Compiler Lab

Class Work

**Problem Description:**

In this assignment, you will implement how to evaluate a mathematical expression. The program will ask the user to enter lines of input each of which contains an identifier and its corresponding value. Then user will input lines of expressions. Your job is to calculate the final value of the given expressions. If you can't evaluate any expression due to syntax error then output 'Compilation Error'. Allowed mathematical operators are +(add), -(subtract), \*(multiply), /(divide).

|  |  |
| --- | --- |
| **Input:**  Enter the Expression:  a = 1  b = 2  c = 2  a \* b + a \* c + b \* c  **Output:**  Compilation Successful!!  The Result is: 8 | **Input:**  1+4\*5  **Output:**  Compilation Successful!!  The Result is: 21 |
| **Input:**  a \* c – (b / c + c \* c)  **Output:**  Compilation Successful!!  The Result is: -3 | **Input:**  -10+4\*-7  **Output:**  Compilation Successful!!  The Result is:-38 |
| **Input:**  (1+4)\*5  **Output:**  Compilation Successful!!  The Result is: 25 | **Input:**  -10+(4\*-7  **Output:**  Syntax Error |

**Source Code Attached..**

testFlex.l

testYacc.y [Using Ambiguous Grammar but applying Yacc precedence and associativity rules]

testYacc1.y [Using Unambiguous Grammar]

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Home Task

Write a Yacc program that takes Boolean expressions as input [as given by the following grammar] and produces the truth value of the expressions.

bexpr → bexpr **or** bterm | bterm

bterm → bterm **and** bfactor | bfactor

bfactor → **not** bfactor | ( bexpr ) | **true** | **false**

You can use the following sample Boolean expressions to test your parser:

|  |  |
| --- | --- |
| **Input:**  true and ( false or true ) and not false  **Output:**  true | **Input:**  false or true and false  **Output:**  false |
| **Input:**  true or false and true  **Output:**  true | **Input:**  true and false or true  **Output:**  true |
| **Input:**  the and and  **Output:**  Compilation Error |  |

**Submission Deadline: 23-12-2021**