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CMSC430: Advanced Programming Languages

University of Maryland Global Campus

Professor Jarc

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| --- | --- | --- | --- | --- |
| Test Case | Input | Expected Output | Actual Output | Pass? |
| 1 | ./compile < test5.txt | 1 -- Function with a Real Variable and Boolean and Real Literals  2  3 function main returns boolean;  4 r: real is 5.7;  5 begin  6 true and 2 < 8.E+1 + 1.7E-2 \* 7.3E2;  7 end;  Compiled Successfully |  | YES |
| 2 | ./compile < test6.txt | 1 -- Conditional expression  2  3 function main returns integer;  4 begin  5 if 5 + 4 >= 9 then  6 6 + 9 \* 3;  7 else  8 8 - 9 / 7;  9 endif;  10 end;  Compiled Successfully |  | Yes |
| 3 | ./compile < test7.txt | 1 // Case selection  2  3 function main returns integer;  4 a: integer is 4 + 2;  5 begin  6 case a is  7 when 1 => 3;  8 when 2 => (3 + 5 - 5 - 4) \* 2;  9 others => 4;  10 endcase;  11 end;  Compiled Successfully |  | Yes |

Snapshots of Test Run:

Text

Description automatically generated

Text

Description automatically generated

A screenshot of a computer

Description automatically generated

Text

Description automatically generated

A screenshot of a computer

Description automatically generated with medium confidence

Reflection:

For this project, I used notepad for editing and Cygwin for building, compiling, and testing. I worked with a parser syntax analyzer, which included many mathematical operations, context-free grammar, and recursion in order to compile the tests successfully and detect errors as needed for the syntax files. While this was a very time consuming project, I had much less struggle with this project. I followed the approach from the very beginning. And with help from my professor and tutor, I was able to implement the nonterminal and terminal grammar. EBNF Braces had to be removed, as bison does not detect EBNF grammar. In place of the EBNF grammar illustrated in the requirements and approach, I had to incorporate recursion instead. Within a few days, I was able to get the test to compile successfully as needed. The only thing I want to do in the future is to start with the approach rather than the requirements. That way, I can plan my time more effectively.