Write a Lex program to count the number of lines, characters and words of the given input file.

```
/*lex code to count the number of lines,
        tabs and spaces used in the input*/

%{
#include<stdio.h>
int lc = 0, wc = 0, ch = 0; /*Global variables*/
%}

/*Rule Section*/
%%
\n lc++; //line counter
[^ \n\t]+ {wc++, ch = ch + yyleng;} // word counter
. ch++; //characters counter
%%

int main()
{
        // The function that starts the analysis
        yylex();

        printf("\nNo. of lines=%d", lc);
        printf("\nNo. of words=%d", wc);
        printf("\nNo. of other characters=%d\n", ch);

}
```

```
maxmax@madmax:~/Desktop/u19cs019_sem6/System_software/lab8/q1$ ./a.out
hello, naman khater
your roll no is u19cs019

No. of lines=2
No. of words=8
No. of other characters=43
maxmax@madmax:~/Desktop/u19cs019_sem6/System_software/lab8/q1$
```

Write a lex program to find out the total number of vowels, and consonants from the given input string.

CODE:

```
/*lex code to count the number of lines,
        tabs and spaces used in the input*/

%{
#include<stdio.h>
int lc = 0, v = 0, ch = 0; /*Global variables*/
%}

/*Rule Section*/
%%
[aeiouAEIOU] v++; // vowels counter
[a-zA-Z] ch++;          //characters counter
%%

int main()
{
        // The function that starts the analysis
        yylex();

        printf("\nNo. of lines=%d", lc);
        printf("\nNo. of vowels=%d", v);
        printf("\nNo. of consonants=%d\n", ch);
}
```

```
maxmax@madmax:~/Desktop/u19cs019_sem6/System_software/lab8/q2$ ./a.out
naman is a nice guuy.
    .

No. of lines=0
No. of vowels=8
No. of consonants=8
maxmax@madmax:~/Desktop/u19cs019_sem6/System_software/lab8/q2$
```

Write a Lex Program to convert Lowercase string to Upper case.

CODE:

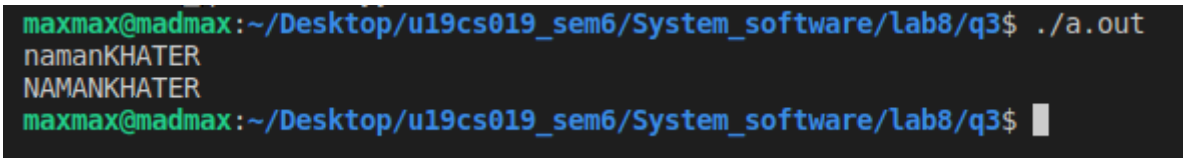
```
/*lex code to count the number of lines,
        tabs and spaces used in the input*/

%{
#include<stdio.h>
%}

/*Rule Section*/
%%
[a-z] {printf("%c", yytext[0]-32);}
. {printf("%c", yytext[0]);}
%%

int yywrap(void) {
        return 1;
}

int main()
{
        // The function that starts the analysis
        yylex();
}
```



Write a Lex program to check valid/invalid
(a) Mobile number (considering 10-digit mobile number followed by country code +91)
(b) Email address
CODE:

```
/*lex code to count the number of lines,
        tabs and spaces used in the input*/

%{
#include<stdio.h>
%}

/*Rule Section*/
%%
"+91-"+[7-9][0-9]{9} {printf("Valid mobile number: \t%s", yytext);}
.+ {printf("Invalid mobile number \t\t");}
%%

int yywrap(void) {
        return 1;
}

int main()
{
        // The function that starts the analysis
   printf("Enter mobile number: \t");
        yylex();
}
```

```
maxmax@madmax:~/Desktop/u19cs019_sem6/System_software/lab8/q4$ ./a.out
Enter mobile number:    9586048530
Invalid mobile number
+919586048530
Invalid mobile number
+91-9586048530
Valid mobile number:    +91-9586048530
maxmax@madmax:~/Desktop/u19cs019_sem6/System_software/lab8/q4$
```

CODE:

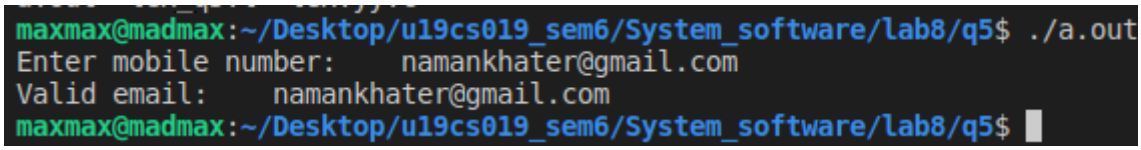
```
/*lex code to count the number of lines,
        tabs and spaces used in the input*/

%{
#include<stdio.h>
%}

/*Rule Section*/
%%
[a-z0-9]+@[a-z]+".com"|".in" {printf("Valid email: \t%s", yytext);}
.+ {printf("Invalid email");}
%%

int yywrap(void) {
        return 1;
}

int main()
{
        // The function that starts the analysis
   printf("Enter email: \t");
        yylex();
}
```



Write a Lex program to implement a simple Calculator.

CODE:

```
/*lex code to count the number of lines,
        tabs and spaces used in the input*/

%{
#include<stdio.h>
#include<string.h>
char *token;
%}

/*Rule Section*/
%%
[0-9]+"+"[0-9]+ {printf("Addition: \t%d", atoi(strtok(yytext, "+")) + atoi(strtok(NULL, "+")));}
[0-9]+"-"[0-9]+ {printf("Subtraction: \t%d", atoi(strtok(yytext, "-")) - atoi(strtok(NULL, "-")));}
[0-9]+"*"[0-9]+ {printf("Multiplication: \t%d", atoi(strtok(yytext, "*")) * atoi(strtok(NULL,
"*")));}
[0-9]+"/"[0-9]+ {printf("Division: \t%d", atoi(strtok(yytext, "/")) / atoi(strtok(NULL, "/")));}
.+ {printf("Invalid operation");}
%%

int yywrap(void) {
        return 1;
}

int main()
{
        // The function that starts the analysis
   printf("Enter calculator command: \t");
        yylex();
}
```

```
maxmax@madmax:~/Desktop/u19cs019_sem6/System_software/lab8/q6$ ./a.out
Enter calculator command:       5+6
Addition:       11
8-9
Subtraction:    -1
5*4
Multiplication:         20
maxmax@madmax:~/Desktop/u19cs019_sem6/System_software/lab8/q6$
```