Project 2

CMSC 430

Compiler Theory and Design

7/14/2020

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**Approach and Lessons**

I approached this assignment in a similar way I did the last. Googling things, trial and error, and incremental changes. I tried making a lot of changes at once but that did not work well. I ended up breaking a lot of things that way. I kept getting shift/reduce and reduce/reduce errors until I figured out what I was doing that was causing them and how to prevent them.

So, after creating lots of errors by changing a lot, I focused on making incremental changes and ensuring no errors were created and if any errors were created, I figured out what they were. I discovered that my ‘scanner.l’ program from project 1 had one defect in it that was causing some problems downstream. Once I had that problem fixed it was much closer to smooth sailing from then on.

The other thing I needed to figure out was how the ‘parser.y’ actually worked. In the beginning I was just messing around with it. I had done a similar parsing program earlier, so I understood the basic concept I needed but the implementation was different, and I needed to figure out how to allow for recursion and precedence in the bison format.

This was an interesting project. After a certain amount of work and effort and I figured out more of what I was doing the modifications became easier and less prone to causing errors.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test | Input | Expected Output | Actual Output | Pass? |
| 1 See screenshot | test1.txt | What was input with a number to the left of each line.  Compiled Successfully! |  |  |
| 2 See screenshot | test2.txt | What was input with a number to the left of each line.  Compiled Successfully! |  |  |
| 3 See screenshot | test3.txt | What was input with a number to the left of each line.  Compiled Successfully! |  |  |
| 4 See screenshot | test4.txt | What was input with a number to the left of each line.  Compiled Successfully! |  |  |
| 5 See screenshot | test5.txt | What was input with a number to the left of each line.  Compiled Successfully! |  |  |
| 6 See screenshot | test6.txt | What was input with a number to the left of each line.  Compiled Successfully! |  |  |
| 7 See screenshot | test7.txt | What was input with a number to the left of each line.  Compiled Successfully! |  |  |
| 8 See screenshot | test8.txt | What was input with a number to the left of each line.  Compiled Successfully! |  |  |
| 9 See screenshot | test9.txt | What was input with a number to the left of each line.  Compiled Successfully! |  |  |
| 10 See screenshot | test10.txt | What was input with a number to the left of each line.  Compiled Successfully! |  |  |
| 11 See screenshot | test11.txt | What was input with a number to the left of each line.  Compiled Successfully! |  |  |
| 12 See screenshot | test12.txt | What was input with a number to the left of each line.  Compiled Successfully! |  |  |
| 13 See screenshot | test13.txt | What was input with a number to the left of each line.  Compiled Successfully! |  |  |
| 14 See screenshot | test14.txt | What was input with a number to the left of each line.  Compiled Successfully! |  |  |
| 15 See screenshot | syntax1.txt | What was input with a number to the left of each line.  Lexical Errors: 0  Syntax Errors: 1  Semantic Errors: 0 |  |  |
| 16 See screenshot | syntax2.txt | What was input with a number to the left of each line.  Lexical Errors: 0  Syntax Errors: 1  Semantic Errors: 0 |  |  |
| 17 See screenshot | syntax3.txt | What was input with a number to the left of each line.  Lexical Errors: 0  Syntax Errors: 1  Semantic Errors: 0 |  |  |
| 18 See screenshot | syntax4.txt | What was input with a number to the left of each line.  Lexical Errors: 0  Syntax Errors: 2  Semantic Errors: 0 |  |  |
| 19 See screenshot | syntax5.txt | What was input with a number to the left of each line.  Lexical Errors: 0  Syntax Errors: 5  Semantic Errors: 0 |  |  |
| 20 See screenshot | ztest1.txt  Based on test8.txt with syntax errors | What was input with a number to the left of each line.  Lexical Errors: 0  Syntax Errors: 2  Semantic Errors: 0 |  |  |
| 21 See screenshot | ztest2.txt  Based on syntax5.txt added lexical error | What was input with a number to the left of each line.  Lexical Errors: 1  Syntax Errors: 5  Semantic Errors: 0 |  |  |
| 22 See Screenshot | ztest3.txt  Based on test14.txt with 4 syntax errors added | What was input with a number to the left of each line.  Lexical Errors: 0  Syntax Errors: 4  Semantic Errors: 0 |  |  |