

System Software (CS306)

Assignment - 8

U19CS012

1.) Write a LEX Program to **Count** the Number of **Lines**, **Characters** and **Words** of the given **Input File**.

Lex File

```
%{
    #include<stdio.h>
    int wcount=0;
    int lcount=0;
    int ccount=0;
}%

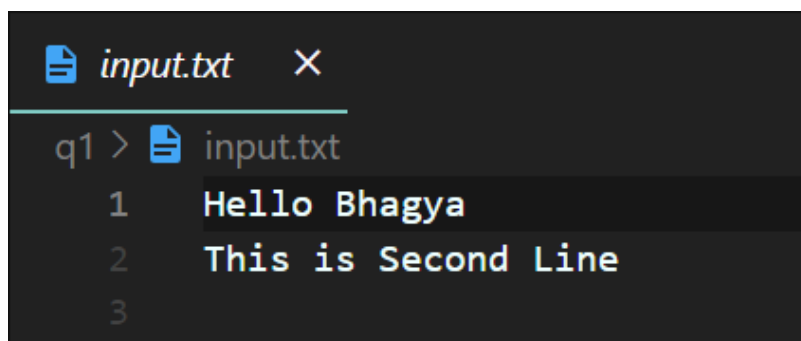
digit[0-9]
letter[a-zA-Z]

%%
\n {lcount++;}
({letter}|{digit})+ {wcount++; ccount+=yyleng;}
[ ] ccount++;

%%

int main(){
    yyin=fopen("input.txt","r");
    yylex();
    printf("\ntotal word count:%d\n",wcount);
    printf("total line count:%d\n",lcount);
    printf("total character count:%d\n",ccount);
    return 0;
}
```

Output



```
input.txt X
q1 > input.txt
1 Hello Bhagya
2 This is Second Line
3
```

```
bhagya@LAPTOP-1723NV09:/mnt/c/Users/Admin/Desktop/SSLAB8/q1$ ./a.out
```

```
Number of Characters = 27
```

```
Number of Words = 6
```

```
Number of Lines = 2
```

2.) Write a LEX Program to find out the Total number of **Vowels** and **Consonants** from the Given Input string.

Lex File

```
%{
    int vowel=0;
    int consonants=0;
}%

vowel[aeiouAEIOU]
consonant[b-df-hj-np-tv-zB-DF-HJ-NP-TV-Z]

%%

{vowel} {vowel++;}
{consonant} {consonants++;}

%%

int main(){
    yylex();
    printf("Total vowels:%d \nTotal consonants: %d\n",vowel,(consonants));

    return 0;
}
```

Output

```
bhagya@LAPTOP-1723NV09:/mnt/c/Users/Admin/Desktop/SSLAB8/q2$ ./a.out
abcdefghijklmnopqrstuvwxyz
```

```
Total vowels:5
```

```
Total consonants: 21
```

3.) Write a LEX Program to convert **Lowercase** string to **Uppercase**.

Input: abc

Output: ABC

Lex File

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

lower[a-z]
upper[A-Z]
%%

{lower} { printf("%c",yytext[0]-32);}
{upper} {printf("%c",yytext[0]);}
. {printf("%c",yytext[0]);}

%%

int main(){
    yylex();
    return 0;
}
```

Output

```
bhagya@LAPTOP-1723NV09:/mnt/c/Users/Admin/Desktop/SSLAB8/q3$ ./a.out
abcdefghijklmn
ABCDEFGHIJKLMN
```

4.) Write a Lex program to check **Valid/Invalid**

a) **Mobile Number** (considering 10-digit mobile number followed by country code +91)

Lex File

```
%%

[+][0-9]{1,3}[1-9][0-9]{9} {printf("\nMobile Number Valid\n");}

.+ {printf("\nMobile Number Invalid\n");}

%%
```

```
int main(){
    yylex();
    return 0;
}
```

Output

```
bhagya@LAPTOP-1723NV09:/mnt/c/Users/Admin/Desktop/SSLAB8/q4a$ ./a.out
+917016403569

Mobile Number Valid

+911212a12

Mobile Number Invalid
```

b) Email address

Lex File

```
%%
[a-zA-Z_0-9]+@[a-zA-Z.]+[.][a-zA-Z]+ {printf("\n Valid Email\n");}
.+ {printf("\nInvalid Email\n");}
%%

int main(){
    yylex();
    return 0;
}
```

Output

```
bhagya@LAPTOP-1723NV09:/mnt/c/Users/Admin/Desktop/SSLAB8/q4b$ ./a.out
abcdgmail.com

Invalid Email

bhagya@gmail.com

Valid Email
```



```
}  
  
int main(){  
    yylex();  
    return 0;  
}
```

Output

```
bhagya@LAPTOP-1723NV09:/mnt/c/Users/Admin/Desktop/SSLAB8/q5$ lex q5.1  
bhagya@LAPTOP-1723NV09:/mnt/c/Users/Admin/Desktop/SSLAB8/q5$ cc lex.yy.c -lfl  
bhagya@LAPTOP-1723NV09:/mnt/c/Users/Admin/Desktop/SSLAB8/q5$ ./a.out  
4 + 7  
    answer=11.000000  
3 - 2  
    answer=1.000000  
1 / 0  
    answer=inf  
2 * 6  
    answer=12.000000
```

Harder Test Cases

```
bhagya@LAPTOP-1723NV09:/mnt/c/Users/Admin/Desktop/6TH_SEMESTER/7-LABS/4-SS_LAB/SS_LAB8/q5$ ./a.out  
3+4*2  
answer=14.000000  
2^3+1  
answer=9.000000  
10-4+7*2^2/2  
answer=338.000000
```

SUBMITTED BY: U19CS012

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