Compiler Lab Assignment 1
Name: Ritabroto Ganguly Roll: 001910501090
BCSE-III A3

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

```
%{
int lines = 0;
int chars = 0;
int words = 0;
%}

/*rules do cannot properly count words if begginning or end of line is whitespace.*/
%%
[\t ]+ {printf("%s",yytext);words++;}
\n {printf(" = user input line%s",yytext);lines++;words++;}
[^ \t\n] {printf("%s",yytext);chars++;}
%%

int yywrap(){return 1;}
int main(int argc,char** argv){
        //yyin = fopen("x.txt","r");
        yylex();
        printf("lines=%d,characters=%d,words=%d\n",lines,chars,words);
        return 0;
}
```

```
Ritobrotos-MacBook-Air:compilerlab1 rgdgr8$ a.out
ola amigo       woow  whatsapp
ola amigo       woow  whatsapp = user input line
things are grreaaaaa                    wncjcncjnsc
things are grreaaaaa                    wncjcncjnsc = user input line
lines=2,characters=49,words=8
```

2. Write a lex file to count the number of numbers appearing in the input. Count the number of integers (without a decimal)

```
%{
int i = 0;
int f = 0;
%}

%%
^[0-9]+$ i++;
^[0-9]+\.[0-9]+$ f++;
%%

int yywrap(){return 1;}
int main(int argc,char** argv){
        yyout = fopen("/dev/null","w");
        yylex();
        printf("integers=%d, floats=%d\n",i,f);
        return 0;
}
```

```
Ritobrotos-MacBook-Air:compilerlab1 rgdgr8$ a.out
121231231
12312332.1312313121.23123m12.mekdlemwcm
123123213.112222313
1312312312ewqkskxwmclkmxwsa.2wqd2q2dq
1231dwacedcsced
122332
0
1.23
integers=3, floats=2
```

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

```
%{
int words = 0;
%}

%%
([ \t\n])+[aeiouAEIOU]([^ \t\n])* words++;
```

```
^[aeiouAEIOU][^ \t\n]* words++;
%%

int yywrap(){return 1;}
int main(int argc,char** argv){
        //yyin = fopen("x.txt","r");
        yyout = fopen("/dev/null","w");
        yylex();
        printf("vowel words = %d\n",words);
        return 0;
}
```

```
Ritobrotos-MacBook-Air:compilerlab1 rgdgr8$ a.out
wow waifu i will kill nothing
yet something will happen
that isnt supposed to happen
okay
capiche?
vowel words = 3
```