**Лабораторное занятие 31**

Разработка проекта «Калькулятор»

Код программы:

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace calc

{

public partial class Form1 : Form

{

public double a, b, c;

public int znak, q = 10;

public Form1()

{

InitializeComponent();

radioButton3.Checked = true;

radioButton5.Checked = true;

}

private void button1\_Click(object sender, EventArgs e)

{

textBox1.Text = textBox1.Text + "1";

}

private void button2\_Click(object sender, EventArgs e)

{

textBox1.Text = textBox1.Text + "2";

}

private void button3\_Click(object sender, EventArgs e)

{

textBox1.Text = textBox1.Text + "3";

}

private void button4\_Click(object sender, EventArgs e)

{

textBox1.Text = textBox1.Text + "4";

}

private void button5\_Click(object sender, EventArgs e)

{

textBox1.Text = textBox1.Text + "5";

}

private void button6\_Click(object sender, EventArgs e)

{

textBox1.Text = textBox1.Text + "6";

}

private void button7\_Click(object sender, EventArgs e)

{

textBox1.Text = textBox1.Text + "7";

}

private void button8\_Click(object sender, EventArgs e)

{

textBox1.Text = textBox1.Text + "8";

}

private void button9\_Click(object sender, EventArgs e)

{

textBox1.Text = textBox1.Text + "9";

}

private void button10\_Click(object sender, EventArgs e)

{

textBox1.Text = textBox1.Text + "0";

}

private void button11\_Click(object sender, EventArgs e)

{

textBox1.Text = string.Format("{0}", -double.Parse(textBox1.Text));

}

private void button12\_Click(object sender, EventArgs e)

{

if (DS\_Count(textBox1.Text) == 0)

textBox1.Text = (textBox1.Text + ",");

}

private void button13\_Click(object sender, EventArgs e)

{

if (textBox1.Text != "") a = double.Parse(textBox1.Text);

else a = 0;

znak = 4;

textBox1.Clear();

}

private void button14\_Click(object sender, EventArgs e)

{

if (textBox1.Text != "") a = double.Parse(textBox1.Text);

else a = 0;

znak = 3;

textBox1.Clear();

}

private void button15\_Click(object sender, EventArgs e)

{

if (textBox1.Text != "") a = double.Parse(textBox1.Text);

else a = 0;

znak = 2;

textBox1.Clear();

}

private void button16\_Click(object sender, EventArgs e)

{

if (textBox1.Text != "") a = double.Parse(textBox1.Text);

else a = 0;

znak = 1;

textBox1.Clear();

}

private void button17\_Click(object sender, EventArgs e)

{

b = double.Parse(textBox1.Text);

switch (znak)

{

case 1:

c = a + b;

break;

case 2:

c = a - b;

break;

case 3:

c = a \* b;

break;

case 4:

if (b == 0)

{

MessageBox.Show("Невозможно разделить на 0.");

textBox1.Clear();

}

else c = a / b;

break;

case 5:

c = Math.Pow(a, b);

break;

}

textBox1.Text = string.Format("{0}", c);

}

private void button18\_Click(object sender, EventArgs e)

{

if (string.IsNullOrWhiteSpace(textBox1.Text))

MessageBox.Show("Введите число");

else

{

textBox1.Text = string.Format("{0}", Math.Pow(double.Parse(textBox1.Text), 2.0));

}

}

private void button19\_Click(object sender, EventArgs e)

{

if (string.IsNullOrWhiteSpace(textBox1.Text))

MessageBox.Show("Введите число");

else

{

textBox1.Text = string.Format("{0}", Math.Pow(double.Parse(textBox1.Text), 3.0));

}

}

private void button20\_Click(object sender, EventArgs e)

{

a = double.Parse(textBox1.Text);

b = Math.Sqrt(a);

if (a < 0)

{

MessageBox.Show("Невозможно взять корень из отрицательного числа.");

textBox1.Clear();

}

else

textBox1.Text = string.Format("{0}", b);

}

public int DS\_Count(string s)

{

string substr = System.Globalization.CultureInfo.CurrentCulture.NumberFormat.NumberDecimalSeparator[0].ToString();

int count = (s.Length - s.Replace(substr, "").Length) / substr.Length;

return count;

}

private void button17\_KeyPress(object sender, KeyPressEventArgs e)

{

}

private void textBox1\_KeyPress(object sender, KeyPressEventArgs e)

{

e.Handled = !(Char.IsDigit(e.KeyChar) || (e.KeyChar == System.Globalization.CultureInfo.CurrentCulture.NumberFormat.NumberDecimalSeparator[0]) && (DS\_Count(textBox1.Text) < 1));

}

private void radioButton1\_CheckedChanged(object sender, EventArgs e)

{

button2.Enabled = true;

button2.Enabled = false;

button3.Enabled = false;

button4.Enabled = false;

button5.Enabled = false;

button6.Enabled = false;

button7.Enabled = false;

button8.Enabled = false;

button9.Enabled = false;

button10.Enabled = true;

button13.Enabled = false;

button14.Enabled = false;

button15.Enabled = false;

button16.Enabled = false;

button22.Enabled = false;

button23.Enabled = false;

button24.Enabled = false;

button25.Enabled = false;

button26.Enabled = false;

radioButton6.Enabled = false;

if (!string.IsNullOrWhiteSpace(textBox1.Text))

{

if (q == 16)

{

a = Convert.ToInt32(textBox1.Text, 16);

textBox1.Text = String.Format("{0}", a);

textBox1.Text = Convert.ToString(Convert.ToUInt32(textBox1.Text), 2);

}

if (q == 10)

{

a = Convert.ToInt32(textBox1.Text, 10);

textBox1.Text = String.Format("{0}", a);

textBox1.Text = Convert.ToString(Convert.ToUInt32(textBox1.Text), 2);

}

if (q == 8)

{

a = Convert.ToInt32(textBox1.Text, 8);

textBox1.Text = String.Format("{0}", a);

textBox1.Text = Convert.ToString(Convert.ToUInt32(textBox1.Text), 2);

}

if (q == 2)

textBox1.Text = textBox1.Text;

}

q = 2;

}

private void radioButton2\_CheckedChanged(object sender, EventArgs e)

{

button2.Enabled = true;

button2.Enabled = true;

button3.Enabled = true;

button4.Enabled = true;

button5.Enabled = true;

button6.Enabled = true;

button7.Enabled = true;

button8.Enabled = false;

button9.Enabled = false;

button10.Enabled = true;

button13.Enabled = false;

button14.Enabled = false;

button15.Enabled = false;

button16.Enabled = false;

button22.Enabled = false;

button23.Enabled = false;

button24.Enabled = false;

button25.Enabled = false;

button26.Enabled = false;

radioButton6.Enabled = false;

if (!string.IsNullOrWhiteSpace(textBox1.Text))

{

if (q == 16)

{

a = Convert.ToInt32(textBox1.Text, 16);

textBox1.Text = String.Format("{0}", a);

textBox1.Text = Convert.ToString(Convert.ToUInt32(textBox1.Text), 8);

}

if (q == 10)

{

a = Convert.ToInt32(textBox1.Text, 10);

textBox1.Text = String.Format("{0}", a);

textBox1.Text = Convert.ToString(Convert.ToUInt32(textBox1.Text), 8);

}

if (q == 8)

{

textBox1.Text = textBox1.Text;

}

if (q == 2)

{

a = Convert.ToInt32(textBox1.Text, 2);

textBox1.Text = String.Format("{0}", a);

textBox1.Text = Convert.ToString(Convert.ToUInt32(textBox1.Text), 8);

}

}

q = 8;

}

private void radioButton3\_CheckedChanged(object sender, EventArgs e)

{

button2.Enabled = true;

button2.Enabled = true;

button3.Enabled = true;

button4.Enabled = true;

button5.Enabled = true;

button6.Enabled = true;

button7.Enabled = true;

button8.Enabled = true;

button9.Enabled = true;

button10.Enabled = true;

button13.Enabled = true;

button14.Enabled = true;

button15.Enabled = true;

button16.Enabled = true;

button22.Enabled = true;

button23.Enabled = true;

button24.Enabled = true;

button25.Enabled = true;

button26.Enabled = true;

radioButton1.Enabled = true;

radioButton2.Enabled = true;

radioButton4.Enabled = true;

radioButton6.Enabled = true;

if (!string.IsNullOrWhiteSpace(textBox1.Text))

{

if (q == 16)

{

a = Convert.ToInt32(textBox1.Text, 16);

textBox1.Text = String.Format("{0}", a);

textBox1.Text = Convert.ToString(Convert.ToUInt32(textBox1.Text), 10);

}

if (q == 10)

textBox1.Text = textBox1.Text;

if (q == 8)

{

a = Convert.ToInt32(textBox1.Text, 8);

textBox1.Text = String.Format("{0}", a);

textBox1.Text = Convert.ToString(Convert.ToUInt32(textBox1.Text), 10);

}

if (q == 2)

{

a = Convert.ToInt32(textBox1.Text, 2);

textBox1.Text = String.Format("{0}", a);

textBox1.Text = Convert.ToString(Convert.ToUInt32(textBox1.Text), 10);

}

}

q = 10;

}

private void button27\_Click(object sender, EventArgs e)

{

if (textBox1.Text != "") a = double.Parse(textBox1.Text);

else a = 0;

znak = 5;

textBox1.Clear();

}

private void button22\_Click(object sender, EventArgs e)

{

if (string.IsNullOrWhiteSpace(textBox1.Text))

a = 0;

else

a = double.Parse(textBox1.Text);

textBox1.Text = String.Format("{0}", Math.Sin(a));

}

private void button23\_Click(object sender, EventArgs e)

{

if (string.IsNullOrWhiteSpace(textBox1.Text))

a = 0;

else

a = double.Parse(textBox1.Text);

textBox1.Text = String.Format("{0}", Math.Cos(a));

}

private void button24\_Click(object sender, EventArgs e)

{

if (string.IsNullOrWhiteSpace(textBox1.Text))

a = 0;

else

a = double.Parse(textBox1.Text);

textBox1.Text = String.Format("{0}", Math.Tan(a));

}

private void radioButton5\_CheckedChanged(object sender, EventArgs e)

{

radioButton1.Enabled = true;

radioButton2.Enabled = true;

radioButton4.Enabled = true;

if (!string.IsNullOrWhiteSpace(textBox1.Text))

{

a = Convert.ToInt32(textBox1.Text);

c = a \* 3.1415 / 180;

textBox1.Text = String.Format("{0}", c);

}

}

private void radioButton6\_CheckedChanged(object sender, EventArgs e)

{

radioButton1.Enabled = false;

radioButton2.Enabled = false;

radioButton4.Enabled = false;

if (!string.IsNullOrWhiteSpace(textBox1.Text))

{

a = Convert.ToInt32(textBox1.Text);

c = a \* 3.1415 / 180;

textBox1.Text = String.Format("{0}", c);

}

}

private void button25\_Click(object sender, EventArgs e)

{

if (string.IsNullOrWhiteSpace(textBox1.Text))

a = 0;

else

a = double.Parse(textBox1.Text);

if (a > 0)

textBox1.Text = String.Format("{0}", Math.Log(a));

else

{

MessageBox.Show("Невозможно взять логорифм из 0 или отрицательного числа.");

textBox1.Clear();

}

}

private void radioButton4\_CheckedChanged(object sender, EventArgs e)

{

button2.Enabled = true;

button2.Enabled = true;

button3.Enabled = true;

button4.Enabled = true;

button5.Enabled = true;

button6.Enabled = true;

button7.Enabled = true;

button8.Enabled = true;

button9.Enabled = true;

button10.Enabled = true;

button13.Enabled = true;

button14.Enabled = true;

button15.Enabled = true;

button16.Enabled = true;

button22.Enabled = true;

button23.Enabled = true;

button24.Enabled = true;

button25.Enabled = true;

button26.Enabled = true;

radioButton6.Enabled = false;

if (!string.IsNullOrWhiteSpace(textBox1.Text))

{

if (q == 16)

{

a = Convert.ToInt32(textBox1.Text, 16);

textBox1.Text = String.Format("{0}", a);

textBox1.Text = Convert.ToString(Convert.ToUInt32(textBox1.Text), 16);

}

if (q == 10)

{

a = Convert.ToInt32(textBox1.Text, 10);

textBox1.Text = String.Format("{0}", a);

textBox1.Text = Convert.ToString(Convert.ToUInt32(textBox1.Text), 16);

}

if (q == 8)

{

a = Convert.ToInt32(textBox1.Text, 8);

textBox1.Text = String.Format("{0}", a);

textBox1.Text = Convert.ToString(Convert.ToUInt32(textBox1.Text), 16);

}

if (q == 2)

{

a = Convert.ToInt32(textBox1.Text, 2);

textBox1.Text = String.Format("{0}", a);

textBox1.Text = Convert.ToString(Convert.ToUInt32(textBox1.Text), 16);

}

}

q = 16;

}

private void button26\_Click(object sender, EventArgs e)

{

if (string.IsNullOrWhiteSpace(textBox1.Text))

a = 0;

else

a = double.Parse(textBox1.Text);

if (a > 0)

textBox1.Text = String.Format("{0}", Math.Log10(a));

else

{

MessageBox.Show("Невозможно взять логорифм из 0 или отрицательного числа.");

textBox1.Clear();

}

}

private void textBox1\_TextChanged(object sender, EventArgs e)

{

}

private void button21\_Click(object sender, EventArgs e)

{

textBox1.Clear();

}

}

}

Скрины результатов работы:

