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ASSIGNMENT- 11

TITLE : LEX - YACC CALCULATOR

PROBLEM STATEMENT : WAP to implement a calculator using LEX and YACC

THEORY :

- LEX :

- Lex is a scanner, program generator that generates lexical analysers. It is mostly used with YACC parser generator. It reads i/p stream & o/p source code implementing the lexical analyser in the C programming language. It reads regular expressions, then produces code for a lexical analyser that scans for identifiers. Regular expressions are translated by LEX to a computer program that mimics an FSA/FSM.

- Input structure to LEX :

```
.... definitions section ...
        %. %.
... rules section ...
        %. %.
.... code section (sub-routines) ...
```

Lex source program → Lex compiler → lex.yy.cc

lex.yy.cc → C compiler → a.out

input.c → a.out → sequence of tokens.

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- **YACC:**
  - Yet another compiler compiler reads grammar & generates C code for a parser. Grammar should be written in BNF form which is used to express CFL. To parse an expression, do reverse operation (reducing operation). This is known as bottom-up or shift-reducing parsing. It uses stack for storing

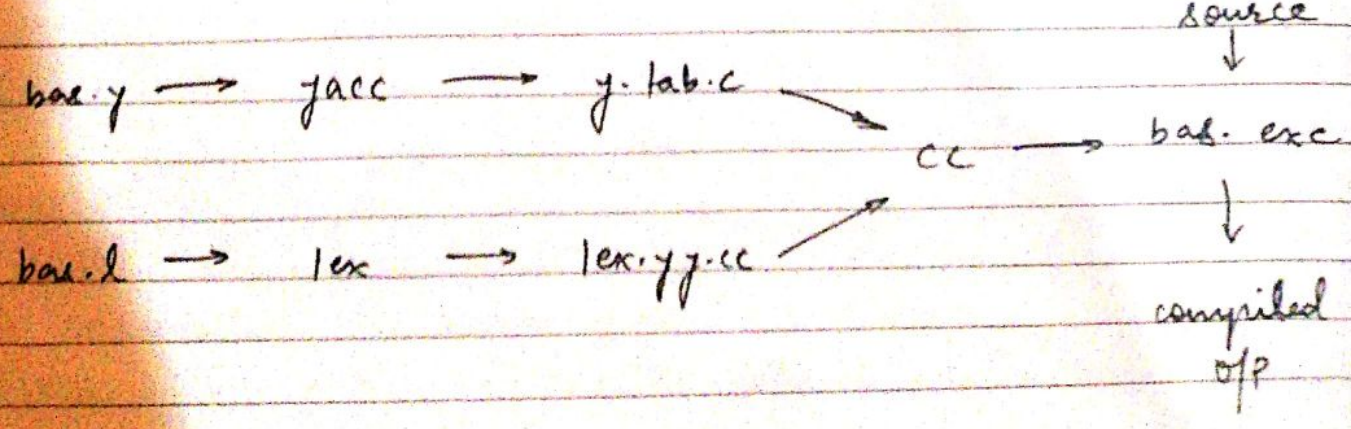
  - Input structure to YACC:

```
... definitions ...
%. %
... rules ....
%. %.
... sub-routines ...
```

gram.y → yacc → y.tab.c → cc or gcc → a.out

file of desired grammars	yacc program	C src program created by yacc	C compiler	executing grammar in gram

- **LINKING OF LEX AND YACC:**



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- CONCLUSION :

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

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