Вариант 8

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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;

using System.Drawing.Drawing2D;

namespace Program11

{

public partial class Form1 : Form

{

Graphics Graph1;

Bitmap image1 = new Bitmap(500, 800);

Pen Pen1 = new Pen(Color.Black, 1);

Pen Pen2 = new Pen(Color.Brown, 2);

Pen Pen3 = new Pen(Color.Cyan, 4);

Pen Pen4 = new Pen(Color.Purple, 4);

Font drawFont = new Font("Arial", 12);

SolidBrush Brush1 = new SolidBrush(Color.Blue);

SolidBrush Brush2 = new SolidBrush(Color.LightGoldenrodYellow);

HatchBrush hatchbrush1 = new HatchBrush(HatchStyle.SolidDiamond, Color.Green);

int i = 0;

Point point1 = new Point(0, -200);

Point point2 = new Point(0, 200);

Point point3 = new Point(-200, 200);

Point point4 = new Point(0, 0);

Point point5 = new Point(-200, 0);

public Form1()

{

InitializeComponent();

}

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

{

Graph1 = Graphics.FromImage(image1);

pictureBox1.Image = image1;

Graph1.Clear(Color.White);

for (i = -250; i <= 250; i += 50)

{

Graph1.DrawString(Convert.ToString(i), drawFont, Brush1, i + 250, 410);

}

for (i = -400; i <= 400; i += 50)

{

Graph1.DrawString(Convert.ToString(i), drawFont, Brush1, 260, 400 - i);

}

Graph1.ScaleTransform(1, -1);

Graph1.TranslateTransform(250, -400);

Graph1.DrawLine(Pen1, -250, 0, 250, 0);

Graph1.DrawLine(Pen1, 0, -400, 0, 400);

for (int i = -250; i <= 250; i += 50)

{

Graph1.DrawEllipse(Pen3, i, 0, 1, 1);

}

for (int i = -400; i <= 400; i += 50)

{

Graph1.DrawEllipse(Pen3, 0, i, 1, 1);

}

}

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

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{

openFileDialog1.ShowDialog();

pictureBox1.Image = Image.FromFile(openFileDialog1.FileName);

}

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

{

saveFileDialog1.Filter = "BMP(\*.bmp)|\*.bmp";

saveFileDialog1.ShowDialog();

image1.Save(saveFileDialog1.FileName, System.Drawing.Imaging.ImageFormat.Bmp);

}

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

{

Close();

}

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

{

Graph1 = Graphics.FromImage(image1);

pictureBox1.Image = image1;

Graph1.ScaleTransform(1, -1);

Graph1.TranslateTransform(250, -400);

Graph1.DrawLine(Pen1, 0, i, 250, i);

Graph1.DrawArc(Pen3, 80, 80, 100, 100, 90, 45);

Graph1.DrawEllipse(Pen3, 130, 130, 1, 1);

Graph1.DrawPie(Pen4, 30, 40, 100, 100, 175, 110);

}

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

{

Graph1 = Graphics.FromImage(image1);

pictureBox1.Image = image1;

Graph1.ScaleTransform(1, -1);

Graph1.TranslateTransform(250, -400);

GraphicsPath GP = new GraphicsPath();

GP.StartFigure();

GP.AddLine(-200, 0, -100, -100);

GP.AddLine(-100, -100, -100, 0);

GP.AddLine(-100, -100, 0, 0);

GP.AddLine(0, 0, 100, 0);

GP.CloseFigure();

GP.StartFigure();

GP.AddArc(0, 0, 200, 200, -90, -90);

GP.AddLine(0, 0, 0, 100);

GP.AddArc(-200, 0, 200, 200, 0, -90);

GP.CloseFigure();

Graph1.DrawPath(Pen2, GP);

}

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

{

colorDialog1.ShowDialog();

Pen3.Color = colorDialog1.Color;

Graph1 = Graphics.FromImage(image1);

pictureBox1.Image = image1;

Graph1.ScaleTransform(1, -1);

Graph1.TranslateTransform(250, -400);

Graph1.DrawLine(Pen3, -200, 0, -100, -100);

Graph1.DrawLine(Pen3, -100, -100, -100, 0);

Graph1.DrawLine(Pen3, -100, -100, 0, 0);

Graph1.DrawLine(Pen3, 0, 0, 100, 0);

Graph1.DrawArc(Pen3, 0, 0, 200, 200, -90, -90);

Graph1.DrawLine(Pen3, 0, 0, 0, 100);

Graph1.DrawArc(Pen3, -200, 0, 200, 200, 0, -90);

Graph1.DrawLine(Pen3, 0, 0, -200, 0);

}

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

{

colorDialog1.ShowDialog();

Pen1.Color = colorDialog1.Color;

Graph1 = Graphics.FromImage(image1);

pictureBox1.Image = image1;

Graph1.ScaleTransform(1, -1);

Graph1.TranslateTransform(250, -400);

Graph1.DrawRectangle(Pen1, -200, -100, 300, 200);

}

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

{

try

{

double s, x, y;

Int32 n, k;

n = Convert.ToInt32(textBoxN.Text);

Pen1.Color = colorDialog1.Color;

Graph1 = Graphics.FromImage(image1);

pictureBox1.Image = image1;

s = 0; k = 0;

Graph1.ScaleTransform(1, -1);

Graph1.TranslateTransform(250, -400);

Random rnd = new Random();

for (i = 1; i <= n; i += 1)

{

x = -200 + rnd.Next(0, 300);

y = -100 + rnd.Next(0, 200);

if ((Math.Pow(x - 100, 2) + Math.Pow(y - 100, 2) >= 10000) && (Math.Pow(x + 100, 2) + Math.Pow(y - 100, 2) >= 10000) && (y >= 0) && (x >= -100) || (y <= 0) && (y >= -x - 200) && (y >= x))

{

k = k + 1;

Graph1.DrawRectangle(Pen1, (Int32)x, (Int32)y, 1, 1);

}

}

s = 300 \* 200 \* (double)k / n;

labelS.Visible = true;

textBoxS.Visible = true;

textBoxS.Text = Convert.ToString(s);

}

catch

{

MessageBox.Show("Вы не ввели количество точек");

}

}

}

}Выполнение программы:

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| Система координат | Дуги и секторы | Путь как контур |
|  |  |  |
| Путь не контур | Прямоугольник | Площадь |
|  |  |  |

Вывод: программа работает исправно.