#include<stdio.h>

#include <stdlib.h>

#include <math.h>

int \*board;

int place(int row, int column, int n) {

int i;

for ( i = 1; i < row; i++) {

if (board[i] == column || abs(board[i] - column) == abs(i - row)) {

return 0;

}

}

return 1;

}

void print\_board(int n) {

int i,j;

printf("\nSolution:\n");

for (i = 1; i <= n; i++) {

for (j = 1; j <= n; j++) {

if (board[i] == j) {

printf("Q ");

}

else {

printf("\_ ");

} }

printf("\n");

}}

void queen(int row, int n) {

int column;

for (column = 1; column <= n; column++) {

if (place(row, column, n)) {

board[row] = column;

if (row == n) {

print\_board(n);

}

else {

queen(row + 1, n);

} } }}

int main() {

int i,n;

board = (int \*)malloc((n + 1) \* sizeof(int));

printf("Enter the number of queens: ");

scanf("%d", &n);

if (n < 1) {

printf("No solution exists for N < 1.\n");

return 0;

}

if (n == 2 || n == 3) {

printf("No solution exists for N = %d.\n", n);

return 0;

}

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

board[i] = 0;

}

queen(1, n);

free(board);

return 0;

}