**ASSIGNMENT-3**

**Lexical Analyzer**

**Q1. A story writer wishes to recheck his story. In order to recheck he needs to find all those words which are followed by ‘?’and ‘!’. Write a lex program that can solve his problem.**

**Q2. Write a lex program to design a DFA over input {0,1}, which accept odd no. of 0s or even no. of 1s but not both together.**

**Q3. Write a lex program to design a DFA over input {a,b}, which accepts all the words containing odd number of ‘b’.**

**Q4. Given a text file, write a lex program to search an input word in the file. If the word is present then count the total number of its occurrences, and replace every odd occurrence of the word with your roll number.**

**Program 1**

%{

#include<stdio.h>

int count=0;

%}

%%

[a-zA-Z0-9]\*(\?|!) {printf("%s \n",yytext);count++;}

. { continue;}

<<EOF>> { return 0; }

%%

int yywrap(void)

{

return 1;

}

int main(){

printf("Enter Sentence : \n"); yylex();

printf("Total Words Ending with ! or ? are : %d\n",count);

}

**Output**

**Text

Description automatically generated**

**Program 2**

%{

%}

%s OE OO EO

%%

<INITIAL>0 BEGIN OE;

<INITIAL>1 BEGIN EO;

<INITIAL>\n {BEGIN INITIAL; printf("Accepted\n");}

<OE>0 BEGIN INITIAL;

<OE>1 BEGIN OO;

<OE>\n {BEGIN INITIAL; printf("Not Accepted\n");}

<OO>0 BEGIN EO;

<OO>1 BEGIN OE;

<OO>\n {BEGIN INITIAL; printf("Accepted\n");}

<EO>0 BEGIN OO;

<EO>1 BEGIN INITIAL;

<EO>\n {BEGIN INITIAL; printf("Not Accepted\n");}

%%

void main()

{

yylex();

}

**Output**

**Text

Description automatically generated**

**Program 3**

%{

%}

%s F

%%

<INITIAL>a BEGIN INITIAL;

<INITIAL>b BEGIN F;

<INITIAL>\n {BEGIN INITIAL; printf("Not Accepted\n");}

<F>b BEGIN INITIAL;

<F>a BEGIN F;

<F>\n {BEGIN INITIAL; printf("Accepted\n");}

%%

void main()

{

yylex();

}

**Output**

Graphical user interface, text

Description automatically generated

**Program 4**

%{

#include<stdio.h>

#include<string.h>

char replace\_with [] = "Sudhanshu"; char replace [] ="XXX";

int count = 0;

%}

%%

[a-zA-Z]+ { if(strcmp(yytext, replace)==0)

count++;

if(strcmp(yytext, replace)==0 && count%2!=0) fprintf(yyout, "%s", replace\_with);

else

fprintf(yyout, "%s", yytext);}

. fprintf(yyout, "%s", yytext);

%%

int yywrap()

{

return 1;

}

int main()

{

extern FILE \*yyin, \*yyout;

yyin=fopen("input.txt", "r");

yyout=fopen("output.txt", "w");

yylex();

printf("Number of occurences of %s=%d\n",replace, count);

}

**Output**

Text

Description automatically generated