System Software (CS306)

Assignment - 4

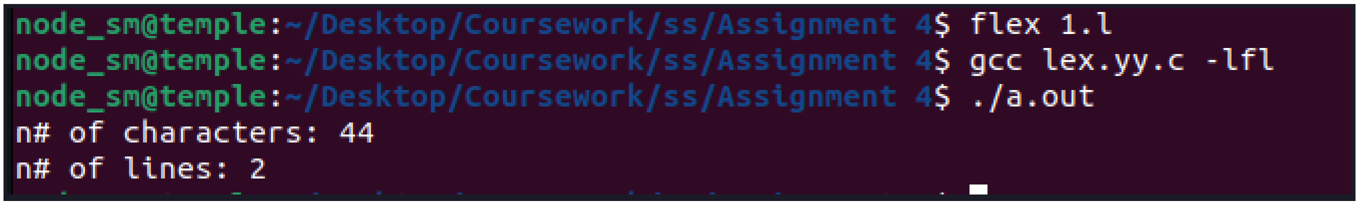
U20CS135

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

```
%{ #include<studio.h>
int n_char=0;
int n_lines=0;
%}

%%
\n {++n_lines, ++n_char;}
. ++n_char;

%%

int main(int argc[],char *argv[])
{
 yyin=fopen("shivam.txt", "r");
 yylex();
 printf("n# of characters: %d",n_char);
 printf("\n");
 printf("n# of lines: %d",n_lines);
 printf("\n");
 return 0;
}
```

Shivam.txt

```
my name is shivam mishra.
I am a happy man.
```



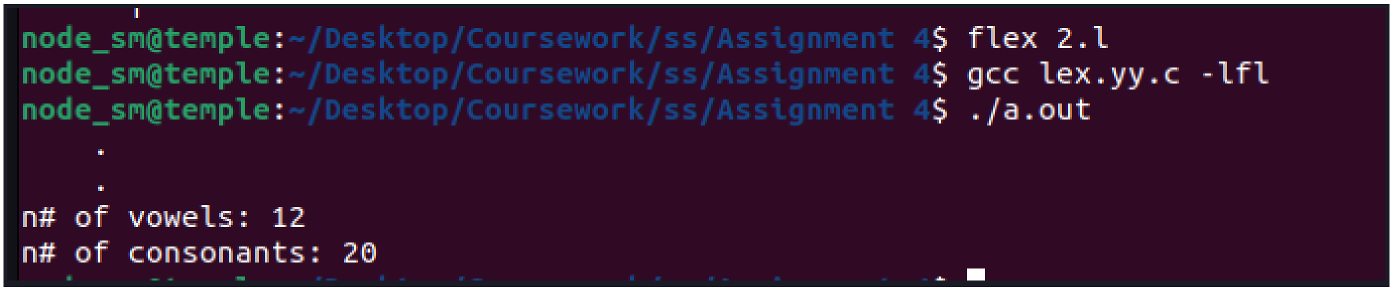
```
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ flex 1.l
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ gcc lex.yy.c -lfl
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ ./a.out
n# of characters: 44
n# of lines: 2
```

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

```
%{ #include<studio.h>
int vowels=0;
int consonants=0;
%}

%%

[aeiouAEIOU] ++vowels;
[a-zA-Z] ++consonants;

%%

int main(int argc[],char *argv[])
{
 yyin=fopen("shivam.txt", "r");
 yylex();
 printf("n# of vowels: %d",vowels);
 printf("\n");
 printf("n# of consonants: %d",consonants;
 printf("\n");
 return 0;
}
```

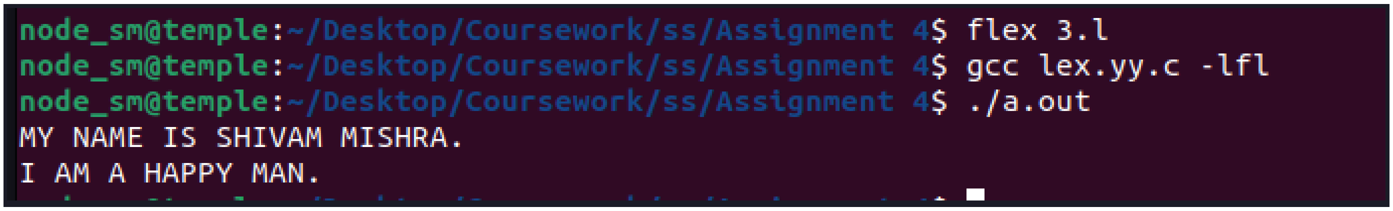
Shivam.txt

```
my name is shivam mishra.
I am a happy man.
```



```
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ flex 2.l
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ gcc lex.yy.c -lfl
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ ./a.out
    .
    .
n# of vowels: 12
n# of consonants: 20
```

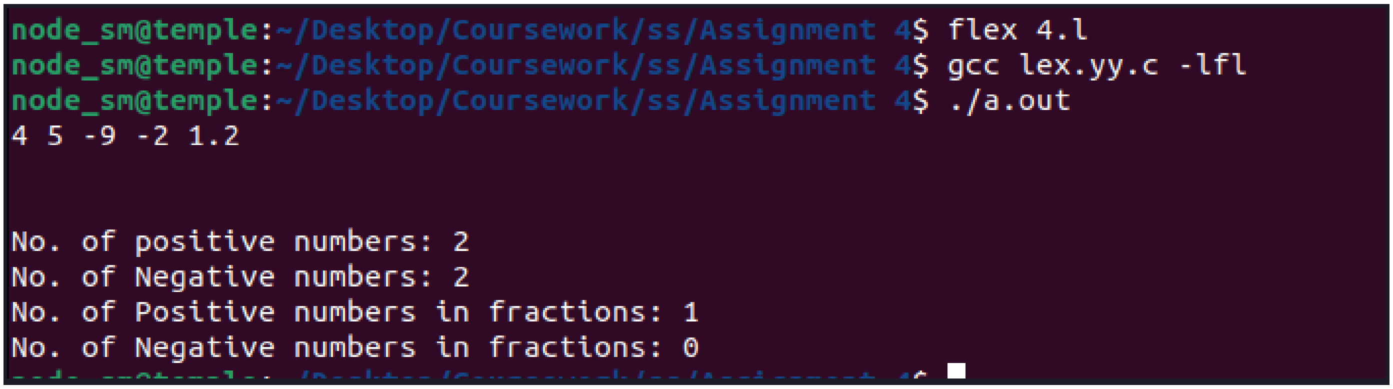
```
3.Write a Lex Program to convert Lowercase string to Upper case.
Input: abc Output: ABC
%{ #include<studio.h>

%}

%%

[a-z] printf("%c",yytext[0]-('a'-'A'));
0 return 0;

%%

int main(int argc[],char *argv[])
{
 yyin=fopen("shivam.txt", "r");
 yylex();
 return 0;
}

Shivam.txt
my name is shivam mishra.
I am a happy man.
```



```
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ flex 3.l
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ gcc lex.yy.c -lfl
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ ./a.out
MY NAME IS SHIVAM MISHRA.
I AM A HAPPY MAN.
```

```
4.4. Program to count no of:
a) +ve and -ve integers
b) +ve and -ve fractions

%{ #include<studio.h>
   int postiveno=0;
    int negtiveno=0;
    int positivefractions=0;
    int negativefractions=0;
```

```
%}

DIGIT [0-9]
%%

\+?{DIGIT}+              postiveno++;
-{DIGIT}+                negtiveno++;

\+?{DIGIT}*\.{DIGIT}+    positivefractions++;
-{DIGIT}*\.{DIGIT}+      negativefractions++;
. ;

%%

int main(int argc[],char *argv[])
{

 yylex();
  printf("\nNo. of positive numbers: %d", postiveno);
    printf("\nNo. of Negative numbers: %d", negtiveno);
    printf("\nNo. of Positive numbers in fractions: %d", positivefractions);
    printf("\nNo. of Negative numbers in fractions: %d\n", negativefractions);
 return 0;
}
```



```
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ flex 4.l
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ gcc lex.yy.c -lfl
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ ./a.out
4 5 -9 -2 1.2


No. of positive numbers: 2
No. of Negative numbers: 2
No. of Positive numbers in fractions: 1
No. of Negative numbers in fractions: 0
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$
```

5.5. Write a Lex program to check valid/invalid

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

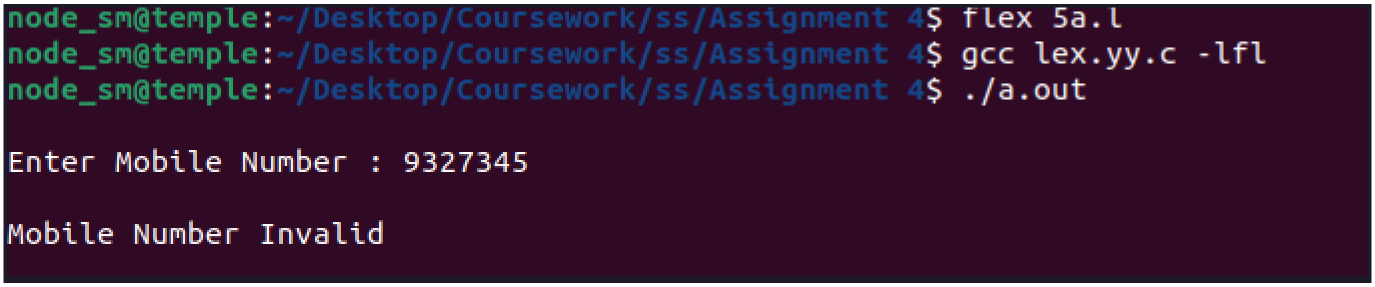
(b) Email address

A.

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



%}





%%
```

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

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

%%

int main(int argc[],char *argv[])

{

 printf("\nEnter Mobile Number : ");

 yylex();
```

```
  printf("\n");

 return 0;

}
```



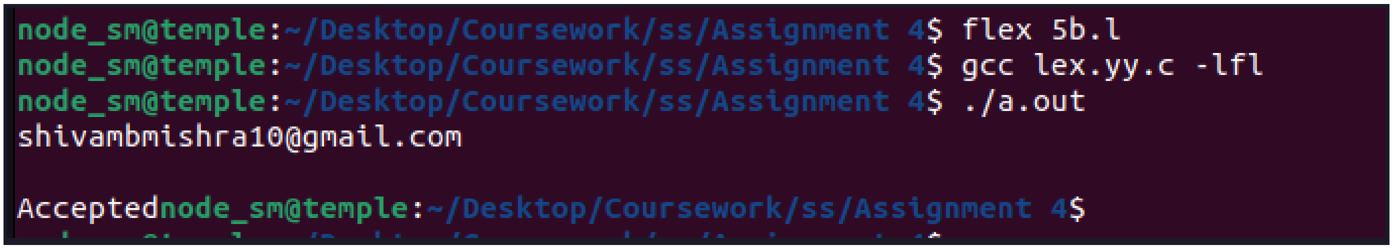
```
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ flex 5a.l
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ gcc lex.yy.c -lfl
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ ./a.out

Enter Mobile Number : 9327345

Mobile Number Invalid
```

B.

```
%{

#include<stdio.h>
```

```
#include<stdlib.h>

int flag=0;

%}

%%

[a-z . 0-9]+@[a-z]+".com"|".in" { flag=1; }

%%

int main()

{

yylex();

if(flag==1)
```

```
printf("Accepted");

else

printf("Not Accepted");

}
```



```
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ flex 5b.l
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ gcc lex.yy.c -lfl
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ ./a.out
shivambmishra10@gmail.com

Acceptednode_sm@temple:~/Desktop/Coursework/ss/Assignment 4$
```

6.6. Write a Lex program to implement a simple Calculator.

```
%{

#include
```

```
float p,flag,answer;

char cc;

%}

digit [0-9]+

op “+”|”-“|”*”|”/”

%%

{digit} {

p=atof(yytext);

if(flag==0)

{
```

```
answer=p;

flag=1;

}

else

{

switch(cc)

{

case ‘+’:answer=answer+p;

case ‘-‘:answer=answer-p;

case ‘*’:answer=answer*p;
case ‘/’:answer=answer/p;

}

}

}

{op} {

if(strcmp(yytext,”+”)==0)

cc=’+’;

if(strcmp(yytext,”-“)==0)

cc=’-‘;

if(strcmp(yytext,”*”)==0)
```

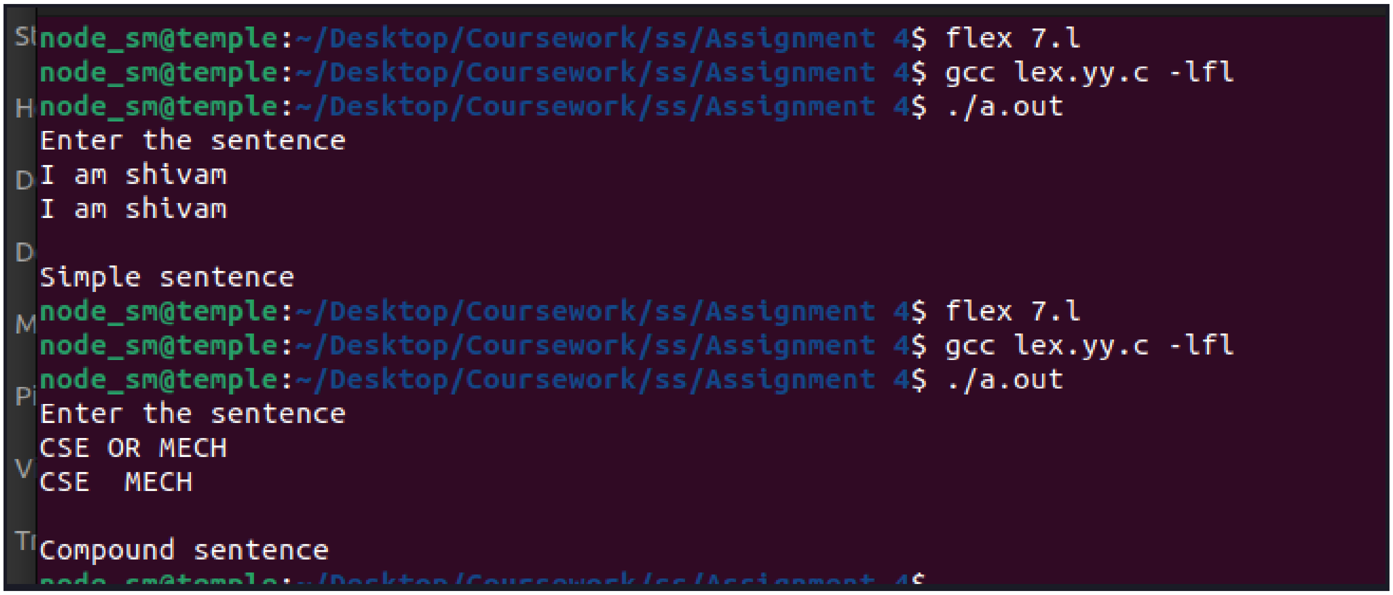
```
cc=’*’;

if(strcmp(yytext,”/”)==0)

cc=’/’;

}

! {printf(“n Final Answer = %f”,answer);exit(0);}

%%

int main()

{

flag=answer=0;

printf(“n Enter the Question String :- “);
```

```
yylex();

return(0);

}
```

7.7. Program to recognize whether a given sentence is simple or compound.

```
%{

#include<stdio.h>

int flag=0;

%}

%%
```

```
(""[aA][nN][dD]"")|(""[oO][rR]"")|(""[bB][uU][tT]"") {flag=1;}

%%

int main()

{

printf("Enter the sentence\n");

yylex();

if(flag==1)

printf("\nCompound sentence\n");

else

printf("\nSimple sentence\n");
return 0;

}
```



```
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ flex 7.l
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ gcc lex.yy.c -lfl
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ ./a.out
Enter the sentence
I am shivam
I am shivam

Simple sentence
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ flex 7.l
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ gcc lex.yy.c -lfl
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$ ./a.out
Enter the sentence
CSE OR MECH
CSE  MECH

Compound sentence
node_sm@temple:~/Desktop/Coursework/ss/Assignment 4$
```

SUBMITTED BY:

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