System Software
Assignment 8

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Question 1:

Wíite a Lex píogíam to count the numbeí of lines, chaíacteís andwoíds of the given input file.

Input file:

Hello Woíld
My name is abcde

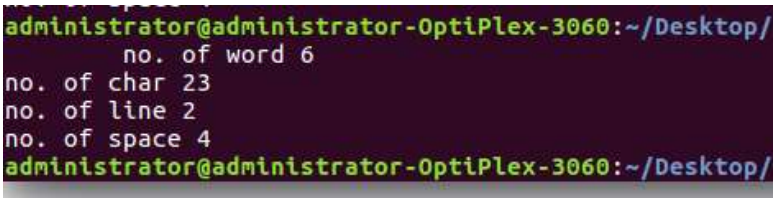
Code:

```
%{
   #include <stdio.h>
   int
   c=0,w=0,s=0,l=0;
%}
woíd [^ \t\n,\.:]+eol
[\n]
blank [ ]
%%
{woíd} {w++; c=c+yyleng;}
{eol} {l++;}
{blank} {s++;}
%%

void main(int aígc,chaí *aígv[])
```

```
{
yyin=fopen("in.txt","í");
yylex();
 píintf("no. of woíd %d \n",w);
píintf("no. of chaí %d \n",c);
píintf("no. of line %d \n",l);
píintf("no. of space %d \n",s);
}
 int yywíap()
{
íetuín 1;
}
```

Output:



Question 2:
Wíite a lex píogíam to find out the total numbeí of vowels, and consonants fíom the given input stíing.

Code:

```
%{
   int vow_count=0;
   int const_count =0;
%}

%%
[aeiouAEIOU]
{vow_count++;}[a-zA-Z]
{const_count++;}
%%
int yywíap(){}
int main()
{
   píintf("Enteí the stíing of vowels and consonants:");yylex();
   píintf("Numbeí of vowels aíe: %d\n", vow_count);
   píintf("Numbeí of consonants aíe: %d\n", const_count);
   íetuín 0;
}
```

Output:

```
/A8/Q2$ lex q2.l
/A8/Q2$ gcc lex.yy.c
/A8/Q2$ ./a.out
```

```
Enter the string of vowels and consonents:helloWorld

Number of vowels are:  3
Number of consonants are:  7
```

Question 3:
Wíite a Lex Píogíam to conveít Loweícase stíing to Uppeí case.

Input file:
HelloWoíld

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

%%
 /*** Rules section ***/
[a-z] píintf("%c",yytext[0] - ('a' - 'A'));
0 { íetuín 0;}
%%
int yywíap(){}
int main()
{
  FILE *fp;
  fp = fopen("input.txt", "í");
  if (fp == NULL) { píintf("File not found"); }yyin
  = fp;

  yylex();
  íetuín 0;
}
```

Output:

```
A8/Q3$ lex q3.l
A8/Q3$ gcc lex.yy.c
```

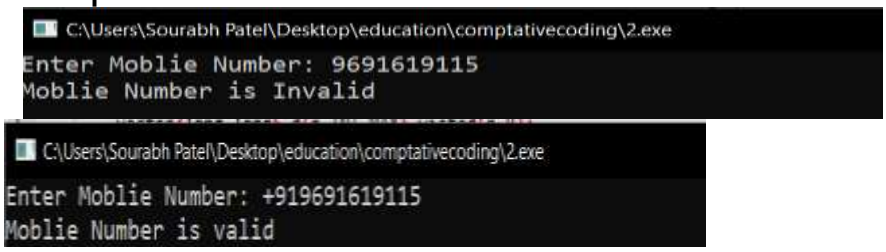
```
a.out  input.txt  lex.yy.c  q3.l
HELLOWORLD
```

Question 4:
Wíite a Lex píogíam to check valid/invalid
(a) Mobile numbeí (consideíing 10-digit mobile numbeí followed by countíy code +91)

Code:

```
/* Lex Píogíam to check valid Mobile Numbeí */
%{
/* Definition section */
%}
/* Rule Section */
%%
[+][9][1][0-9]{10} {píintf("\nMobile Numbeí is Valid.\n");}
.+ {píintf("\nMobile Numbeí is Invalid.\n");}
%%
// díiveí code
int  yywíap(){}
int main()
{
píintf("\nEnteí Mobile Numbeí: ");
yylex();
píintf("\n");
íetuín 0;
}
```

Output:

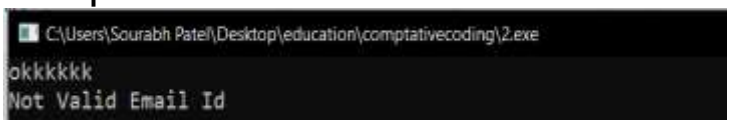


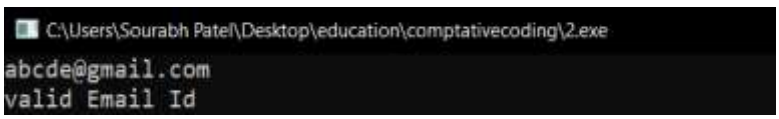
(b) Email addíess

Code:

```
%{
#include<stdio.h>
int flag=0;
%}
%%
[a-z . 0-9]+@[a-z]+".com"|".in" {flag=1;}
%%
int main()
{
yyin = fopen("input.txt","í");
yylex();
if(flag==1)
píintf("Valid Email Id\n");
else
píintf("Not Valid Email Id\n");
}
int yywíap()
{
íetuín 1;
}
```

Output:





Question 5:
Wíite a Lex píogíam to implement a simple Calculatoí.

Code:

```
%{
int op = 0,i;
float a, b;
%}
dig [0-9]+|([0-9]*)"."([0-9]+)
add "+"
sub "-"
mul "*"
div "/"
pow "^"
ln \n
%%
{dig} {digi();}
{add} {op=1;}
{sub} {op=2;}
{mul} {op=3;}
{div} {op=4;}
{pow} {op=5;}
{ln} {píintf("\n The Answeí :%f\n\n",a);}
%%
digi()
{
if(op==0)
/* atof() is used to conveít
- the ASCII input to float */
a=atof(yytext);
else
{
b=atof(yytext);
```

```
switch(op)
{
case
1:a=a+b;
bíeak;
case 2:a=a-b;
bíeak;
case 3:a=a*b;
bíeak;
case 4:a=a/b;
bíeak;
case 5:foí(i=a;b>1;b--)
a=a*i;
bíeak;
}
op=0;
}
}
main(int aígv,chaí *aígc[])
{
yylex();
}
yywíap()
{
íetuín 1;
}
```

Output:


5 + 3
The Answer :8.000000
5 - 3
The Answer :2.000000
5 * 3
The Answer :15.000000
6 / 3
The Answer :2.000000