

# **Assignment-1**

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**Class: BCSE III**

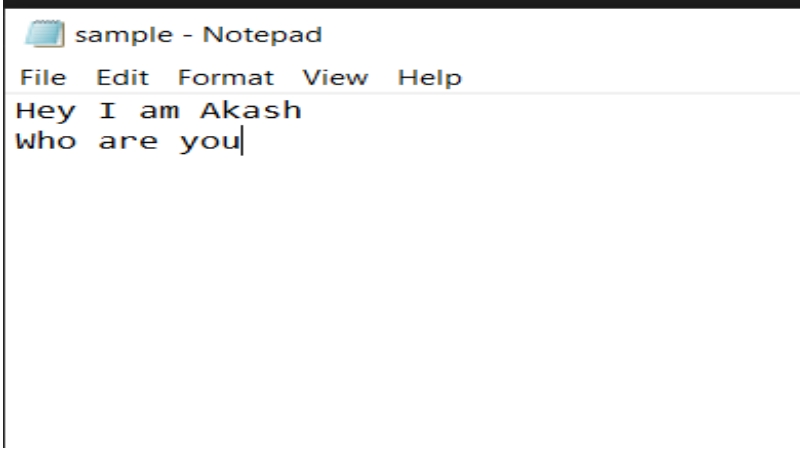
**Problem1:** Write a lex file to count the number of lines, words, and characters in the input.

**Lex Code:**

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

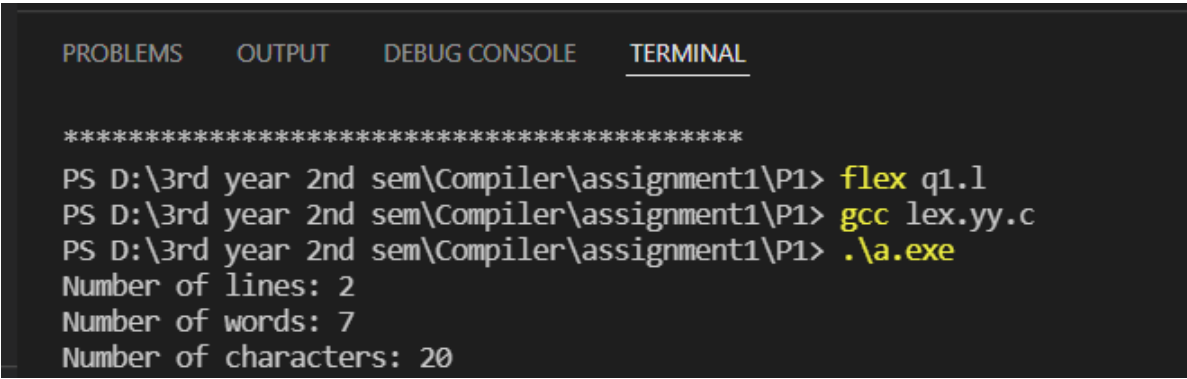
    int lines = 0, words = 0, chars = 0;
}%
%%
\n      {lines++;words++;}
[ \t ' ']+ {words++; }
[a-zA-Z]  {chars++;}
[0-9]     {chars++;}
%%
int yywrap(void){}
int main()
{
    yyin=fopen("sample.txt","r");
    yylex();
    printf("Number of lines: %d\n", lines);
    printf("Number of words: %d\n", words);
    printf("Number of characters: %d\n", chars);
    return 0;
}
```

## Input File(Sample.txt):



```
sample - Notepad
File Edit Format View Help
Hey I am Akash
who are you|
```

## Output:



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

*****
PS D:\3rd year 2nd sem\Compiler\assignment1\P1> flex q1.l
PS D:\3rd year 2nd sem\Compiler\assignment1\P1> gcc lex.yy.c
PS D:\3rd year 2nd sem\Compiler\assignment1\P1> .\a.exe
Number of lines: 2
Number of words: 7
Number of characters: 20
```

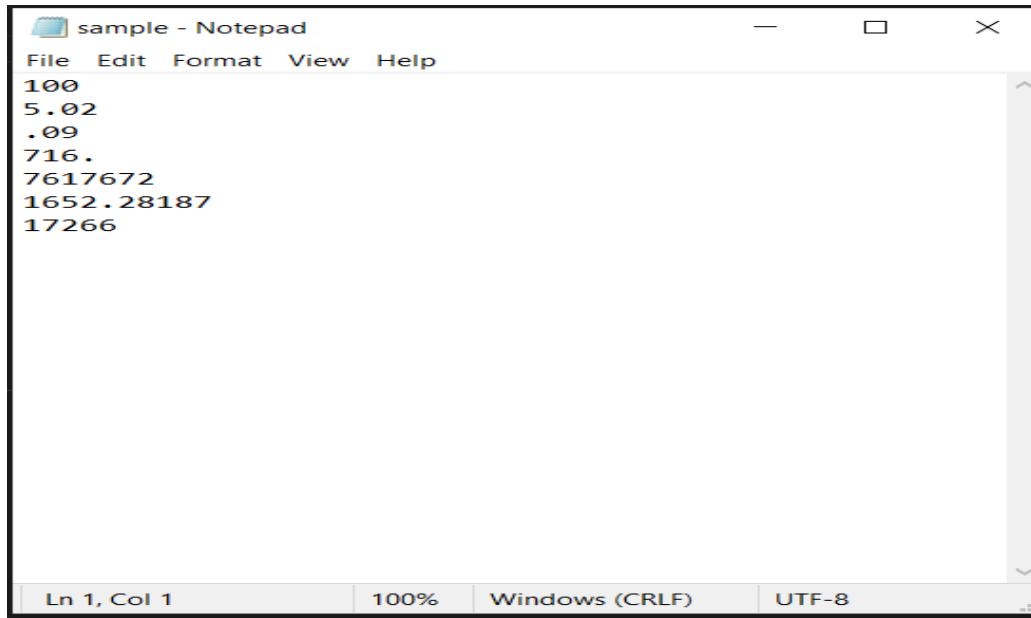
## **Problem2:**

Write a lex file to count the number of numbers appearing in the input. Count the number of integers (without a decimal) separately from the number of floating point numbers (with a decimal, and at least one digit on either side of the decimal).

### **Lex Code:**

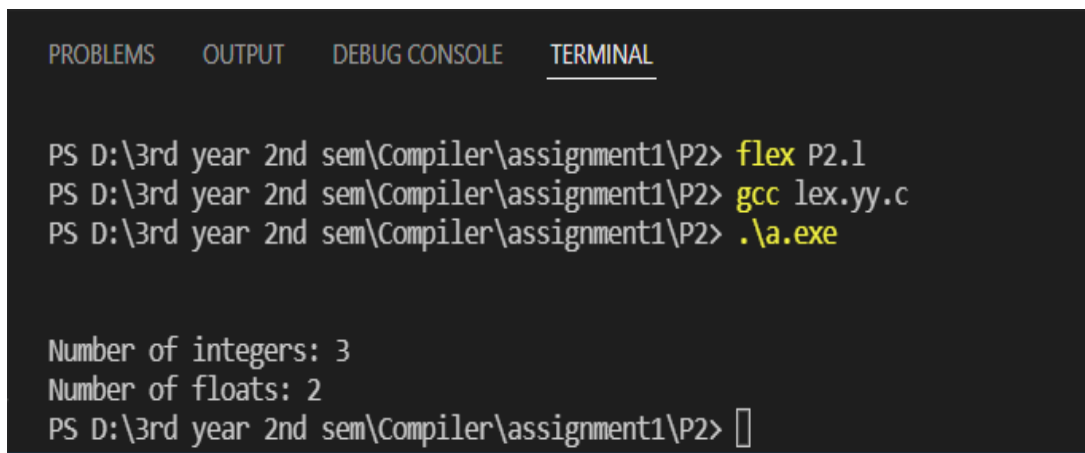
```
%{  
  
#include <stdio.h>  
  
int i=0, f=0;  
  
%}  
  
%%  
  
[0-9]+\.[0-9]+[ \t\n]+          f++;  
\[^\t\n]*          ;  
\[^\t\n]*\.[          ;  
[0-9]+[ \t\n]+          i++;  
.  
%%  
  
int yywrap(void){}  
  
int main()  
{  
  
    yyin=fopen("sample.txt","r");yylex();  
    printf("Number of integers: %d\n", i);  
    printf("Number of floats: %d\n", f);  
    return 0;  
}
```

## Input File:



```
sample - Notepad
File Edit Format View Help
100
5.02
.09
716.
7617672
1652.28187
17266
Ln 1, Col 1 100% Windows (CRLF) UTF-8
```

## Output:



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

PS D:\3rd year 2nd sem\Compiler\assignment1\P2> flex P2.l
PS D:\3rd year 2nd sem\Compiler\assignment1\P2> gcc lex.yy.c
PS D:\3rd year 2nd sem\Compiler\assignment1\P2> .\a.exe

Number of integers: 3
Number of floats: 2
PS D:\3rd year 2nd sem\Compiler\assignment1\P2> 
```

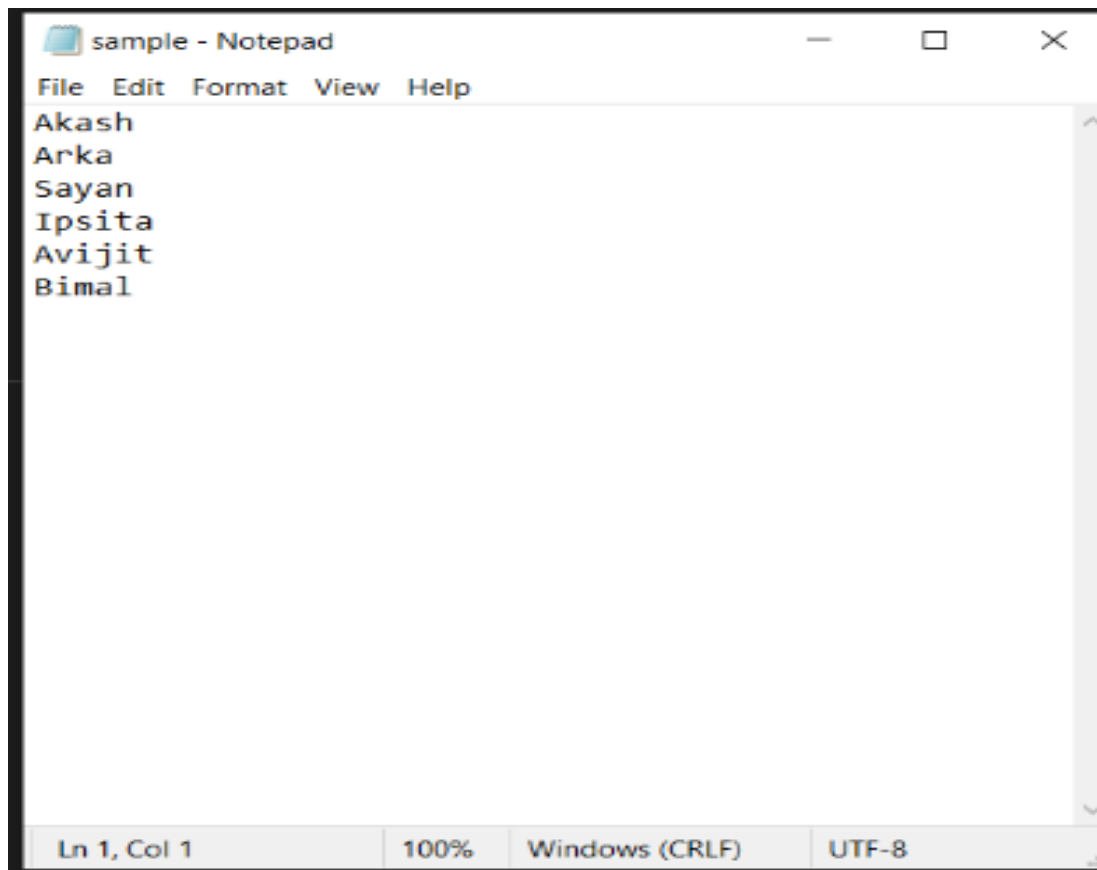
### **Problem:3**

Write a lex file to count the number of words in an input text that start with a vowel.

#### **Code:**

```
%{  
#include <stdio.h>  
  
int count=0;  
%}  
%%  
  
\n ;  
[aeiouAEIOU][a-zA-Z0-9]*      count++;  
[a-zA-Z0-9]*    ;  
%%  
  
int yywrap(void){}  
  
int main()  
{yyin=fopen("sample.txt","r");yylex();  
printf("Number of words starting with vowels: %d\n", count);  
return 0;  
}
```

## Input File:



```
sample - Notepad
File Edit Format View Help
Akash
Arka
Sayan
Ipsita
Avijit
Bimal
Ln 1, Col 1 100% Windows (CRLF) UTF-8
```

## Output:

```
PS D:\3rd year 2nd sem\Compiler\assignment1\P3> flex P3.1
PS D:\3rd year 2nd sem\Compiler\assignment1\P3> gcc lex.yy.c
PS D:\3rd year 2nd sem\Compiler\assignment1\P3> .\a.exe
Number of words starting with vowels: 4
```