

Project 1 Final Submission State

1. Problems Encountered in Implementation

- The single largest problem with my implementation is perhaps the excessive use of global variables in the program. I felt like this was the easiest way to run the program to specifications without passing by reference the same string pointer and size variable.
 - This has made it very easy to test the program as I went along
 - Given more time with the project I would go back and implement a more pointer-based design to better protect the processes of the program
- Another problem with the implementation was converting my MergeSort created for the milestone encryption into one that could handle a different form for the decryption.
 - I learned a lot about how to go from String to char implementing MergeSort in this manner however.
- Parsing the input line proved to be easier than I feared it would be after finishing my encode program
- Finding the next char was also surprisingly not too bad thanks to the helpful recitations as well as the provided pseudocode which saved a lot of time implementing it

2. Known Bugs or Incomplete Implementation

- At the present there are no bugs that resulted from testing in either encrypting or decrypting the text files

3. Significant Interaction with Peers

- Tingyu Luo – Mostly discussed the best way to handle the last column and first column of the decryption
 - We came to two separate conclusions in this regard, she felt that sticking to a 2D array would be easier, whereas I felt a pair of strings was sufficient and more efficient
- Conner Seawright- Conversed mostly about the MergeSort implementation since he and I both got stuck on it for a bit in the decryption
- Asked a question on Piazza to clarify some of the input/output implementation

4. Citations to External Books or References

- Cplusplus.com – Used primarily for specific cases where I got stuck on implementation
- GeeksForGeeks.com – Primarily used this resource to help me figure out why my Merge sort wasn't working initially, again
 - Khanna, Mayank. "Merge Sort." *GeeksforGeeks*, 14 Sept. 2017, www.geeksforgeeks.org/merge-sort/.
- C++ Cookbook from O'Reilly – Used it for simplifying some of my string-based functions
 - Stephens, Ryan, et al. "Chapter 4: Strings and Text." *C++ Cookbook*, O'Reilly, 2006, pp. 139–196.
- Introduction to Algorithms textbook – Used it to assist with implementation of merge sort
 - Cormen, Thomas H., et al. *Introduction to Algorithms*. Massachusetts Institute of Technology, 2009.

Project 1 Milestone State

5. Problems Encountered in Implementation

- The single largest problem with my implementation is perhaps the excessive use of global variables in the program. I felt like this was the easiest way to run the program to specifications without passing by reference the same string pointer and size variable.
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 - Given more time with the project I would go back and implement a more pointer-based design to better protect the processes of the program
- Another problem was implementing stdin for the command line inputs because I was completely unaware of how to program it and resources for it were relatively scant
 - I figured it out finally on 9/12/2019, but I had no clue what I was doing with inputs to begin with.

6. Known Bugs or Incomplete Implementation

- Currently having trouble with the newline characters, not entirely sure how to handle them
 - Current fix is to declare index 0 and declare the decryption line as empty

7. Significant Interaction with Peers

- Tingyu Luo – Mostly discussed the logic flow on the shifting algorithm
 - We drew some pictures to help articulate how the shift should move and swap string elements
 - We also conversed a bit about stdin/stdout since neither of us initially knew
- Conner Seawright
 - Conversed a bit about stdin/stdout since he and I were both somewhat ignorant of the topic
- Asked a pair of questions on Piazza to clarify some of the input/output implementation

8. Citations to External Books or References

- StackOverflow.com – Used primarily for specific cases where I got stuck in implementation
 - Trugman, Daniel. "Passing Text File Instead of User Input as Command Line Argument." *Stack Overflow*, 24 Oct. 2017, 7:15, stackoverflow.com/questions/46904130/passing-text-file-instead-of-user-input-as-command-line-argument.
- Cplusplus.com – Used primarily for specific cases where I got stuck on implementation
- GeeksForGeeks.com – Primarily used this resource to help me figure out why my Merge sort wasn't working initially
 - Khanna, Mayank. "Merge Sort." *GeeksforGeeks*, 14 Sept. 2017, www.geeksforgeeks.org/merge-sort/.
- C++ Cookbook from O'Reilly – Used it for simplifying some of my string-based functions
 - Stephens, Ryan, et al. "Chapter 4: Strings and Text." *C++ Cookbook*, O'Reilly, 2006, pp. 139–196.
- Introduction to Algorithms textbook – Used it to assist with implementation of merge sort and insertion sort
 - Cormen, Thomas H., et al. *Introduction to Algorithms*. Massachusetts Institute of Technology, 2009.