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

const int taille = 10 ;
int grille[taille][taille] = {{0,0,0,7,9,3,0,0,0,0},
    {0,0,0,0,2,7,0,0,9,8},
    {0,0,1,0,0,0,0,0,5,0},
    {10,0,0,0,0,0,9,3,0,0},
    {8,9,0,0,0,2,0,10,0,0},
    {2,4,0,0,5,0,0,0,1,7},
    {0,0,0,8,0,0,3,4,0,0},
    {0,0,0,2,10,0,8,0,0,0},
    {0,7,8,0,0,4,0,0,10,3},
    {0,5,0,0,0,9,0,0,6,0}};
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%10 ; if (rj < 5) mj = 0 ; else mj = 5 ;
    ri = i%10 ; if (ri < 2) mi = 0 ; else if (ri < 4) mi = 2 ; else if (ri < 6) mi
= 4 ; else if (ri < 8) mi = 6 ; else mi = 8 ;
    for (l = mi; l < mi+2; l++)
        for (m = mj; m < mj+5; m++)
            if (grille[l][m] == k)
                return false ;
    return true ;
}

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

    if (position == taille * taille) {
        numsol++ ;
        std::cout << "Solution n°" << numsol << "\n" ;
    }
}

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    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) ;
}
```