**Day 4 lab programs**

**QUESTION 1:**

%{

#include <stdio.h>

#include <string.h>

int count = 0;

char target\_word[50];

%}

%%

[ \t\n]+ ; // skip whitespace

[a-zA-Z]+ { if(strcmp(yytext, target\_word) == 0) count++; }

.|\n ; // skip other characters

%%

int yywrap() {

return 1; // indicate end of input

}

int main() {

printf("Enter a sentence: ");

char sentence[1000];

fgets(sentence, sizeof(sentence), stdin);

printf("Enter the word to count: ");

scanf("%s", target\_word);

yy\_scan\_string(sentence);

yylex();

printf("Frequency of '%s' in the sentence: %d\n", target\_word, count);

return 0;

}

**QUESTION 2:**

#include<stdio.h>

#include<ctype.h>

#include<string.h>

int main()

{

int i,ic=0,m,cc=0,oc=0,j;

char b[30],operators[30],identifiers[30],constants[30];

printf("enter the string : ");

scanf("%[^\n]s",&b);

for(i=0;i<strlen(b);i++)

{

if(isspace(b[i]))

{

continue;

}

else if(isalpha(b[i]))

{

identifiers[ic] =b[i];

ic++;

}

else if(isdigit(b[i]))

{

m=(b[i]-'0');

i=i+1;

while(isdigit(b[i]))

{

m=m\*10 + (b[i]-'0');

i++;

}

i=i-1;

constants[cc]=m;

cc++;

}

else

{

if(b[i]=='\*')

{

operators[oc]='\*';

oc++;

}

else if(b[i]=='-')

{

operators[oc]='-';

oc++;

}

else if(b[i]=='+')

{

operators[oc]='+';

oc++;

}

else if(b[i]=='=')

{

operators[oc]='=';

oc++;

}

}

}

printf(" identifiers : ");

for(j=0;j<ic;j++)

{

printf("%c ",identifiers[j]);

}

printf("\n constants : ");

for(j=0;j<cc;j++)

{

printf("%d ",constants[j]);

}

printf("\n operators : ");

for(j=0;j<oc;j++)

{

printf("%c ",operators[j]);

}

}

**QUESTION 3:**

#include<stdio.h>

#include<conio.h>

int main()

{

char com[30];

int i=2,a=0;

printf("\n Enter comment:");

gets(com);

if(com[0]=='/')

{

if(com[1]=='/')

printf("\n It is a comment");

else if(com[1]=='\*')

{

for(i=2;i<=30;i++)

{

if(com[i]=='\*'&&com[i+1]=='/')

{

printf("\n It is a comment");

a=1;

break;

}

else

continue;

}

if(a==0)

printf("\n It is not a comment");

}

else

printf("\n It is not a comment");

}

else

printf("\n It is not a comment");

}

**QUESTION 4:**

#include<stdio.h>

#include<conio.h>

int main()

{

char s[5];

printf("\n Enter any operator:");

gets(s);

switch(s[0])

{

case'>':

if(s[1]=='=')

printf("\n Greater than or equal");

else

printf("\n Greater than");

break;

case'<':

if(s[1]=='=')

printf("\n Less than or equal");

else

printf("\nLess than");

break;

case'=':

if(s[1]=='=')

printf("\nEqual to");

else

printf("\nAssignment");

break;

case'!':

if(s[1]=='=')

printf("\nNot Equal");

else

printf("\n Bit Not");

break;

case'&':

if(s[1]=='&')

printf("\nLogical AND");

else

printf("\n Bitwise AND");

break;

case'|':

if(s[1]=='|')

printf("\nLogical OR");

else

printf("\nBitwise OR");

break;

case'+':

printf("\n Addition");

break;

case'-':

printf("\nSubstraction");

break;

case'\*':

printf("\nMultiplication");

break;

case'/':

printf("\nDivision");

break;

case'%':

printf("Modulus");

break;

default:

printf("\n Not a operator");

}

}

**QUESTION 5:**

%{

#include <stdio.h>

int space\_count = 0;

int newline\_count = 0;

int yywrap(void) {

return 1; // indicate end of input

}

%}

%%

[ \t]+ { space\_count += yyleng; }

\n { newline\_count++; }

. ; // skip other characters

%%

int main() {

printf("Enter a text (Ctrl+D to end input on Unix/Linux, Ctrl+Z on Windows):\n");

yywrap(); // invoke yywrap to start processing

printf("Number of whitespaces: %d\n", space\_count);

printf("Number of newline characters: %d\n", newline\_count);

return 0;

}

**QUESTION 7:**

#include<stdio.h>

#include<string.h>

void main() {

char input[100],l[50],r[50],temp[10],tempprod[20],productions[25][50];

int i=0,j=0,flag=0,consumed=0;

printf("Enter the productions: ");

scanf("%1s->%s",l,r);

printf("%s",r);

while(sscanf(r+consumed,"%[^|]s",temp) == 1 && consumed <= strlen(r)) {

if(temp[0] == l[0]) {

flag = 1;

sprintf(productions[i++],"%s->%s%s'\0",l,temp+1,l);

}

else

sprintf(productions[i++],"%s'->%s%s'\0",l,temp,l);

consumed += strlen(temp)+1;

}

if(flag == 1) {

sprintf(productions[i++],"%s->e\0",l);

printf("The productions after eliminating Left Recursion are:\n");

for(j=0;j<i;j++)

printf("%s\n",productions[j]);

}

else

printf("The Given Grammar has no Left Recursion");

}

**QUESTION 8:**

#include<stdio.h>

#include<string.h>

int main()

{

char gram[20],part1[20],part2[20],modifiedGram[20],newGram[20],tempGram[20];

int i,j=0,k=0,l=0,pos;

printf("Enter Production : A->");

gets(gram);

for(i=0;gram[i]!='|';i++,j++)

part1[j]=gram[i];

part1[j]='\0';

for(j=++i,i=0;gram[j]!='\0';j++,i++)

part2[i]=gram[j];

part2[i]='\0';

for(i=0;i<strlen(part1)||i<strlen(part2);i++){

if(part1[i]==part2[i]){

modifiedGram[k]=part1[i];

k++;

pos=i+1;

}

}

for(i=pos,j=0;part1[i]!='\0';i++,j++){

newGram[j]=part1[i];

}

newGram[j++]='|';

for(i=pos;part2[i]!='\0';i++,j++){

newGram[j]=part2[i];

}

modifiedGram[k]='X';

modifiedGram[++k]='\0';

newGram[j]='\0';

printf("\nGrammar Without Left Factoring : : \n");

printf(" A->%s",modifiedGram);

printf("\n X->%s\n",newGram);

}

**QUESTION 6:**

#include<stdio.h>

#include<conio.h>

#include<ctype.h>

int main()

{

char a[10];

int flag, i=1;

printf("\n Enter an identifier:");

gets(a);

if(isalpha(a[0]))

flag=1;

else

printf("\n Not a valid identifier");

while(a[i]!='\0')

{

if(!isdigit(a[i])&&!isalpha(a[i]))

{

flag=0;

break;

} i++;

}

if(flag==1)

printf("\n Valid identifier");

}

