

```

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

const int taille = 9 ;
int grille[taille][taille] =
    {{0,0,0,0,0,9,2,0,1},{0,5,0,0,0,0,0,6,0},{0,0,7,0,0,4,0,0,0},
     {0,0,0,0,0,0,4,0,3},{0,0,0,0,0,0,0,0,5},{9,0,0,0,6,0,0,0,0},
     {0,8,0,0,0,0,0,0,0},{0,0,0,9,2,0,0,0,0},{0,3,4,0,0,0,0,0,0}};
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 mi = i-(i%3), mj = j-(j%3); // ou encore : _i = 3*(i/3), _j = 3*(j/3);

    for (i = mi; i < mi+3; i++)
        for (j = mj; j < mj+3; j++)
            if (grille[i][j] == k)
                return false ;
    return true ;
}

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

    if (position == taille * taille) {
        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) ;
}
```