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## **LP LAB Assignment - 1**

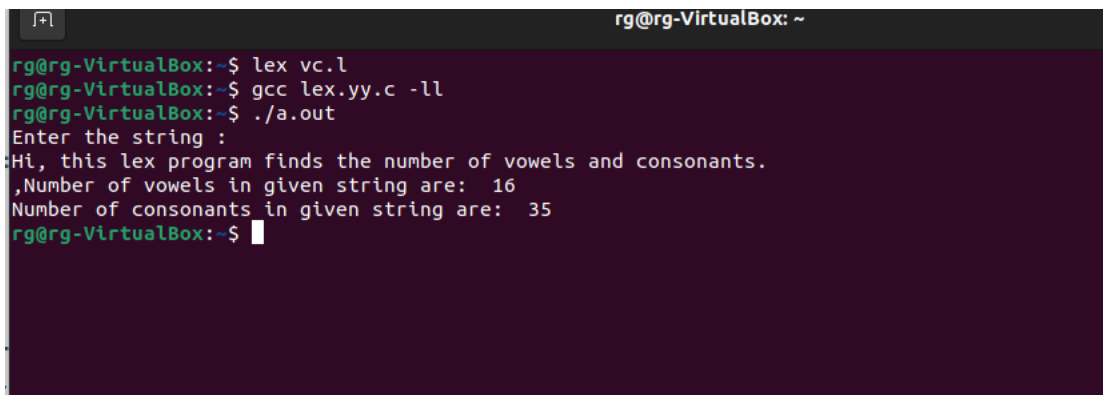
[Assignment 1: Lex](#)

## 1. To count no of vowels and consonants.

### Code:-

```
%{
#include<stdio.h>
    int vowel_count=0;
    int consonants_count =0;
}%
%%
[aeiouAEIOU] {vowel_count++;}
[a-zA-Z] {consonants_count++;}
[' '\n] {}
%%
int main()
{
    printf("Enter the string :\n");
    yylex();
    printf("Number of vowels in given string are: %d\n", vowel_count);
    printf("Number of consonants in given string are: %d\n", consonants_count);
    return 0;
}
```

### **Output:-**



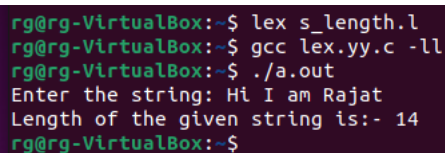
```
rg@rg-VirtualBox: ~
rg@rg-VirtualBox:~$ lex vc.l
rg@rg-VirtualBox:~$ gcc lex.yy.c -ll
rg@rg-VirtualBox:~$ ./a.out
Enter the string :
Hi, this lex program finds the number of vowels and consonants.
,Number of vowels in given string are: 16
Number of consonants in given string are: 35
rg@rg-VirtualBox:~$
```

## 2. To count the length of string

### Code:-

```
%{
#include<stdio.h>
    int length=0;
}%
%%
. {length++;}
[\n] {}
%%
int main()
{
    printf("Enter the string:");
    yylex();
    printf("Length of the given string is:- %d\n",length);
    return 0;
}
```

### Output:-



```
rg@rg-VirtualBox:~$ lex s_length.l
rg@rg-VirtualBox:~$ gcc lex.yy.c -ll
rg@rg-VirtualBox:~$ ./a.out
Enter the string: Hi I am Rajat
Length of the given string is:- 14
rg@rg-VirtualBox:~$
```

## 3. To count the type of numbers-- +integer, -ve integer, +ve fraction, -ve fraction

### Code:-

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

```

        int pi=0;
        int ni=0;
        int pf=0;
        int nf=0;
    %}
    D [0-9]
    %%
    \+?[D]+                pi++;
    -{D}+                  ni++;
    \+?[D]*\.{D}+ pf++;
    -{D}*\.{D}+ nf++;
    .;
    [\n] {}
    %%
int main()
{
    yylex();
    printf("\nNo. of positive numbers: %d", pi);
    printf("\nNo. of Negative numbers: %d", ni);
    printf("\nNo. of Positive numbers in fractions: %d", pf);
    printf("\nNo. of Negative numbers in fractions: %d\n", nf);
    return 0;

}

```

Output:-

```

rg@rg-VirtualBox:~$ lex a3.l
rg@rg-VirtualBox:~$ gcc lex.yy.c -ll
rg@rg-VirtualBox:~$ ./a.out
23 -4 212 -55 42

No. of positive numbers: 3
No. of Negative numbers: 2
No. of Positive numbers in fractions: 0
No. of Negative numbers in fractions: 0
rg@rg-VirtualBox:~$ ./a.out
23.3 12 43.22 -2.2 -9
No. of positive numbers: 1
No. of Negative numbers: 1
No. of Positive numbers in fractions: 2
No. of Negative numbers in fractions: 1
rg@rg-VirtualBox:~$ █

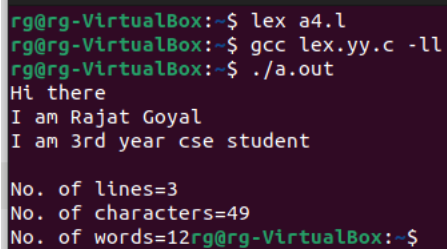
```

#### 4. To count the no of words, character, and lines.

##### Code:-

```
%{  
  
#include<stdio.h>  
int l=0, c=0, w=0;  
%}  
%%  
\n l++;  
[^ \n\t]+ {w++; c=c+yyleng; }  
. c++;  
%%  
  
int main()  
  
{  
    yylex();  
    printf("\nNo. of lines=%d", l);  
    printf("\nNo. of characters=%d", c);  
    printf("\nNo. of words=%d", w);  
}
```

##### Output:-



```
rg@rg-VirtualBox:~$ lex a4.1  
rg@rg-VirtualBox:~$ gcc lex.yy.c -ll  
rg@rg-VirtualBox:~$ ./a.out  
Hi there  
I am Rajat Goyal  
I am 3rd year cse student  
  
No. of lines=3  
No. of characters=49  
No. of words=12rg@rg-VirtualBox:~$
```

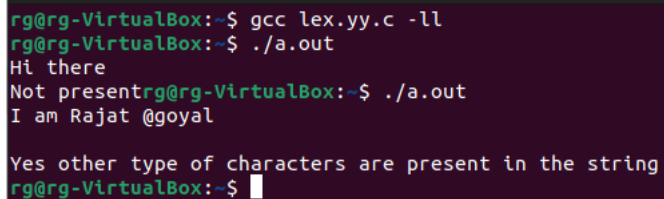
## 5. To find if a character apart from alphabets occurs in a string.

### Code:-

```
%{
#include<stdio.h>
int present = 0;
}%
%%
[\n' ' ] {}
[^a-zA-Z] {present = 1;}
. {}
%%

int main(){
    yylex();
    if(present)
        printf("Yes other type of characters are present in the string\n");
    else
        printf("Not present");
    return 0;
}
```

### Output:-



```
rg@rg-VirtualBox:~$ gcc lex.yy.c -ll
rg@rg-VirtualBox:~$ ./a.out
Hi there
Not presentrg@rg-VirtualBox:~$ ./a.out
I am Rajat @goyal

Yes other type of characters are present in the string
rg@rg-VirtualBox:~$ █
```

## 6. To identify set of strings having 3 to 5 alphabets.

### Code:-

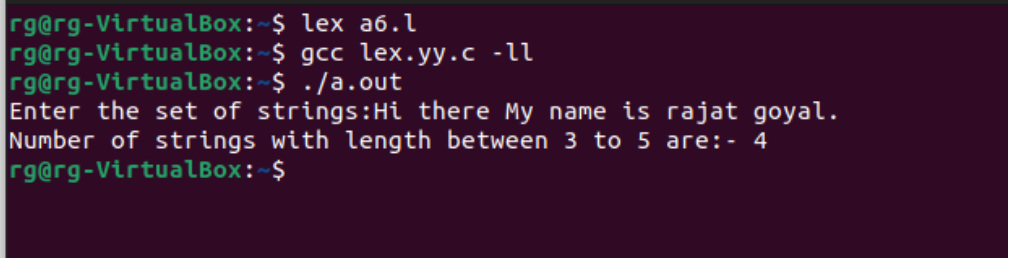
```
%{
    #include<stdio.h>
    int len=0, counter=0;
}%

%%
[a-zA-Z]+ { len=strlen(yytext);
            if(len<=5 && len>=3)
                {counter++;} }

. {}
[\n] {}
%%

int main()
{
    printf("Enter the set of strings:");
    yylex();
    printf("Number of strings with length between 3 to 5 are:- %d \n", counter);
    return 0;
}
```

### Output:-



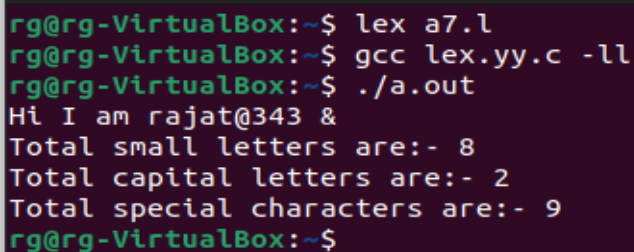
```
rg@rg-VirtualBox:~$ lex a6.l
rg@rg-VirtualBox:~$ gcc lex.yy.c -ll
rg@rg-VirtualBox:~$ ./a.out
Enter the set of strings:Hi there My name is rajat goyal.
Number of strings with length between 3 to 5 are:- 4
rg@rg-VirtualBox:~$
```

## 7. To count number of small letter, capital letter, special symbol in string.

### Code:-

```
%{
#include<stdio.h>
int s_letters=0,c_letters=0, spl_char=0;
}%
%%
[A-Z] c_letters++;
[a-z] s_letters++;
. spl_char++;
[\n] {}
%%
int main()
{
yylex();
printf("Total small letters are:- %d\n", s_letters);
printf("Total capital letters are:- %d\n", c_letters);
printf("Total special characters are:- %d\n", spl_char);
}
```

### Output:-



```
rg@rg-VirtualBox:~$ lex a7.l
rg@rg-VirtualBox:~$ gcc lex.yy.c -ll
rg@rg-VirtualBox:~$ ./a.out
Hi I am rajat@343 &
Total small letters are:- 8
Total capital letters are:- 2
Total special characters are:- 9
rg@rg-VirtualBox:~$
```