Ex No: 5
Date:12/03/24

RECOGNIZE AN ARITHMETIC EXPRESSION USING LEX AND YACC

AIM:

To check whether the arithmetic expression using lex and yacc tool.

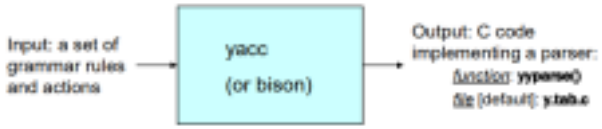
ALGORITHM:

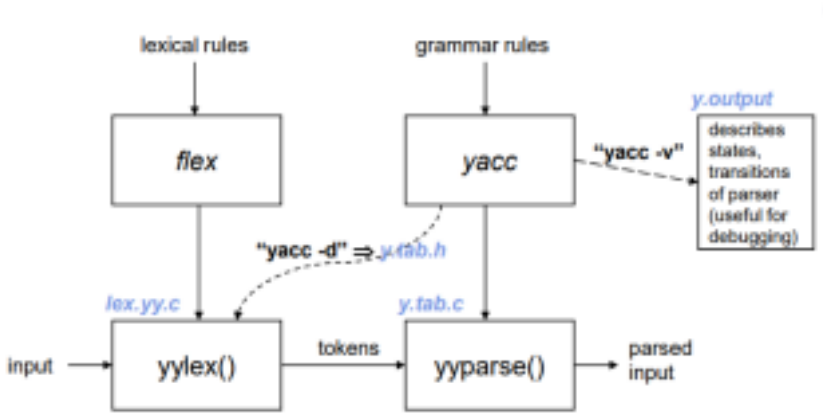
● Using the flex tool, create lex and yacc files.
● In the C include section define the header files required.
● In the rules section define the REGEX expressions along with proper definitions. ● In the user defined section define yywrap() function.
● Declare the yacc file inside it in the C definitions section declare the header files required along with an integer variable valid with value assigned as 1.
● In the Yacc declarations declare the format token num id op.
● In the grammar rules section if the starting string is followed by assigning operator or identifier or number or operator followed by a number or open parenthesis followed by an identifier. The x could be an operator followed by an identifier or operator or no operator then declare that as valid expressions by making the valid stay in 1 itself.
● In the user definition section if the valid is 0 print as Invalid expression in yyerror() and define the main function.

LEX AND YACC WORKING :

Parser generator:

● Takes a specification for a context-free grammar.
● Produces code for a parser.





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PROGRAM:

validexp.l:

```
%{
#include<stdio.h>
#include "y.tab.h"
%}

%%
[a-zA-Z]+ return VARIABLE;
[0-9]+ return NUMBER;
[\t] ;
[\n] return 0;
. return yytext[0];
%%
int yywrap()
{
return 1;
}
```

validexp.y:

```
%{
#include<stdio.h>
%}
%token NUMBER
%token VARIABLE

%left '+' '-'
```

```
%left '*' '/' '%'
%left '(' ')'

%%
S: VARIABLE'='E {
printf("\nEntered arithmetic expression is Valid\n\n");
return 0;
}
E:E'+'E
|E'-'E
|E'*'E
|E'/'E
|E'%'E
|'('E')'
| NUMBER
| VARIABLE
;

%%
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void main()
{
printf("\nEnter Any Arithmetic Expression which can have operations Addition, Subtraction, Multiplication, Divison, Modulus and Round brackets:\n"); yyparse();
}

void yyerror()
{
printf("\nEntered arithmetic expression is Invalid\n\n");

}
```
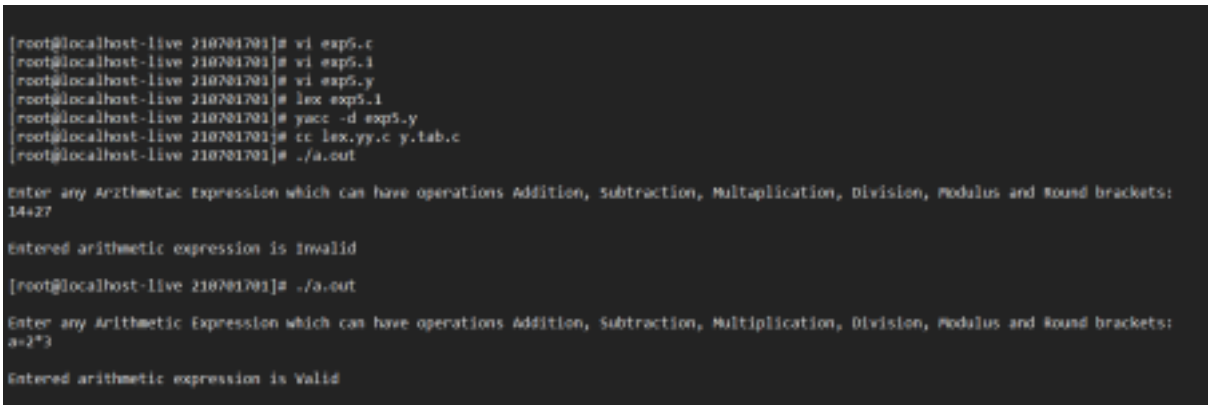

OUTPUT:



RESULT: To check whether the arithmetic expression using lex and yacc tool has verifyed