#include <stdio.h>

#include <stdlib.h>

#include <string.h>

#include <ctype.h>

#define MAX 10

char productions[MAX][MAX];

int numProductions;

void findTrailing(char nonTerminal, char trailingSet[])

{

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

{

int len = strlen(productions[i]);

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

{

if (!isupper(productions[i][len - 1]))

{

strncat(trailingSet, &productions[i][len - 1], 1);

} else {

findTrailing(productions[i][len - 1], trailingSet);

}

}

}

}

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;

}

char trailingSet[MAX] = "";

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

{

char nonTerminal = productions[i][0];

printf("TRAILING(%c) = {", nonTerminal);

findTrailing(nonTerminal, trailingSet);

for (int j = 0; j < strlen(trailingSet); j++)

{

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

}

printf(" }\n");

memset(trailingSet, 0, sizeof(trailingSet));

}

return 0;

}