Asgn3-DESIGN

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Pseudo-code:

Quick:

The pseudo-code is given by the course staff and professor on the assignment document in python. I needed to convert the entirety of the code from python into the c-language, and needed to use various functions to index in c. The functions compare and swap were used a couple of times as a means to index without running into various errors. Each time an index would appear (to parse through the list), I would use either of the three commands: move, swap, or compare. However, to use these functions, I realized that I needed stats, a pointer to a list. I needed to define stats within each of the functions to be able to access stats, and use these three functions/commands. Aside from that, I created a main function within the file to locally test the sorting algorithm. I manually set an array to a bunch of unsorted integers, and fed the array as well as the size of the array to the quick sort function. This allowed me to test it, and find any errors within my code.

Shell:

Similar to quick sort, the pseudo-code is given by the course staff and professor on the assignment document in python. I needed to convert the entirety of the code from python into the c-language, and needed to use various functions to index in c. This specific function required gaps. Gaps was run through python, and created an array that would need to be used within the function. The algorithm would use it to compare the values and create a sorted list. I had the most trouble with this, but found that I needed to include the gaps macro, and go within it in the first for loop. Similar to the quick, I would also need to use the compare, swap, and move functions. Aside from that, I created a main function within the file to locally test the sorting algorithm. I manually set an array to a bunch of unsorted integers, and fed the array as well as the size of the array to the quick

sort function. This allowed me to test it, and find any errors within my code.

Batcher:

Similar to quick and shell, the pseudo-code is given by the course staff and professor on the assignment document in python. I needed to convert the entirety of the code from python into the c-language, and needed to use various functions to index in c. I would need to use the swap, move, and compare functions to handle the indices within each of the arrays. While the arrays were generated and created, they needed to be handled within these functions because of the way c handles arrays. Additionally, I needed to create a separate function to handle bit length. Following Miles' explanation and pseudo code, I created two variables, one that would be finding bit length and another as a loop counter. As long as the variable that was finding bit length was not equal to zero, there would be a bit shift occurring every time. This would occur until it hit the termination condition. Aside from that, I created a main function within the file to locally test the sorting algorithm. I manually set an array to a bunch of unsorted integers, and fed the array as well as the size of the array to the quick sort function. This allowed me to test it, and find any errors within my code.

Heap:

Similar to batcher, the pseudo-code is given by the course staff and professor on the assignment document in python. I needed to convert the entirety of the code from python into the c-language, and needed to use various functions to index in c. The same functions were employed within this. I would need to use the swap, move, and compare functions to handle the indices within each of the arrays. Aside from that, I created a main function within the file to locally test the sorting algorithm. I manually set an array to a bunch of unsorted integers, and fed the array as well as the size of the array to the quick sort function. This allowed me to test it, and find any errors within my code.

Credits:

On Monday (1/30), I attended Audrey's tutoring session. In the session, she gave pseudo code on how to approach the main function, and how to handle the swap function. She suggested that the other functions within stats were utilized in a similar way (though I later learned how the implementations differed).

On Tuesday (1/31), I attended Miles' tutoring session and started to understand what I was doing. I also figured out, with his help, how to implement the quick function. He helped me debug the function.

On Tuesday (1/31), I attended Eric's tutoring session and figured out how to add the gaps macro to the file. He also helped me understand how to implement the gaps within my first for loop for the shell function.

On Tuesday (1/31), I attended John's section where he explained the assignment in detail. He also went over the set file, and how to approach them. He gave some of the codes, with the people in the section participating.

On Wednesday (2/1), I attended Varun's tutoring session, and he helped me figure out how to use valgrind and gdb. I was having some trouble with the batcher function, and he helped me figure out how to use these tools as a means to debug. While he couldn't entirely figure out what the error was, he gave me a testing function to use locally.

On Wednesday (2/1), I attended Yiyaun's tutoring session, and figured out the errors I was getting within the batcher function. He helped me debug the function.

On Wednesday (2/1), I attended Muhammad's tutoring section, and figured out more out pointers and the stack. He gave information about the pointers, and how to use them as well as how they were being used within the functions.

On Thursday (2/2), I attended Ben's section and he helped me implement the swap and compare functions in the quick file. I had previously used a temporary variable, but that would not work in my testing file. On Thursday (2/2), I attended Audrey's extra tutoring hours, and figured out how to use the calloc function. She helped guide me through some of the testing function.

On Thursday (2/2), I attended Miles' section and figured out some of the errors within my heap function. I had not correctly inputted some of the operators and that was messing up my code. He helped me debug my code.