CENG 311 P1 REPORT

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After some reach about heap array and priority queue, I started writing C program. I wrote a few functions before starting to main function. There were some steps to follow.

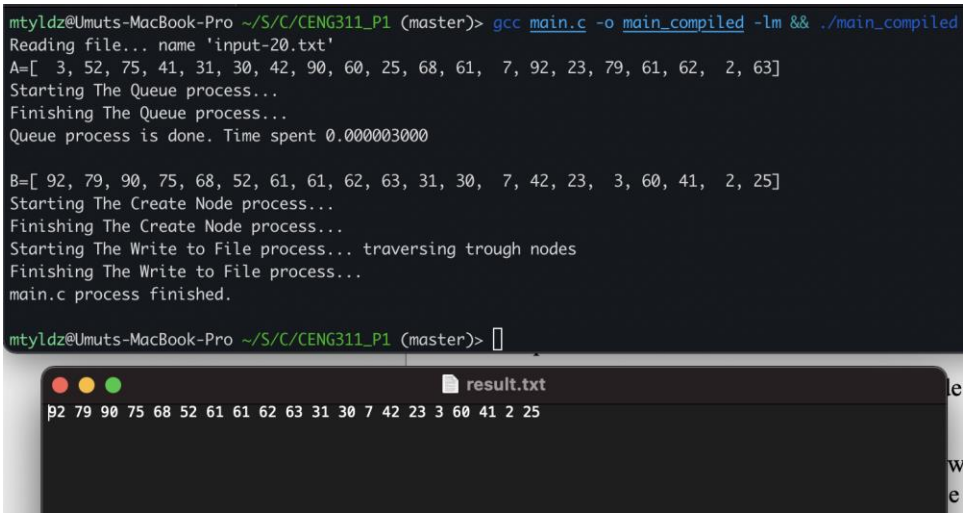
First, get the data from file and cast the strings to int and store them in a dynamic memory. I used malloc and gave 2 ^ 28 max size, also I record how many items loaded from file.

Secondly, I moved to convert function which will add all read int data to heap array then check if the added item is in correct position. If not swap it with its parent value.

Thirdly, I started writing create node function which will create nodes recursively.

Finally, I wrote a traverse function which gets a function pointer and runs the function with next int from the traverse order. I used a write file function with it and recorded the traverse order to a result file.

Here the first test result with 20 integer inputs.



Here the performance result with 2 ^ 28 integer inputs.

```
mtyldz@Umuts-MacBook-Pro ~/S/C/CENG311_P1 (master)> ./runc.sh
Reading file... name 'input-2^28.txt'
Starting The Queue process...
Finishing The Queue process...
Queue process is done. Time spent 6.115199000
Starting The Create Node process...
Finishing The Create Node process...
Starting The Write to File process... traversing trough nodes
Finishing The Write to File process...
main.c process finished.

Starting The file reading process... name: input-2^28.txt
Finishing The file reading process...
Starting The Queue process...
Finishing The Queue process...
Queue process is done. Time spent 4.052000000 seconds.
homework.java process finished.
```

I could not be able to record the c time less than java computation time. But the reading + converting takes less time in C.

NOT:

- To create an input file with 2 ^ 28 integers run the make.py file 4 times at same the same time. Each make.py file will write 2^26 integers to a file.
- Array printing is commented.
- run.sh file will automatically compile and run both C and Java files. (Some applications are required: gcc, javac and java)