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Practical No. 2

* Title : Count the number of comments, keywords, identifiers, words, lines, and spaces from input file.

* Objectives : Students will learn and implement
  → Lex as a scanner
  → Count the number of comments, keywords, identifiers, words, lines and spaces from input file.

* Description : Read each character from the text file:

i) Is it a capital letter in English ? [A-Z] : Increment capital letter counts by 1.

ii) Is it a small letter in English ? [a-z] : Increment small letter count by 1.

iii) Is it [0-9] ? Increment digit count by 1.

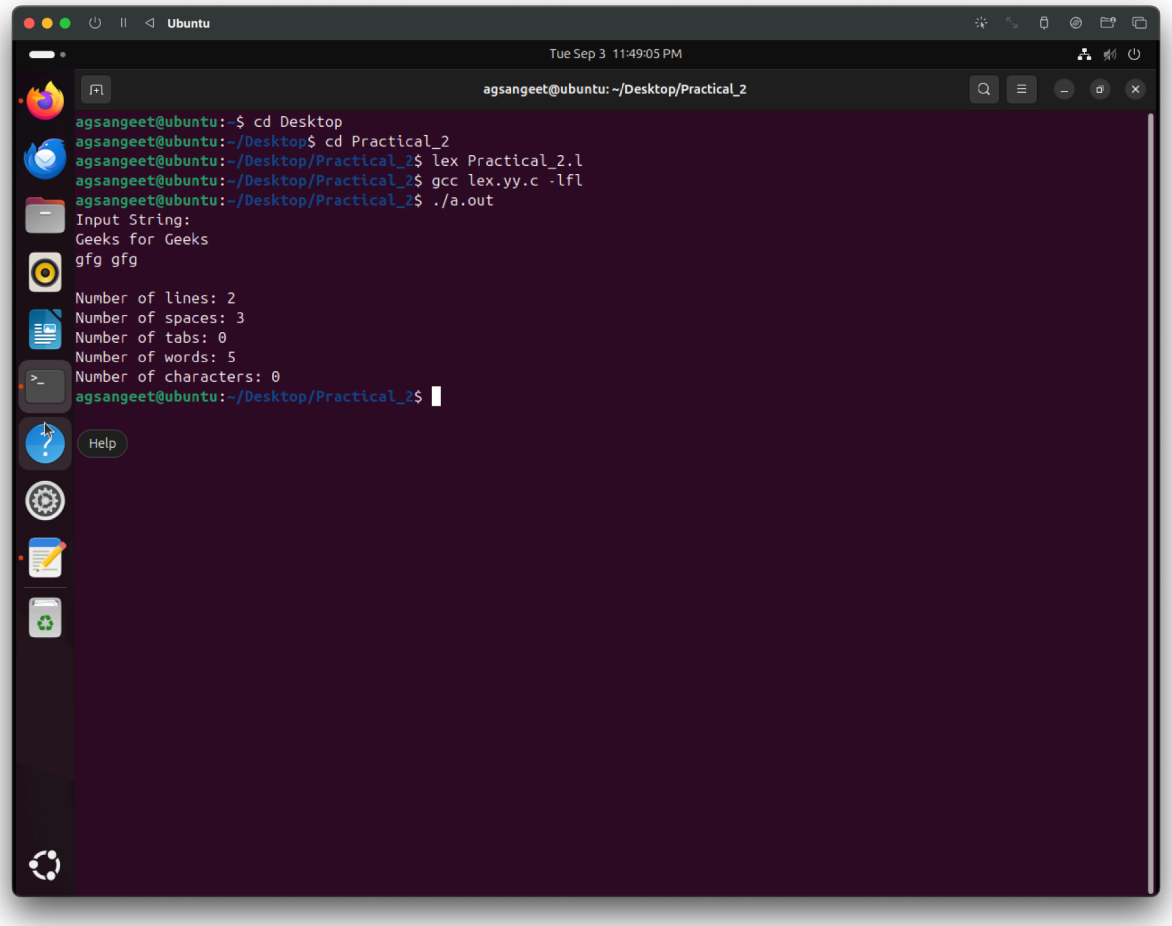
iv) All other characters (like '!', '@', '&') are counted as special charaiters.

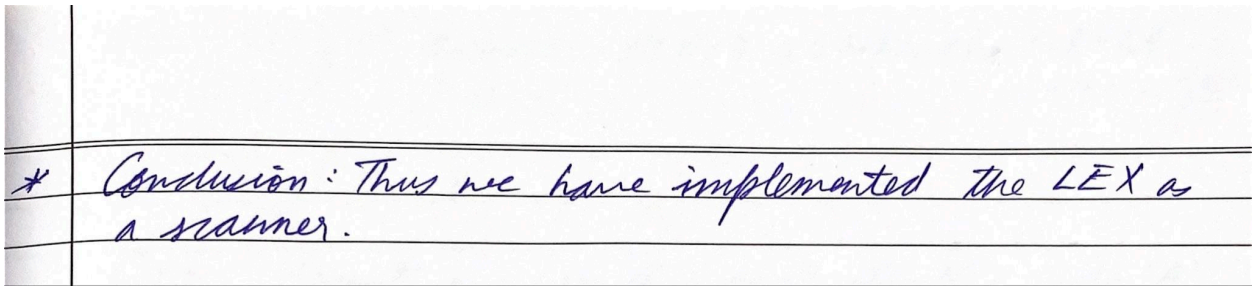
v) How to count the number of lines ? We ~~suppose~~ simply counters of '\n' <newline> characters.

vi) To count the number of words, white spaces and tab characters (of course, newline charaiters too.)

Code:

```
%{
#include <stdio.h>
#include <ctype.h>

int num_lines = 0;
int num_spaces = 0;
int num_tabs = 0;
int num_words = 0;
int num_chars = 0;

char *input_string = "Geeks for Geeks\ngfg gfg\n";

%}

%%

\n                  { num_lines++; }
[ \t]+              {
                        num_spaces += yyleng;
                        if (yytext[0] == '\t') num_tabs++;
                    }
[A-Za-z]+           { num_words++; }
[0-9]+              { num_chars += yyleng; }
.                   { num_chars++; }

%%

int main() {
    printf("Input String:\n%s\n", input_string);

    yy_scan_string(input_string);
    yylex();

    printf("Number of lines: %d\n", num_lines);
    printf("Number of spaces: %d\n", num_spaces);
    printf("Number of tabs: %d\n", num_tabs);
    printf("Number of words: %d\n", num_words);
    printf("Number of characters: %d\n", num_chars);

    return 0;
}
```


Ubuntu
Tue Sep 3 11:49:05 PM
agsangeet@ubuntu: ~/Desktop/Practical_2
agsangeet@ubuntu:~$ cd Desktop
agsangeet@ubuntu:~/Desktop$ cd Practical_2
agsangeet@ubuntu:~/Desktop/Practical_2$ lex Practical_2.l
agsangeet@ubuntu:~/Desktop/Practical_2$ gcc lex.yy.c -lfl
agsangeet@ubuntu:~/Desktop/Practical_2$ ./a.out
Input String:
Geeks for Geeks
gfg gfg
Number of lines: 2
Number of spaces: 3
Number of tabs: 0
Number of words: 5
Number of characters: 0
agsangeet@ubuntu:~/Desktop/Practical_2$
Help


* Conclusion: Thus we have implemented the LEX as a scanner.