# THEORY OF AUTOMATA

## ASSIGNMENT NO 2

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SECTION : D

# Program to implement the CFG and parse the sentence provided by user

(Implemented by using flex and bison)

**Lexer.l file**

%{

#include <stdio.h>

#include <stdlib.h>

#include <string.h>

#include "y.tab.h"

extern int yyparse() ;

void grammar(char \*str);

int i=0 ;

%}

letter [a-zA-Z]+

%%

[ \t]

"\n" return 0 ;

{letter} {

grammar(yytext) ;

if (i==1){

printf("%s\n",yytext) ;

return(NOUN) ;

}

if (i==2){

printf("%s\n",yytext) ;

return(VERB) ;

}

if (i==3){

printf("%s\n",yytext) ;

return(ADJECTIVE) ;

}

if (i==4){

printf("%s\n",yytext) ;

return(PRONOUN) ;

}

if (i==5){

printf("%s\n",yytext) ;

return(DETERMINER) ;

}

if (i==6){

printf("%s\n",yytext) ;

return(PREPOSITION) ;

}

if (i==7){

printf("%s\n",yytext) ;

return(CONJUNCTION) ;

}

if (i==8){

printf("%s\n",yytext) ;

return(PROPERNOUN) ;

}

}

%%

void grammar(char \*str)

{

char word[10] ;

FILE \*fp ;

i=0 ;

fp = fopen("Noun.txt","r") ;

while ((fscanf(fp,"%s",word)) != EOF)

if (strcmp(word,str) == 0)

i = 1 ;

fclose(fp) ;

fp = fopen("Verb.txt","r") ;

while ((fscanf(fp,"%s",word)) != EOF)

if (strcmp(word,str) == 0)

i = 2 ;

fclose(fp) ;

fp = fopen("Adjective.txt","r") ;

while ((fscanf(fp,"%s",word)) != EOF)

if (strcmp(word,str) == 0)

i = 3 ;

fclose(fp);

fp = fopen("Pronoun.txt","r") ;

while ((fscanf(fp,"%s",word)) != EOF)

if (strcmp(word,str) == 0)

i = 4 ;

fclose(fp);

fp = fopen("Determiner.txt","r") ;

while ((fscanf(fp,"%s",word)) != EOF)

if (strcmp(word,str) == 0)

i = 5 ;

fclose(fp);

fp = fopen("Preposition.txt","r") ;

while ((fscanf(fp,"%s",word)) != EOF)

if (strcmp(word,str) == 0)

i = 6 ;

fclose(fp);

fp = fopen("Conjunction.txt","r") ;

while ((fscanf(fp,"%s",word)) != EOF)

if (strcmp(word,str) == 0)

i = 7 ;

fclose(fp);

fp = fopen("Proper Noun.txt","r") ;

while ((fscanf(fp,"%s",word)) != EOF)

if (strcmp(word,str) == 0)

i = 8 ;

fclose(fp);

}

**Parser.y file**

%{

#include <stdio.h>

#include <string.h>

extern int yylex() ;

extern int yyparse() ;

extern void yyerror(char \*s) ;

%}

%start S

%token NOUN VERB ADJECTIVE PRONOUN PROPERNOUN DETERMINER PREPOSITION CONJUNCTION

%%

S : NP VP { printf("S\nNP VP\n"); } ;

NP : PRONOUN { printf("Pronoun VP\n"); }

| PROPERNOUN { printf("Proper-noun VP\n"); }

| DETERMINER nominal { printf("Determiner Nominal VP\”): } ;

nominal : NOUN nominal { printf("Noun Nominal VP\n"); }

| NOUN { printf("Noun VP\n"); } ;

VP : VERB { printf("Verb\n"); }

| VERB NP { printf("Verb NP\n"); }

| VERB NP PP { printf("Verb NP PP\n"); }

| VERB PP { printf("Verb PP\n");} ;

PP : PREPOSITION NP { printf("Preposition NP\n"); } ;

%%

main(){

printf("\nEnter a sentence : \n") ;

yyparse() ;

return 0;

}

void yyerror(char \*s) {

fprintf(stderr, "%s\n",s) ;

}

yywrap(){

return 1 ;

}

