#include <stdio.h>

#include <string.h>

int isBelongToCFG(char str[]) {

if (str[0] == '\0') {

return 1;

} else if (str[0] == '0' && str[strlen(str) - 1] == '1') {

return isBelongToCFG(&str[1]);

} else {

int i, j, k;

for (i = 1; i < strlen(str); i++) {

if (str[i] == '0') {

for (j = i + 1; j < strlen(str); j++) {

if (str[j] == '1') {

char left[100], right[100];

for (k = 0; k < i; k++) {

left[k] = str[k];

}

left[k] = '\0';

for (k = i + 1; k < j; k++) {

right[k - i - 1] = str[k];

}

right[k - i - 1] = '\0';

if (isBelongToCFG(left) && isBelongToCFG(right)) {

return 1;

}

}

}

}

}

return 0;

}

}

int main() {

char str[100];

printf("Enter a string to check if it belongs to the CFG (S → 0S1 | ε): ");

scanf("%s", str);

if (isBelongToCFG(str)) {

printf("The string belongs to the CFG.\n");

} else {

printf("The string does not belong to the CFG.\n");

}

return 0;

}