

Ex No: 3

Date:

DEVELOP A LEXICAL ANALYZER TO RECOGNIZE TOKENS USING LEX TOOL

AIM:

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

ALGORITHM:

- Configure lexer options with `%option noyywrap`.
- Define regular expressions for tokens like `letter`, `digit`, and `id`.
- Initialize a counter variable `n` to track line count.
- Define rules to identify language constructs such as keywords, function names, identifiers, numbers, operators, and preprocessor directives.
- Increment the line count for each newline character encountered.
- In the `main()` function, open the file "sample.c", perform lexical analysis with `yylex()`, and print the total number of lines processed.
-

PROGRAM:

```
%option noyywrap
```

```
letter [a-zA-Z]
```

```
digit [0-9]
```

```
id [_|a-zA-Z]
```

```
AO [+|-|/|%|*]
```

```
RO [<|>|<=|>|=|==]
```

```
pp [#]
```

```
%{
```

```
int n=0;
```

```
% }
```

```
%%
```

```
"void"
```

```
{letter}*([()])
```

```
"int"|"float"|"if"|"else"
```

```
"printf"
```

```
{id}({id}|{digit})*
```

```
{digit}{digit}*
```

```
printf("%s return type\n",yytext);
```

```
printf("%s Function\n",yytext);
```

```
printf("%s keywords\n",yytext);
```

```
printf("%s keywords\n",yytext);
```

```
printf("%s Identifier\n",yytext);
```

```
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:

```

→ exp3 lex 267.l
→ exp3 cc lex.yy.c
278.l: In function 'yylex':
278.l:18:8: warning: format '%d' expects argument of type 'int', but argument 2 has type 'char *' [-Wformat=]
   18 | {digit}{digit}*          printf("%d Numbers\n",yytext);
      | |          ^~~~~~
      | |          |
      | |          char *
→ exp3 ./a.out
#include<conio.h> processor Directive
void return type
main() Function
{ others
  int keywords
  k Identifier
  , others
  llm Identifier
  , others
  kl Identifier
  ; others
} others
No of Lines 8

```

RESULT: