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Uvod u Windows Forms

Zbirka rešenih zadataka
iz
programskog
jezika C#

Forme i događaji

Primer 0 događaj

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;

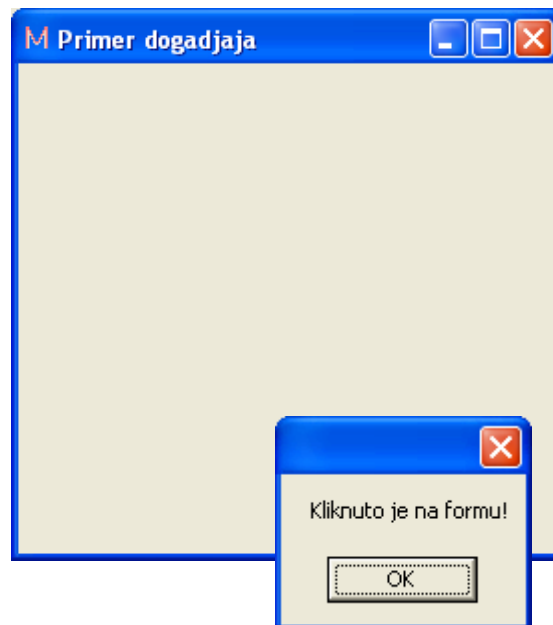
namespace primer0
{
    public class Form1 : System.Windows.Forms.Form
    {
        private System.ComponentModel.Container components = null;

        public Form1()
        {
            InitializeComponent();
        }

        protected override void Dispose( bool disposing )
        {
            if( disposing )
            {
                if (components != null)
                {
                    components.Dispose();
                }
                base.Dispose( disposing );
            }
        }

        #region Windows Form Designer generated code
        /// <summary>
        /// Required method for Designer support - do not modify
        /// the contents of this method with the code editor.
        /// </summary>
        ....
        #endregion
        /// The main entry point for the application.
        [STAThread]
        static void Main()
        {
            Application.Run(new Form1());
        }

        private void Form1_Click(object sender, System.EventArgs e)
        {
            MessageBox.Show("Kliknuto je na formu!");
        }
    }
}
```



Windows kontrolle: Button, TextBox, Label, GroupBox i Panel

Primer 1 hallo

```
public class Form1 : System.Windows.Forms.Form
{
    private System.Windows.Forms.Label label1;
    private System.Windows.Forms.TextBox textBox1;
    private System.Windows.Forms.Button button1;
    .....

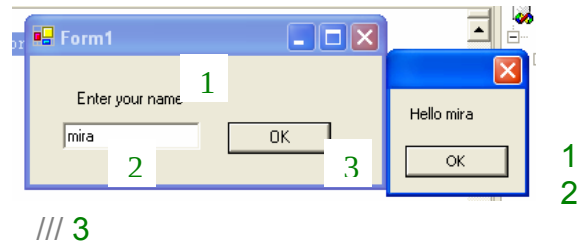
```

```
/// <summary>
/// The main entry point for the application.
/// </summary>
```

```
[STAThread]
static void Main()
{
    Application.Run(new Form1());
}
```

```
private void button1_Click(object sender, System.EventArgs e)
{
    MessageBox.Show("Hello " + textBox1.Text);
}
```

```
    }
}
```



Primer 1a GroupBox i Panel

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace primer1a
```

```
{
    /// <summary>
    /// Summary description for Form1.
    /// </summary>
    public class Form1 : System.Windows.Forms.Form
    {
        private System.Windows.Forms.GroupBox mainGroupBox1;
        private System.Windows.Forms.Panel mainPanel;
        private System.Windows.Forms.Label messageLabel;
        private System.Windows.Forms.Button hiButton;
        private System.Windows.Forms.Button byeButton;
        private System.Windows.Forms.Button leftButton;
        private System.Windows.Forms.Button rightButton;
```

```
        private System.ComponentModel.Container components = null;
```

```
        public Form1()
        {
            InitializeComponent();
        }
```

```
        ....
    #endregion
```

```
    [STAThread]
    static void Main()
    {
        Application.Run(new Form1());
    }
```

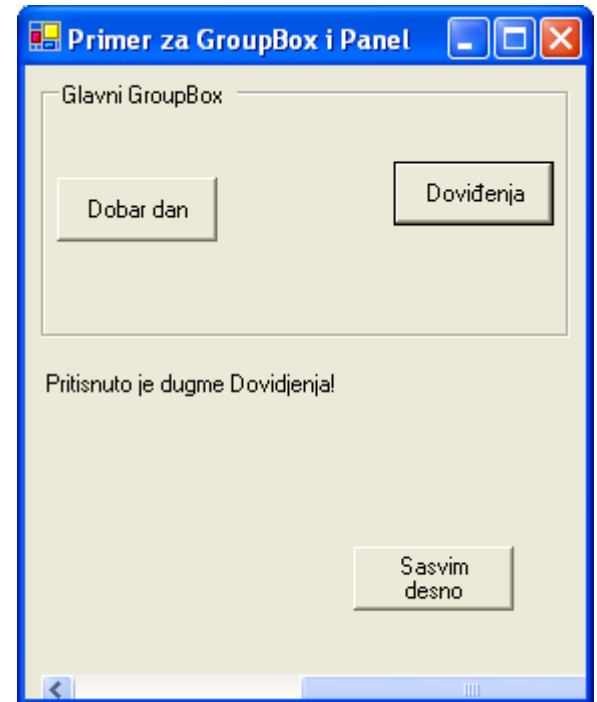
```
    private void hiButton_Click(object sender, System.EventArgs e)
    {
        messageLabel.Text="Pritisnuto je dugme Dobar dan!";
    }
```

```
    private void byeButton_Click(object sender, System.EventArgs e)
    {
        messageLabel.Text="Pritisnuto je dugme Dovidjenja!";
    }
```

```
    private void leftButton_Click(object sender, System.EventArgs e)
    {
        messageLabel.Text="Pritisnuto je sasvim levo dugme!";
    }
```

```
    private void rightButton_Click(object sender, System.EventArgs e)
    {
        messageLabel.Text="Pritisnuto je sasvim desno dugme!";
    }
```

```
    }
}
```



Primer 1b boja pozadine (generator slučajnih brojeva)

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;

namespace primer1b
{
    public class Form1 : System.Windows.Forms.Form
    {
        private System.Windows.Forms.Button btBoja;

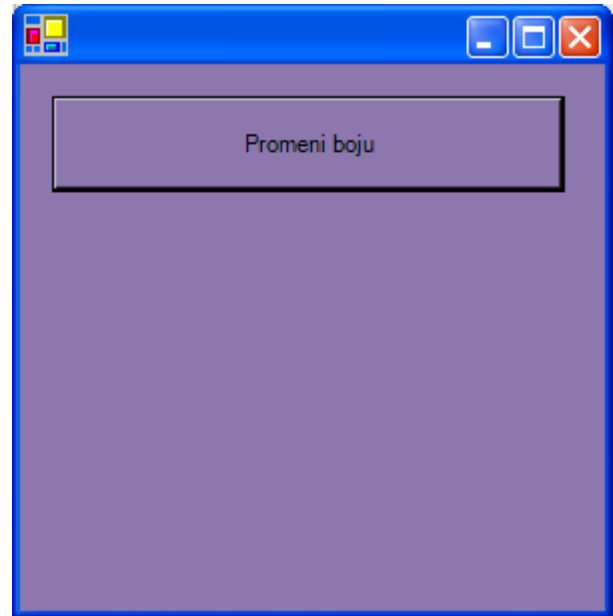
        private System.ComponentModel.Container components = null;

        public Form1()
        {
            InitializeComponent();
        }

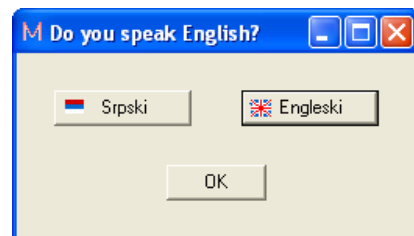
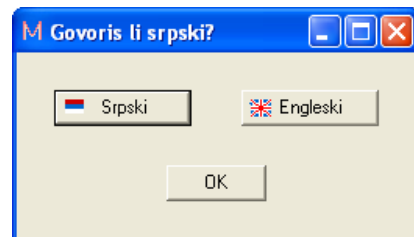
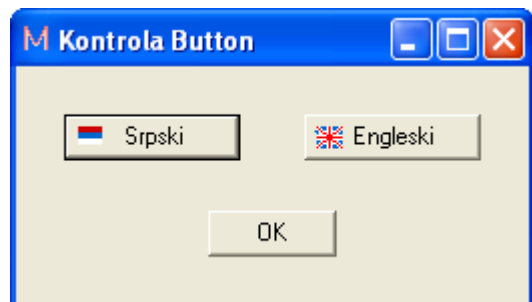
        static void Main()
        {
            Application.Run(new Form1());
        }

        Random r=new Random();           //generator slučajnih brojeva

        private void btBoja_Click(object sender, System.EventArgs e)
        {
            int crvena=r.Next(150);
            int zelena=r.Next(170);
            int plava=r.Next(150,256);
            BackColor=Color.FromArgb(crvena,zelena,plava);
        }
    }
}
```



Primer 2 – ikone i dugmad



Nacrtaj ikone za prozor i za zastave i kreiraj formu Glavni sa sledećim osobinama:

<i>name</i>	<i>text</i>	<i>cursor</i>	<i>image</i>	<i>StartPosition</i>	<i>FormBorderStyle</i>
Glavni	KontrolaButton			CenterScreen	FixedSingle
btnSrpski	Srpski	Hand	flgsrb.ico		
btnEngleski	Engleski	Hand	flgeng.ico		
btnOK	OK	Hand			

Kreiranje ikone:

1. Project / AddNewItem / IconFile otvara karticu u projektu *.ico
2. Image / NewImageType / 16x16..... nacrtaj, Save
3. Properties za glavnu formu, Icon i izaberemo ikonu sa foldera gde smo je sačuvali

..... **#endregion**

```
static void Main()
```

```
{  
    Application.Run(new fclsMain());  
}
```

```
private void fclsMain_Load(object sender, System.EventArgs e)  
{ }
```

```
private void btnSrpski_Click(object sender, System.EventArgs e)  
{  
    this.Text="Govoris li srpski?";  
}
```

```
private void btnEngleski_Click(object sender, System.EventArgs e)  
{  
    this.Text="Do you speak English?";  
}
```

```
private void btnOK_Click(object sender, System.EventArgs e)  
{  
    Application.Exit();  
}  
}  
}
```

Primer 2a Razmena

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace Razmena
```

```
{
    public class Form1 : System.Windows.Forms.Form
    {
        private System.Windows.Forms.TextBox tbPrvi;
        private System.Windows.Forms.TextBox tbDrugi;
        private System.Windows.Forms.Button btRazmeni;

        private System.ComponentModel.Container components = null;

        public Form1()
        {
            InitializeComponent();
        }

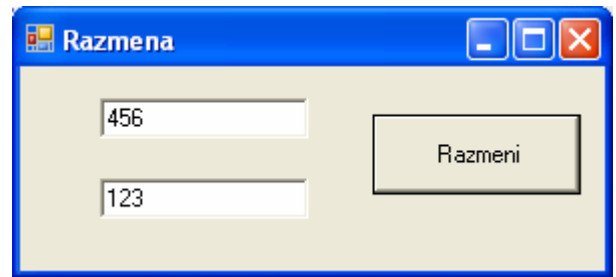
        protected override void Dispose( bool disposing )
        {
            if( disposing )
            {
                if (components != null)
                {
                    components.Dispose();
                }
            }
            base.Dispose( disposing );
        }

        #region Windows Form Designer generated code
        .....
        #endregion

        [STAThread]
        static void Main()
        {
            Application.Run(new Form1());
        }

        private void btRazmeni_Click(object sender, System.EventArgs e)
        {
            string s=tbPrvi.Text;
            tbPrvi.Text=tbDrugi.Text;
            tbDrugi.Text=s;
        }

    }
}
```



Primer 2b Jednostavni kalkulator

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace sabiranje
```

```
{
    public class Form1 : System.Windows.Forms.Form
    {
        private System.Windows.Forms.Label label1;
        private System.Windows.Forms.Label label2;
        private System.Windows.Forms.Label label3;
        private System.Windows.Forms.TextBox tbPrviBroj;
        private System.Windows.Forms.TextBox tbDrugiBroj;
        private System.Windows.Forms.TextBox tbRezultat;
        private System.Windows.Forms.Button btSaber;
        /// Required designer variable.
        private System.ComponentModel.Container components = null;

        public Form1()
        {
            InitializeComponent();
            .....
            /// The main entry point for the application.
        }

        static void Main()
        {
            Application.Run(new Form1());
        }

        private void btSaber_Click(object sender, System.EventArgs e)
        {
            try
            {
                double x,y,z;
                x=Convert.ToDouble(tbPrviBroj.Text);
                y=Convert.ToDouble(tbDrugiBroj.Text);
                z=x+y;
                tbRezultat.Text=Convert.ToString(z);
                // tbRezultat.Text=z.ToString();
            }
            catch
            {
                MessageBox.Show(" Neispravni podaci", "Greska");
            }
        }

        private void tbPrviBroj_TextChanged(object sender, System.EventArgs e)
        {
            tbRezultat.Text="";
        }

        private void tbDrugiBroj_TextChanged(object sender, System.EventArgs e)
        {
            tbRezultat.Text="";
        }
    }
}
```

Primer 2c Datum i vreme

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace Sat
```

```
{
    public class Form1 : System.Windows.Forms.Form
    {
        private System.Windows.Forms.Timer timer1;
        private System.Windows.Forms.Label lbDatum;
        private System.Windows.Forms.Label lbVreme;
        private System.Windows.Forms.Label label1;
        private System.Windows.Forms.Label label2;
        private System.ComponentModel.IContainer components;

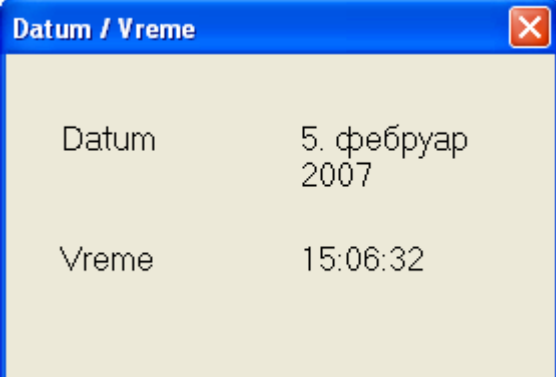
        public Form1()
        {
            InitializeComponent();
        }

        protected override void Dispose( bool disposing )
        {
            .....
        }

        #region Windows Form Designer generated code
        .....
        #endregion

        /// <summary>
        /// The main entry point for the application.
        /// </summary>
        [STAThread]
        static void Main()
        {
            Application.Run(new Form1());
        }

        private void Form1_Load(object sender, System.EventArgs e)
        {
            lbDatum.Text=DateTime.Now.ToLongDateString();
            lbVreme.Text=DateTime.Now.ToLongTimeString();
        }
    }
}
```



Datum / Vreme	
Datum	5. фебруар 2007
Vreme	15:06:32

Primer 2d Unos slike

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

namespace PictureBox
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            OpenFileDialog of = new OpenFileDialog();
            DialogResult rez = of.ShowDialog();
            if (rez == DialogResult.OK)
            {
                Bitmap slika = (Bitmap)Bitmap.FromFile(of.FileName);
                pBSlika.Image = slika;
            }
        }

        private void bt prikaz1_Click(object sender, EventArgs e)
        {
            pBSlika.SizeMode = PictureBoxSizeMode.Zoom;
        }

        private void bt prikaz2_Click(object sender, EventArgs e)
        {
            pBSlika.SizeMode = PictureBoxSizeMode.Normal;
        }
    }
}
```



Primer 2e Boje (događaji miša)

(kontrola: panel1-crvene boje i panel2-plave boje)

```
using System.Data;
using System.Drawing;
using System.Text;
using System.Windows.Forms;
```

```
namespace boje
{
    public partial class Form1 : Form
    {
        private Color staraboja;

        public Form1()
        {
            InitializeComponent();
            staraboja = this.BackColor;
        }
```

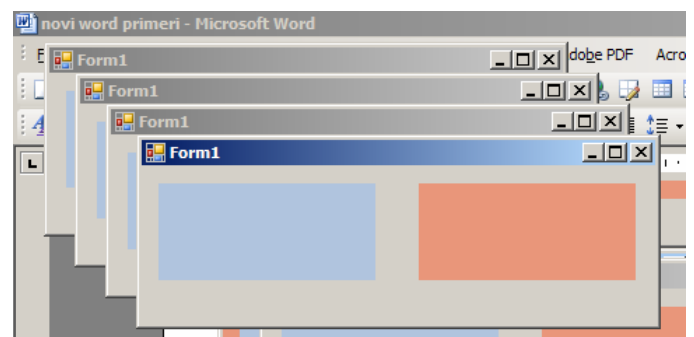
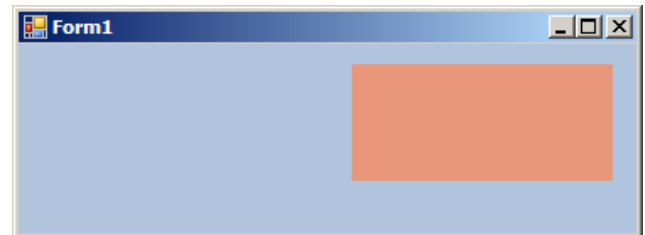
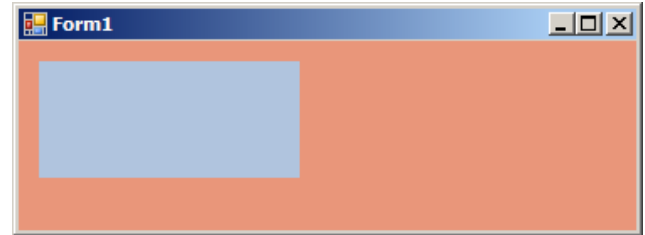
```
        private void panel2_MouseEnter(object sender, EventArgs e)
        {
            this.BackColor = panel2.BackColor;
        }
```

```
        private void panel1_MouseEnter(object sender, EventArgs e)
        {
            this.BackColor = panel1.BackColor;
        }
```

```
        private void panel2_MouseLeave(object sender, EventArgs e)
        {
            this.BackColor = staraboja;
        }
```

```
        private void panel1_MouseLeave(object sender, EventArgs e)
        {
            this.BackColor = staraboja;
        }
```

```
        private void Form1_Click(object sender, EventArgs e)
        {
            Form1 f = new Form1();
            f.Show();
        }
    }
}
```



Primer 2f Dani u nedelji

(kontrola: labele lbRednibrojDana, lbNazivdana,
 dugme btIspisi,
 tekstboksovi tBRednibrojDana, tBNazivdana)

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

```
namespace dani
```

```
{  
    public partial class Form1 : Form  
    {  
        public Form1()  
        {  
            InitializeComponent();  
            tBRedniBrojDana.Text = "unesi";  
        }  
  
        private void btIspisi_Click(object sender, EventArgs e)  
        {  
            int broj;  
            if (int.TryParse(tBRedniBrojDana.Text, out broj))  
            {  
                tBNazivDana.Text= NazivDana(broj);  
            }  
            else  
            {  
                MessageBox.Show("Redni broj dana nije dobro zadat!");  
            }  
        }  
  
        /// <summary>  
        /// Za ucitano n vraca string - naziv dana  
        /// </summary>  
        /// <param name="n">redni broj dana u nedelji</param>  
        /// <returns>ponedeljak, utorak...</returns>  
        private string NazivDana(int n)  
        {  
            string rezultat;  
            switch (n)  
            {  
                case 1: rezultat= "ponedeljak"; break;  
                case 2: rezultat = "utorak"; break;  
                case 3: rezultat = "sreda"; break;  
                case 4: rezultat = "cetvrtak"; break;  
                case 5: rezultat = "petak"; break;  
                case 6: rezultat = "subota"; break;  
                case 7: rezultat = "nedelja"; break;  
                default: rezultat = "nije dan u nedelji"; break;  
            }  
            return rezultat;  
        }  
    }  
}
```

Primer 2x kalkulator

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

```
namespace kalkulator
```

```
{
    public partial class Form1 : Form
    {
```

```
        double prvi = 0.0;
        double drugi = 0.0;
        char oper = '+';
        bool brisi = true;    //da li da praznimo textbox
```

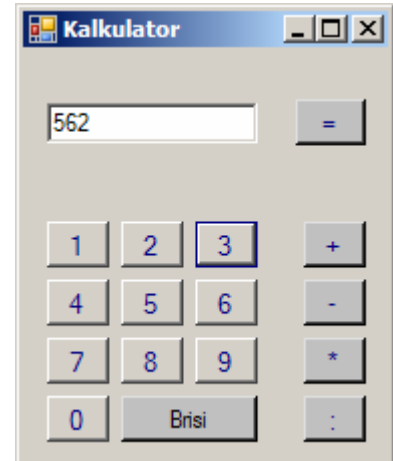
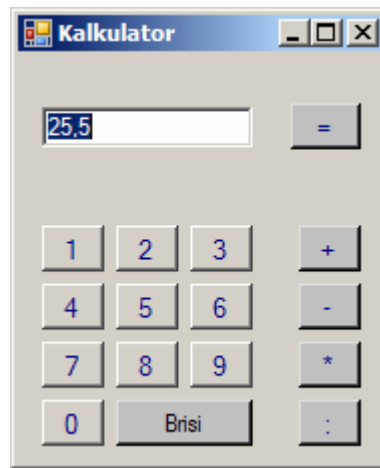
```
        public Form1()
        {
            InitializeComponent();
        }
```

```
        private void Racunaj()
        {
            drugi = Convert.ToDouble(tBOperand.Text);    //pamtim prethodni

            switch (oper)    //racunam novi
            {
                case '+': drugi += prvi; break;
                case '-': drugi = prvi-drugi; break;
                case '*': drugi *= prvi; break;
                case '/': if (drugi != 0) drugi = prvi/drugi;
                           else MessageBox.Show("Greska!", "Deljenje sa nulom!"); break;
                default: break;    //ako je unet samo prvi cinilac, ne i novi
            }
            prvi = drugi;    //pamtim novi za sledeci krug
            tBOperand.Text = drugi.ToString();
            brisi = true;    //pri unosu novog operanda praznicemo textbox
            tBOperand.Focus();    //fokusiram se na textbox radi novog unosa
        }
```

```
        private void btJednako_Click(object sender, EventArgs e)
        {
            Racunaj();
            oper = '=';    //ovu operaciju pamtim zbog predstojećeg racunanja
        }
```

```
        private void btPlus_Click(object sender, EventArgs e)
        {
            Racunaj();
            oper = '+';
        }
```



```
private void btMinus_Click(object sender, EventArgs e)
{
    Racunaj();
    oper = '-';
}
```

```
private void btPut_Click(object sender, EventArgs e)
{
    Racunaj();
    oper = '*';
}
```

```
private void btPodeljeno_Click(object sender, EventArgs e)
{
    Racunaj();
    oper = '/';
}
```

```
private void btBrisi_Click(object sender, EventArgs e)
{
    tBOperand.Clear();    //pripremamo se za racunanje ispočetka
    tBOperand.Focus();
    prvi = drugi = 0;
    oper = '';
}
```

```
// ako unosimo operand sa tastature, textbox u fokusu se automatski prazni
// ali ako unosimo preko dugmica, moramo ga prazniti sami
// to se obavlja ako je kontrola za brisanje brisi postavljena na true
// ako smo poceli unos dugmicima, ona ce biti false
// sve do sledeceg znaka za operaciju
```

```
private void button1_Click(object sender, EventArgs e)
{
    if (brisi) tBOperand.Clear();    //brisemo textbox
    tBOperand.Text += 1.ToString(); //dodajemo izabranu cifru u textbox
    brisi = false;                  //dozvoljavamo upis sledece cifre
}
```

```
private void button2_Click(object sender, EventArgs e)
{
    if (brisi) tBOperand.Clear();
    tBOperand.Text += 2.ToString();
    brisi = false;
}
```

```
.....
// postupak se ponavlja za dugmad 3,4,5,6,7,8,9, i 0
```

```
private void button0_Click(object sender, EventArgs e)
{
    if (brisi) tBOperand.Clear();
    tBOperand.Text += 0.ToString();
    brisi = false;
}
```

```
}
}
```

MessageBox i Windows kontrole: Timer, RadioButton, CheckBox

Primer 2g Brojanje

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace Brojanje
```

```
{
    public class Form1 : System.Windows.Forms.Form
    {
        private System.Windows.Forms.Button btNapred;
        private System.Windows.Forms.Button btNazad;
        private System.Windows.Forms.Button btZaustavi;
        private System.Windows.Forms.Button btPonisti;
        private System.Windows.Forms.Timer timer1;
        private System.ComponentModel.IContainer components;
        int korak;
        private System.Windows.Forms.TextBox tbBroj;

        public Form1()
        {
            InitializeComponent();
        }

        static void Main()
        {
            Application.Run(new Form1());
        }

        private void btNapred_Click(object sender, System.EventArgs e)
        {
            timer1.Enabled=true;          korak=1;
        }

        private void btZaustavi_Click(object sender, System.EventArgs e)
        {
            timer1.Enabled=false;
        }

        private void btNazad_Click(object sender, System.EventArgs e)
        {
            timer1.Enabled=true;          korak=-1;
        }

        private void btPonisti_Click(object sender, System.EventArgs e)
        {
            tbBroj.Text="0";              timer1.Enabled=false;
        }

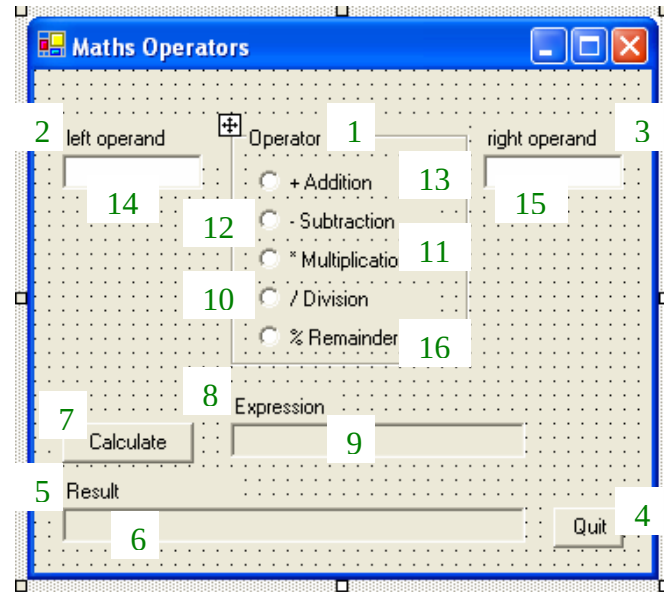
        private void timer1_Tick(object sender, System.EventArgs e)
        {
            int broj=Convert.ToInt32(tbBroj.Text);
            broj=broj+korak;
            tbBroj.Text=broj.ToString();
        }
    }
}
```



Primer 3 - operatori

.....
public class Form1 : System.Windows.Forms.Form // Ovo je iz generisanog koda – nazivi

```
{  
private System.Windows.Forms.GroupBox groupBox1; // 1  
private System.Windows.Forms.Label lhs; // 2  
private System.Windows.Forms.Label rhs; // 3  
private System.Windows.Forms.Button quit; // 4  
private System.Windows.Forms.Label resultLabel; // 5  
private System.Windows.Forms.TextBox result; // 6  
private System.Windows.Forms.Button calculate; // 7  
private System.Windows.Forms.Label expressionLabel; // 8  
private System.Windows.Forms.TextBox expression; // 9  
private System.Windows.Forms.RadioButton division; // 10  
private System.Windows.Forms.RadioButton multiplication; // 11  
private System.Windows.Forms.RadioButton subtraction; // 12  
private System.Windows.Forms.RadioButton addition; // 13  
private System.Windows.Forms.TextBox lhsOperand; // 14  
private System.Windows.Forms.TextBox rhsOperand; // 15  
private System.Windows.Forms.RadioButton remainder; // 16  
.....
```



```
/// <summary>  
/// The main entry point for the application.  
/// </summary>  
[STAThread]
```

```
static void Main()  
{  
    Application.Run(new Form1());  
}  
  
private void calculate_Click(object sender, System.EventArgs e)  
{  
    try  
    {  
        if (addition.Checked)  
            addValues();  
        else if (subtraction.Checked)  
            subtractValues();  
        else if (multiplication.Checked)  
            multiplyValues();  
        else if (division.Checked)  
            divideValues();  
        else if (remainder.Checked)  
            remainderValues();  
    }  
    catch (Exception caught)  
    {  
        expression.Text = "";  
        result.Text = caught.Message;  
    }  
}
```

/// Slede metode

```

private void addValues()
{
    int lhs = int.Parse(lhsOperand.Text);
    int rhs = int.Parse(rhsOperand.Text);
    int outcome;
    outcome = lhs + rhs;
    expression.Text = lhsOperand.Text + " + " + rhsOperand.Text;
    result.Text = outcome.ToString();
}

private void subtractValues()
{
    int lhs = int.Parse(lhsOperand.Text);
    int rhs = int.Parse(rhsOperand.Text);
    int outcome;
    outcome = lhs - rhs;
    expression.Text = lhsOperand.Text + " - " + rhsOperand.Text;
    result.Text = outcome.ToString();
}

private void multiplyValues()
{
    int lhs = int.Parse(lhsOperand.Text);
    int rhs = int.Parse(rhsOperand.Text);
    int outcome;
    outcome = lhs * rhs;
    expression.Text = lhsOperand.Text + " * " + rhsOperand.Text;
    result.Text = outcome.ToString();
}

private void divideValues()
{
    int lhs = int.Parse(lhsOperand.Text);
    int rhs = int.Parse(rhsOperand.Text);
    int outcome;
    outcome = lhs / rhs;
    expression.Text = lhsOperand.Text + " / " + rhsOperand.Text;
    result.Text = outcome.ToString();
}

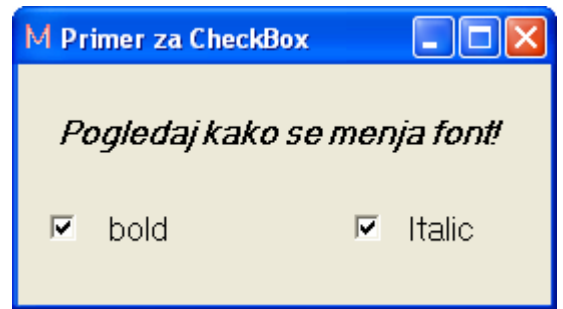
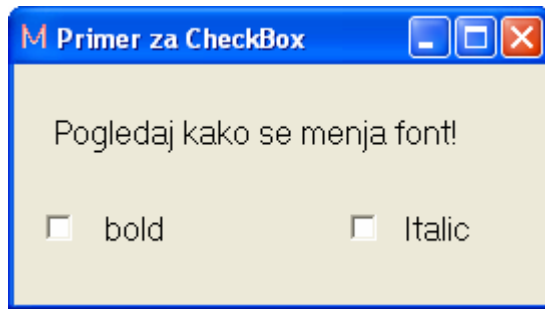
private void remainderValues()
{
    int lhs = int.Parse(lhsOperand.Text);
    int rhs = int.Parse(rhsOperand.Text);
    int outcome;
    outcome = lhs % rhs;
    expression.Text = lhsOperand.Text + " % " + rhsOperand.Text;
    result.Text = outcome.ToString();
}

private void quit_Click(object sender, System.EventArgs e)
{
    Application.Exit();
}

private void Form1_Load(object sender, System.EventArgs e)
{
}
}

```

Primer 3a check box



```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace primer3a
{
```

```
public class CheckBoxTest : System.Windows.Forms.Form
{
    private System.Windows.Forms.CheckBox BoldCheckBox;
    private System.Windows.Forms.CheckBox ItalicCheckBox;
    private System.Windows.Forms.Label outputLabel;

    private System.ComponentModel.Container components = null;
```

```
    public CheckBoxTest()
    {
        InitializeComponent();
    }
```

```
    #region Windows Form Designer generated code
```

```
    ...
```

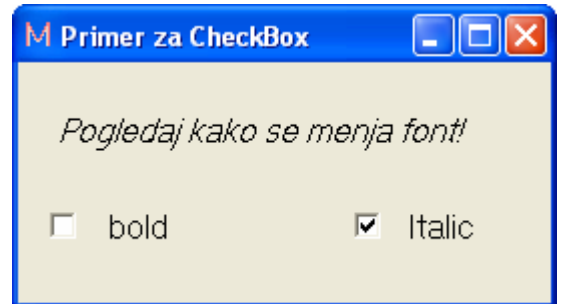
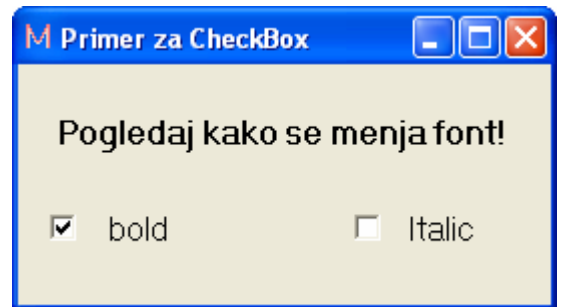
```
    #endregion
```

```
    [STAThread]
```

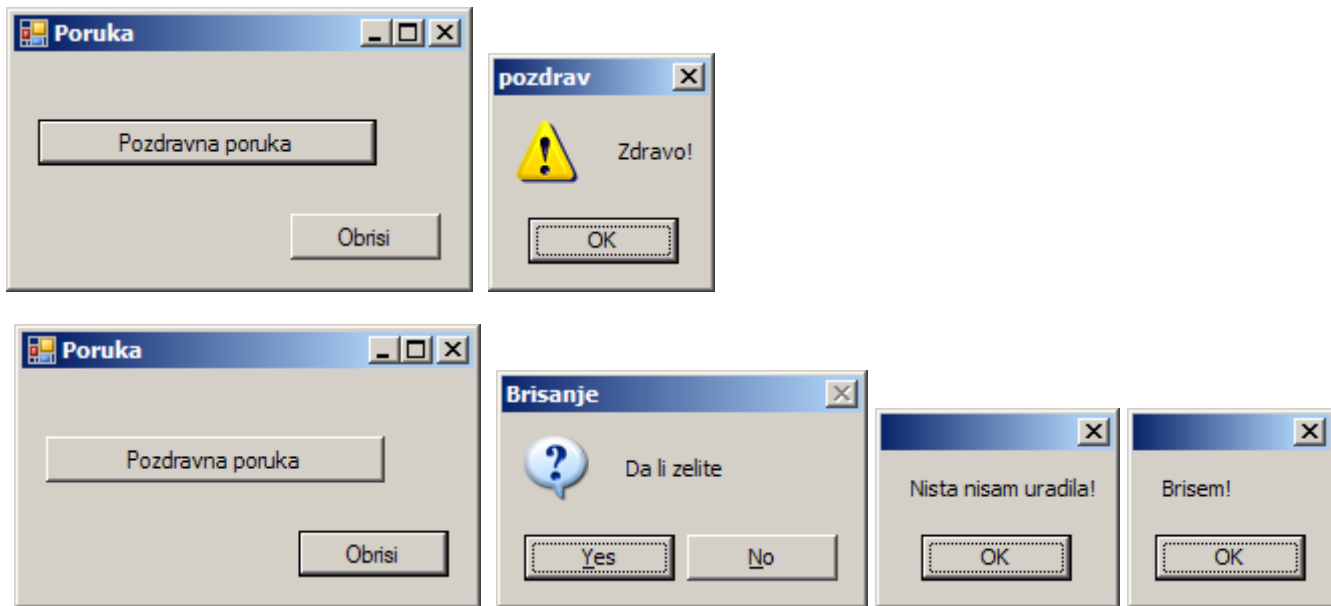
```
    static void Main()
    {
        Application.Run(new CheckBoxTest());
    }
```

```
    private void BoldCheckBox_CheckedChanged(object sender, System.EventArgs e)
    {
        outputLabel.Font=new Font(outputLabel.Font.Name,
        outputLabel.Font.Size, // ovo ostaje kakvo je bilo
        outputLabel.Font.Style ^ FontStyle.Bold); // XILI, ako se promenilo stanje cekiranosti,
        // ako je bilo bold, nece vise biti, a ako nije bilo bold, sada ce biti
    }
```

```
    private void ItalicCheckBox_CheckedChanged(object sender, System.EventArgs e)
    {
        outputLabel.Font=new Font(outputLabel.Font.Name,
        outputLabel.Font.Size,
        outputLabel.Font.Style ^ FontStyle.Italic);
    }
}
```



Primer 3b Vrste MessageBox-ova



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

namespace MessageBox1
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            MessageBox.Show("Zdravo!", "pozdrav", MessageBoxButtons.OK, MessageBoxIcon.Exclamation);
        }

        private void button2_Click(object sender, EventArgs e)
        {
            DialogResult rez;
            rez = MessageBox.Show("Da li zelite", "Brisanje",
                MessageBoxButtons.YesNo, MessageBoxIcon.Question);
            if (rez == DialogResult.Yes)
            {
                MessageBox.Show("Brisem!");
            }
            else
            {
                MessageBox.Show("Nista nisam uradila!");
            }
        }
    }
}
```

Primer 3c radio dugmad i message box ikone – labela

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace primer3b
```

```
{
    public class RadioButtonTest : System.Windows.Forms.Form
    {
```

```
        private System.Windows.Forms.GroupBox groupBox1;
        private System.Windows.Forms.GroupBox groupBox2;
        private System.Windows.Forms.Button displayButton;
        private System.Windows.Forms.RadioButton oKRB;
        private System.Windows.Forms.RadioButton oKCancelRB;
        private System.Windows.Forms.RadioButton abortRetryIgnoreRB;
        private System.Windows.Forms.RadioButton yesNoCancelRB;
        private System.Windows.Forms.RadioButton yesNoRB;
        private System.Windows.Forms.RadioButton retryCancelRB;
        private System.Windows.Forms.RadioButton errorRB;
        private System.Windows.Forms.RadioButton exclamationRB;
        private System.Windows.Forms.RadioButton informationRB;
        private System.Windows.Forms.RadioButton questionRB;
        private System.Windows.Forms.Label promptLabel;
        private System.Windows.Forms.Label displayLabel;
```

```
        private MessageBoxIcon iconType=MessageBoxIcon.Error;
        private MessageBoxButtons buttonType=MessageBoxButtons.OK;
```

```
        private System.ComponentModel.Container components = null;
```

```
        public RadioButtonTest()
        {
            InitializeComponent();
        }
```

```
        #region Windows Form Designer generated code
```

```
        .....
```

```
        #endregion
```

```
        static void Main()
        {
            Application.Run(new RadioButtonTest());
        }
```

```
        private void buttonType_CheckedChanged(object sender, System.EventArgs e)
        {
            if (sender == oKRB) buttonType=MessageBoxButtons.OK;
            else if (sender == abortRetryIgnoreRB) buttonType=MessageBoxButtons.AbortRetryIgnore;
            else if (sender == oKCancelRB)
                buttonType=MessageBoxButtons.OKCancel;
            else if (sender == yesNoCancelRB)
                buttonType=MessageBoxButtons.YesNoCancel;
            else if (sender == yesNoRB)
                buttonType=MessageBoxButtons.YesNo;
            else buttonType=MessageBoxButtons.RetryCancel;
        }
```



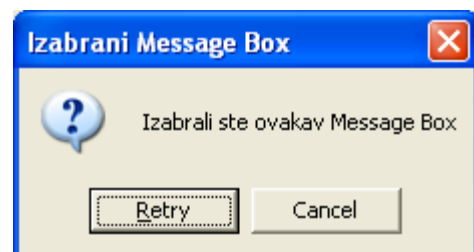
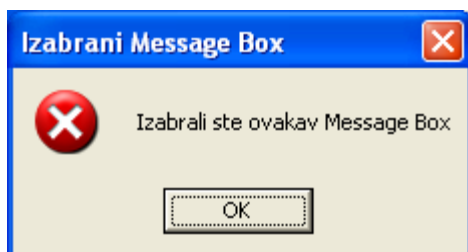
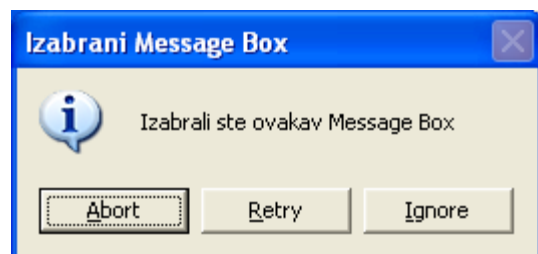
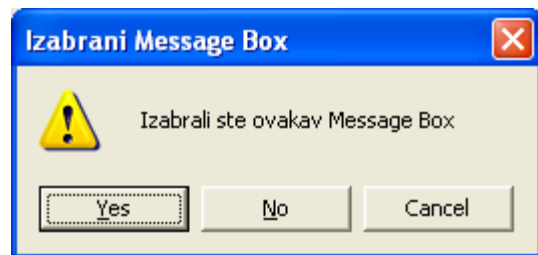
```

}

private void iconType_CheckedChanged(object sender, System.EventArgs e)
{
    if (sender == errorRB) iconType=MessageBoxIcon.Error;
        else if (sender == exclamationRB)
            iconType=MessageBoxIcon.Exclamation;
        else if (sender == informationRB)
            iconType=MessageBoxIcon.Information;
        else iconType=MessageBoxIcon.Question;
}
private void displayButton_Click(object sender, System.EventArgs e)
{
    DialogResult result=
        MessageBox.Show("Izabrali ste ovakav Message Box",
            "Izabrani Message Box",buttonType, iconType,0,0);

    switch (result)
    {
        case DialogResult.OK: displayLabel.Text="OK je zatvorio MessageBox";break;
        case DialogResult.Abort: displayLabel.Text="Abort je zatvorio MessageBox";break;
        case DialogResult.Cancel: displayLabel.Text="Cancel je zatvorio MessageBox";break;
        case DialogResult.Retry: displayLabel.Text="Retry je zatvorio MessageBox";break;
        case DialogResult.Ignore: displayLabel.Text="Ignore je zatvorio MessageBox";break;
        case DialogResult.Yes: displayLabel.Text="Yes je zatvorio MessageBox";break;
        case DialogResult.No: displayLabel.Text="No je zatvorio MessageBox";break;
    }
}
}
}

```



Windows kontrole: PictureBox

Primer 8 crtanje u klijentskoj oblasti

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace primer8
```

```
{
public class Form1 : System.Windows.Forms.Form
{
```

```
    private System.ComponentModel.Container components = null;
```

```
    public Form1()
    {
        InitializeComponent();
    }
```

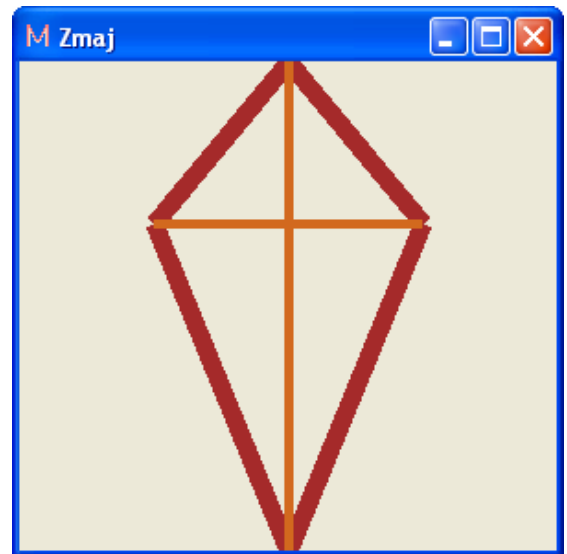
```
    static void Main()
    {
        Application.Run(new Form1());
    }
```

```
    private void Form1_Paint(object sender, System.Windows.Forms.PaintEventArgs e)
    {
```

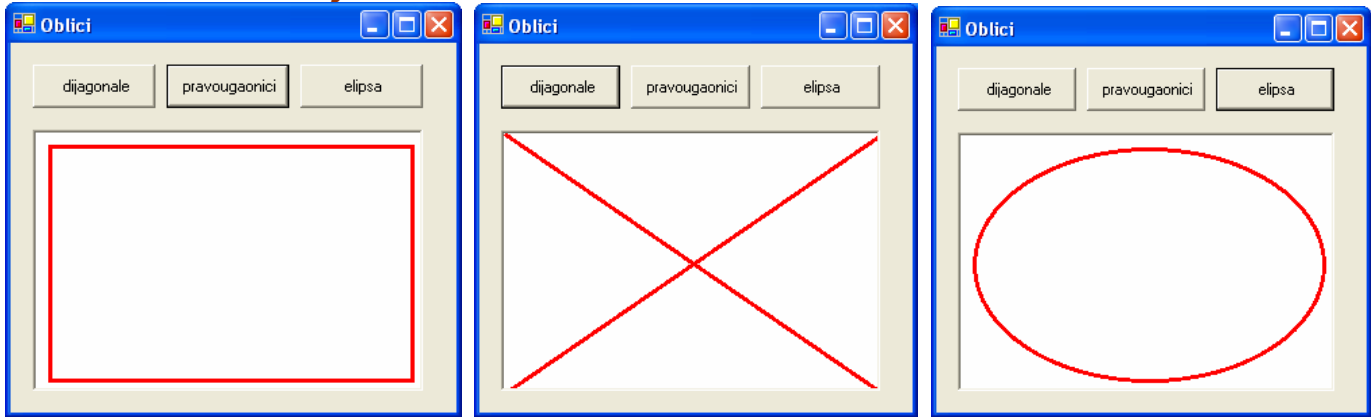
```
        Graphics g=e.Graphics;
        Pen olovka=new Pen(Color.Brown,10);
        int x=ClientRectangle.Width, y=ClientRectangle.Height;
        Point A,B,C,D;
        A=new Point(x/4,y/3);
        B=new Point(x/2,0);
        C=new Point(3*x/4,y/3);
        D=new Point(x/2,y);
        g.DrawLine(olovka,A,B);
        g.DrawLine(olovka,B,C);
        g.DrawLine(olovka,C,D);
        g.DrawLine(olovka,D,A);
        olovka.Color=Color.Chocolate;
        olovka.Width=5;
        g.DrawLine(olovka,A,C);
        g.DrawLine(olovka,B,D);
        olovka.Dispose();
    }
```

```
    private void Form1_Resize(object sender, System.EventArgs e)
    {
        Refresh();
    }
```

```
}
```



Primer 8a crtanje u kontroli PictureBox



```
using System;...
namespace primer8a
{
    public class Form1 : System.Windows.Forms.Form
    {
        private System.Windows.Forms.Button btdijagonale;
        private System.Windows.Forms.Button btpravougaonici;
        private System.Windows.Forms.Button btelipsa;
        private System.Windows.Forms.PictureBox pictureBox1;
        private System.ComponentModel.IContainer components = null;
        public Form1()
        {
            InitializeComponent();
        }

        static void Main()
        {
            Application.Run(new Form1());
        }

        private void btdijagonale_Click(object sender, System.EventArgs e)
        {
            pictureBox1.Refresh();
            Graphics g=pictureBox1.CreateGraphics();
            Pen olovka=new Pen(Color.Red,3);
            g.DrawLine(olovka,0,0,pictureBox1.Width,pictureBox1.Height);
            g.DrawLine(olovka,pictureBox1.Width,0,0,pictureBox1.Height);
            olovka.Dispose();
            g.Dispose();
        }

        private void btpravougaonici_Click(object sender, System.EventArgs e)
        {
            Graphics g=pictureBox1.CreateGraphics();
            g.Clear(Color.White);
            Pen olovka=new Pen(Color.Red,3);
            g.DrawRectangle(olovka,10,10,pictureBox1.Width-20 , pictureBox1.Height-20);
            olovka.Dispose();
            g.Dispose();
        }

        private void btelipsa_Click(object sender, System.EventArgs e)
        {
            pictureBox1.Refresh();
            Graphics g=pictureBox1.CreateGraphics();
            Pen olovka=new Pen(Color.Red,3);
            g.DrawEllipse(olovka,10,10,pictureBox1.Width-20 , pictureBox1.Height-20);
            olovka.Dispose();
            g.Dispose();
        }
    }
}
```


Primer 8b

crtanje u klijentskoj oblasti uz generator slučajnih brojeva

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace primer8b
```

```
{public class Linije :
```

```
System.Windows.Forms.Form
```

```
{    private System.Windows.Forms.Timer timer1;
    private System.ComponentModel.IContainer components;
    Random R=new Random();           //generator slučajnih brojeva
    int xp=0,yp=0;                   //koordinate pocetne tacke
```

```
public Linije()
    {    InitializeComponent();    }
```

```
static void Main()
{    Application.Run(new Linije());    }
```

```
private void timer1_Tick(object sender, System.EventArgs e)
{
    Graphics g=CreateGraphics();
```

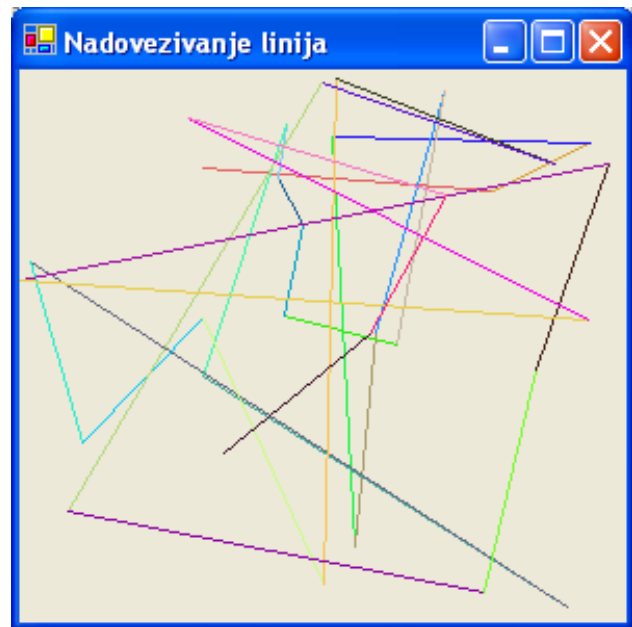
```
    int x = R.Next(ClientRectangle.Width),
    y = R.Next(ClientRectangle.Height);    //izbor slučajnih koordinata
```

```
                                //kreiranje objekta olovka sa slučajnim karakteristikama
    Pen olovka= new Pen(Color.FromArgb(R.Next(255),
    R.Next(255), R.Next(255)));
                                //FromArgb daje komponentu boje red, green, blue
```

```
    g.DrawLine(olovka, xp,yp,x,y);    //linija od pocetne tacke to nove
    xp = x; yp = y;                   //sledeci put, ovo ce biti pocetna tacka
    olovka.Dispose();
    g.Dispose();
```

```
    }
}
```

```
}
```



Primer 8c

crtanje u klijentskoj oblasti uz generator slučajnih brojeva

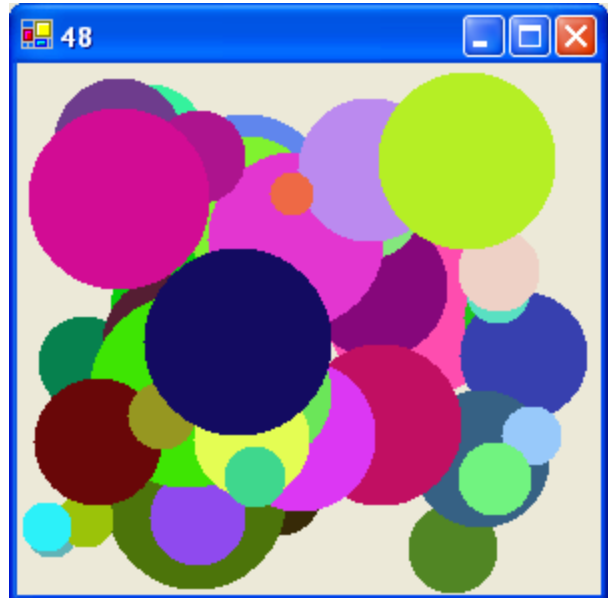
```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;

namespace primer8c
{
    public class Form1 : System.Windows.Forms.Form
    {
        private System.Windows.Forms.Timer timer1;
        private System.ComponentModel.IContainer components;
        Random R=new Random();
        int br=0;      //brojac iscrtanih krugova

        public Form1()
        {
            InitializeComponent();
        }

        static void Main()
        {
            Application.Run(new Form1());
        }

        private void timer1_Tick(object sender, System.EventArgs e)
        {
            Graphics g=CreateGraphics();
            int r=R.Next(20,100);      //izbor precnika kruga
            int x=R.Next(0,ClientRectangle.Width-r); //izbor koordinata temena kruga
            int y=R.Next(0,ClientRectangle.Height-r);
                                           //izbor slucajne cetke
            SolidBrush cetka=new SolidBrush
                (Color.FromArgb(R.Next(256),R.Next(256),R.Next(256)));
            g.FillEllipse(cetka,x,y,r,r);
            br++;
            Text=br.ToString();
            cetka.Dispose();
            g.Dispose();
        }
    }
}
```



Primer 8d

crtanje linija u klijentskoj oblasti uz događaj MouseUp, MouseDown

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace primer8d
```

```
{public class Mish :System.Windows.Forms.Form
{    int xp,yp;    //koordinata pocetne tacke linije
    private System.ComponentModel.Container components = null;
```

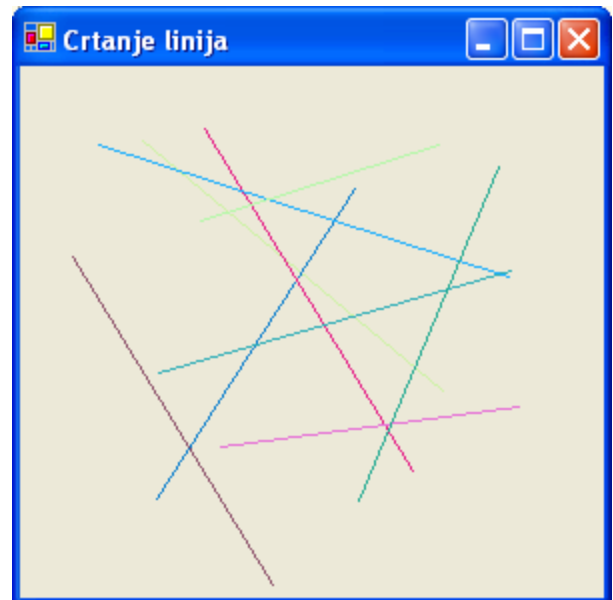
```
public Mish()
{    InitializeComponent();    }
```

```
static void Main()
{    Application.Run(new Mish());    }
```

```
private void Mish_MouseUp(object sender, System.Windows.Forms.MouseEventArgs e)
{
    Graphics g=CreateGraphics();
    Random R = new Random();
    Pen olovka=new Pen(Color.FromArgb(R.Next(256), R.Next(256), R.Next(256)));
    g.DrawLine(olovka, xp,yp, e.X, e.Y);    //e.X,e.Y koordinata misa
    g.Dispose();
    olovka.Dispose();
}
```

```
private void Mish_MouseDown(object sender, System.Windows.Forms.MouseEventArgs e)
{
    //postavljanje koordinata pocetne tacke
    xp=e.X;
    yp=e.Y;
}
```

```
}
}
```



Primer 8e

crtanje linija slobodnom rukom

dogadjaj MouseUp, MouseDown, MouseMove

```
using System;  
using System.Drawing;  
using System.Collections;  
using System.ComponentModel;  
using System.Windows.Forms;  
using System.Data;
```

```
namespace primer8e  
{  
    public class SlobodnoCrtanje : System.Windows.Forms.Form  
    {  
        bool crtaj=false;  
        int xp,yp;  
        private System.ComponentModel.Container components = null;  
  
        public SlobodnoCrtanje()  
        {  
            InitializeComponent();  
        }  
  
        static void Main()  
        {  
            Application.Run(new SlobodnoCrtanje());  
        }  
  
        private void SlobodnoCrtanje_MouseDown(object sender,  
            System.Windows.Forms.MouseEventArgs e)  
        {  
            crtaj=true;  
            xp=e.X;  
            yp=e.Y;  
        }  
  
        private void SlobodnoCrtanje_MouseMove(object sender,  
            System.Windows.Forms.MouseEventArgs e)  
        {  
            if(crtaj)  
            {  
                Graphics g=CreateGraphics();  
                g.DrawLine(Pens.Blue,xp,yp,e.X,e.Y);  
                xp=e.X;  
                yp=e.Y;  
                g.Dispose();  
            }  
        }  
  
        private void SlobodnoCrtanje_MouseUp(object sender,  
            System.Windows.Forms.MouseEventArgs e)  
        {  
            crtaj=false;  
        }  
    }  
}
```



UZ

Primer 8f

crtanje koncentričnih krugova

(generator slučajnih brojeva za različite boje)



```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;

namespace primer8f
{
    public class KoncKrugovi : System.Windows.Forms.Form
    {
        private System.Windows.Forms.Timer timer1;
        private System.ComponentModel.IContainer components;
        int r=0;           // poluprecnik kruga
        Random R=new Random();

        public KoncKrugovi()
        {
            InitializeComponent();
        }

        static void Main()
        {
            Application.Run(new KoncKrugovi());
        }

        private void timer1_Tick(object sender, System.EventArgs e)
        {
            Graphics g=CreateGraphics();
            Pen olovka=new Pen(Color.Red);
            olovka.Color=Color.FromArgb(R.Next(256), R.Next(256), R.Next(256));

            int xc=ClientRectangle.Width/2;           // odredjivanje centra kruga
            int yc=ClientRectangle.Height/2;
            r=r+10;           // uvecavanje poluprecnika

            if(xc-r<0 || yc-r<0)           // provera da li smo nacrtali krugove na celoj formi
            {                             // ako jesmo pocinjemo is pocetka
                Refresh();
                r=10;
            }
            g.DrawEllipse(olovka, xc-r, yc-r, 2*r,2*r);
            olovka.Dispose();
            g.Dispose();
        }

        private void KoncKrugovi_Resize(object sender, System.EventArgs e)
        {
            Refresh();    r=10;
        }
    }
}
```

Primer 8g šrafiranje forme

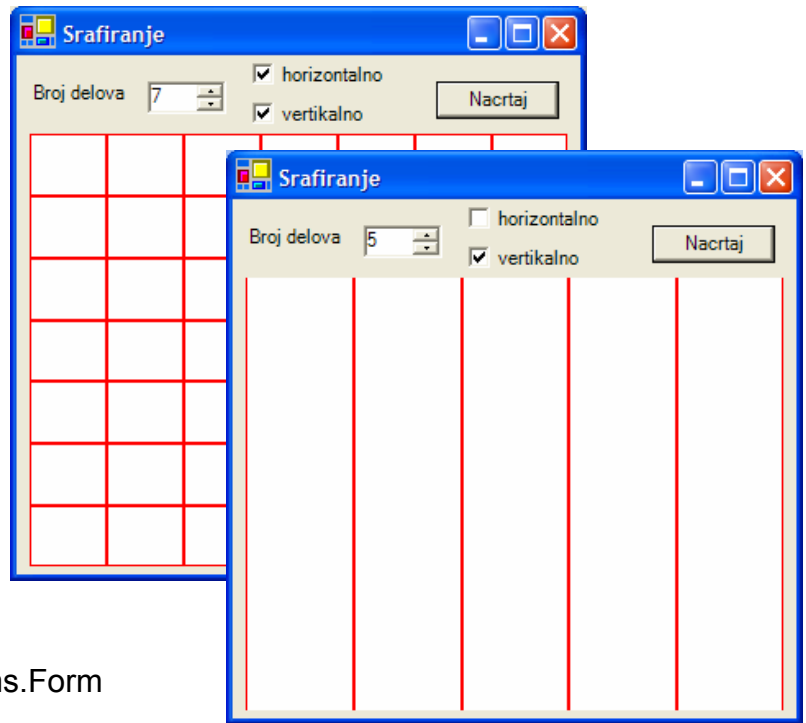
```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace primer8g
{
    public class srafura : System.Windows.Forms.Form
    {
        private System.Windows.Forms.Label label1;
        private System.Windows.Forms.CheckBox cBHorizontal;
        private System.Windows.Forms.CheckBox cBVertikal;
        private System.Windows.Forms.PictureBox pictureBox1;
        private System.Windows.Forms.NumericUpDown numUDN;
        private System.Windows.Forms.Button btNacrtaj;

        public srafura()
        {
            InitializeComponent();
        }

        static void Main()
        {
            Application.Run(new srafura());
        }

        private void btNacrtaj_Click(object sender, System.EventArgs e)
        {
            int i;
            int n=(int)numUDN.Value;
            Graphics g = pictureBox1.CreateGraphics();
            g.Clear(Color.White);
            float dx=(float)pictureBox1.Width/n;
            float dy=(float)pictureBox1.Height/n;
            Pen olovka =new Pen(Color.Red, 2);
            if (cBVertikal.Checked)
                for(i=0;i<=n;i++)
                    g.DrawLine(olovka, i*dx,0,i*dx,pictureBox1.Height);
            if (cBHorizontal.Checked)
                for(i=0;i<=n;i++)
                    g.DrawLine(olovka, 0,i*dy,pictureBox1.Width,i*dy);
        }
    }
}
```



Kreiranje jednostavnih igara

Primer 10x – igra loptom

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

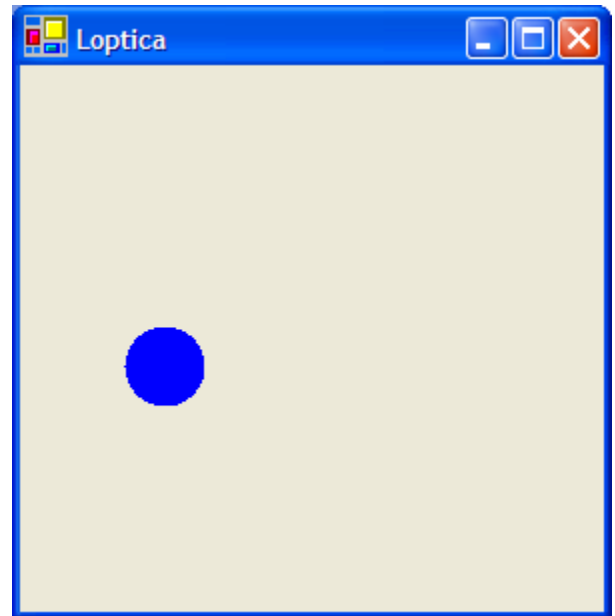
```
namespace primer10x
{
    public class Form1 : System.Windows.Forms.Form
    {
        private System.Windows.Forms.Timer timer1;
        private System.ComponentModel.IContainer components;

        public Form1()
        {
            InitializeComponent();
        }

        static void Main()
        {
            Application.Run(new Form1());
        }

        Random r = new Random();

        private void timer1_Tick(object sender, System.EventArgs e)
        {
            Graphics g=CreateGraphics();
            g.Clear(BackColor);
            int x=r.Next(20, ClientRectangle.Width-20);
            int y=r.Next(20, ClientRectangle.Height-20);
            SolidBrush cetka=new SolidBrush(Color.Blue);
            g.FillEllipse(cetka, x-20,y-20, 40, 40);
        }
    }
}
```



Primer 10 igra loptom 1

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace primer10
```

```
{
public class Igra_loptom1 : System.Windows.Forms.Form
{
    SolidBrush cetka=new SolidBrush(Color.Red); //izbor cetke
    int X=0, Y=0;                               //pocetne koordinate lopte

    private System.Windows.Forms.Timer timer1;
    private System.Windows.Forms.Button btKreniStani;
    private System.ComponentModel.IContainer components;

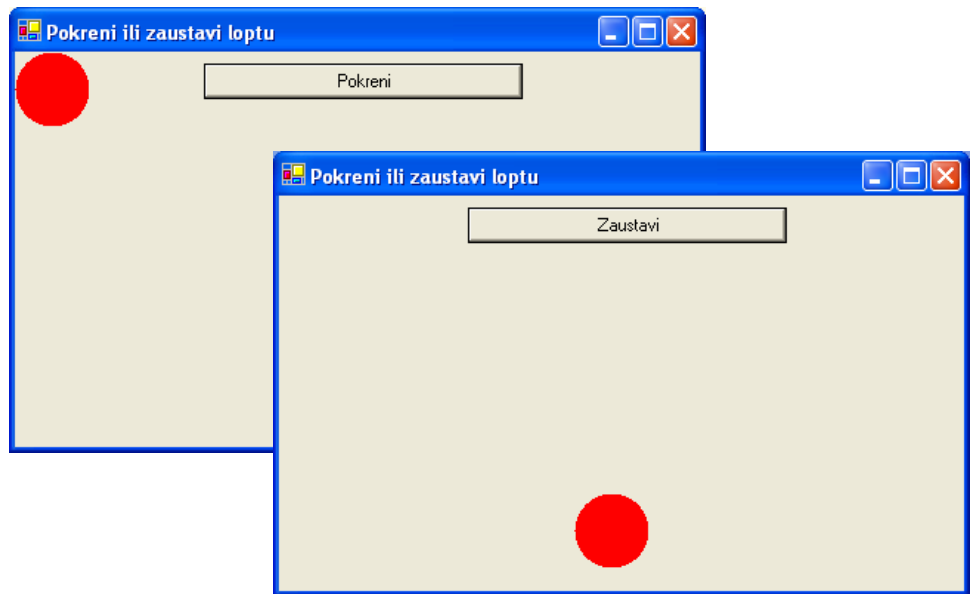
    public Igra_loptom1()
    {
        InitializeComponent();
    }

    static void Main()
    {
        Application.Run(new Igra_loptom1());
    }

    private void Igra_loptom1_Paint(object sender, System.Windows.Forms.PaintEventArgs e)
    {
        Graphics g = e.Graphics;
        g.FillEllipse(cetka,X,Y,50,50);
    }

    private void timer1_Tick(object sender, System.EventArgs e)
    {
        X+=20;                                //nove koordinate centra lopte
        Y+=20;
        X %= Width;                            //ako se izašlo iz forme, vracamo se unutra
        Y %= Height;
        Refresh();                             //crtamo ispocetka
    }

    private void btKreniStani_Click(object sender, System.EventArgs e)
    {
        timer1.Enabled=!timer1.Enabled;        //promena dozvole rada tajmera
        if (timer1.Enabled) btKreniStani.Text="Zaustavi";    //promena teksta na dugmetu
        else btKreniStani.Text="Pokreni";
    }
}
}
```



Primer 10a1 igra loptom

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace primer10
{
    public class Igra_loptom2: System.Windows.Forms.Form
    {
        int X=0, Y=0;           //pocetne koordinate lopte
        Random R=new Random();
        private System.Windows.Forms.Timer timer1;
        private System.Windows.Forms.Button btKreniStani;
        private System.ComponentModel.IContainer components;

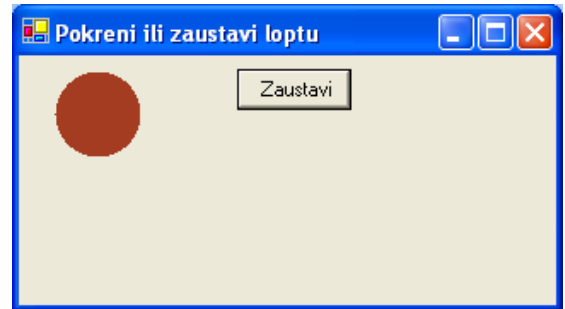
        public Igra_loptom2()
        {
            InitializeComponent();
        }

        static void Main()
        {
            Application.Run(new Igra_loptom2());
        }

        private void Igra_loptom1_Paint(object sender, System.Windows.Forms.PaintEventArgs e)
        {
            Graphics g = e.Graphics;
            SolidBrush cetka=new SolidBrush(Color.FromArgb(R.Next(256),R.Next(256),R.Next(256))); //nova boja kruga
            g.FillEllipse(cetka,X,Y,50,50);
            cetka.Dispose();
            g.Dispose();
        }

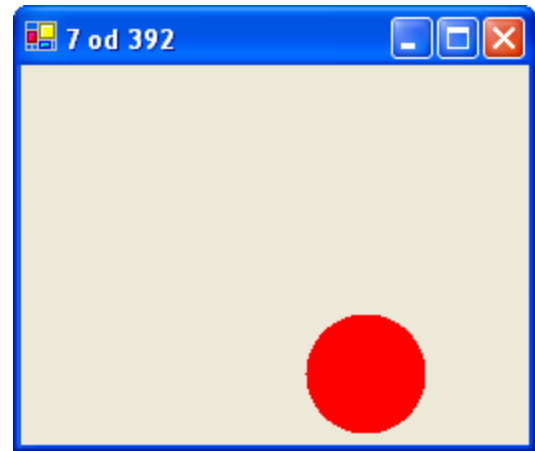
        private void timer1_Tick(object sender, System.EventArgs e)
        {
            //nove koordinate centra lopte
            if (X%2==0) X+=R.Next(20,30); else X-=R.Next(10);
            if (Y%2!=0) Y+=R.Next(20,30); else Y-=R.Next(10);
            X %= Width;           //ako se izaslo iz forme, vracamo se unutra
            Y %= Height;
            Refresh();           //crtamo ispocetka
        }

        private void btKreniStani_Click(object sender, System.EventArgs e)
        {
            timer1.Enabled=!timer1.Enabled; //promena dozvole rada tajmera
            if (timer1.Enabled) btKreniStani.Text="Zaustavi"; //promena teksta na dugmetu
            else btKreniStani.Text="Pokreni";
        }
    }
}
```



Primer 10a

igra loptom



```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;

namespace primer10a
{
    public class Form1 : System.Windows.Forms.Form
    {
        // brPogodaka - broj krugova na koje je korisnik kliknuo
        // brKrugova - broj ukupno iscrtanih krugova
        int brPogodaka=0, brKrugova=0;
        int xc, yc;          // (xc,yc) centar kruga
        Random R=new Random();

        private System.Windows.Forms.Timer timer1; // probaj interval od 300 ili 500
        private System.ComponentModel.IContainer components;

        public Form1()
        {
            InitializeComponent();
        }

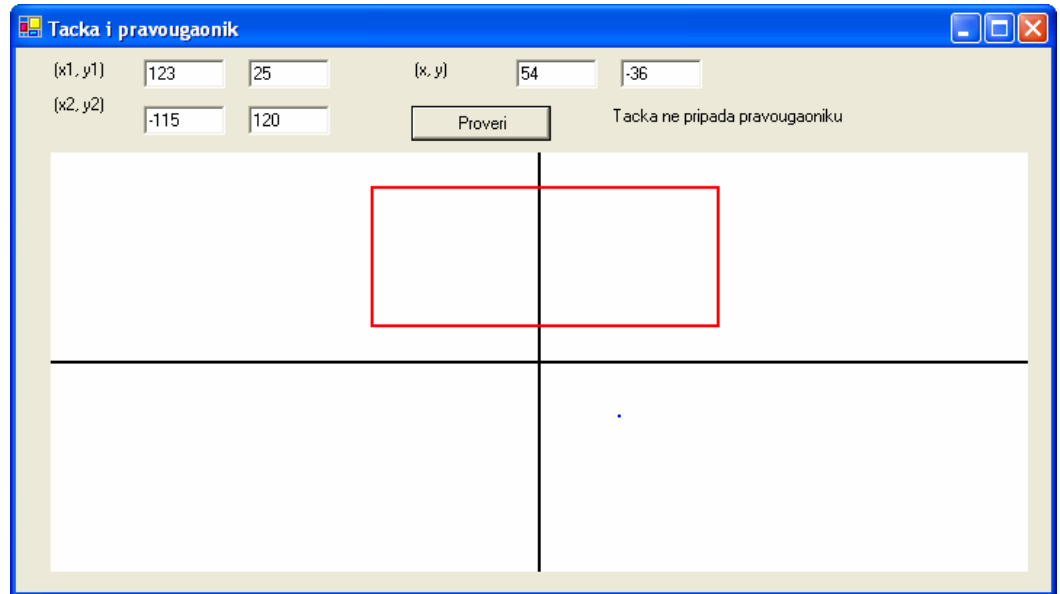
        static void Main()
        {
            Application.Run(new Form1());
        }

        private void timer1_Tick(object sender, System.EventArgs e)
        {
            Refresh();
            SolidBrush cetka=new SolidBrush(Color.Red);
            Graphics g=CreateGraphics();
            xc=R.Next(30,ClientRectangle.Width-30);    // slucajan izbor centra kruga
            yc=R.Next(30,ClientRectangle.Height-30);
            g.FillEllipse(cetka,xc,yc,60,60); // krug je precnika 60, takav se moze uhvatiti
            brKrugova++;
            Text=brPogodaka.ToString()+" od "+brKrugova.ToString();
            g.Dispose();
        }

        private void Form1_MouseDown(object sender, System.Windows.Forms.MouseEventArgs e)
        {
            // proverava da li je korisnik kliknuo na krug
            if (((e.X-xc)*(e.X-xc)+(e.Y-yc)*(e.Y-yc))<(60*60))
            {
                brPogodaka++;
                //sledeci ispis je za slucaj da je neko kliknuo vise puta u jednom tik
                Text=brPogodaka.ToString()+" od "+brKrugova.ToString();
            }
        }
    }
}
```

Neki grafički primeri

Primer 11 pripadnost tačke pravougaoniku



```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace primer11
{
    public class PripadnostTacke : System.Windows.Forms.Form
    {
        private System.Windows.Forms.Label label1;
        private System.Windows.Forms.Label label2;
        private System.Windows.Forms.Label label3;
        private System.Windows.Forms.TextBox tBX1;
        private System.Windows.Forms.TextBox tBX2;
        private System.Windows.Forms.TextBox tBY1;
        private System.Windows.Forms.TextBox tBY2;
        private System.Windows.Forms.TextBox tBX;
        private System.Windows.Forms.TextBox tBY;
        private System.Windows.Forms.Button btProveri;
        private System.Windows.Forms.PictureBox pictureBox1;
        private System.Windows.Forms.Label llspis;

        private System.ComponentModel.Container components = null;

        public PripadnostTacke()
        {
            InitializeComponent();
        }

        static void Main()
        {
            Application.Run(new PripadnostTacke());
        }

        private void btProveri_Click(object sender, System.EventArgs e)
        {
            Graphics g=pictureBox1.CreateGraphics();
            g.Clear(Color.White);
            Pen olovka=new Pen(Color.Black,2);
```

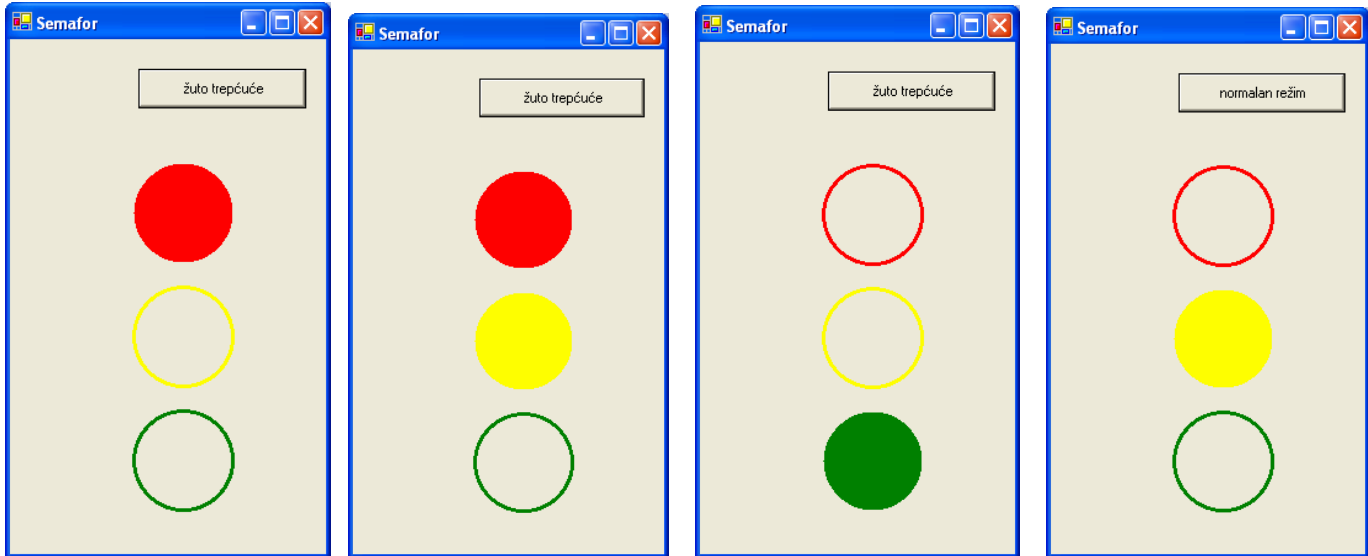
```

        // odredjivanje centra objekta pictureBox1
int xc=pictureBox1.ClientRectangle.Width/2;
int yc=pictureBox1.ClientRectangle.Height/2;
        // crtanje koordinatnih osa
g.DrawLine(olovka,xc,0,xc,2*yc);
g.DrawLine(olovka,0,yc,2*xc,yc);
int x1,y1,x2,y2,x,y,p;
        // citanje koordinata temena dijagonala
x1=Convert.ToInt32(tbX1.Text);
y1=Convert.ToInt32(tbY1.Text);
x2=Convert.ToInt32(tbX2.Text);
y2=Convert.ToInt32(tbY2.Text);
        // citanje koordinata tacke
x=Convert.ToInt32(tbX.Text);
y=Convert.ToInt32(tbY.Text);
        // razmena vrednosti promenljivih x1,x2,y1,y2 tako da
        // (x1,y1) predstavlja gornje levo teme a (x2,y2) donje desno teme
if(x1>x2)    {    p=x1; x1=x2; x2=p; }
if(y1<y2)    {    p=y1; y1=y2; y2=p; }    // y tece u suprotnom smeru od osa!
olovka.Color=Color.Red;    // crtanje pravougaonika
g.DrawRectangle(olovka, xc+x1, yc-y1, x2-x1, y1-y2);
olovka.Color=Color.Blue;    // crtanje tacke
g.DrawEllipse(olovka, xc+x, yc-y, 1, 1);
        // proverava da li tacka pripada pravougaoniku
if(x1<=x && x<=x2 && y2<=y && y<=y1)
    Ilspis.Text="Tacka pripada pravougaoniku";
else
    Ilspis.Text="Tacka ne pripada pravougaoniku";
g.Dispose();
olovka.Dispose();
}

private void tbX1_TextChanged(object sender, System.EventArgs e)
{
    pictureBox1.Refresh();    // brisanje prethodnog crteza
    Ilspis.Text="";    // brisanje sadrzaja objekta Ilspis
}
}
}

```

Primer 13 semafor



```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace primer13
```

```
{public class Form1 : System.Windows.Forms.Form
```

```
{
    int Stanje=1;
    private System.Windows.Forms.Button bt1;
    private System.Windows.Forms.Timer timer1;
    private System.ComponentModel.IContainer components;
    public Form1()
    {
        InitializeComponent();
    }
```

```
static void Main()
```

```
{
    Application.Run(new Form1());
}
```

```
private void bt1_Click(object sender, System.EventArgs e)
```

```
{
    if (bt1.Text=="žuto trepćuće")
    {
        Stanje=4;    bt1.Text="normalan režim";
    }
    else
    {
        Stanje=1;    bt1.Text="žuto trepćuće";
        Refresh();
    }
}
```

```
private void crtajKrug(string Boja,bool pun,int X,int Y,int Precnik)
```

```
{
    Graphics g=this.CreateGraphics();
    Color c=new Color();
    if (Boja=="crveni") c=Color.Red;
        else if (Boja=="zuti")c=Color.Yellow;
            else c=Color.Green;
    if (pun)    {
        SolidBrush cetka=new SolidBrush(c);
        g.FillEllipse(cetka,X,Y,Precnik,Precnik);
    }
    else    {
        Pen olovka=new Pen(c,3);
        g.DrawEllipse(olovka,X,Y,Precnik,Precnik);
    }
    g.Dispose();
}
```

```

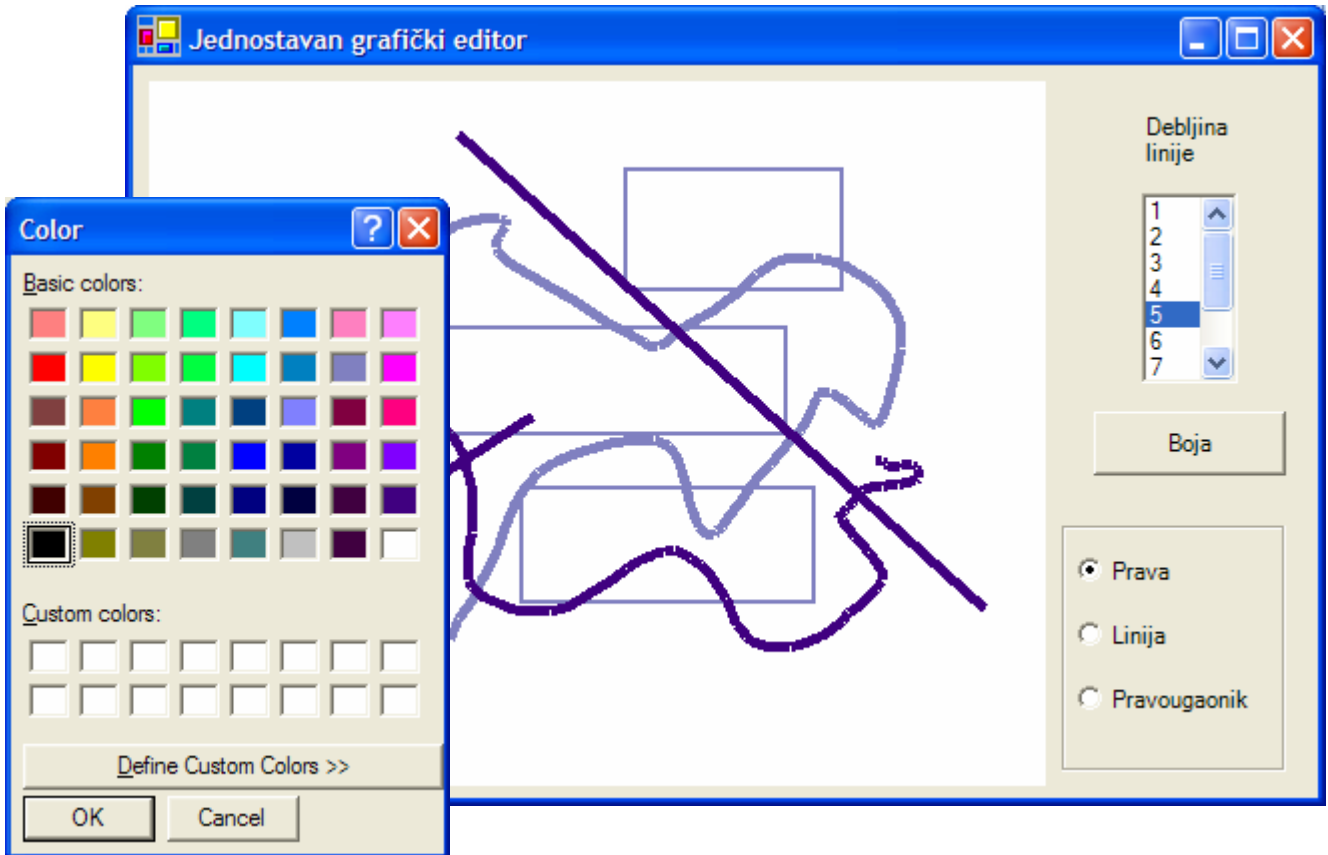
private void Form1_Paint_1(object sender, System.Windows.Forms.PaintEventArgs e)
{
    switch (Stanje)
    {
        case 1:
            timer1.Interval=4500;
            crtajKrug("crveni",true,100,100,80);
            crtajKrug("zuti",false,100,200,80);
            crtajKrug("zeleni",false,100,300,80);
            Stanje=2;
            break;
        case 2: timer1.Interval=500;
            crtajKrug("crveni",true,100,100,80);
            crtajKrug("zuti",true,100,200,80);
            crtajKrug("zeleni",false,100,300,80);
            Stanje=3;
            break;
        case 3: timer1.Interval=4500;
            crtajKrug("crveni",false,100,100,80);
            crtajKrug("zuti",false,100,200,80);
            crtajKrug("zeleni",true,100,300,80);
            Stanje=4;
            break;
        case 4: timer1.Interval=500;
            crtajKrug("crveni",false,100,100,80);
            crtajKrug("zuti",true,100,200,80);
            crtajKrug("zeleni",false,100,300,80);
            if (bt1.Text=="Žuto trepuće") Stanje=1;
            else Stanje=5;
            break;
        case 5: timer1.Interval=500;
            crtajKrug("crveni",false,100,100,80);
            crtajKrug("zuti",false,100,200,80);
            crtajKrug("zeleni",false,100,300,80);
            Stanje=4;
            break;
    }
}

private void timer1_Tick(object sender, System.EventArgs e)
{
    Refresh();
}
}

```

Primer 13a

jednostavan grafički editor



```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;

namespace primer13a
{
    public class Form1 : System.Windows.Forms.Form
    {
        private System.Windows.Forms.PictureBox pictureBox1;
        private System.Windows.Forms.ListBox IBDebljina;
        private System.Windows.Forms.Label label1;
        private System.Windows.Forms.Button btBoja;
        private System.Windows.Forms.GroupBox groupBox1;
        private System.Windows.Forms.RadioButton rBPrava;
        private System.Windows.Forms.RadioButton rBLinija;
        private System.Windows.Forms.ColorDialog colorDialog1;
        private System.Windows.Forms.RadioButton rBPravougaonik;
        private System.ComponentModel.Container components = null;

        public Form1()
        {
            InitializeComponent();
        }

        static void Main()
        {
            Application.Run(new Form1());
        }
    }
}
```

```

Pen olovka = new Pen(Color.Black,1);
int xpre, ypre;
bool crtanje=false;    //da li treba crtati u mousemove dogadjaju

private void pictureBox1_MouseDown(object sender, System.Windows.Forms.MouseEventArgs e)
{
    xpre=e.X;
    ypre=e.Y;
    crtanje=true;
}

private void pictureBox1_MouseUp(object sender, System.Windows.Forms.MouseEventArgs e)
{
    crtanje=false;
    if (rBPrava.Checked)
    {
        Graphics g=pictureBox1.CreateGraphics();
        g.DrawLine(olovka, xpre, ypre, e.X, e.Y);
    }
    else if (rBPravougao.Checked)
    {
        Graphics g=pictureBox1.CreateGraphics();
        g.DrawRectangle(olovka,
            Math.Min(xpre, e.X),
            Math.Min(ypre, e.Y),
            Math.Abs(e.X-xpre),Math.Abs(e.Y-ypre));
    }
}

private void pictureBox1_MouseMove(object sender, System.Windows.Forms.MouseEventArgs e)
{
    if (crtanje==true && rBLinija.Checked)
    {
        Graphics g=pictureBox1.CreateGraphics();
        g.DrawLine(olovka, xpre, ypre, e.X, e.Y);
        xpre=e.X;
        ypre=e.Y;
    }
}

private void btBoja_Click(object sender, System.EventArgs e)
{
    colorDialog1.ShowDialog();
    olovka.Color=colorDialog1.Color;
}

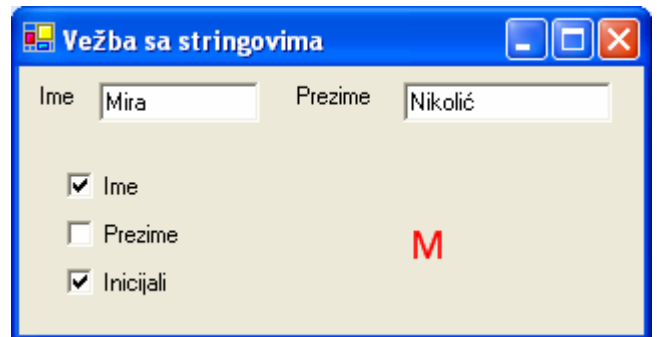
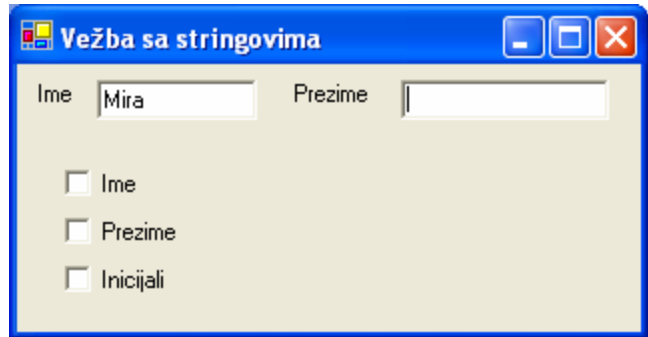
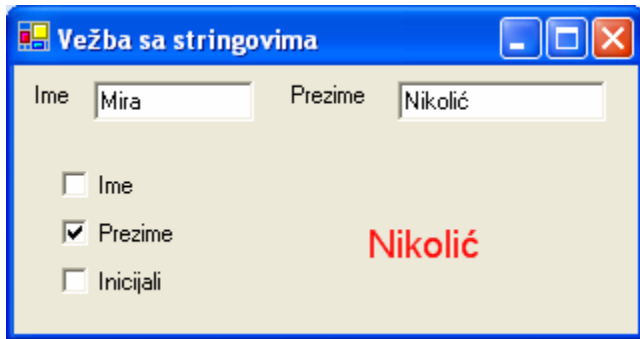
private void IBDebljina_SelectedIndexChanged(object sender, System.EventArgs e)
{
    olovka.Width=Convert.ToInt32(IBDebljina.SelectedItem);
}

}
}

```


Stringovi, Windows kontrole: ListBox, CheckedListBox, ComboBox

Primer 9x stringovi



```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace stringovi
```

```
{public class stringovi : System.Windows.Forms.Form
{
    private System.Windows.Forms.Label IPrikaz;
    private System.Windows.Forms.CheckBox cBIme;
    private System.Windows.Forms.CheckBox cBPrezime;
    private System.Windows.Forms.CheckBox cBInicijali;
    private System.Windows.Forms.Label lIme;
    private System.Windows.Forms.TextBox tBIme;
    private System.Windows.Forms.Label lPrezime;
    private System.Windows.Forms.TextBox tBPrezime;

    public stringovi()
    {
        InitializeComponent();
    }
    static void Main()
    {
        Application.Run(new stringovi());
    }

    private void tBIme_TextChanged(object sender, System.EventArgs e)
    {
        // obavezno ovaj dogadjaj pridruziti i drugom textbox-u i na sva tri checkbox-a
        string i=tBIme.Text;
        string p=tBPrezime.Text;

        if(cBInicijali.Checked)
        {
            // posmatramo samo prva slova imena i prezimena
            if(i!="") i=i.Substring(0,1);
            if(p!="") p=p.Substring(0,1);
        }

        if(cBIme.Checked && cBPrezime.Checked) IPrikaz.Text=i+" "+p;
        else if(cBIme.Checked) IPrikaz.Text=i;
        else if(cBPrezime.Checked) IPrikaz.Text=p;
        else IPrikaz.Text="";
    }
}
```

Primer 9y stringovi

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace reci
{
    public class reci : System.Windows.Forms.Form
    {
        private System.Windows.Forms.Label label1;
        private System.Windows.Forms.Label label2;
        private System.Windows.Forms.Button btProveri;
        private System.Windows.Forms.Label lRezultat;
        private System.Windows.Forms.TextBox tBRec;
        private System.Windows.Forms.TextBox tBRecenica;
    }
}
```

```
public reci()
{
    InitializeComponent();
}

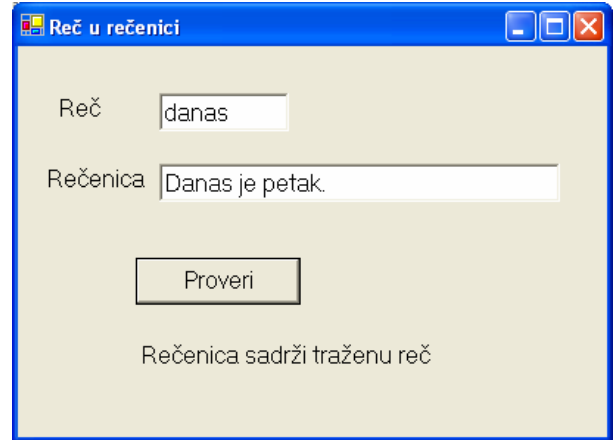
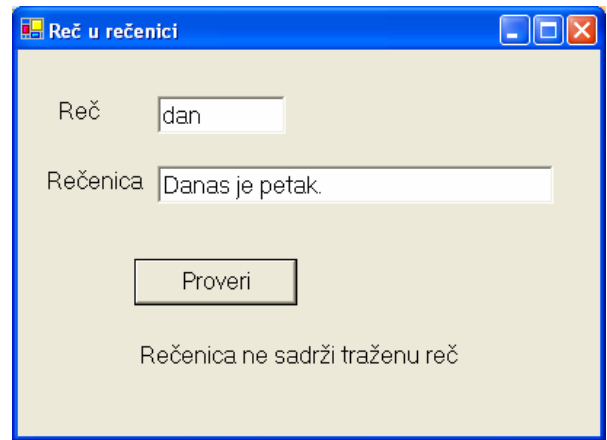
static void Main()
{
    Application.Run(new reci());
}
```

```
private void btProveri_Click(object sender, System.EventArgs e)
{
    string s;
    string rec=tBRec.Text;
    string recenica=tBRecenica.Text;

    rec=" "+rec+" ";           // dodajemo " " na pocetku i kraju reci
    recenica=recenica.Insert(recenica.Length-1," ");
                               // dodajemo " " pre interpukcijskog znaka za kraj recenice
    recenica=" "+recenica;     // dodajemo " " na pocetku recenice
    rec=rec.ToLower();         // konvertujemo slova reci u mala slova
    recenica=recenica.ToLower();// konvertujemo slova recenice u mala slova
                               // provera da li recenica sadrzi rec
    if(recenica.IndexOf(rec,0,recenica.Length)<0)
        lRezultat.Text="Rečenica ne sadrži traženu reč";
    else lRezultat.Text="Rečenica sadrži traženu reč";
}
}
```

```
private void tBRec_TextChanged(object sender, System.EventArgs e)
{
    lRezultat.Text="";
}
}
```

```
}
```



Primer 6x – listbox, ASCII kod

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;

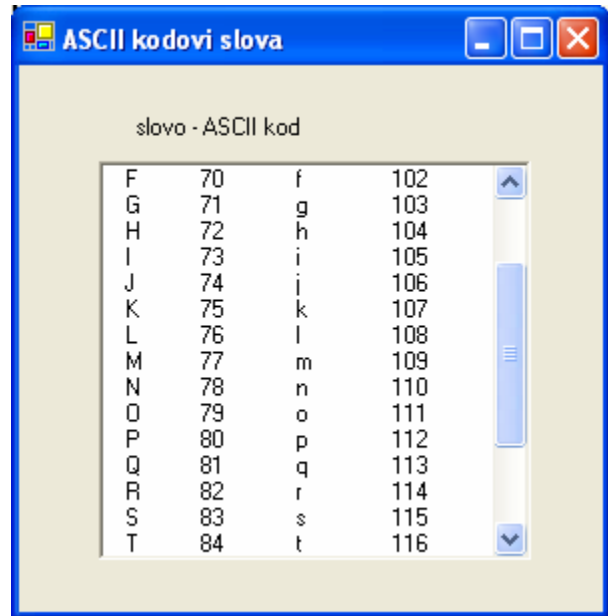
namespace primer6x
{
    public class ASCII : System.Windows.Forms.Form
    {
        private System.Windows.Forms.ListBox IBKodovi;
        private System.Windows.Forms.Label lbNaziv;

        private System.ComponentModel.Container components = null;

        public ASCII()
        {
            InitializeComponent();
        }

        static void Main()
        {
            Application.Run(new ASCII());
        }

        private void Form1_Load(object sender, System.EventArgs e)
        {
            for(char ch='A';ch<='Z';ch++)
                IBKodovi.Items.Add(" "+ch+"\t" +(int)ch+"\t"+
                                   char.ToLower(ch)+"\t"+(int)char.ToLower(ch));
        }
    }
}
```



Primer 6a listbox

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace primer6a
```

```
{public class listbox :
```

```
System.Windows.Forms.Form
```

```
{
    private System.Windows.Forms.ListBox IBLista;
    private System.Windows.Forms.TextBox tBULaz;
    private System.Windows.Forms.Button btDodaj;
    private System.Windows.Forms.Button btBrisiStavku;
    private System.Windows.Forms.Button btlzbrisiListu;
    private System.Windows.Forms.Button btlzlaz;
```

```
public listbox()
```

```
{
    InitializeComponent();
}
```

```
static void Main()
```

```
{
    Application.Run(new listbox());
}
```

```
private void btDodaj_Click(object sender, System.EventArgs e)
```

```
{
    IBLista.Items.Add(tBULaz.Text);
    tBULaz.Clear();
    tBULaz.Focus();
}
```

```
private void btBrisiStavku_Click(object sender, System.EventArgs e)
```

```
{
    if (IBLista.SelectedIndex != -1 )
        IBLista.Items.RemoveAt(IBLista.SelectedIndex);
    tBULaz.Focus();
}
```

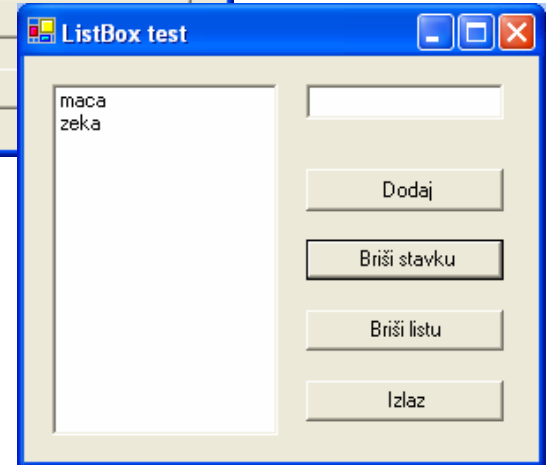
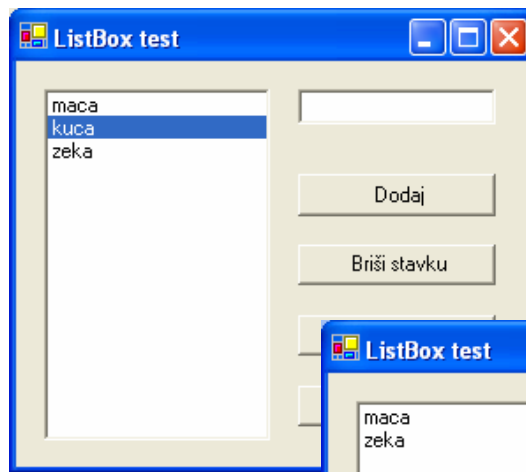
```
private void btlzbrisiListu_Click(object sender, System.EventArgs e)
```

```
{
    IBLista.Items.Clear();
    tBULaz.Focus();
}
```

```
private void btlzlaz_Click(object sender, System.EventArgs e)
```

```
{
    Application.Exit();
}
```

```
}
}
```



Primer 6b listbox i checked listbox

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace primer6b
```

```
{
    public class checkedlist : System.Windows.Forms.Form
    {
        private System.Windows.Forms.CheckedListBox cBUlaznaLista;
        private System.Windows.Forms.ListBox IBzlaznaLista;

        private System.ComponentModel.Container components = null;

        public checkedlist()
        {
            InitializeComponent();
        }

        static void Main()
        {
            Application.Run(new checkedlist());
        }

        private void cBUlaznaLista_ItemCheck(object sender,
            System.Windows.Forms.ItemCheckEventArgs e)
        {
            string stavka = cBUlaznaLista.SelectedItem.ToString();
            if (e.NewValue == CheckState.Checked)           // ako je stavka izabrana,
                IBzlaznaLista.Items.Add(stavka);           // ide u izlaznu listu,
            else IBzlaznaLista.Items.Remove(stavka);        // inace se brise
        }
    }
}
```



```
// Stavke se unose u listu rukno, na Items / Collection
// i postavlja se lista na CheckOnClick na true
```

Primer 6c listbox i checked listbox

Napravi formu kao na slici
(CheckedListBox, Button i ListBox)

```
using System; .....
```

```
namespace primer6
```

```
{  
public class Glavni :  
System.Windows.Forms.Form  
{
```

```
private System.Windows.Forms.CheckedListBox chkListalzbora;  
private System.Windows.Forms.ListBox lstSelektovani;  
private System.Windows.Forms.Button btnPrebaci;
```

```
private System.ComponentModel.Container components = null;
```

```
public Glavni()  
{  
InitializeComponent();
```

```
    // Dodajemo jos jednu stavku u kontroli chkListalzbora  
    this.chkListalzbora.Items.Add("deset");  
}
```

```
static void Main()  
{  
Application.Run(new Glavni());  
}
```

```
private void btnPrebaci_Click(object sender, System.EventArgs e)  
{
```

```
    //Proveravamo da li postoji neki potvrđeni element u kontroli CheckedListBox  
    if (this.chkListalzbora.CheckedItems.Count>0)  
    {
```

```
        //Ispraznimo kontrolu ListBox u koju stavljamo izabrani element  
        this.lstSelektovani.Items.Clear();
```

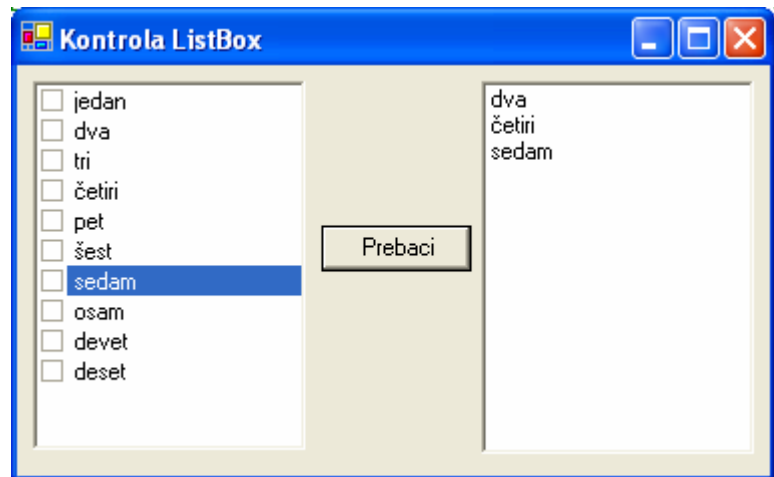
```
        //Prodjimo u petlji kroz kolekciju CheckedItems kontrole CheckedListBox  
        //i dodajmo elemente u okvir Selected  
        foreach (string item in this.chkListalzbora.CheckedItems)  
            this.lstSelektovani.Items.Add(item.ToString());
```

```
        //Ponistimo sve sto je potvrđeno u kontroli checkedListBox  
        for (int i=0;i<this.chkListalzbora.Items.Count;i++)  
            this.chkListalzbora.SetItemChecked(i,false);
```

```
    }
```

```
}
```

```
}  
}
```



Primer 6d combobox

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace primer6d
{
    public class combobox :
        System.Windows.Forms.Form
    {
        private System.Windows.Forms.ComboBox
            cBlzborOblika;
```

```
private System.ComponentModel.Container components = null;
```

```
public combobox()
{
    InitializeComponent();
}
```

```
static void Main()
{
    Application.Run(new combobox());
}
```

```
private void cBlzborOblika_SelectedIndexChanged(object sender, System.EventArgs e)
{
```

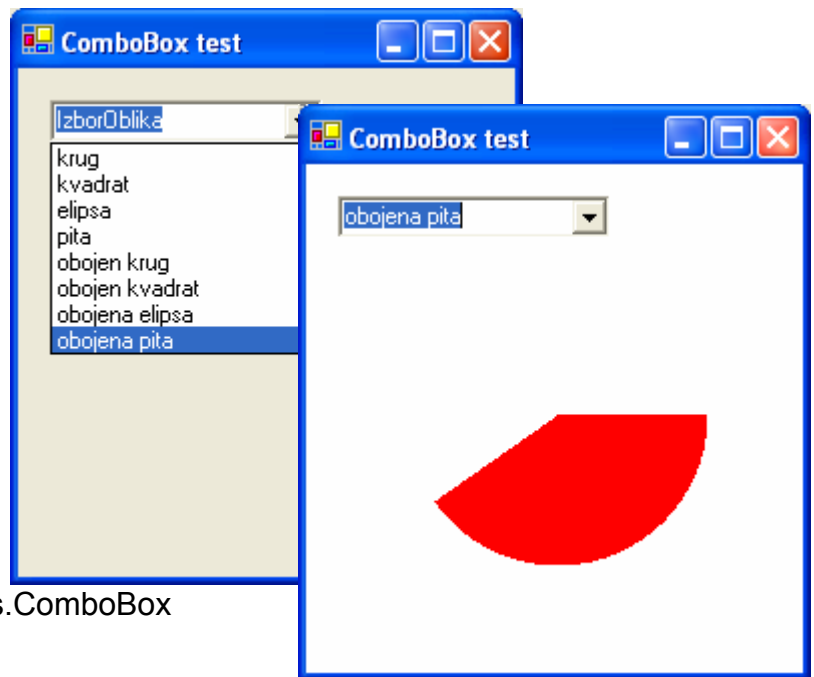
```
    Graphics g = CreateGraphics();
    Pen olovka = new Pen(Color.Red);
    SolidBrush cetka = new SolidBrush(Color.Red);
    g.Clear(Color.White);
```

```
    switch (cBlzborOblika.SelectedIndex)
    {
        case 0: g.DrawEllipse (olovka,50,50,150,150); break;
        case 1: g.DrawRectangle (olovka,50,50,150,150); break;
        case 2: g.DrawEllipse (olovka,50,85,150,115); break;
        case 3: g.DrawPie (olovka,50,50,150,150,0,145); break;
        case 4: g.FillEllipse (cetka,50,50,150,150); break;
        case 5: g.FillRectangle (cetka,50,50,150,150); break;
        case 6: g.FillEllipse (cetka,50,85,150,115); break;
        case 7: g.FillPie (cetka,50,50,150,150,0,145); break;
    }
```

```
    olovka.Dispose();
    cetka.Dispose();
    g.Dispose();
```

```
}
```

```
}
```



Primer 9

rad sa stringovima i list box-om

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;

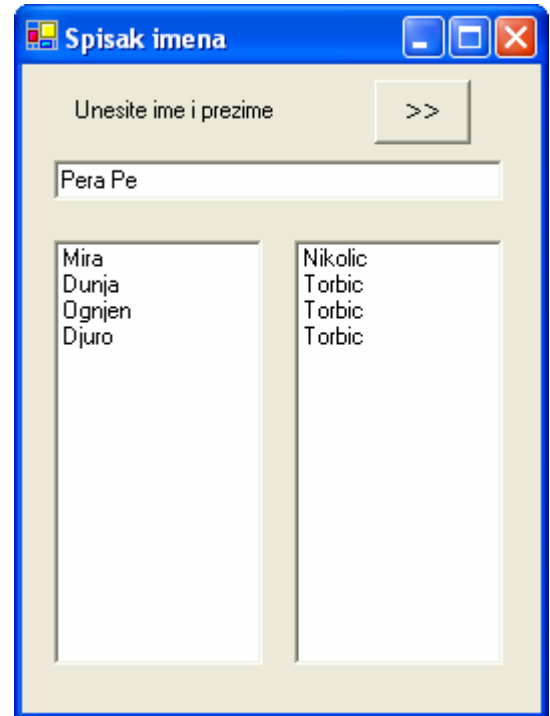
namespace primer9
{
    public class SpisakImena : System.Windows.Forms.Form
    {
        private System.Windows.Forms.Label label1;
        private System.Windows.Forms.Button btDodaj;
        private System.Windows.Forms.ListBox lBIme;
        private System.Windows.Forms.ListBox lBPrezime;
        private System.Windows.Forms.TextBox tBImePrezime;

        private System.ComponentModel.Container components = null;

        public SpisakImena()
        {
            InitializeComponent();
        }

        static void Main()
        {
            Application.Run(new SpisakImena());
        }

        private void btDodaj_Click(object sender, EventArgs e)
        {
            string s = tBImePrezime.Text;
            int pozPraznine = s.IndexOf(' '); //pozicija praznine u stringu s
            ime = s.Substring(0, pozPraznine); //ime je deo s od pocetka do praznine
            prezime = s.Substring(pozPraznine + 1); //prezime je od praznine do kraja
            lBIme.Items.Add(ime); // u list box ime dodaje se ime
            lBPrezime.Items.Add(prezime); //u list box prezime
            tBImePrezime.Text = ""; //brise se textbox
        }
    }
}
```



Primer 9a

rad sa radio dugmadima i list box-om

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace temperature
{
    public class temperature : System.Windows.Forms.Form
    {
        int min,max,s=0;
        private System.Windows.Forms.Label lTemp;
        private System.Windows.Forms.TextBox tBTemperatura;
        private System.Windows.Forms.Button btDodaj;
        private System.Windows.Forms.ListBox IBTemperatura;
        private System.Windows.Forms.GroupBox gBIzbor;
        private System.Windows.Forms.RadioButton rBRaspon;
        private System.Windows.Forms.RadioButton rBMin;
        private System.Windows.Forms.RadioButton rBMax;
        private System.Windows.Forms.RadioButton rBProsek;
        private System.Windows.Forms.Label llspis;
        public temperature()
        {
            InitializeComponent();
        }
        static void Main()
        {
            Application.Run(new temperature());
        }
```

```
private void btDodaj_Click(object sender, System.EventArgs e)
{
    IBTemperatura.Items.Add(tBTemperatura.Text);
    if(IBTemperatura.Items.Count==1)//postavljanje min i max na prvu unetu
        min=max=Convert.ToInt32(tBTemperatura.Text);
    s=s+Convert.ToInt32(tBTemperatura.Text); // dodavanje temperature zbiru s
    if(max<Convert.ToInt32(tBTemperatura.Text)) // korekcija min i max
        max=Convert.ToInt32(tBTemperatura.Text);
    else if(min>Convert.ToInt32(tBTemperatura.Text))
        min=Convert.ToInt32(tBTemperatura.Text);
    gBIzbor.Enabled=true; //moze se birati tek kad se unese prva t
    llspis.Text=""; //priprema za unos nove t, sve se unchecked i brise
    tBTemperatura.Text=""; tBTemperatura.Focus();
    rBMax.Checked=rBMin.Checked=rBProsek.Checked=rBRaspon.Checked=false; }
```

```
private void rbProsek_CheckedChanged(object sender, System.EventArgs e)
{
    if(rBProsek.Checked) //zbir se deli brojem temp u listi
    { float p=(float)s/IBTemperatura.Items.Count; llspis.Text=p.ToString("0.00"); } }
```

```
private void rbMax_CheckedChanged(object sender, System.EventArgs e)
{
    if(rBMax.Checked) llspis.Text=max.ToString(); }
```

```
private void rBMin_CheckedChanged(object sender, System.EventArgs e)
{
    if(rBMin.Checked) llspis.Text=min.ToString(); }
```

```
private void rbRaspon_CheckedChanged(object sender, System.EventArgs e)
{
    if(rBRaspon.Checked) llspis.Text=(max-min).ToString(); }
```

```
}
```

Primer 9b

rad sa list box-om

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace kosarkasi
```

```
{public class Form1 : System.Windows.Forms.Form
{
    private System.Windows.Forms.Label label1;
    int S=0;    // broj kosarakasa koji imaju visinu >195
    private System.Windows.Forms.Button btDodaj;
    private System.Windows.Forms.Button btBrisi;
    private System.Windows.Forms.Label lIspis;
    private System.Windows.Forms.ListBox lBVisine;
    private System.Windows.Forms.TextBox tBVisina;
```

```
public kosarkasi()
{
    InitializeComponent();
}
static void Main()
{
    Application.Run(new Form1());
}
```

```
private void btDodaj_Click(object sender, System.EventArgs e)
{
    if(tBVisina.Text!="")
    {
```

```
        lBVisine.Items.Add(tBVisina.Text);
        if (Convert.ToInt32(tBVisina.Text)>195) S++;
        //ako je >195 uvecavamo S
        double p=100.0*S/lBVisine.Items.Count;    // odredjivanje i ispis %
        lIspis.Text=p.ToString("0.00")+ "% kosarkasa ima visinu >195cm";
        tBVisina.Text="";
        tBVisina.Focus();
    }
}
```

```
private void btBrisi_Click(object sender, System.EventArgs e)
{
```

```
    if(lBVisine.SelectedIndex>=0)
    {
        // ako visina koju brisemo > 195 smanjujemo S za 1
        if (Convert.ToInt32(lBVisine.SelectedItem)>195) S--;
        lBVisine.Items.RemoveAt(lBVisine.SelectedIndex);
        double p;    // odredjivanje i ispis trazenog procenta
        if(lBVisine.Items.Count!=0) p=100.0*S/lBVisine.Items.Count;
        else p=0;
        lIspis.Text=p.ToString("0.00")+ "% kosarkasa ima visinu >195cm";
    }
}
```

```
}
}
}
```

Ciklusi

Primer 12 - ciklusi

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace primer12
```

```
{public class Form1 : System.Windows.Forms.Form
{
```

```
    private System.Windows.Forms.TextBox tBOperand1;
    private System.Windows.Forms.TextBox tBOperand2;
    private System.Windows.Forms.Button btlzracunaj;
    private System.Windows.Forms.TextBox tBRezultat;
    private System.Windows.Forms.Label label1;
    private System.Windows.Forms.Label label2;
    private System.Windows.Forms.Label label3;
```

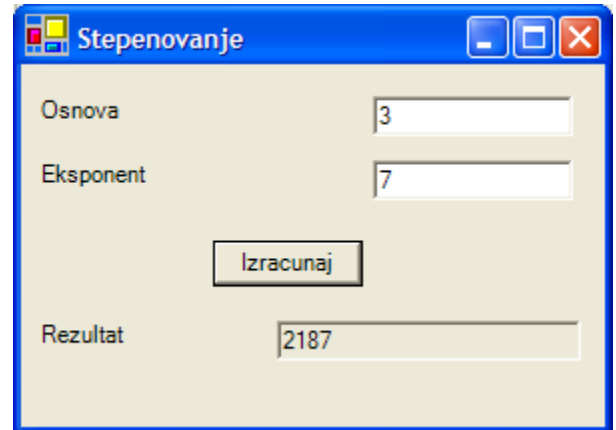
```
    private System.ComponentModel.Container components = null;
```

```
    public Form1()
    {
        InitializeComponent();
    }
```

```
    static void Main()
    {
        Application.Run(new Form1());
    }
```

```
    private void btlzracunaj_Click(object sender, System.EventArgs e)
    {
        try
        {
            double a=Convert.ToDouble(tBOperand1.Text);
            double b=Convert.ToDouble(tBOperand2.Text);
            double c=1;
            for (int i=0;i<b;i++) c*=a;
            tBRezultat.Text=Convert.ToString(c);
        }
        catch
        {
            MessageBox.Show("Pogresni podaci!", "Greska");
        }
    }
```

```
    private void tBOperand1_TextChanged(object sender, System.EventArgs e)
    {
        tBRezultat.Clear();
    }
}
```



Primer 12a - ciklusi

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

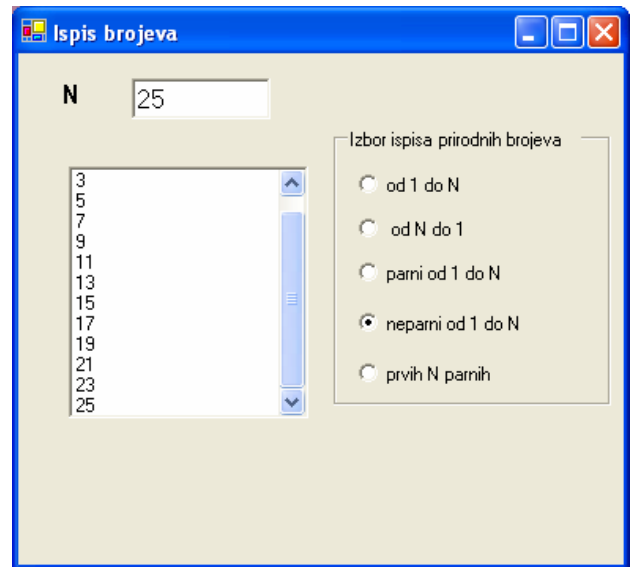
```
namespace primer12a
```

```
{
    public class CiklusVezba : System.Windows.Forms.Form
    {
        private System.Windows.Forms.GroupBox groupBox1;
        private System.Windows.Forms.TextBox tBBrojN;
        private System.Windows.Forms.ListBox IBBrojevi;
        private System.Windows.Forms.RadioButton rBNParnih;
        private System.Windows.Forms.RadioButton rBNeparni;
        private System.Windows.Forms.RadioButton rBParni;
        private System.Windows.Forms.RadioButton rBOdNdo1;
        private System.Windows.Forms.RadioButton rBOd1doN;
        private System.Windows.Forms.Label lBBrojN;
    }
```

```
    public CiklusVezba() { InitializeComponent(); }
```

```
    static void Main() { Application.Run(new CiklusVezba()); }
```

```
    private void rBOd1doN_CheckedChanged(object sender, System.EventArgs e)
    {
        if (rBOd1doN.Checked)
        {
            int N=Convert.ToInt32(tBBrojN.Text);
            IBBrojevi.Items.Clear();
            for(int i=1; i<=N;i++) IBBrojevi.Items.Add(i); }
    }
    private void rBOdNdo1_CheckedChanged(object sender, System.EventArgs e)
    {
        if (rBOdNdo1.Checked)
        {
            int N=Convert.ToInt32(tBBrojN.Text);
            IBBrojevi.Items.Clear();
            for(; N>0;N--) IBBrojevi.Items.Add(N); }
    }
    private void rBParni_CheckedChanged(object sender, System.EventArgs e)
    {
        if (rBParni.Checked)
        {
            int N=Convert.ToInt32(tBBrojN.Text);
            IBBrojevi.Items.Clear();
            for(int i=2; i<=N;i+=2) IBBrojevi.Items.Add(i); }
    }
    private void rBNeparni_CheckedChanged(object sender, System.EventArgs e)
    {
        if (rBNeparni.Checked)
        {
            int N=Convert.ToInt32(tBBrojN.Text);
            IBBrojevi.Items.Clear();
            for(int i=1; i<=N;i+=2) IBBrojevi.Items.Add(i); }
    }
    private void rBNParnih_CheckedChanged(object sender, System.EventArgs e)
    {
        if (rBNParnih.Checked)
        {
            int N=Convert.ToInt32(tBBrojN.Text);
            IBBrojevi.Items.Clear();
            for(int i=1; i<=N;i++) IBBrojevi.Items.Add(2*i); }
    }
    private void tBBrojN_TextChanged(object sender, System.EventArgs e)
    {
        rBOd1doN.Checked=false; rBOdNdo1.Checked=false;
        rBParni.Checked=false; rBNeparni.Checked=false;
        rBNParnih.Checked=false; IBBrojevi.Items.Clear();
    }
}
```



Primer 12a - ciklusi

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

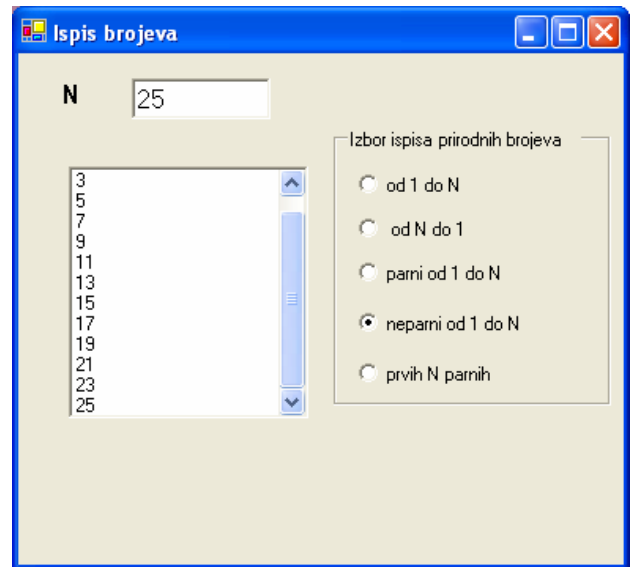
```
namespace primer12a
```

```
{
    public class CiklusVezba : System.Windows.Forms.Form
    {
        private System.Windows.Forms.GroupBox groupBox1;
        private System.Windows.Forms.TextBox tBBrojN;
        private System.Windows.Forms.ListBox IBBrojevi;
        private System.Windows.Forms.RadioButton rBNParnih;
        private System.Windows.Forms.RadioButton rBNeparni;
        private System.Windows.Forms.RadioButton rBParni;
        private System.Windows.Forms.RadioButton rBOdNdo1;
        private System.Windows.Forms.RadioButton rBOd1doN;
        private System.Windows.Forms.Label lBBrojN;
    }
```

```
    public CiklusVezba() { InitializeComponent(); }
```

```
    static void Main() { Application.Run(new CiklusVezba()); }
```

```
    private void rBOd1doN_CheckedChanged(object sender, System.EventArgs e)
    {
        if (rBOd1doN.Checked)
        {
            int N=Convert.ToInt32(tBBrojN.Text);
            IBBrojevi.Items.Clear();
            for(int i=1; i<=N;i++) IBBrojevi.Items.Add(i); }
    }
    private void rBOdNdo1_CheckedChanged(object sender, System.EventArgs e)
    {
        if (rBOdNdo1.Checked)
        {
            int N=Convert.ToInt32(tBBrojN.Text);
            IBBrojevi.Items.Clear();
            for(; N>0;N--) IBBrojevi.Items.Add(N); }
    }
    private void rBParni_CheckedChanged(object sender, System.EventArgs e)
    {
        if (rBParni.Checked)
        {
            int N=Convert.ToInt32(tBBrojN.Text);
            IBBrojevi.Items.Clear();
            for(int i=2; i<=N;i+=2) IBBrojevi.Items.Add(i); }
    }
    private void rBNeparni_CheckedChanged(object sender, System.EventArgs e)
    {
        if (rBNeparni.Checked)
        {
            int N=Convert.ToInt32(tBBrojN.Text);
            IBBrojevi.Items.Clear();
            for(int i=1; i<=N;i+=2) IBBrojevi.Items.Add(i); }
    }
    private void rBNParnih_CheckedChanged(object sender, System.EventArgs e)
    {
        if (rBNParnih.Checked)
        {
            int N=Convert.ToInt32(tBBrojN.Text);
            IBBrojevi.Items.Clear();
            for(int i=1; i<=N;i++) IBBrojevi.Items.Add(2*i); }
    }
    private void tBBrojN_TextChanged(object sender, System.EventArgs e)
    {
        rBOd1doN.Checked=false; rBOdNdo1.Checked=false;
        rBParni.Checked=false; rBNeparni.Checked=false;
        rBNParnih.Checked=false; IBBrojevi.Items.Clear();
    }
}
```



Primer 12b – ciklusi, određivanje sume

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace primer12b
```

```
{public class suma : System.Windows.Forms.Form
{
    private System.Windows.Forms.GroupBox groupBox1;
    private System.Windows.Forms.Label lBrojN;
    private System.Windows.Forms.TextBox tBBrojN;
    private System.Windows.Forms.RadioButton rBSumaNParnih;
    private System.Windows.Forms.RadioButton rBSumaParnih;
    private System.Windows.Forms.RadioButton rBSumaKvadrata;
    private System.Windows.Forms.RadioButton rBSuma1N;
    private System.Windows.Forms.TextBox tBSuma;

    public suma()      {      InitializeComponent();      }

    static void Main() {      Application.Run(new suma());      }

    private void rBSumaNParnih_CheckedChanged(object sender, System.EventArgs e)
    {
        int n=Convert.ToInt32(tBBrojN.Text);
        int i,s=0;
        for(i=1, s=0; i<=n;i++)      s=s+2*i;
        tBSuma.Text=s.ToString();
    }
    private void rBSuma1N_CheckedChanged(object sender, System.EventArgs e)
    {
        int n=Convert.ToInt32(tBBrojN.Text);
        int i,s;
        for(i=1, s=0; i<=n;i++)      s=s+i;
        tBSuma.Text=s.ToString();
    }
    private void rBSumaKvadrata_CheckedChanged(object sender, System.EventArgs e)
    {
        int n=Convert.ToInt32(tBBrojN.Text);
        int i,s;
        for(i=1, s=0; i<=n;i++)      s+=i*i;
        tBSuma.Text=s.ToString();
    }
    private void rBSumaParnih_CheckedChanged(object sender, System.EventArgs e)
    {
        int n=Convert.ToInt32(tBBrojN.Text);
        int i,s;
        for(i=1, s=0; i<=n;s+=i,i+=2);      tBSuma.Text=s.ToString();
    }
    private void tBBrojN_TextChanged(object sender, System.EventArgs e)
    {
        tBSuma.Text="";
        rBSuma1N.Checked=false;      rBSumaKvadrata.Checked=false;
        rBSumaParnih.Checked=false;      rBSumaNParnih.Checked=false;    }
}
}
```


Primer 12c – ciklusi, cifre broja

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace cifre_broja
```

```
{public class CifreBroja : System.Windows.Forms.Form
{
    private System.Windows.Forms.GroupBox groupBox1;
    private System.Windows.Forms.TextBox tBn;
    private System.Windows.Forms.CheckBox cBObrnut;
    private System.Windows.Forms.CheckBox cBBrojPetica;
    private System.Windows.Forms.CheckBox cBMaxCifra;
    private System.Windows.Forms.CheckBox cBSumaCifara;
    private System.Windows.Forms.CheckBox cBBrojCifara;
    private System.Windows.Forms.Button btOdredi;
    private System.Windows.Forms.TextBox tBRezultat;
    private System.Windows.Forms.Label lbn;

    public CifreBroja()        {        InitializeComponent();        }

    static void Main()        {        Application.Run(new CifreBroja());        }

    private void btOdredi_Click(object sender, System.EventArgs e)
    {
        int n=Convert.ToInt32(tBn.Text);
        int c,s,bc,max,b5,x;
        s=bc=max=b5=x=0;
        while (n>0)
        {
            c=n % 10;           //poslednja desna cifra
            n/=10;              //broj bez poslednje desne cifre
            bc++;               //broj cifara
            if(c>max) max=c;    //maksimalna cifra
            if(c==5)b5++;       //broj petica
            s+=c;               //suma cifara
            x=x*10+c;          //obrnuti broj
        }
        tBRezultat.Text="";
        if (cBBrojCifara.Checked) tBRezultat.Text+="Broj cifara je "+ bc+"\r\n";
        if (cBSumaCifara.Checked) tBRezultat.Text+="Suma cifara je "+ s+"\r\n";
        if (cBMaxCifra.Checked) tBRezultat.Text+="Maksimalna cifra je "+ max+"\r\n";
        if (cBBrojPetica.Checked) tBRezultat.Text+="Broj pojavljivanja cifre 5 je "+ b5+"\r\n";
        if (cBObrnut.Checked) tBRezultat.Text+="Broj u obrnutom poretku cifara je "+ x+"\r\n";
    }

    private void tBn_TextChanged(object sender, System.EventArgs e)
    {
        tBRezultat.Text=""; }
}
}
```

Manipulacija ciframa broja

n 54654

Izbor

- ☒ broj cifara
- ☒ suma cifara
- ☐ maksimalna cifra
- ☒ broj pojavljivanja cifre 5
- ☒ "inverzan" broj

odredi

Broj cifara je 5
Suma cifara je 24
Broj pojavljivanja cifre 5 je 2
Broj u obrnutom poretku cifara je 45645

Primer 12d – ciklusi, stepenovanje

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace stepen
```

```
{
public class stepenovanje : System.Windows.Forms.Form
{
```

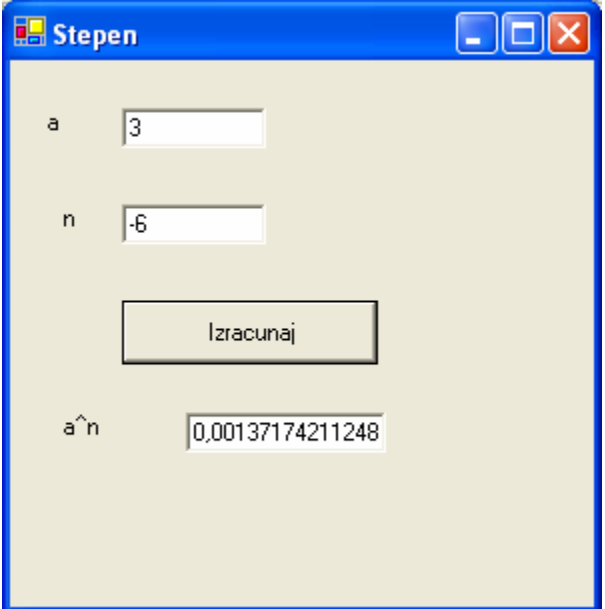
```
    private System.Windows.Forms.Label lba;
    private System.Windows.Forms.Label lbn;
    private System.Windows.Forms.TextBox tBa;
    private System.Windows.Forms.TextBox tBn;
    private System.Windows.Forms.Label lbstepen;
    private System.Windows.Forms.TextBox tBstepen;
    private System.Windows.Forms.Button btlzracunaj;
```

```
    public stepenovanje()
    {
        InitializeComponent();
    }
```

```
    static void Main()
    {
        Application.Run(new stepenovanje());
    }
```

```
    private void btlzracunaj_Click(object sender, System.EventArgs e)
    {
        int n=Convert.ToInt32(tBn.Text);
        double a=Convert.ToDouble(tBa.Text),st=1;
        for(int i=0;i<Math.Abs(n);i++)
            st=st*a;
        if (n<0)st=1/st;
        tBstepen.Text=st.ToString();
    }
```

```
}
}
```

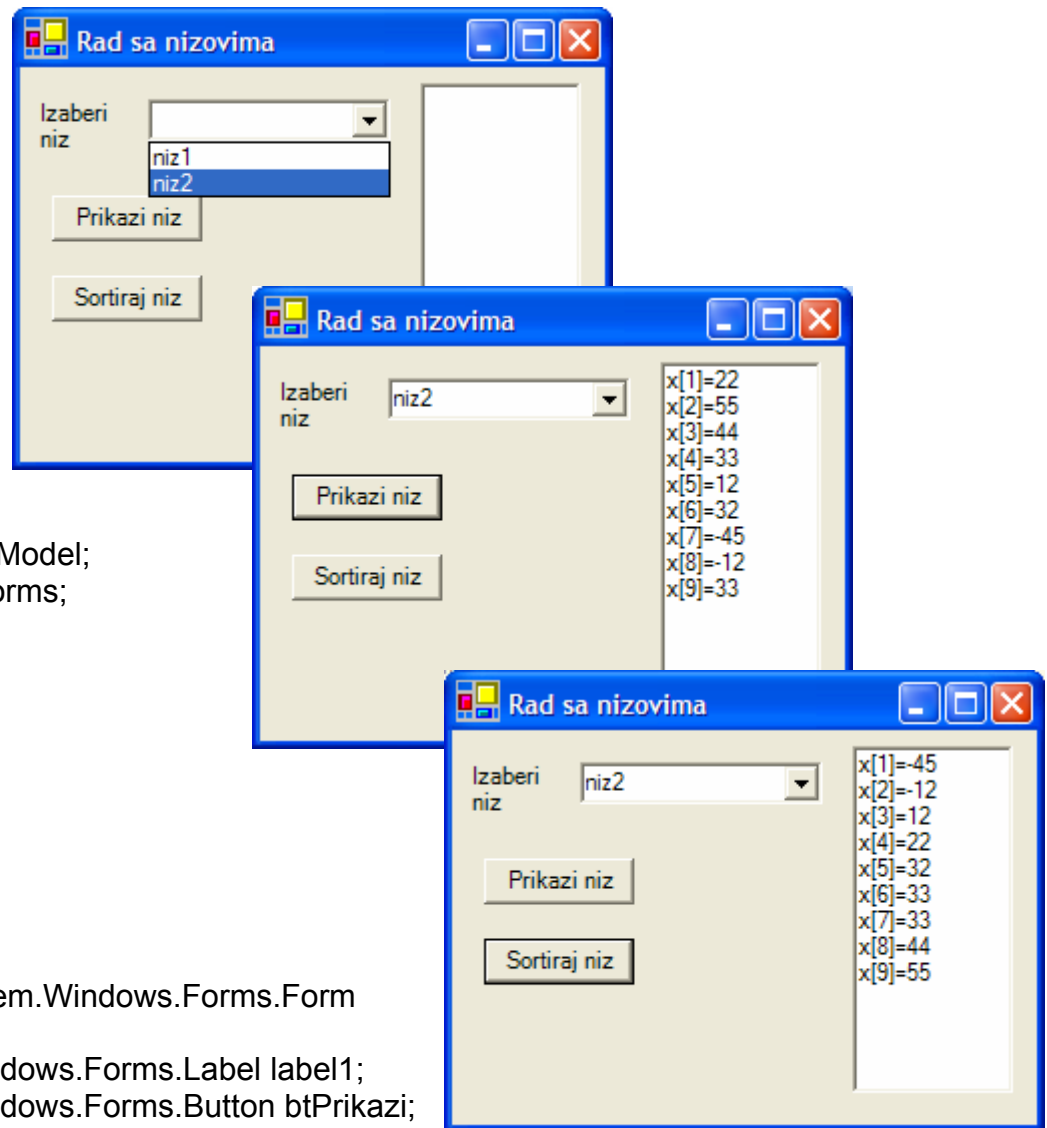


Nizovi

Primer 12x nizovi

```
using System;  
using System.Drawing;  
using System.Collections;  
using System.ComponentModel;  
using System.Windows.Forms;  
using System.Data;  
using System.IO;
```

```
namespace primer12x  
{  
    public class Nizovi : System.Windows.Forms.Form  
    {  
        private System.Windows.Forms.Label label1;  
        private System.Windows.Forms.Button btPrikazi;  
        private System.Windows.Forms.ListBox lBNiz;  
        private System.Windows.Forms.ComboBox cBlzborDat;  
        private System.Windows.Forms.Button btSortiraj;  
  
        int i;  
        int[] x;  
        string izbor;  
  
        public Nizovi()  
        {  
            InitializeComponent();  
            x=new int[100];  
        }  
  
        static void Main()  
        {  
            Application.Run(new Nizovi());  
        }  
    }  
}
```



```

private void btPrikazi_Click(object sender, System.EventArgs e)
{
    StreamReader f=new StreamReader(izbor+".txt");
    IBNiz.Items.Clear();
    i=0;
    while (f.Peek()!=-1)
    {
        x[i]=Convert.ToInt32(f.ReadLine());
        string stavka="x["+(i+1)+"]=" +x[i];
        IBNiz.Items.Add(stavka);
        i++;
    }
    f.Close();
}

```

```

private void cBlzborDat_SelectedIndexChanged(object sender, System.EventArgs e)
{
    izbor=cBlzborDat.Text;
}

```

```

private void btSortiraj_Click(object sender, System.EventArgs e)
{
    int j,n,priv;
    StreamReader f=new StreamReader(izbor+".txt");
    i=0;           //citanje niza iz datoteke
    while (f.Peek()!=-1)
    {
        x[i]=Convert.ToInt32(f.ReadLine());
        i++;
    }
    n=i+1;        //odredjivanje broja elemenata u nizu
    f.Close();

    //sortiranje niza
    for (i=0;i<n-1;i++)
        for (j=i+1;j<n;j++)
            if (x[i]>x[j])
            {
                priv=x[i];
                x[i]=x[j];
                x[j]=priv;
            }

    IBNiz.Items.Clear();
    for (i=0;i<n-1;i++)IBNiz.Items.Add("x["+(i+1)+"]=" +x[i]);
}

```

```

}

```

```

}

```

Primer 12e – nizovi, manipulacija elementima niza

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

namespace nizovi

```
{public class Niz : System.Windows.Forms.Form
{
    private System.Windows.Forms.Label lbx;
    private System.Windows.Forms.TextBox tBx;
    private System.Windows.Forms.ListBox lBNiz;
    private System.Windows.Forms.Button btUnesi;
    private System.Windows.Forms.Button btKraj;
    private System.Windows.Forms.Button btIzracunaj;

    int i=0,n,s;
    int []x;

    public Niz()
    {
        InitializeComponent();
        x=new int[20];
    }

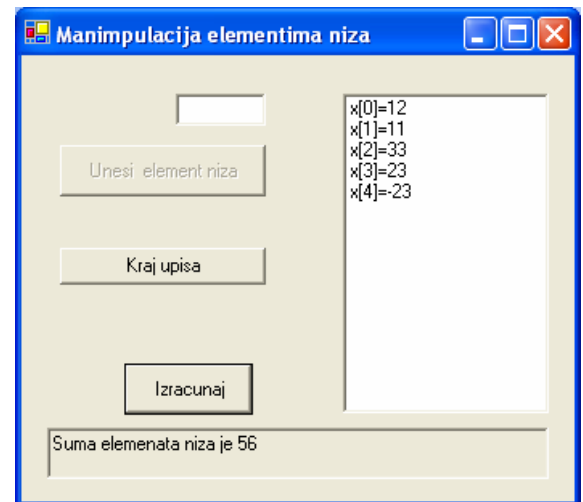
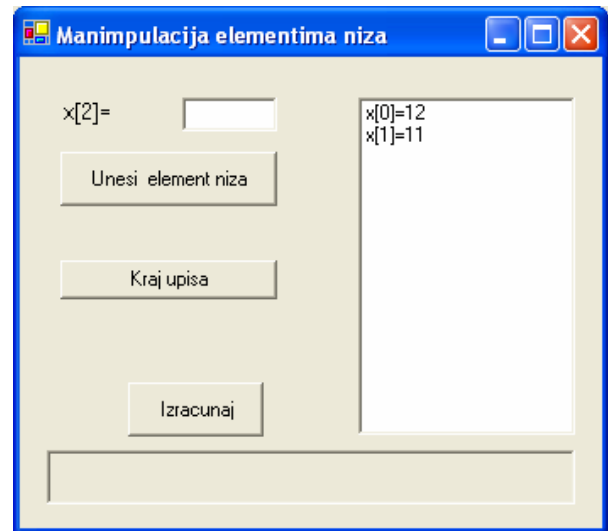
    static void Main()
    {
        Application.Run(new Niz());
    }

    private void btUnesi_Click(object sender, System.EventArgs e)
    {
        x[i]=Convert.ToInt32(tBx.Text);
        lBNiz.Items.Add("x["+i+"]="+x[i]);
        i++;
        lbx.Text="x["+i+"]="; //priprema za sledeci
        tBx.Text="";
        tBx.Focus();
    }

    private void btKraj_Click(object sender, System.EventArgs e)
    {
        n=i;
        btUnesi.Enabled=false;
        lbx.Text="";
    }

    void SumaNiza (int []x,int n)
    {
        int j;
        for(j=0, s=0; j<n;j++)
            s+=x[j];
    }

    private void btOdredi_Click(object sender, System.EventArgs e)
    {
        SumaNiza(x,n);
        tBRezultat.Text+="Suma elemenata niza je "+s+"\r\n";
    }
}
```



Primer 12f – nizovi, manipulacija elementima niza

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace nizovi
```

```
{public class Niz : System.Windows.Forms.Form
{
```

```
private System.Windows.Forms.Label lbln;
private System.Windows.Forms.Label lbx;
private System.Windows.Forms.TextBox tBx;
private System.Windows.Forms.ListBox lBNiz;
private System.Windows.Forms.Button btUnesi;
private System.Windows.Forms.GroupBox groupBox1;
private System.Windows.Forms.CheckBox cBBrojNegativnih;
private System.Windows.Forms.CheckBox cBBrojDeljivihSa5;
private System.Windows.Forms.CheckBox cBMaxNiza;
private System.Windows.Forms.CheckBox cBSumaParnih;
private System.Windows.Forms.CheckBox cBSumaNiza;
private System.Windows.Forms.TextBox tBRezultat;
private System.Windows.Forms.Button btKraj;
private System.Windows.Forms.CheckBox cBSrednjaVrednost;
```

```
int n=0,i=0; //deklaracija globalnih promenljivih
```

```
int []x;
```

```
private System.Windows.Forms.Button btIzracunaj;
```

```
public Niz()
```

```
{ InitializeComponent();
  x=new int[40]; //konstruktor za niz
}
```

```
static void Main()
```

```
{ Application.Run(new Niz());
}
```

```
private void btUnesi_Click(object sender, System.EventArgs e)
```

```
{ lbx.Text="x[0]="; //inicijalizacija
  tBx.Focus();
  x[i]=Convert.ToInt32(tBx.Text); //unesi x
  lBNiz.Items.Add("x["+i+"]="+x[i]);
  i++;
  lbx.Text="x["+i+"]="; //priprema za sledeci
  tBx.Text="";
  tBx.Focus();
}
```

```
private void btKraj_Click(object sender, System.EventArgs e)
```

```
{ n=i; //odredjivanje broja elemenata u nizu
  btUnesi.Enabled=false; //kraj niza, nema vise unosa
  btIzracunaj.Enabled=true;
  lbx.Text=""; //brisemo tekst x[...]=
  lbln.Text="Niz ima "+n.ToString()+" elemenata"; //n elemenata
}
```

```

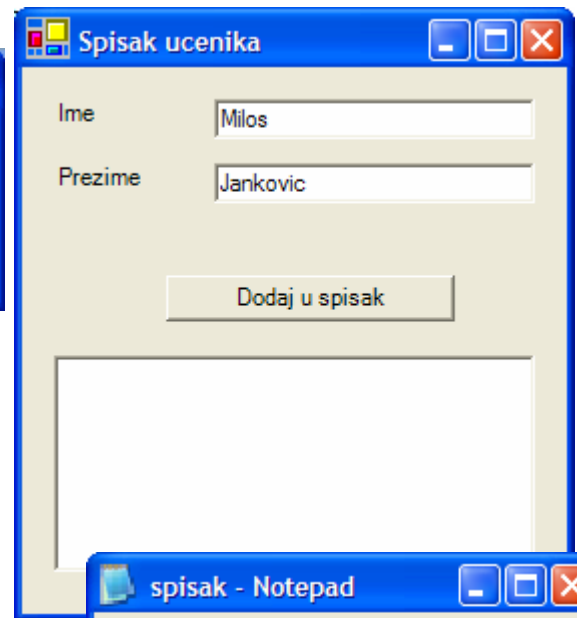
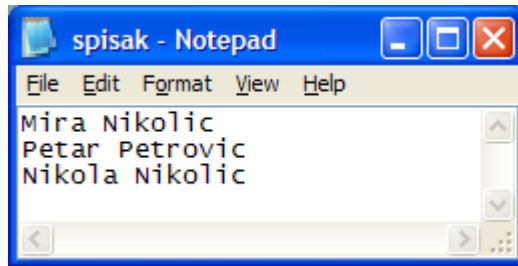
void SumaNiza(int[]x,int n)
{
    int j,s;
    for(j=0, s=0; j<n;j++)
        s+=x[j];
    tBRezultat.Text+="Suma elemenata niza je "+ s+"\r\n";
}
void SrednjaVrednost(int[]x,int n)
{
    int j;
    float xsr;
    for(j=0, xsr=0; j<n;j++)
        xsr+=x[j];
    xsr/=n;
    tBRezultat.Text+="Srednja vrednost niza je "+ xsr+"\r\n";
}
void SumaParnih(int[]x,int n)
{
    int j,sp;
    for(j=0, sp=0; j<n;j++)
        if (x[j]%2==0) sp+=x[j];
    tBRezultat.Text+="Suma parnih elemenata niza je "+ sp+"\r\n";
}
void BrojNegativnih(int[]x,int n)
{
    int j,brneg;
    for(j=0, brneg=0; j<n;j++)
        if (x[j]<0) brneg++;
    tBRezultat.Text+="Broj negativnih elemenata je "+ brneg+"\r\n";
}
void BrojDeljSa5(int[]x,int n)
{
    int j,b5;
    for(j=0, b5=0; j<n;j++)
        if (x[j]%5==0) b5++;
    tBRezultat.Text+="Broj elemenata deljivih sa 5 je "+ b5+"\r\n";
}
void MaxNiza(int[]x,int n)
{
    int j,max=-32000;
    for(j=0; j<n;j++)
        if (x[j]>max) max=x[j];
    tBRezultat.Text+="Maksimalni element niza je "+ max+"\r\n";
}

private void btlzracunaj_Click(object sender, System.EventArgs e)
{
    tBRezultat.Text="";
    if (cBSumaNiza.Checked) SumaNiza(x,n);
    if (cBSrednjaVrednost.Checked) SrednjaVrednost(x,n);
    if (cBSumaParnih.Checked) SumaParnih(x,n);
    if (cBMaxNiza.Checked) MaxNiza(x,n);
    if (cBBrojDeljivihSa5.Checked) BrojDeljSa5(x,n);
    if (cBBrojNegativnih.Checked) BrojNegativnih(x,n);
}
}
}

```

Rad sa datotekama

Primer 15x lista sa datotekom



```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
using System.IO;
```

```
namespace primer15x
```

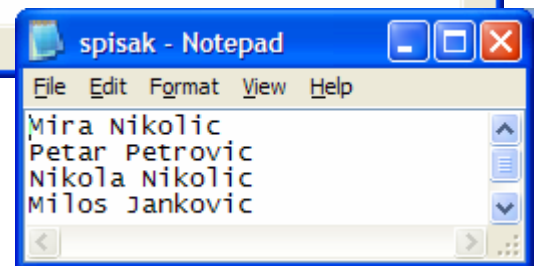
```
{
    public class Form1 : System.Windows.Forms.Form
    {
        private System.Windows.Forms.TextBox tblIme;
        private System.Windows.Forms.Label lblIme;
        private System.Windows.Forms.Label lblPrezime;
        private System.Windows.Forms.TextBox tbPrezime;
        private System.Windows.Forms.ListBox lBSpisak;
        private System.Windows.Forms.Button btDodaj;

        private System.ComponentModel.Container components = null;

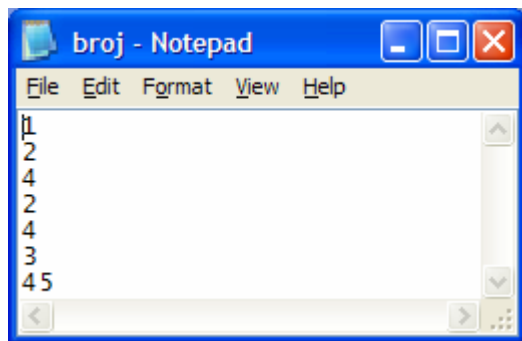
        public Form1()
        {
            InitializeComponent();
        }

        static void Main()
        {
            Application.Run(new Form1());
        }

        private void btDodaj_Click(object sender, System.EventArgs e)
        {
            string ime = tblIme.Text;
            string prezime = tbPrezime.Text;
            lBSpisak.Items.Add(ime+" "+prezime);
            StreamWriter f= new StreamWriter("spisak.txt",true);
            f.WriteLine(ime+" "+prezime);
            f.Close();
            tblIme.Clear();
            tbPrezime.Clear();
        }
    }
}
```



Primer 15y – čitanje iz datoteke



```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
using System.IO;
```

```
namespace primer15y
{
    public class Form1 : System.Windows.Forms.Form
    {
        private System.Windows.Forms.Button btPrikazi;
        private System.Windows.Forms.ListBox IBBrojevi;
        private System.Windows.Forms.Label lbZbir;
        private System.Windows.Forms.TextBox tBZbir;

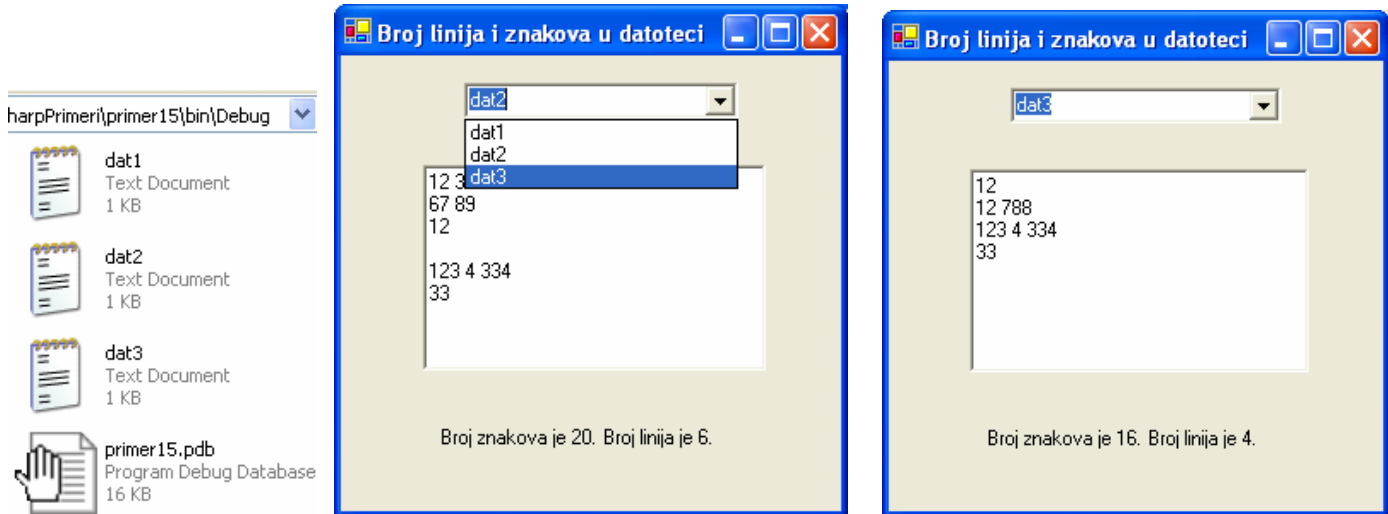
        private System.ComponentModel.Container components = null;

        public Form1()
        {
            InitializeComponent();
        }

        static void Main()
        {
            Application.Run(new Form1());
        }

        private void btPrikazi_Click(object sender, System.EventArgs e)
        {
            IBBrojevi.Items.Clear();
            StreamReader f=new StreamReader("broj.txt");
            int zbir=0;
            while (f.Peek()!=-1)
            {
                int a=Convert.ToInt32(f.ReadLine());
                IBBrojevi.Items.Add(a.ToString());
                zbir+=a;
            }
            tBZbir.Text=zbir.ToString();
            f.Close();
        }
    }
}
```

Primer 15 – datoteke



napomena: sami smo uneli ove datoteke u notepad-u i dodali Collection u combo!

```
using System;
using System.IO;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace primer15
```

```
{public class prikazDat : System.Windows.Forms.Form
```

```
{
    private System.Windows.Forms.ComboBox cBlzborFajla;
    private System.Windows.Forms.TextBox tBSadrzajFajla;
    private System.Windows.Forms.Label lbRezultat;

    public prikazDat()
    {
        InitializeComponent();
    }

    static void Main()
    {
        Application.Run(new prikazDat());
    }

    private void cBlzborFajla_SelectedIndexChanged(object sender, System.EventArgs e)
    {
        StreamReader sr = new StreamReader (cBlzborFajla.Text+".txt");
        tBSadrzajFajla.Text="";
        int c,bz=0,bl=1;
        char tek;
        while ((c=sr.Read())!=-1)
        {
            tek=(char)c;
            tBSadrzajFajla.Text+=tek;
            if (tek!=' '&& tek!='\n'&& tek!='\r') bz++;
            else if (tek=='\n') bl++;
        }
        sr.Close();
        lbRezultat.Text= "Broj znakova je "+bz+" Broj linija je "+bl+".";
    }
}
```


Primer 15a – datoteke



napomena: sami smo uneli ove datoteke u notepad-u

```
using System;
using System.IO;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```

```
namespace primer15
```

```
{ public class prikazDat : System.Windows.Forms.Form
```

```
{     private System.Windows.Forms.ComboBox cBlzborFajla;
    private System.Windows.Forms.TextBox tBSadrzajFajla;
    private System.Windows.Forms.Label lbRezultat;
```

```
    public prikazDat()
    {     InitializeComponent();     }
```

```
    static void Main()
    {     Application.Run(new prikazDat());     }
```

```
    private void cBlzborFajla_SelectedIndexChanged(object sender, System.EventArgs e)
    {
```

```
        StreamReader sr = new StreamReader (cBlzborFajla.Text+".txt");
        tBSadrzajFajla.Text="";
```

```
        int c,br=0;
```

```
        char tek, pred=' ';
```

```
        while ((c=sr.Read())!=-1)
```

```
        {     tek=(char)c;
```

```
            tBSadrzajFajla.Text+=tek;
```

```
            if (tek!=' '&& tek!='\n'&& tek!='\r'&& tek!='\t'&&
```

```
                (pred==' '||pred=='\n'||pred=='\t'))     br++;
```

```
            pred=tek;
```

```
        }
```

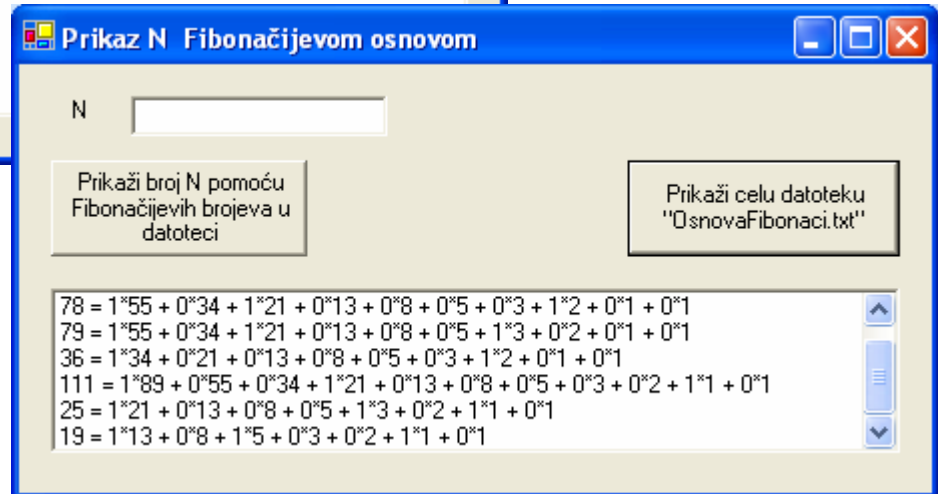
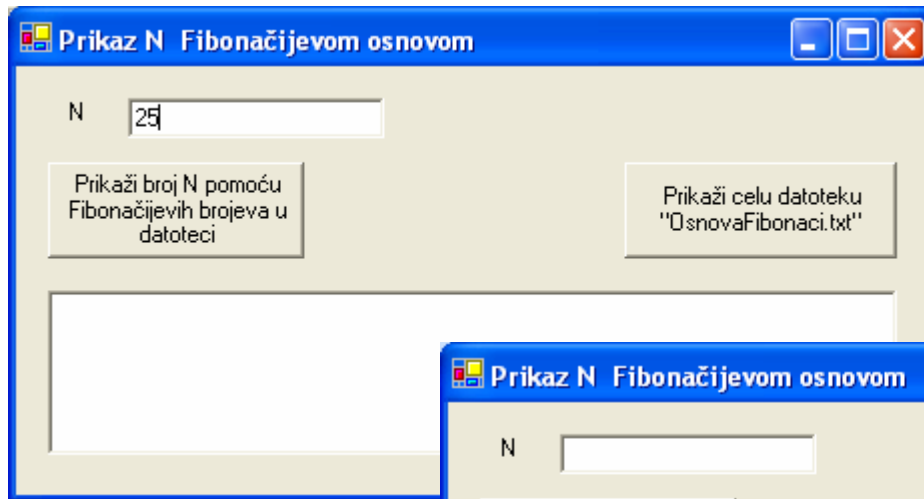
```
        sr.Close();
```

```
        lbRezultat.Text= "Broj reci je "+br+".";
```

```
    }
```

```
}
```

Primer 15b – datoteke, kreiranje i čitanje datoteke



```
using System;
using System.Drawing;
using System.Collections;
using
System.ComponentModel;
using System.Windows.Forms;
using System.Data;
using System.IO;
```

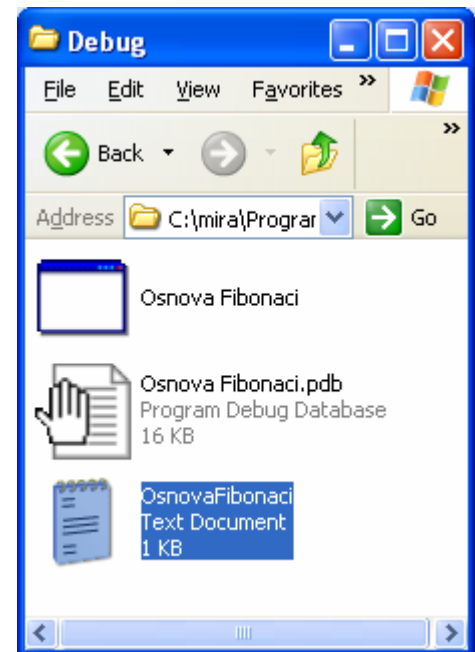
```
namespace Osnova_Fibonaci
{
    public class Fibonaci : System.Windows.Forms.Form
    {
        private System.Windows.Forms.TextBox tbN;
        private System.Windows.Forms.Label label1;
        private System.Windows.Forms.Button btPrikazi;
        private System.Windows.Forms.Button btPrikazDat;
        private System.Windows.Forms.ListBox IBPrikazDat;
```

```
public Fibonaci()
{
    InitializeComponent();
}
```

```
static void Main()
{
    Application.Run(new Fibonaci());
}
```

```
private void btPrikazi_Click(object sender, System.EventArgs e)
{
```

```
    StreamWriter sw=new StreamWriter("OsnovaFibonaci.txt", true); //na kraj datoteke
    int n=Convert.ToInt32(tbN.Text);
```



```

int fp=1,fpp=1,f=1;           //inicijalizacija
while(n>=fp) //izbor sledeceg fibonacijevog broja, f>n
{
    f=fp+fpp;                 //f - Fibonacijev broj
    fpp=fp;                   //fpp - 2.prethodnik f
    fp=f;                     //fp - 1.prethodnik f
    //upis u datoteku
    sw.Write(n+" = ");
    do
    {
        f=fp-fpp;             //vracamo se korak unazad u nizu:
        fp=fpp;               //clan koji je prethodnik f-a, 1.f.broj manji od n
        fpp=f;                //clan koji ispisujemo 1*..., jer se sadrzi u n
        if(n>=fp)             //prethodni clan
        {
            sw.Write("1*");    //sadrzi se, pisemo 1*n
            n-=fp;             //ostatak koji jos treba izraziti
        }
        else sw.Write("0*");  //ne sadrzi se, pisemo 0*n
        sw.Write(fp);
        if (fpp!=0) sw.Write(" + "); //ima jos sabiraka
    } while(fpp!=0);          //dok ne dodjemo do kraja - do nule
    sw.WriteLine();           //novi red
    sw.Close();
    tbN.Clear();
    tbN.Focus();
}

private void btPrikazDat_Click(object sender, System.EventArgs e)
{
    //citanje datoteka
    IBPrikazDat.Items.Clear(); //isprazni listu

    StreamReader sr=new StreamReader("OsnovaFibonaci.txt");
    string s;
    while ((s=sr.ReadLine())!=null) // do kraja datoteke
        IBPrikazDat.Items.Add(s);  //dodaj u listu
    sr.Close();
}
}
}

```

Primer za n=25:

f	1	2	3	5	8	13	21	34		13	8	5	3	2	1	1	0
fpp	1	1	2	3	5	8	13	21		13	8	5	3	2	1	1	0
fp	1	2	3	5	8	13	21	34		21	13	8	5	3	2	1	1

$$25 = 1 \cdot 21 + 0 \cdot 13 + 0 \cdot 13 + 0 \cdot 8 + 0 \cdot 5 + 1 \cdot 3 + 0 \cdot 2 + 1 \cdot 1 + 0 \cdot 1$$

Primer 15c – datoteke, kreiranje i čitanje datoteke

The application window 'Ocene i uspeh' contains two main sections. The top section has two text boxes: 'Ime datoteke ocena' with the value 'ocene1' and 'Ime datoteke uspeha' with the value 'uspeh1'. Below these are two buttons: 'Ocene' and 'Uspeh'. The bottom section contains two text boxes. The left one, labeled 'Ocene', displays a list of student names and their grades: Petar Petrovic 3 4 4 4 2 4 5 2 5, Lazar Lazarevic 3 1 4 2 1 5 3 2 1, Milos Milosevic 3 2 2 2 3 2 2 2 3, Djordje Isakovic 4 5 4 5 5 5 4 5 4, and Marko Markovic 3 4 2 1 5 4 3 4 5 2. The right one, labeled 'Uspeh', displays the same student names with their average grades and status: Petar Petrovic vrlo dobar(3,67), Lazar Lazarevic nedovoljan(1,00), Milos Milosevic dovoljan(2,33), Djordje Isakovic odlican(4,56), and Marko Markovic nedovoljan(1,00).

```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
using System.IO;
```

```
namespace uspeh
```

```
{ public class uspehUcenika : System.Windows.Forms.Form
{ private System.Windows.Forms.Button btOdredi;
private System.Windows.Forms.TextBox tBDataOcene;
private System.Windows.Forms.Label lbOcene;
private System.Windows.Forms.Label lbUspeh;
private System.Windows.Forms.Label lbImeFOcene;
private System.Windows.Forms.Label lbImeFUspeh;
private System.Windows.Forms.TextBox tBOcene;
private System.Windows.Forms.TextBox tBUspeh;
private System.Windows.Forms.TextBox tBDataUspeh;
```

```
public uspehUcenika()
```

```
{ InitializeComponent(); }
```

```
static void Main()
```

```
{ Application.Run(new uspehUcenika()); }
```

```
private void btOdredi_Click(object sender, System.EventArgs e)
```

```
{
```

```
tBOcene.Text=tBUspeh.Text="";
```

```
if (!File.Exists(tBDataOcene.Text+".txt"))
```

```
{ MessageBox.Show("Ne postoji datoteka ocena","Greska!");
```

```
return; }
```

```
if (tBDataUspeh.Text=="")
```

```
{ MessageBox.Show("Neispravno ime za datoteku uspeh","Greska!");
```

```
return; }
```

The text file 'ocene1.txt' contains the following text: Petar Petrovic 3 4 4 4 2 4 5 2 5, Lazar Lazarevic 3 1 4 2 1 5 3 2 1, Milos Milosevic 3 2 2 2 3 2 2 2 3, Djordje Isakovic 4 5 4 5 5 5 4 5 4, Marko Markovic 3 4 2 1 5 4 3 4 5 2.

```

StreamReader sr=new StreamReader(tBDatOcene.Text+".txt");
StreamWriter sw=new StreamWriter(tBDatUspeh.Text+".txt");

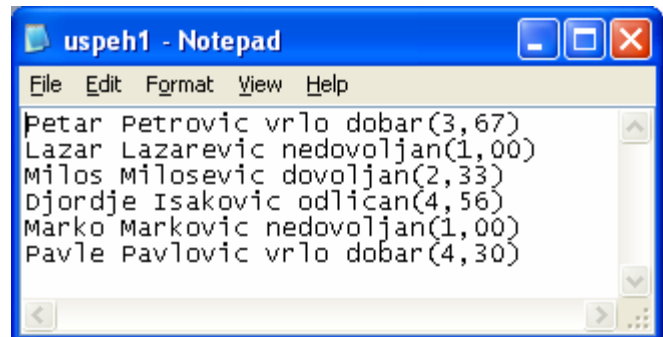
string s;
while ((s=sr.ReadLine())!=null)    // do kraja datoteke
{
    //upis imena učenika u tbOcene, tbUspeh i datoteku sw
    tBOcene.Text+=s+" ";
    tBUspah.Text+=s+" ";
    sw.Write(s+" ");
    //inicijalizacija za učenika čije ocene citamo
    int brojOcena=0,zbirOcena=0,ocena,brojJedinica=0;

    while ((s=sr.ReadLine())!="")    // dok ne nađemo na prazan red
        //citamo ocene učenika, njihov zbir, broj ocena i broj jedinica
    {
        ocena=Convert.ToInt32(s);
        if (ocena==1) brojJedinica++;
        else zbirOcena+=ocena;
        brojOcena++;
        tBOcene.Text+=s+" ";
    }

    float prosek;
    if (brojJedinica==0)
    {
        prosek=(float)zbirOcena/brojOcena;
        if (prosek>=4.5) s="odlican";
        else if (prosek>=3.5) s="vrlo dobar";
        else if (prosek>=2.5) s="dobar";
        else s="dovoljan";
    }
    else {    prosek=1;    s="nedovoljan";}

    sw.WriteLine(s+"("+prosek.ToString("0.00")+")");
    tBUspah.Text+=s+"("+prosek.ToString("0.00") + ")" + "\r\n";
    tBOcene.Text+="\r\n";
}
sr.Close();
sw.Close();
}
}
}

```



```

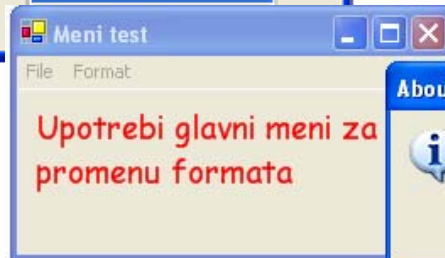
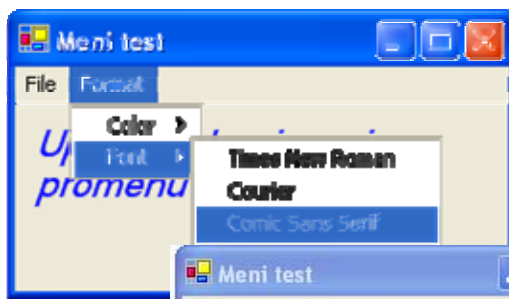
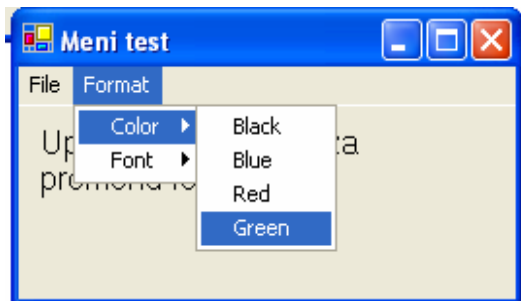
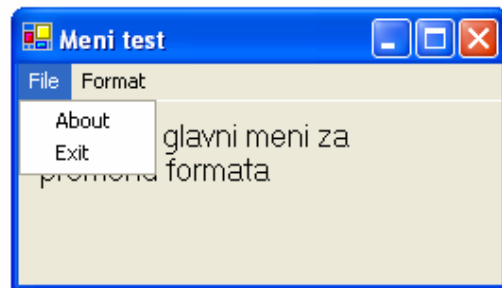
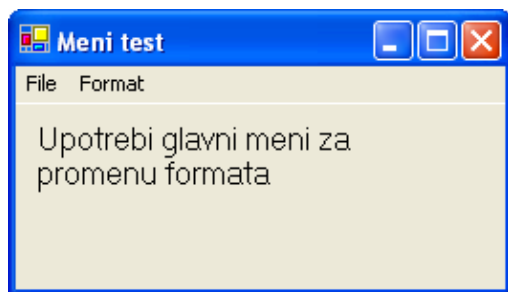
uspeh1 - Notepad
File Edit Format View Help
Petar Petrovic vrlo dobar(3,67)
Lazar Lazarevic nedovoljan(1,00)
Milos Milosevic dovoljan(2,33)
Djordje Isakovic odlican(4,56)
Marko Markovic nedovoljan(1,00)
Pavle Pavlovic vrlo dobar(4,30)

```

Windows kontrole: MainMenu, TabControl

Primer 7 main menu

Napravi formu kao na slici



```
using System; .....
namespace primer7
{
    public class Glavni :
        System.Windows.Forms.Form
    {
        //main menu
        private System.Windows.Forms.MainMenu
            mainMenu;

        //file menu
        private System.Windows.Forms.MenuItem fileMenuItem;
        private System.Windows.Forms.MenuItem aboutMenuItem;
        private System.Windows.Forms.MenuItem exitMenuItem;

        //format menu
        private System.Windows.Forms.MenuItem formatMenuItem;

        //color submenu
        private System.Windows.Forms.MenuItem colorMenuItem;
        private System.Windows.Forms.MenuItem blackMenuItem;
        private System.Windows.Forms.MenuItem blueMenuItem;
        private System.Windows.Forms.MenuItem redMenuItem;
        private System.Windows.Forms.MenuItem greenMenuItem;

        //font submenu
        private System.Windows.Forms.MenuItem fontMenuItem;
        private System.Windows.Forms.MenuItem timesMenuItem;
        private System.Windows.Forms.MenuItem courierMenuItem;
        private System.Windows.Forms.MenuItem comicMenuItem;
        private System.Windows.Forms.MenuItem separatorMenuItem;
        private System.Windows.Forms.MenuItem boldMenuItem;
        private System.Windows.Forms.MenuItem italicMenuItem;
        private System.Windows.Forms.Label displayLabel;

        public Glavni()
        {
            InitializeComponent();
        }

        static void Main()
        {
            Application.Run(new Glavni());
        }
    }
}
```

```

private void aboutMenuItem_Click(object sender, System.EventArgs e)
{
    MessageBox.Show("Ovo je primer\n upotrebe menija.", "About",
        MessageBoxButtons.OK, MessageBoxIcon.Information);
}

private void exitMenuItem_Click(object sender, System.EventArgs e)
{
    Application.Exit();
}

private void ClearColor() //postavi boje
{
    blackMenuItem.Checked = false;    blueMenuItem.Checked = false;
    redMenuItem.Checked = false;      greenMenuItem.Checked = false;
}

private void blackMenuItem_Click(object sender, System.EventArgs e)
{
    ClearColor(); //postavi boju na black
    displayLabel.ForeColor = Color.Black;    blackMenuItem.Checked = true;
}

private void blueMenuItem_Click(object sender, System.EventArgs e)
{
    ClearColor(); //postavi boju na blue
    displayLabel.ForeColor = Color.Blue;    blueMenuItem.Checked = true;
}

private void redMenuItem_Click(object sender, System.EventArgs e)
{
    ClearColor(); //postavi boju na red
    displayLabel.ForeColor = Color.Red;    redMenuItem.Checked = true;
}

private void greenMenuItem_Click(object sender, System.EventArgs e)
{
    ClearColor(); //postavi boju na green
    displayLabel.ForeColor = Color.Green;    greenMenuItem.Checked = true;
}

private void ClearFont() //postavi font
{
    timesMenuItem.Checked = false;
    courierMenuItem.Checked = false;
    comicMenuItem.Checked = false;
}

private void timesMenuItem_Click(object sender, System.EventArgs e)
{
    ClearFont(); //postavi font na times
    displayLabel.Font = new Font("Times New Roman", 14, displayLabel.Font.Style);
}

private void courierMenuItem_Click(object sender, System.EventArgs e)
{
    ClearFont(); //postavi font na courier
    displayLabel.Font = new Font("Courier New", 14, displayLabel.Font.Style);
}

private void comicMenuItem_Click(object sender, System.EventArgs e)
{
    ClearFont(); //postavi font na comic
    displayLabel.Font = new Font("Comic Sans MS", 14, displayLabel.Font.Style);
}

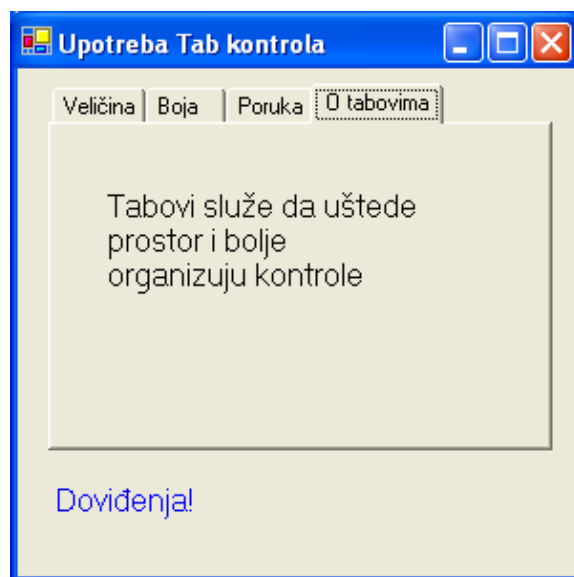
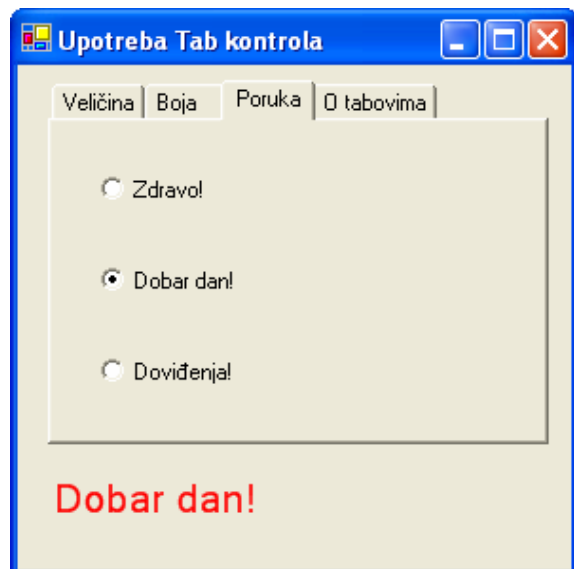
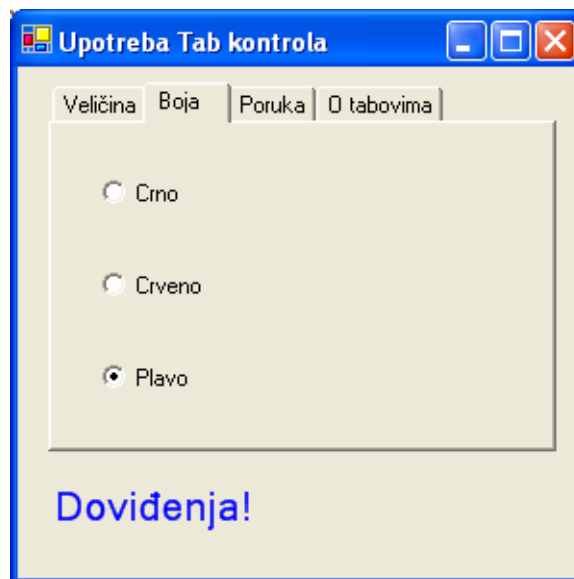
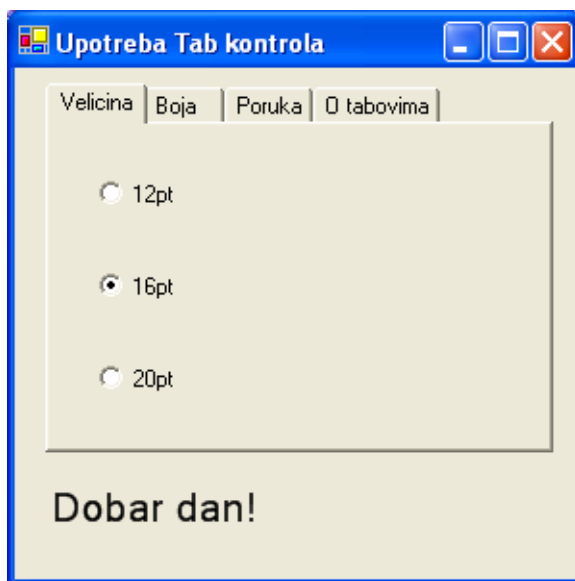
private void boldMenuItem_Click(object sender, System.EventArgs e)
{
    boldMenuItem.Checked = !boldMenuItem.Checked;
    displayLabel.Font = new Font(displayLabel.Font.FontFamily, 14,
        displayLabel.Font.Style ^ FontStyle.Bold);
}

private void italicMenuItem_Click(object sender, System.EventArgs e)
{
    italicMenuItem.Checked = !italicMenuItem.Checked;
    displayLabel.Font = new Font(displayLabel.Font.FontFamily, 14,
        displayLabel.Font.Style ^ FontStyle.Italic);
}

}
}

```

Primer 7a – tab kontrole



```
using System;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;

namespace primer7a
{
    public class tabkontrola :
        System.Windows.Forms.Form
    {
        private System.Windows.Forms.Label lbPozdrav;
        private System.Windows.Forms.TabControl tabControl1;
        private System.Windows.Forms.TabPage tabPage1;
        private System.Windows.Forms.TabPage tabPage2;
        private System.Windows.Forms.TabPage tabPage3;
        private System.Windows.Forms.TabPage tabPage4;

        private System.Windows.Forms.RadioButton rBBlack;
        private System.Windows.Forms.RadioButton rBRed;
        private System.Windows.Forms.RadioButton rBBlue;

        private System.Windows.Forms.RadioButton rB12;
        private System.Windows.Forms.RadioButton rB16;
        private System.Windows.Forms.RadioButton rB20;

        private System.Windows.Forms.RadioButton rBDovidenja;
        private System.Windows.Forms.RadioButton rBDobarDan;
        private System.Windows.Forms.RadioButton rBZdravo;

        private System.Windows.Forms.Label lbPoruka;
```



```

public tabkontrola()
{
    InitializeComponent();
}

static void Main()
{
    Application.Run(new tabkontrola());
}

private void rBBlack_CheckedChanged(object sender, System.EventArgs e)
{
    lbPozdrav.ForeColor = Color.Black;
}

private void rBRed_CheckedChanged(object sender, System.EventArgs e)
{
    lbPozdrav.ForeColor = Color.Red;
}

private void rBBlue_CheckedChanged(object sender, System.EventArgs e)
{
    lbPozdrav.ForeColor = Color.Blue;
}

private void rB12_CheckedChanged(object sender, System.EventArgs e)
{
    lbPozdrav.Font = new Font (lbPozdrav.Font.Name,12);
}

private void rB16_CheckedChanged(object sender, System.EventArgs e)
{
    lbPozdrav.Font = new Font (lbPozdrav.Font.Name,16);
}

private void rB20_CheckedChanged(object sender, System.EventArgs e)
{
    lbPozdrav.Font = new Font (lbPozdrav.Font.Name,20);
}

private void rBZdravo_CheckedChanged(object sender, System.EventArgs e)
{
    lbPozdrav.Text = "Zdravo! ";
}

private void rBDobarDan_CheckedChanged(object sender, System.EventArgs e)
{
    lbPozdrav.Text = "Dobar dan! ";
}

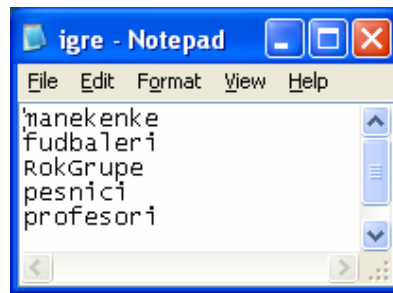
private void rBDovidjenja_CheckedChanged(object sender, System.EventArgs e)
{
    lbPozdrav.Text = "Doviđenja! ";
}

}
}

```

Primer 14 – tab kontrole i datoteka

```
using System;
using System.IO;
using System.Drawing;
using System.Collections;
using System.ComponentModel;
using System.Windows.Forms;
using System.Data;
```



namespace Uparivanje

```
{public class parovi : System.Windows.Forms.Form
{
    private System.Windows.Forms.TabControl tabControl1;
    private System.Windows.Forms.TabPage tabPage1;
    private System.Windows.Forms.TabPage tabPage2;
    private System.Windows.Forms.TextBox textBox1;
    private System.Windows.Forms.TextBox textBox2;
    private System.Windows.Forms.TextBox textBox3;
    private System.Windows.Forms.TextBox textBox4;
    private System.Windows.Forms.TextBox textBox5;
    private System.Windows.Forms.TextBox textBox6;
    private System.Windows.Forms.TextBox textBox7;
    private System.Windows.Forms.TextBox textBox8;
    private System.Windows.Forms.TextBox textBox9;
    private System.Windows.Forms.TextBox textBox10;
    private System.Windows.Forms.Timer timer1;
    private System.Windows.Forms.TextBox tBUnos;
    private System.Windows.Forms.Button btUpisi;
    private System.Windows.Forms.Button bt5;
    private System.Windows.Forms.Button bt3;
    private System.Windows.Forms.Button bt4;
    private System.Windows.Forms.Button bt2;
    private System.Windows.Forms.Button bt1;
    private System.Windows.Forms.ComboBox cBIzaberi;
    private System.Windows.Forms.ListBox lBspisak;
```

```
int bodovi,pojam,ukupno;
string s1,s2;
```

```
public parovi()
{
    InitializeComponent();
}
```

```
static void Main()
{
    Application.Run(new parovi());
}
```

```
private void btUpisi_Click(object sender, System.EventArgs e)
{
    if (
        textBox1.Text=="" || textBox2.Text=="" || textBox3.Text=="" ||
        textBox4.Text=="" || textBox5.Text=="" || textBox6.Text=="" ||
        textBox7.Text=="" || textBox8.Text=="" || textBox9.Text=="" ||
        textBox10.Text=="" || tBUnos.Text=="") //neki od textbox-ova je prazan
        MessageBox.Show("Morate popuniti sva polja !!!", "Greska");
    else
    {
        string l1=textBox1.Text,d1=textBox2.Text, l2=textBox3.Text,d2=textBox4.Text,
            l3=textBox5.Text,d3=textBox6.Text, l4=textBox7.Text,d4=textBox8.Text,
            l5=textBox9.Text,d5=textBox10.Text;
        string imefajla=tBUnos.Text+".txt"; //ime nove datoteke
        StreamWriter sw=new StreamWriter(imefajla,true);
```

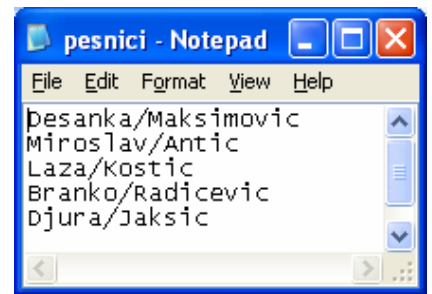
```

sw.WriteLine(l1+"/"+d1); //svaki red sadrzi l1/d1
sw.WriteLine(l2+"/"+d2);
sw.WriteLine(l3+"/"+d3);
sw.WriteLine(l4+"/"+d4);
sw.WriteLine(l5+"/"+d5);
sw.Close();
//unosi se ime dat kao red u combo-box-u
cBlzaberi.Items.Add(tBUnos.Text);
sw=new StreamWriter("igre.txt",true); //otvara se dat igre.txt
sw.WriteLine(tBUnos.Text); //u nju se unosi novi red, naziv ove dat
sw.Close();
textBox1.Text=textBox2.Text=textBox3.Text=textBox4.Text=
textBox5.Text=textBox6.Text=textBox7.Text=textBox8.Text=
textBox9.Text=textBox10.Text=tBUnos.Text=""; //prazne se text box-ovi
}
}

private void datoteka_Load(object sender, System.EventArgs e)
{
    StreamWriter sw=new StreamWriter("igre.txt",true); //klasa za upis je sw
    sw.Close();
    StreamReader sr=new StreamReader("igre.txt"); //klasa za citanje je sr
    string s=sr.ReadLine(); //s je red datoteke igre.txt
    while (s!=null) //do kraja dat igre.txt
    {
        cBlzaberi.Items.Add(s); //dodaj ime datoteke u combo
        s=sr.ReadLine(); //citaj novi red
    }
    sr.Close(); //plavi tekst na dugmadima
    bt1.ForeColor=bt2.ForeColor=bt3.ForeColor=bt4.ForeColor=bt5.ForeColor=Color.Blue;
}

private void cBlzaberi_SelectedIndexChanged(object sender, System.EventArgs e)
{
    Random r=new Random();
    int indeks;
    if (cBlzaberi.Text!="IZABERITE IGRU") //ako je izabrana datoteka
    {
        StreamReader sr=new StreamReader(cBlzaberi.Text+".txt"); //tok za citanje
        string s=sr.ReadLine();
        while (s!=null) //do kraja izabrane datoteke
        {
            IBspisak.Items.Add(s.Substring(0,s.IndexOf('/'))); //prvi deo linije
            indeks=r.Next(5); //indeks se bira iz skupa 0,1,2,3,4
            bool ind=true; //ima dugmadi za popunjavanje
            while (ind) //ima jos dugmadi za popunjavanje
            {
                ind=false; //nema dugmadi za popunjavanje
                switch (indeks) //indeks je pozicija dugmeta koje se popunjava
                {
                    //ako nije popunjeno, stavi na njega podstring - desni deo
                    //ako jeste, idi na novo dugme
                    case 0: if (bt1.Text=="") bt1.Text=s.Substring(s.IndexOf('/')+1);
                        else { indeks=r.Next(5); ind=true; } break;
                    case 1: if (bt2.Text=="") bt2.Text=s.Substring(s.IndexOf('/')+1);
                        else { indeks=r.Next(5); ind=true; } break;
                    case 2: if (bt3.Text=="") bt3.Text=s.Substring(s.IndexOf('/')+1);
                        else { indeks=r.Next(5); ind=true; } break;
                    case 3: if (bt4.Text=="") bt4.Text=s.Substring(s.IndexOf('/')+1);
                        else { indeks=r.Next(5); ind=true; } break;
                    case 4: if (bt5.Text=="") bt5.Text=s.Substring(s.IndexOf('/')+1);
                        else { indeks=r.Next(5); ind=true; } break;
                }
            }
            s=sr.ReadLine();
        }
    }
}

```



```

        IBspisak.SelectedIndex=0;
        sr.Close();
        cBlzaberi.Enabled=false;    //nema biranja, pocinje iga
        timer1.Enabled=true;        //tajmer odbrojavanja
        bodovi=20;    //krece se od 20 bodova, svaki novi pogodak donosi jos 20
        pojam=0;    //redni broj u listi - od 0 do 4
        ukupno=0;    //ukupan broj bodova
    }
}

private void KrajIgre()    //pisemo sami
{
    timer1.Enabled=false;    //tajmer vise ne kuca
    MessageBox.Show("Osvojili ste "+ukupno+" bodova ! ! !", "Kraj igre");
    cBlzaberi.Enabled=true;    //bira se nova igra
    cBlzaberi.Text="IZABERITE IGRU";
    IBspisak.Items.Clear();    //brise se lista i text-box-ovi
    bt1.Text=bt2.Text=bt3.Text=bt4.Text=bt5.Text="";
    bt1.ForeColor=bt2.ForeColor=bt3.ForeColor=bt4.ForeColor=bt5.ForeColor=Color.Blue;
}

private void timer1_Tick(object sender, System.EventArgs e)
{
    bodovi-=4;    //svaki tick su 4 kaznena boda
    if (bodovi<=0)    KrajIgre();    //isteklo je vreme za igru
}

private void RacunajZaDugme(Button dugme)    //isti postupak za svako dugme
{
    s1=IBspisak.Items[pojam]+"-"+dugme.Text;    //spajamo stringove s1=Pera/Lazic
    StreamReader sr=new StreamReader(cBlzaberi.Text+".txt");
    s2=sr.ReadLine();
    while (s2!=null&& s2!=s1) s2=sr.ReadLine();    //dok ne naidje na par ili do kraja
    if (s2==s1)    //ako si pogodio
    {
        ukupno+=bodovi;
        dugme.ForeColor=Color.Green;    //zelena slova
    }
    else dugme.ForeColor=Color.Red;    //crvena slova
    pojam++;
    if (pojam==5)    KrajIgre();
    else IBspisak.SelectedIndex=pojam;    //sledeci red
}

private void bt1_Click(object sender, System.EventArgs e)
{
    if (bt1.Text!="")    RacunajZaDugme(bt1);
}

private void bt2_Click(object sender, System.EventArgs e)
{
    if (bt1.Text!="")    RacunajZaDugme(bt2);
}

private void bt3_Click(object sender, System.EventArgs e)
{
    if (bt1.Text!="")    RacunajZaDugme(bt3);
}

private void bt4_Click(object sender, System.EventArgs e)
{
    if (bt1.Text!="")    RacunajZaDugme(bt4);
}

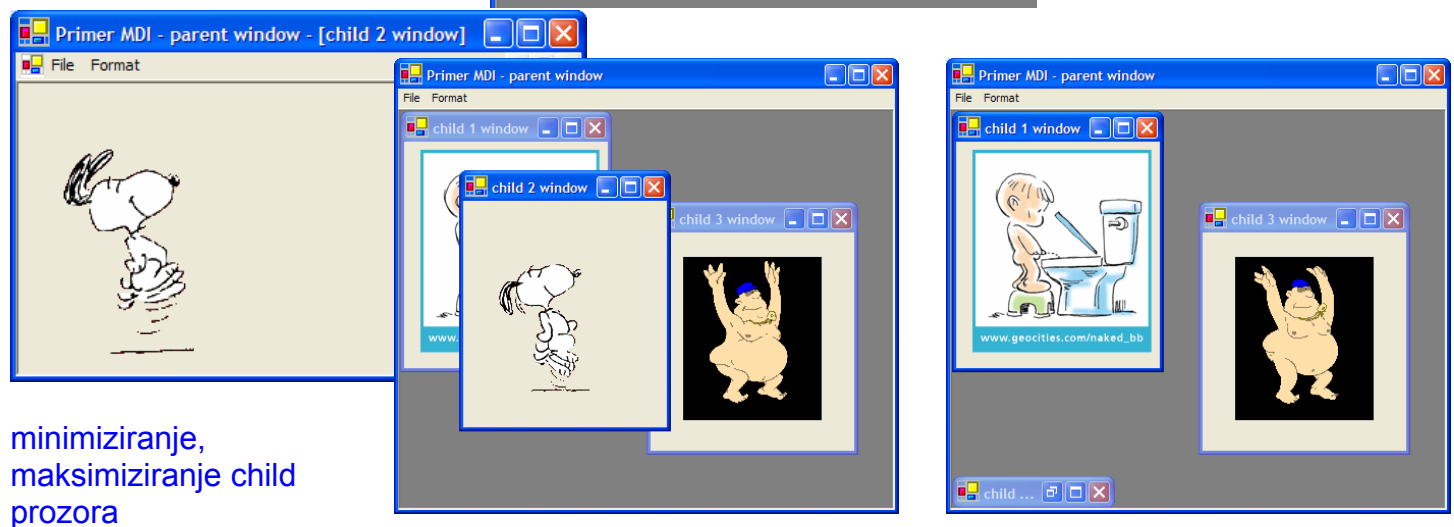
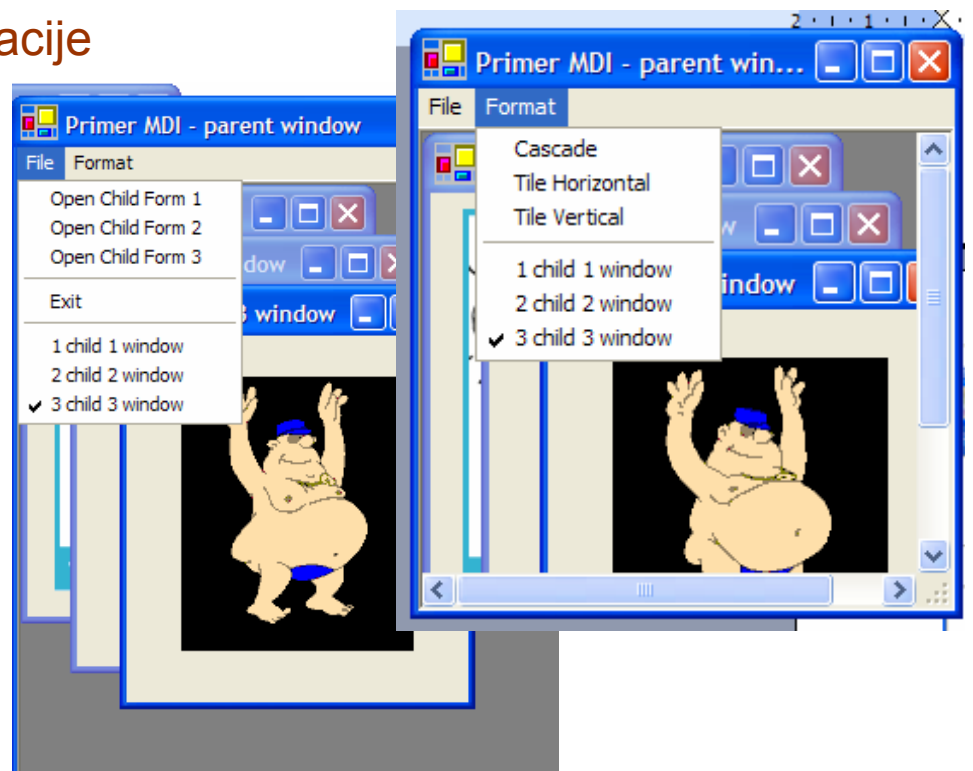
private void bt5_Click(object sender, System.EventArgs e)
{
    if (bt1.Text!="")    RacunajZaDugme(bt5);
}
}
}

```

Primer 16 – MDI aplikacije

```
using System;  
using System.Drawing;  
using System.Collections;  
using System.ComponentModel;  
using System.Windows.Forms;  
using System.Data;
```

izgled menija



minimiziranje,
maksimiziranje child
prozora

Kaskadno, horizontalno, vertikalno raspoređivanje



namespace primer16

```
{public class formaParent : System.Windows.Forms.Form
{
    private System.Windows.Forms.MainMenu mainMenu1;
    private System.Windows.Forms.MenuItem mltFile;
    private System.Windows.Forms.MenuItem mltOpen1;
    private System.Windows.Forms.MenuItem mltOpen2;
    private System.Windows.Forms.MenuItem mltOpen3;
    private System.Windows.Forms.MenuItem menuItem1;
    private System.Windows.Forms.MenuItem mltExit;
    private System.Windows.Forms.MenuItem mltFormat;
    private System.Windows.Forms.MenuItem mltCascade;
    private System.Windows.Forms.MenuItem mltTileHor;
    private System.Windows.Forms.MenuItem mltTileVer;

    private System.ComponentModel.Container components = null;

    public formaParent()
    {
        InitializeComponent();
    }

    static void Main()
    {
        Application.Run(new formaParent());
    }

    private void mltOpen1_Click_1(object sender, System.EventArgs e)
    {
        formaChild1 frm = new formaChild1();
        frm.MdiParent = this;
        frm.Show();
    }
    private void mltOpen2_Click(object sender, System.EventArgs e)
    {
        formaChild2 frm = new formaChild2();
        frm.MdiParent = this;
        frm.Show();
    }
    private void mltOpen3_Click(object sender, System.EventArgs e)
    {
        formaChild3 frm = new formaChild3();
        frm.MdiParent = this;
        frm.Show();
    }

    private void mltExit_Click(object sender, System.EventArgs e)
    {
        Application.Exit();
    }

    private void mltCascade_Click(object sender, System.EventArgs e)
    {
        this.LayoutMdi(MdiLayout.Cascade);
    }

    private void mltTileHor_Click(object sender, System.EventArgs e)
    {
        this.LayoutMdi(MdiLayout.TileHorizontal);
    }

    private void mltTileVer_Click(object sender, System.EventArgs e)
    {
        this.LayoutMdi(MdiLayout.TileVertical);
    }
}
```