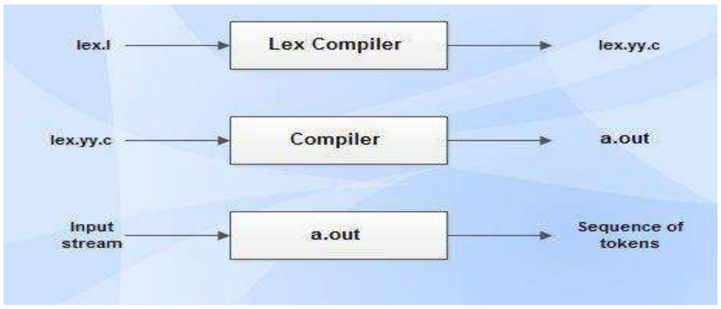
Ex No: 2
Date:

IMPLEMENT A LEXICAL ANALYZER TO COUNT THE NUMBER OF WORDS USING LEX TOOL

AIM:
To implement the program to count the number of words in a string using LEX tool.

STUDY:

Lex is a tool in lexical analysis phase to recognize tokens using regular expression. Lex tool itself is a lex compiler.



- lex.l is an a input file written in a language which describes the generation of lexical analyzer. The lex compiler transforms lex.l to a C program known as lex.yy.c.
- lex.yy.c is compiled by the C compiler to a file called a.out.
- The output of C compiler is the working lexical analyzer which takes stream of input characters and produces a stream of tokens.
- yyval is a global variable which is shared by lexical analyzer and parser to return the name and an attribute value of token.
- The attribute value can be numeric code, pointer to symbol table or nothing.
- Another tool for lexical analyzer generation is Flex.

STRUCTURE OF LEX PROGRAMS:

Lex program will be in following form

declarations

%%

translation rules

%%

auxiliary functions

ALGORITHM:

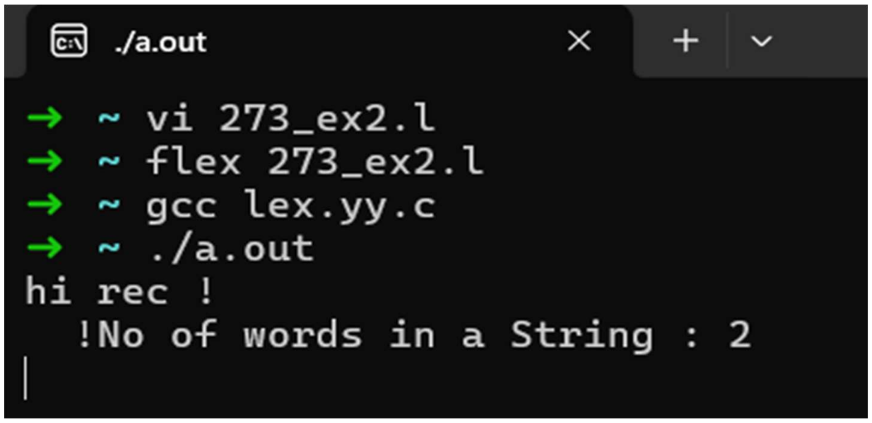
- Define tokens `let` and `dig` using `%token` directive and lexical rules in `yylex()` to recognize them.
- Define grammar rules in BNF form for `sad` and `recld` in the Bison specification.
- Implement semantic actions to print "accepted" for valid inputs and "rejected" for errors.
- In the `main()` function, call `yyparse()` to initiate parsing and prompt user input with "Enter a variable : ".
- During execution, the program scans input, applies grammar rules, and executes semantic actions.
- Handle errors by triggering the `error` rule and calling `yyerror()` to print "rejected" and exit.

PROGRAM:

```
%{
#include<stdio.h>
#include<string.h>
int i=0;
%}


%%
([a-zA-Z0-9])*     {i++;}
"\n"               {printf("No of words in a String :
%d\n",i);i=0;}
%%


int yywrap(void){}


int main()
```

```
{
yylex();


return 0;
}
```

OUTPUT:



```
→ ~ vi 273_ex2.l
→ ~ flex 273_ex2.l
→ ~ gcc lex.yy.c
→ ~ ./a.out
hi rec !
  !No of words in a String : 2
```

RESULT: