Assignment - V Compiler Design Laboratory (CS3075)
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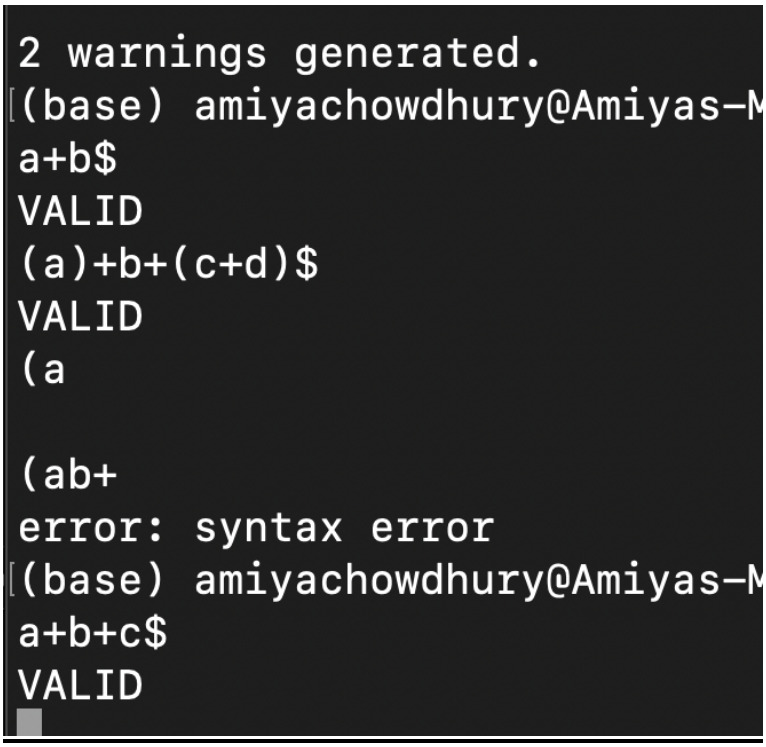
1. Consider the following grammar
E->E+T|T
T->T*F|F
F->(E)|id|c
where identifier id=letter(letter|digit)*, letter=[a-zA-Z], and digit=[0-9]; constant c=digit(digit)*
Design a string recognizer for the given grammar using Flex and Bison.
The application will parse the expression and report it is syntactically correct.
It will report error for if the given expression is not recognized.

Solution File: ***lab5_1.l*** **,** ***lab5_1.y***

Working Screenshot:



Note: The program correctly identifies if the sentence can derived from the grammar. However the error management is lacking as it cannot present a detailed description of the error. The only error message displayed is “Syntax Error”. Attempting to learn more about specialized error detection.

2. Design a FLEX/BISON application to check the syntactical correctness of declaring variables in C language. Consider the date type of variables as int, char, float, unsigned int, long int, short int, double, long double. Check the declaration of duplicate variable.

Solution File: ***lab5_2.l , lab5_2.y***

Working Screenshot:

```
2 warnings generated.
(base) amiyachowdhury@Amiyas-
int a,b;
VALID
unsigned int c;
VALID
long int ab1234;
VALID
int a,

int c;
Error at position: 4
(base) amiyachowdhury@Amiyas-
int a,a;
Variable already declared bef
Error at position: 2
(base) amiyachowdhury@Amiyas-
float b;
VALID
^C
(base) amiyachowdhury@Amiyas-
```

Note: Detection of duplicate variables in the same declaration has been implemented with a simple array of string pointers. The array is deallocated after each line is parsed. The program, yet again, cannot present specialized error messages.