Assignment - 11

33119

Title : LEX - YACC calculator

Problem Statement : Write a program to implement calculator using LEX & YACC.

Objectives :

1.) To study LEX and YACC.
2.) To learn their syntax.
3.) To study about their combined working.

Theory :

1.) What is LEX ?

→ 1.) LEX is a scanner, program (generator) that generates lexical analyzer.
2.) It is mostly used with Yacc purser generator.
3.) It reads this input stream and outputs source code implementing. the lexical analyzer in the C. programming language.
4.) LEX will need patterns (regular expression); then produces C code for a LA that scans for identifiers.

2.) What is the input structure to lex ? Explain with example.

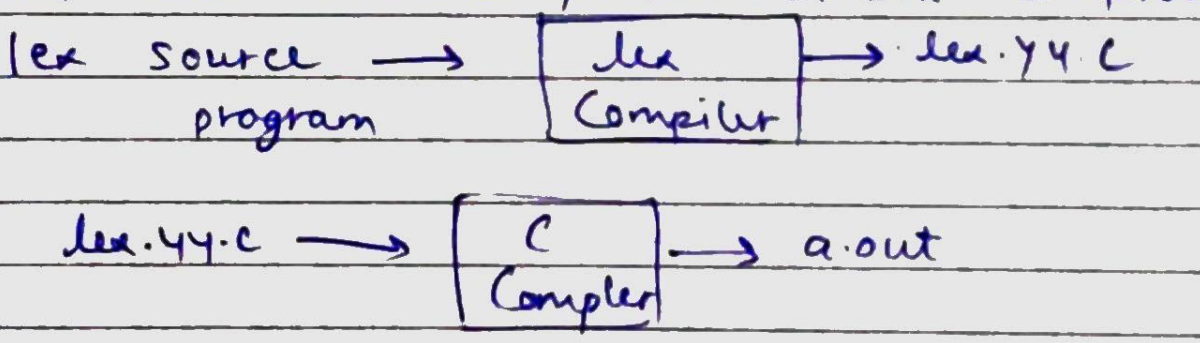
→ .... Definition Section ....
%% %%
.... Rules Section ....
%% %%

.... C code Section (Subroutine) ....

eg.
```
%% %%
    ECHO;
In ECHO;
%% %%
int yywrap(void){
        return 1;
}
int main (void){
    yylex();
    return 0;
}
```

Echo is an action & predefined macro in lex that writes code-matched by the pattern.

- Explain the overall process of Lex Compiler



What is YACC?

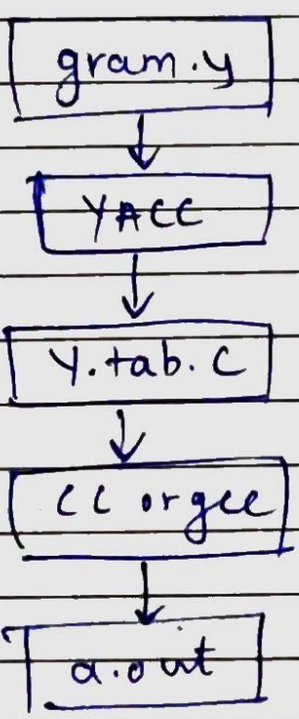
→ if Yacc stands for "Yet Another Compiler Compiler"
- It reads the grammar and generates C code for a parser
- Grammars written in Backus Naur Form (BNF)

- This is known as bottom-up or Shift-reducing parsing.
- It uses stack for storing (LIFO)

- What are sections of YACC input?

..... definitions .....
%% %%
.... rules ....
%% %%
.... subroutines ....

- Write the basic Operational sequence of YACC.



File containing derived grammar in YACC format

YACC Program

C source program created by YACC.

C Compiler

Executing program that will parse grammar given in gramm.y.

Conclusion :

Thus, I have studied about LEX & YACC, their structure, linkage and have also successfully implemented the calculator using LEX & YACC.