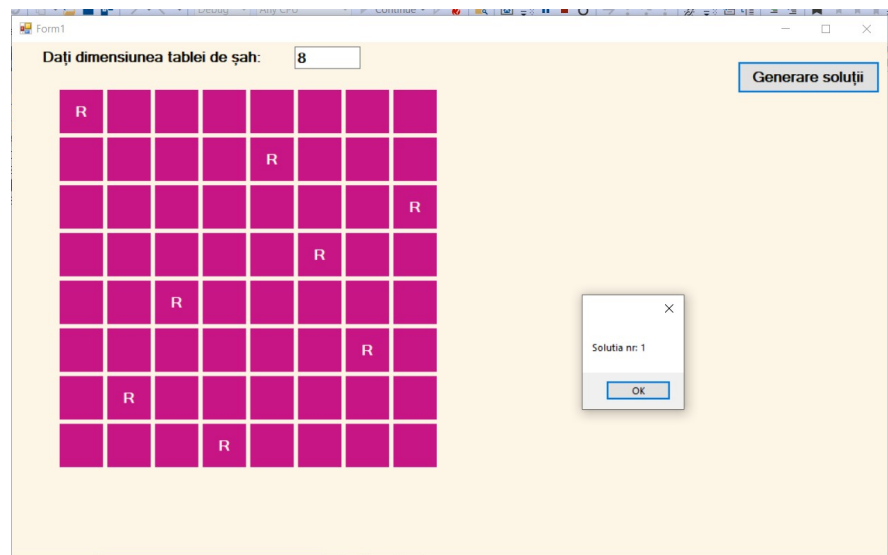


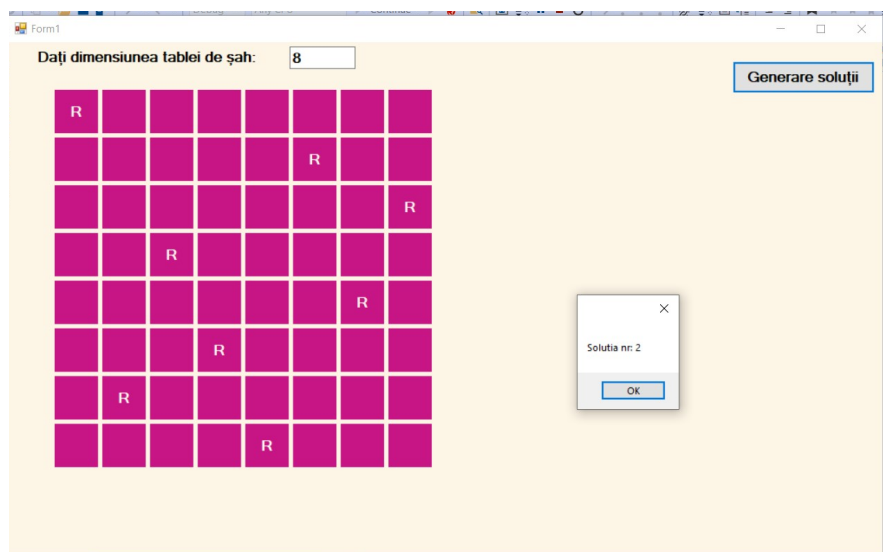
Prof. Carmen Gal

Problema damelor

Fiind dată o tablă de șah, de dimensiune n, n , se cer toate soluțiile de aranjare a n dame, astfel încât să nu se afle două dame pe aceeași linie, coloană sau diagonală (dame să nu se atace reciproc) .



The screenshot shows a Windows application window titled 'Form1'. At the top, it says 'Dați dimensiunea tablei de șah:' followed by a text box containing the number '8'. To the right is a button labeled 'Generare soluții'. Below this is an 8x8 chessboard with a pink background. Eight red queen pieces, labeled 'R', are placed on the board at the following (row, column) coordinates: (1,1), (2,5), (3,7), (4,4), (5,3), (6,8), (7,2), and (8,6). A small dialog box titled 'Soluția nr: 1' with an 'OK' button is open in the center-right of the window.



The screenshot shows the same application window 'Form1' with the chessboard dimension set to 8. The 'Generare soluții' button has been clicked again. The chessboard now displays a different arrangement of the eight red queen pieces 'R' at the following (row, column) coordinates: (1,5), (2,8), (3,1), (4,7), (5,2), (6,6), (7,4), and (8,3). A small dialog box titled 'Soluția nr: 2' with an 'OK' button is open in the center-right of the window.

Prof. Carmen Gal

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace Problema_damelor//prof Carmen Gal
{
    3 references
    public partial class Form1 : Form
    {
        int n,sol=0;
        int[] st = new int[21];
        Label[,] lbl = new Label[21,21];

        1 reference
        public Form1()
        {
            InitializeComponent();
        }

        1 reference
        private int valid(int k)
        {
            for(int i=1;i<k;i++)
            {
                if (st[i] == st[k]) return 0;//aceeasi coloana
                if (k - i == Math.Abs(st[k] - st[i])) return 0;//aceeasi diagonala
            }
            return 1;
        }

        private void afisare(int k)
        {
            sol++;
            for (int i = 1; i <= k; i++)
                for (int j = 1; j <= k; j++)
                    if (st[i] == j)
                        lbl[i, j].Text = "R";
                    else
                        lbl[i, j].Text = "";
            MessageBox.Show("Solutia nr: " + Convert.ToString(sol));
        }

        2 references
        private void back(int k)
        {
            for(int i=1;i<=n;i++)
            {
                st[k] = i;
                if (valid(k)==1)
                    if (k == n) afisare(k);
                    else back(k + 1);
            }
        }

        private void button1_Click(object sender, EventArgs e)
        {
            try
            {
                n = Convert.ToInt32(textBox1.Text);
                if(n%2==0)
                {
                    for(int i=1;i<=n;i++)
                        for(int j=1;j<=n;j++)
                        {
                            lbl[i, j] = new Label();
                            lbl[i, j].Top = i * 55;
                            lbl[i, j].Left = j * 55;
                            lbl[i, j].Height = 50;
                            lbl[i, j].Width = 50;
                            lbl[i, j].BackColor = Color.MediumVioletRed;
                            lbl[i, j].ForeColor = Color.FloralWhite;
                            lbl[i, j].Font = new Font(FontFamily.GenericSansSerif, 12, FontStyle.Bold);
                            lbl[i, j].Text = "";
                            lbl[i, j].TextAlign = ContentAlignment.MiddleCenter;
                            this.Controls.Add(lbl[i, j]);//adaugarea etichetelor
                        }
                    back(1);
                    textBox1.Text = "";//indepartarea etichetelor de pe suprafata formularului
                    for (int i = 1; i <= n; i++)
                        for (int j = 1; j <= n; j++)
                            this.Controls.Remove(lbl[i, j]);
                    sol = 0;
                    n = 0;
                }
                else MessageBox.Show("Dati o valoare para!");
            }
            catch
            {
                MessageBox.Show("Dati o valoare!");
            }
        }
    }
}
```