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Lab7

File with front zero:
I tested the program with a file size of 100,000. It was expected that linear search would find the zero at the first search, because it starts from the beginning, so a time of 0.001 would be expected. Binary search had a time of 0, which was a little surprising that it was faster than a linear search because it starts in the middle.

Linear search result for '0' in array: 0
time: 0.001
Bubble sort completed
time: 51060.5
Binary search result for '0' in array: 0
time: 0

File with middle zero:
I tested the program with a file size of 100,000. It was expected that linear search would be slower than the linear search for the file with zero at the front, this is shown with a slower time of 0.158. Binary search had a time of 0.001, which was a much faster than a linear search which is expected, because binary search starts in the middle of the file.

Linear search result for '0' in array: 50000
time: 0.158
Bubble sort completed
time: 53429.8
Binary search result for '0' in array: 0
time: 0.001

File with end zero:
I tested the program with a file size of 100,000. For a file with a zero at the end I would expect that linear search would take a while because it has to go through the entire file. It took linear search 0.494, compared to binary search time of 0.001. The this was expected.

Linear search result for '0' in array: 99999
time: 0.494
Bubble sort completed
time: 58702.8
Binary search result for '0' in array: 0
time: 0.001

File with no zero:

It was expected that linear search would take longer than binary search because linear search has to go through the entire file to see if there is a zero. On the other hand binary search is much quiccker because it eliminates half of the file with each pass. This is seen with a linear search time of 0.323, and a binary search time of 0.001.

NOT FOUND!
time: 0.323
Bubble sort completed
time: 53207.1
NOT FOUND!
time: 0.001

I was having a hard time understanding how to implement exceptions to test file operations. I was able to get help with this at http://www.cplusplus.com/reference/ios/ios/exceptions/

I looked up how to calculate execution time and I decided to use the code submitted by fun2code (1678), on April 11, 2011 which displayed the time in milliseconds.
http://www.cplusplus.com/forum/beginner/40563/