```c
#include <stdlib.h>
#include <stdio.h>
#include <stdbool.h>
#include <iostream>
#include <cmath>

const int taille = 12 ;
int grille[taille][taille] = {{0,0,11,0,12,0,0,8,0,2,0,0},
{0,0,0,0,0,0,0,7,0,0,0,0},
{0,12,0,0,2,10,0,0,0,0,3,4,0},
{12,0,0,10,0,0,0,0,3,0,0,2},
{0,2,0,0,0,0,0,0,0,9,11,0},
{0,12,0,0,0,0,7,6,0,0,0,2,0},
{0,9,7,0,5,0,0,0,1,0,0,8,3},
{8,0,0,11,1,0,1,0,0,0,0,7},
{0,0,2,12,0,0,0,0,4,11,0,0},
{0,0,9,0,0,0,0,0,1,0,0,0},
{11,10,0,0,0,0,0,0,0,3,4}};;

int numsol = 0 ;

void afficher() {int i, j ;

    for (i = 0; i < taille ; i++) {
        for (j = 0; j < taille ; j++)
            printf("%d ", grille[i][j]);
        std::cout << \n ;
    }
    std::cout << "-----------\n" ;
}

bool absentSurLigne(int k, int i) {int j ;

    for (j = 0; j < taille ; j++)
        if (grille[i][j] == k)
            return false;
    return true;
}

bool absentSurColonne(int k, int j) {int i ;

    for (i = 0; i < taille ; i++)
        if (grille[i][j] == k)
            return false;
    return true;
}

bool absentSurBloc (int k, int i, int j) {
    int ri, rj, mi, mj, l, m ;

    rj = j%12 ; if (rj < 3) mj = 0 ; else if (rj < 6) mj = 3 ; else if (rj < 9) mj = 6 ; else mj = 9 ;
    ri = i%12 ; if (ri < 4) mi = 0 ; else if (ri < 8) mi = 4 ; else mi = 8 ;
    for (l = mi; l < mi+4 ; l++)
        for (m = mj; m < mj+3 ; m++)
            if (grille[l][m] == k)
                return false ;
    return true ;
}

bool estValide(int position) {int i, j, k ;

    if (position == taille * taille) {
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numsol++;
std::cout << "Solution n" << numsol << "\n";
afficher();
}
i = position / taille;
j = position % taille;
if (grille[i][j] != 0) return estValide(position+1);
for (k = 1; k <= taille; k++)
    if (absentSurLigne(k,i) && absentSurColonne(k,j) && absentSurBloc(k,i,j)) {
        int garde = grille[i][j];
grille[i][j] = k;
estValide(position+1);
grille[i][j] = garde;
    }
}

int main(void)
{
    printf("Grille avant\n");
    afficher();
estValide(0);
}