20. Write a C program to compute TRAILING( ) – operator precedence parser for the given grammar

#include <stdio.h>

#include <string.h>

#include <ctype.h>

#define MAX 10

char productions[MAX][MAX];

char trailing[MAX][MAX];

int numProductions;

void findTrailing(char nonTerminal, int index) {

for (int i = 0; i < numProductions; i++) {

if (productions[i][0] == nonTerminal) {

int len = strlen(productions[i]);

for (int j = len - 1; j > 2; j--) { // Start from last symbol

if (!isupper(productions[i][j])) {

trailing[index][strlen(trailing[index])] = productions[i][j];

break;

} else { // Non-terminal

findTrailing(productions[i][j], index);

}

}

}

}

}

void computeTrailing() {

for (int i = 0; i < numProductions; i++) {

char nonTerminal = productions[i][0];

int index = nonTerminal - 'A';

findTrailing(nonTerminal, index);

}

}

void displayTrailing() {

printf("\nTRAILING sets:\n");

for (int i = 0; i < numProductions; i++) {

int index = productions[i][0] - 'A';

printf("TRAILING(%c) = { ", productions[i][0]);

for (int j = 0; j < strlen(trailing[index]); j++) {

printf("%c ", trailing[index][j]);

}

printf("}\n");

}

}

int main() {

printf("Enter number of productions: ");

scanf("%d", &numProductions);

getchar();

printf("Enter the productions (e.g., E=E+T):\n");

for (int i = 0; i < numProductions; i++) {

fgets(productions[i], MAX, stdin);

productions[i][strcspn(productions[i], "\n")] = 0;

}

computeTrailing();

displayTrailing();

return 0;

}

