Exp No: 3

Date:

DEVELOP A LEXICAL ANALYZER TO RECOGNIZE TOKENS USING LEX TOOL

AIM:

To implement the program to identify C keywords, identifiers, operators, end statements like [], {} using LEX tool.

ALGORITHM:

- 1. Initialize a variable n to count the number of lines.
- 2. Define patterns for letters, digits, identifiers, arithmetic operators (AO), relational operators (RO), preprocessor directives (pp), and other symbols.
- 3. Define actions to perform when a pattern is matched and display the corresponding pattern type.
- 4. Open the file "sample.c" for reading and invoke lexical analysis with yylex().
- 5. Count the number of newline characters encountered and store it in n.
- 6. Display the number of lines, n.

PROGRAM:

```
%option noyywrap
letter [a-zA-Z]
digit [0-9]
id [\_|a-zA-Z]
AO [+|-|/|%|*]
RO [<|>|<=|>=|==]
pp [#]
% {
int n=0;
% }
%%
"void"
                                 printf("%s return type\n",yytext);
{letter}*[(][)]
                                 printf("%s Function\n",yytext);
"int"|"float"|"if"|"else" printf("%s keywords\n",yytext);
"printf"
                                         printf("%s keywords\n",yytext);
\{id\}(\{id\}|\{digit\})^*
                                 printf("%s Identifier\n",yytext);
                                 printf("%d Numbers\n",yytext);
{digit}{digit}*
```

Roll Number: 210701071

Name: Harini V

OUTPUT:

```
-(kali®kali)-[~/Documents/cdlab]
└$ vi exp2.l
 -(kali⊕kali)-[~/Documents/cdlab]
_s lex exp2.l
 -(kali®kali)-[~/Documents/cdlab]
└$ gcc lex.yy.c
  -(kali⊕kali)-[~/Documents/cdlab]
└$ ./a.out
int a = b + c;
int keywords
a Identifier
 = Relational Operators
b Identifier
+ Arithmetic Operators
c Identifier
; others
float t = 0.5 * a;
float keywords
 t Identifier
 = Relational Operators
1741780218 Numbers
. others
1741780220 Numbers
 * Arithmetic Operators
a Identifier
; others
```

RESULT:

Thus, a c program is implemented to identify C keywords, identifiers, operators, end statements like [], {} using LEX tool.

Roll Number: 210701071

Name: Harini V