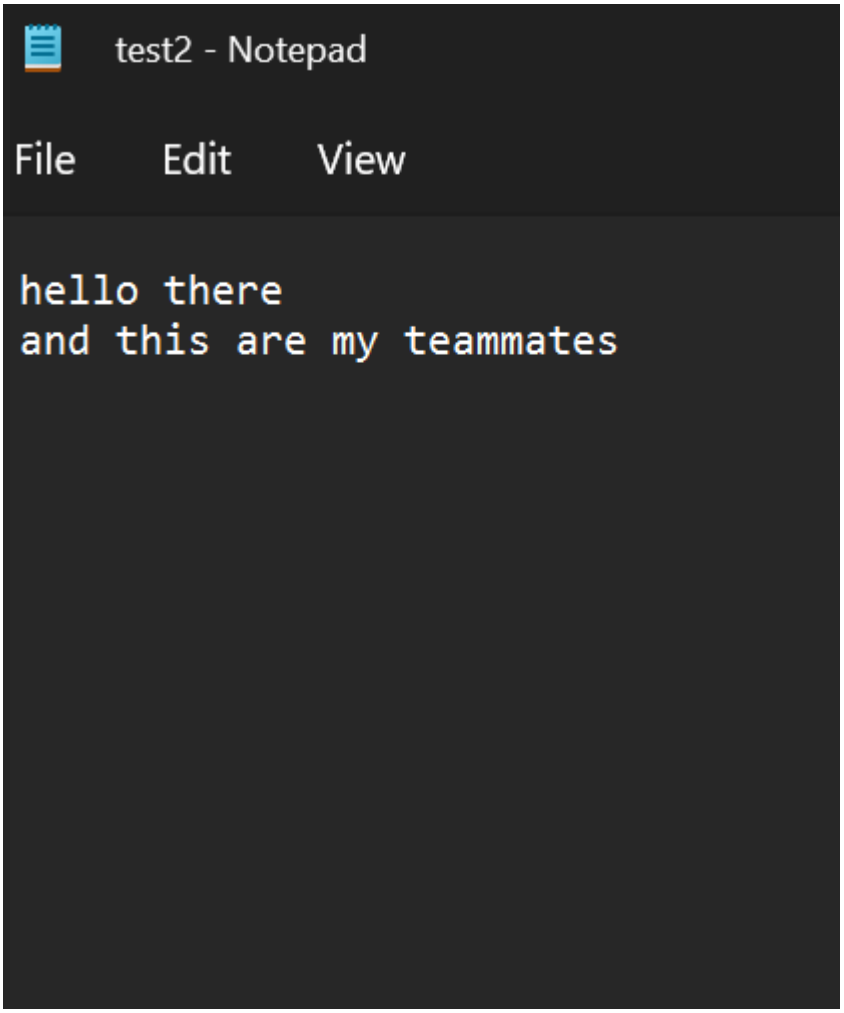


By choosing number 3, this window will show. The program will print all the texts and lines that the user has written into the editor.



By choosing number 4, this window will show. The program will ask the user to input the name for the file that will be saved onto a .txt file. Then the program will save the .txt file and the user can find and open it.





By choosing number 5, then the program will simply close.

Conclusion

From this project, we can conclude that while it is possible to use linked list to make a text editor, and while using queue might be faster, it is not necessarily better using them interchangeably for different functions might yield better results as our text editor only has an add, delete, print and save as .txt as its function. Using queues with linked lists might help make an undo or replace function since queue is a FIFO data structure.