Homework 4 Computer Science 2010

1. Explain the difference between an ifstream, ofstream ,and fstream object. When would you use one over the other?

Ifstream refers to the input stream so when you open a file using ifstream you are only accepting input from the file itself, ofstream is output stream so after opening a file using it you can then write to the file. Fstream has both of the functions that ofstream and ifstream have.

I would use fstream for more basic processes that may require reading and writing to a file, but if I only need one of those specific functions then I would utilize the object that best suits the situation. For example, if I had a list of inputs within a file that I wrote and all I needed to do is accept the inputs I’d use ifstream. If I had a blank file that needed to be filled with output for another program I would use ofstream. If I had a file where I needed to write to it and read from it within the same program I would use fstream.

1. When using file streams, what happens if you try to open a file for reading that doesn’t exist?

If you try to read a file that doesn’t exist the program will end in a failed state because the file didn’t exist.

1. What happens if you try to open a file for writing that doesn’t exist?

When you try to write to a file that doesn’t exist the file will be created.

1. What is the difference between recursion and iteration? What are your own thoughts on which one is better?

Recursion is when a function makes a call to itself until a certain condition is met. Iteration is the set of statements to be executed repeatedly either for a specific number of times or until some condition is satisfied. I personally believe recursion can be more efficient in certain cases, however, iteration is a lot more useful because of its applicability to most scenarios. So, in my opinion, iteration is a lot better.

1. How is a template class different from a template function?

A template class is different from a template function in that a template class allows for the class to be made with any data type. Template functions allow for any data type to be passed into the function or for any data type to be returned by the function.