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);
```

Roll No: 210701119
Name: Keerthanaa SP

```
"printf"                        printf("%s keywords\n",yytext);
{id}({id}|{digit})*             printf("%s Identifier\n",yytext);
{digit}{digit}*                 printf("%d Numbers\n",yytext);
{AO}                            printf("%s Arithmetic Operators\n",yytext);
{RO}                            printf("%s Relational Operators\n",yytext);
{pp}{letter}*[<]{letter}*[.]{letter}[>] printf("%s processor
Directive\n",yytext);
[\n]                            n++;
"."|","|"}"|"{"|";"             printf("%s others\n",yytext);
%%
int main(){
        yyin=fopen("sample.c","r");
        yylex();
        printf("No of Lines %d\n",n);}
```

OUTPUT:

Roll No: 210701119
Name: Keerthanaa SP

```
┌──(kali㉿kali)-[~/Documents/cdlab]
└─$ vi exp2.l

┌──(kali㉿kali)-[~/Documents/cdlab]
└─$ 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 No: 210701119
Name: Keerthanaa SP