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Lab Section: 1108

**Project 9**

The purpose of this project was to write the header files and main program files for a test driver that tests all of the functions and constructors. The files that had to be written were NodeQueue.h, NodeQueue.cpp, ArrayQueue.h, ArrayQueue.cpp, DataType.h, DataType.cpp, and proj9.cpp. The classes in these header files were friend classes and had the ability to interact with each other’s private variables. A document was provided with what functions are required in each file and what they should do. Then I wrote a file called proj9.cpp which was a test driver file that tested the functionality of the other files I had to write. The test driver practically tests the ability of each Queue to use its functions properly. The functions tested in proj9.cpp are the default constructors, parametrized constructors, copy constructors, assignment operators, front, back, push, pop, size, empty, full, clear, and serialize. There is also a friend operator << that gets used in the files.

The hardest part about doing this project was writing the test driver file. It was really tricky trying to figure out how exactly to test each of the different functions, especially when it came to the operators and friend functions. Once I got the constructors out of the way I moved on to testing the operator functions and the regular functions. This is where the most of my time was spent on the project. Particularly on the front and back functions. I was having trouble getting my code to work for some of the parts and it took me a while to figure out why. I realized I had to return “this” on one of the functions and that made my problems for those functions go away. Another challenging part about the program was getting the assignment operator overload to work correctly. I ended up having to write 3 different functions just to get it to compile. I found that kind of interesting because I normally like to write one function at a time and see of the program compiles then move onto the next function. That way I do not have a terminal filled with errors while I am debugging my code, I only have to worry about debugging one function at a time.

To compile this project make sure all the files are together and type make all into the terminal. The output file is named “proj9”, and all you have to do is type ./proj9 to run the test driver and see the results of the program.