#include <stdio.h>

#include <stdlib.h>

#include <string.h>

#include <ctype.h>

#define MAX 10

char productions[MAX][MAX];

int numProductions;

void findLeading(char nonTerminal, char leadingSet[])

{

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

{

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

{

if (!isupper(productions[i][2]))

{

strncat(leadingSet, &productions[i][2], 1);

} else {

findLeading(productions[i][2], leadingSet);

}

}

}

}

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; // Remove newline

}

char leadingSet[MAX] = "";

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

{

char nonTerminal = productions[i][0];

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

findLeading(nonTerminal, leadingSet);

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

{

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

}

printf(" }\n");

memset(leadingSet, 0, sizeof(leadingSet));

}

return 0;

}