CS 200: Computer Organization

Project 6: RLE Compression

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Due: Friday, March 14, 2014

Overview

Purpose

This project required us to write a program in C or C++ that accepts a file and, compresses and decompresses it using Run Length Encoding.

Approach

In order to complete this project I researched Run Length Encoding and figured out that the objective was the take in a character array and convert it to having it display the number of times repeat characters appear followed by converting it back to its original form.

Example:

Input: "aaaawwww"

Encoded: "4a 4w"

Decoded: "aaaawwww"

This process involved iterating through the array and counting the number consequent repeats and, printing the number of repeats with the repeating character. For some reason, the program did not create a new file when the encode and decode functions were run even before any editing to the skeleton code. I heavily commented my code so that my thought flow is conveyed if my code does not work.
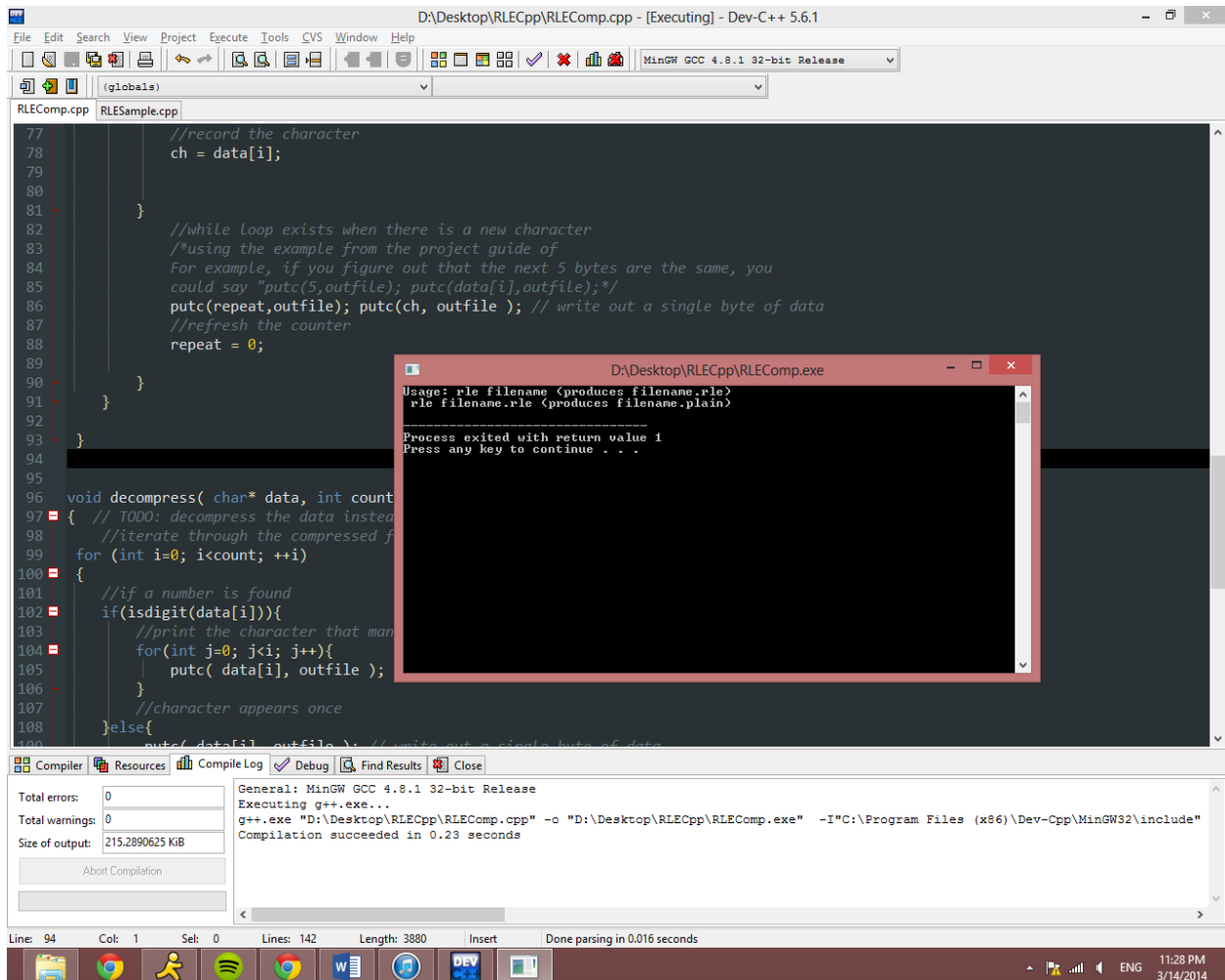
Solution

Sample Output

Figure 1: Sample Output

Conclusion

This project was very stressful for me because I had to deal with midterms for some

courses and could not start the project until the evening it was due. I wish I had more

time to test this file because this was a really fun project. Even though it did not work for

me, it would have been very rewarding to actually see the file size decrease and increase. I think this was also a great project because it was very open ended. My algorithm was simple but required a lot of trial-and-error because I did not have time to fully plan it before I started designing. This made for a good exercise in test driven development.

References

Isdigit function

http://www.cplusplus.com/reference/cctype/isdigit/

Wikipedia – Run Length Encoding

http://en.wikipedia.org/wiki/Run-length_encoding