

## PRACTICAL-1

### AIM:

Implement a lexical analyzer for a subset of C using LEX Implementation should support Error handling.

### IMPLEMENTATION:

- lex <filename with .l extension>
- gcc <newly created .c file> -o <file name for exe file>
- <filename of exe file>

In this case, create an extra text file named abc.txt which will contain some C code to work as input for lexical analysis.

### PROGRAM CODE:

```
%%
"#" {printf("\n %s \t Preprocessor",yytext);}
"main"|"printf"|"scanf" {printf("\n%s\tfunction",yytext);}
"if"|"else"|"int"|"unsigned"|"long"|"char"|"switch"|"case"|"struct"|"do"|"while"|"void"|"for"|"float"|"continue"|"break"|"include" { printf("\n%s\tKeyword",yytext); }
[_a-zA-Z][_a-zA-Z0-9]* {printf("\n%s\tIdentifier",yytext);}
"+"|"|"|"*"|"-" {printf("\n%s\tOperator",yytext);}
"="|"<"|">"|"!="|"=="|"<="|">=" {printf("\n%s\tRelational Operator",yytext);}
"%d"|"%"|"s"|"%"|"c"|"%"|"f" {printf("\n%s\tTokenizer",yytext);}
"stdio.h"|"conio.h"|"math.h"|"string.h"|"graphics.h"|"dos.h" {printf("\n%s\tHeader File",yytext);}
";"|"|" {printf("\n%s\tDelimiter",yytext);}
"(")" " {if(strcmp(yytext,"(")==0)
{
printf("\n%c\tOpening Parenthesis",yytext[0]);
}
else
{
printf("\n%c\tClosing Parenthesis",yytext[0]);
}
```

```
    }
    ;}
{" {printf("\n%s\tStart Of Function/Loop",yytext);}
"}" {printf("\n%s\tEnd of Function",yytext);}
%%
int yywrap(void)
{
    return 1;
}
int main()
{
    int i;
    FILE *fp;
    fp=fopen("abc.txt","r");
    if(fp==NULL)
    {
        printf("Unable To Open File");
    }
    else
    {

        yyin=fp;
    }
    yylex();
    printf("\n\nPARTH PATEL\n19DCS098");
    return 0;

}
```

## TEXT FILE:

```
#include<stdio.h>

void main()
{
    printf("hii");
    printf("19DCS098");
}
```

## OUTPUT:

```
PS C:\00_SEM_7\3_CS450_DESIGN_OF_LANGUAGE_PROCESSORS\1_PRACTICALS\0_PRE_BUILT\Pract-1-LEX> flex pract1.l
PS C:\00_SEM_7\3_CS450_DESIGN_OF_LANGUAGE_PROCESSORS\1_PRACTICALS\0_PRE_BUILT\Pract-1-LEX> gcc lex.yy.c -o program
pract1.l: In function 'yylex':
pract1.l:11:5: warning: implicit declaration of function 'strcmp' [-Wimplicit-function-declaration]
"("|")" {if(strcmp(yytext,"")==0)
^~~~~~
```

```
PS C:\00_SEM_7\3_CS450_DESIGN_OF_LANGUAGE_PROCESSORS\1_PRACTICALS\0_PRE_BUILT\Pract-1-LEX> ./program

#      Preprocessor
include Keyword
<      Relational Operator
stdio.h Header File
>      Relational Operator

void    Keyword
main    function
(       Opening Parenthesis
)       Closing Parenthesis

{       Start Of Function/Loop

printf  function
(       Opening Parenthesis"
hii     Identifier"
)       Closing Parenthesis
;       Delimiter

printf  function
(       Opening Parenthesis"19
DCS098  Identifier"
)       Closing Parenthesis
;       Delimiter

}       End of Function

PARTH PATEL
19DCS098
```