Program :

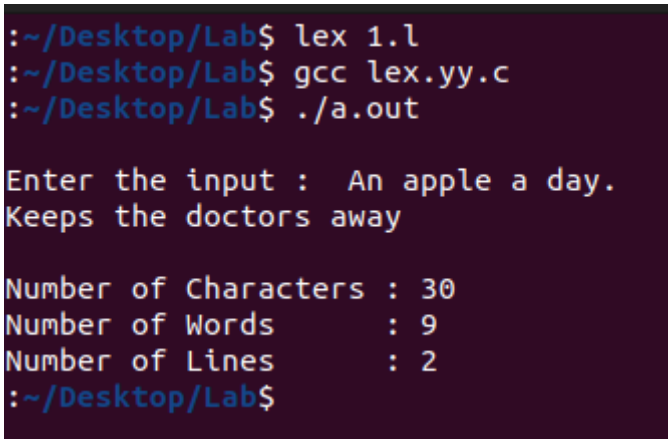
```
%{
#include<stdio.h>
#include<string.h>
int wrd_cnd=0,char_cnd = 0,ln_cnd=0;
%}

%%
\n {ln_cnd++;wrd_cnd++;}
" " {wrd_cnd++;}
"." {wrd_cnd++;}
. {char_cnd++;}
%%

int yywrap(void){return 1;}

int main()
{
        printf("\nEnter the input :  ");
        yylex();
        printf("\nNumber of Characters : %d\nNumber of Words      : %d\nNumber of Lines      :
%d\n",char_cnd,wrd_cnd,ln_cnd);
        return 0;
}
```

Output :



Program :

```
%{
#include<stdio.h>
int count1=0,count2=0,count3=0;
%}

%%
[AEIOUaeiou] {count1++;}
[a-zA-z] {count2++;}
[0-9] {count3++;}
. {;}
\n return 0;
%%

int yywrap(void) {return 1;}

int main()
{
        printf("\nEnter the input string : ");
        yylex();
        printf("\nNumber of Vowles     : %d\nNumber of Consonants : %d\nNumber of Digits     :
%d\n",count1,count2,count3);
        return 0;
}
```

Output :

```
:~/Desktop/Lab$ lex 2.l
:~/Desktop/Lab$ gcc lex.yy.c
:~/Desktop/Lab$ ./a.out

Enter the input string : Hello World 123

Number of Vowles     : 3
Number of Consonants : 7
Number of Digits     : 3
:~/Desktop/Lab$
```

Program :

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

%%
\/\/.* ;
\/\*(.*\n)*.*\*\/ ;
%%

int main()
{
        printf("\n");
        yyin=fopen("input.c","r");
        yyout=fopen("output.c","w");
        yylex();
        printf("Process Completed ...\n");
}

int yywrap() {return 1;}
```

Output :

```
:~/Desktop/Lab$ cat input.c
#include<stdio.h>
void main()
{
        int i,j,k;
        //Single Line Comment
        char *str="Computer Science and Engineering";
        /*
        Multi Line Comment
        */
        i=9;
        j=20;
        printf("Hello World !!!");
}
:~/Desktop/Lab$ lex 3.l
:~/Desktop/Lab$ gcc lex.yy.c
:~/Desktop/Lab$ ./a.out

Process Completed ...
:~/Desktop/Lab$ cat output.c
#include<stdio.h>
void main()
{
        int i,j,k;

        char *str="Computer Science and Engineering";

        i=9;
        j=20;
        printf("Hello World !!!");
}
:~/Desktop/Lab$
```

Program :

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

%%
(\<|\<\/)[a-zA-Z0-9 \=\"]*\>(\n)? ;
%%

int main()
{
        printf("\n");
        yyin=fopen("input.html","r");
        yyout=fopen("output.html","w");
        yylex();
        printf("Process Completed ...\n");
}

int yywrap() {return 1;}
```

Output :

```
:~/Desktop/Lab$ cat input.html
<html>
<head>
<title>
Sample HTML File
</title>
</head>

<body bgcolor="skyblue">

<marquee><h1>Welcome</h1></marquee>

<marquee direction="up"><h1 align="center">Hello World!</h1></marquee>

</body>

</html>
:~/Desktop/Lab$ lex 4.l
:~/Desktop/Lab$ gcc lex.yy.c
:~/Desktop/Lab$ ./a.out

Process Completed ...
:~/Desktop/Lab$ cat output.html
Sample HTML File


Welcome
Hello World!

:~/Desktop/Lab$
```

Program :

```
%{
#include<stdio.h>
#include<string.h>
char keywords[20][100],ops[20][100];
char ide[20][100],sep[20][100],spc[20][200];
int k=0,id=0,op=0,se=0,spec=0,cons=0,nstr=0,mxn=0;
char constant[20][10],str[20][100];
%}

%%
"while"|"if"|"else"|"printf"|bool|int|float|main|void {strcpy(keywords[k++],yytext);}


[a-zA-Z_][a-zA-Z0-9_]* {strcpy(ide[id++],yytext);}

[0-9]* {strcpy(constant[cons++],yytext);}

"<="|"=="|"="|"++"|"-"|"*"|"+" {strcpy(ops[op++],yytext);}

[!@#$%^&*]+ {strcpy(spc[spec++],yytext);}

[(){}|,;] {strcpy(sep[se++],yytext);}

\n ;

#include<[a-z]+\.h> ;

\".*\" ;

=\".*\" {

        strcpy(str[nstr++],yytext);
        while(str[nstr-1][mxn+1]!='\0'){
                str[nstr-1][mxn]=str[nstr-1][mxn+1];
                mxn++;
        }
        str[nstr-1][mxn]='\0';
}
%%

int yywrap(void){return 1;}

int main()
{
        yyin = fopen("input.c", "r");
        yylex();
        int i=0;
        printf("\n Keywords are: \n");
        while(i<k)
        printf("%s \n",keywords[i++]);
```

```
        i=0;
        printf("\n Identifiers are: \n");
        while(i<id)
        printf("%s \n",ide[i++]);
        i=0;
        printf("\n Constants are: \n");
        while(i<cons)
        printf("%s \n",constant[i++]);
        i=0;
        printf("\n String Constants are: \n");
        while(i<nstr)
        printf("%s \n",str[i++]);
        i=0;
        printf("\n Operators are: \n");
        while(i<op)
        printf("%s \n",ops[i++]);
        i=0;
        printf("\n Special Characters are: \n");
        while(i<spec)
        printf("%s \n",spc[i++]);
        i=0;
        printf("\n Separators are: \n");
        while(i<se)
        printf("%s \n",sep[i++]);
}
```

Output :

```
:~/Desktop/Lab$ lex 5.l
:~/Desktop/Lab$ gcc lex.yy.c
:~/Desktop/Lab$ ./a.out
                //              /               /
 Keywords are:
void
main
int
printf

 Identifiers are:
i
j
k
Single
Line
Comment
char
str
Multi
Line
Comment
i
j

 Constants are:
9
20

 String Constants are:
"Computer Science and Engineering"

 Operators are:
*
*
*
=
=

 Special Characters are:

 Separators are:
(
)
{
,
,
;
;
;
;
(
)
;
}
:~/Desktop/Lab$
```

Program :

```
%{
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
float num1,num2,res;
char str[2][5],i=0,op[5];
%}

%%
[0-9]+|[0-9]+"."[0-9]+ {strcpy(str[i++],yytext);}
\+|\-|\*|\/ {strcpy(op,yytext); }
. {}
\n return 0;
%%
int yywrap(void){return 1;}
int main()
{
        printf("\nEnter the input : ");
        yylex();
        num1=atof(str[0]);
        num2=atof(str[1]);
        switch((int)op[0]){
        case '+': res=num1+num2; break;
        case '-':  res=num1-num2; break;
        case '*': res=num1*num2; break;
        case '/':  res=num1/num2; break;
        }
        printf("\n%.2f %s %.2f = %.2f\n",num1,op,num2,res);
        return 0;
}
```

Output :

```
:~/Desktop/Lab$ lex 6.l
:~/Desktop/Lab$ gcc lex.yy.c
:~/Desktop/Lab$ ./a.out

Enter the input : 50 + 3

50.00 + 3.00 = 53.00
:~/Desktop/Lab$ ./a.out

Enter the input : 56 - 3

56.00 - 3.00 = 53.00
:~/Desktop/Lab$ ./a.out

Enter the input : 4 * 5

4.00 * 5.00 = 20.00
:~/Desktop/Lab$ ./a.out

Enter the input : 106 / 2

106.00 / 2.00 = 53.00
:~/Desktop/Lab$
```

Program :

```
%{
#include<stdio.h>
#include<string.h>
float number[10],result;
char n[10];
int top=-1;

float pop(){
        if(top==-1)
                return -999;
        return number[top--];
}

void push(float a){
        if(top == (sizeof(number)/sizeof(number[0]))-1)
                printf("Stack Overflow !!!\n");
        number[++top]=a;
}

%}

%%
[0-9]+ {strcpy(n,yytext);push(atof(n));}
"+" {result=pop()+pop();push(result);" ";}
"-" {result=pop();result=pop()-result;push(result);}
"/" {result=pop();result=pop()/result;push(result);}
"*" {result=pop()*pop();push(result);}
" " ;
\n return 0;
%%

int yywrap(void) {return 1;}

int main()
{
        printf("\nEnter the postfix expression : ");
        yylex();
        printf("Result : %.2f \n",result);
}
```

Output :

```
:~/Desktop/Lab$ lex 7.l
:~/Desktop/Lab$ gcc lex.yy.c
:~/Desktop/Lab$ ./a.out

Enter the postfix expression : 2 10 + 9 6 - /
Result : 4.00
:~/Desktop/Lab$
```