For this assessment, I used Visual Studio to write and run my program. Open the CSVassessment file in Visual studio to run the program. Adding the ProductList.xlsx file to the current folder with this word document will allow the program to read it. The output and error files are generated in bin/debug/net5.0 folder.

Question answers:

1. What is the runtime and space complexity of your program? Explain in Details.

The time and space complexity of this program is both O(n). The program runs with linear time and space running N amount of lines and using N amount of space and is dependent on the amount of rows it is reading.

1. Have you made any assumptions for designing your solution? If yes, please explain.

Yes, I assumed that the data follows the same format for each row and there are no extra columns of data. I also assumed that the errors would be null spaces for the strings.

1. Have you made any design decisions to make your solution more efficient and manageable? If yes, please explain.

I made my code easy to follow the flow of control and named my variables and methods in a way that would make sense.

1. How will your program change when the input source is a database instead of an excel file?

The overall design would still work but the file reader would need to be changed. There would need to be changes on how the data is validated as well. The file writing would mostly be the same as it currently is.

1. How will your program behave when total product count is more than 10 million?

Because my program is dependent on the number of lines it is reading, it will most likely take longer and require more space to finish.