Министерство образования Республики Беларусь

Министерство образования и науки Российской Федерации

МУВПО “Белорусско-Российский университет”

Кафедра “ПОИТ”

Отчет по

Лабораторной работе №3

# Формирование цветов с помощью дизеринга

Выполнил: ст. гр. АСОИ-181

Самусев Д.А.

Преподаватель

Шилов А.В.

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Цель работы: изучение технологии формирования цветов с помощью дизеринга.

Практическое задание:

Разработать программу для закраски объекта №1.

using System;

using System.Drawing;

using System.Windows.Forms;

namespace Lab2

{

public partial class Form1 : Form

{

Bitmap g = new Bitmap(500, 500);

public Form1()

{

InitializeComponent();

}

private void Form1\_Load(object sender, EventArgs e)

{

}

private void pictureBox1\_Click(object sender, EventArgs e)

{

}

private static void PutPixel(Bitmap bmp, Color col, int x, int y, int alpha)

{

bmp.SetPixel(x, y, col);

}

public static void Bres(Bitmap g, Color clr, int x0, int y0, int x1, int y1)

{

int dx = (x1 > x0) ? (x1 - x0) : (x0 - x1);

int dy = (y1 > y0) ? (y1 - y0) : (y0 - y1);

int sx = (x1 >= x0) ? (1) : (-1);

int sy = (y1 >= y0) ? (1) : (-1);

if (dy < dx)

{

int inaccuracy = (dy << 1) - dx;

int d1 = dy << 1;

int d2 = (dy - dx) << 1;

PutPixel(g, clr, x0, y0, 255);

int x = x0 + sx;

int y = y0;

for (int i = 1; i <= dx; i++)

{

if (inaccuracy > 0)

{

inaccuracy += d2;

y += sy;

}

else

inaccuracy += d1;

PutPixel(g, clr, x, y, 255);

x += sx;

}

}

else

{

int inaccuracy = (dx << 1) - dy;

int d1 = dx << 1;

int d2 = (dx - dy) << 1;

PutPixel(g, clr, x0, y0, 255);

int x = x0;

int y = y0 + sy;

for (int i = 1; i <= dy; i++)

{

if (inaccuracy > 0)

{

inaccuracy += d2;

x += sx;

}

else

inaccuracy += d1;

PutPixel(g, clr, x, y, 255);

y += sy;

}

}

}

private void DrawFigure(Bitmap bmp)

{

Graphics graph = Graphics.FromImage(bmp);

Pen pen = new Pen(Color.Black);

Bres(g, Color.Black, 20, 100, 70, 50);

Bres(g, Color.Black, 70, 50, 120, 100);

int x1 = 20; int y1 = 100; int x2 = 50; int y2 = 100;

graph.DrawLine(pen, x1, y1, x2, y2);

x1 = 120; y1 = 100; x2 = 90; y2 = 100;

graph.DrawLine(pen, x1, y1, x2, y2);

x1 = 50; y1 = 100; x2 = 50; y2 = 150;

graph.DrawLine(pen, x1, y1, x2, y2);

x1 = 90; y1 = 100; x2 = 90; y2 = 150;

graph.DrawLine(pen, x1, y1, x2, y2);

pictureBox1.Image = g;

}

public void DIZERING()

{

for (int stroka = 50; stroka <= 60; stroka += 5)

{

for (int stolbez = 1; stolbez <= 254; stolbez += 5)

{

if (stolbez >= array[stroka, 0] && array[stroka, 1] >= stolbez)

{

plott\_color(stolbez, stroka, Color.Black);

}

}

}

for (int stroka = 61; stroka <= 80; stroka += 5)

{

for (int stolbez = 1; stolbez <= 254; stolbez += 5)

{

if (stolbez >= array[stroka, 0] && array[stroka, 1] >= stolbez)

{

plott\_color(stolbez, stroka, Color.Black);

plott\_color(stolbez + 1, stroka + 1, Color.Black);

}

}

}

for (int stroka = 81; stroka <= 100; stroka += 5)

{

for (int stolbez = 1; stolbez <= 254; stolbez += 5)

{

if (stolbez >= array[stroka, 0] && array[stroka, 1] >= stolbez)

{

plott\_color(stolbez, stroka+1, Color.Black);

plott\_color(stolbez +1, stroka +1, Color.Black);

}

}

}

for (int stroka = 101; stroka <= 120; stroka += 5)

{

for (int stolbez = 1; stolbez <= 254; stolbez += 5)

{

if (stolbez >= array[stroka, 0] && array[stroka, 1] >= stolbez)

{

plott\_color(stolbez+1, stroka + 1, Color.Black);

plott\_color(stolbez + 1, stroka + 1, Color.Black); ;

}

}

}

for (int stroka = 121; stroka <= 140; stroka += 5)

{

for (int stolbez = 1; stolbez <= 254; stolbez += 5)

{

if (stolbez >= array[stroka, 0] && array[stroka, 1] >= stolbez)

{

plott\_color(stolbez, stroka, Color.Black);

plott\_color(stolbez+1 , stroka + 1, Color.Black);

plott\_color(stolbez + 1, stroka+1, Color.Black);

plott\_color(stolbez + 1, stroka +1, Color.Black);

}

}

}

for (int stroka = 141; stroka <= 180; stroka++)

{

for (int stolbez = 1; stolbez <= 254; stolbez++)

{

if (stolbez >= array[stroka, 0] && array[stroka, 1] >= stolbez)

{

plott\_color(stolbez, stroka, Color.Black);

}

}

}

}

public int[,] array = new int[181, 2];

private void FillFigure()

{

int x1 = 0, x2 = 0;

for (int i = 50; i <= 150; i++)

{

for (int j = 20; j <= 120; j++)

{

if (areCVE(g.GetPixel(j, i), g.GetPixel(20, 100)) && x1 == 0)

{

x1 = j + 1;

array[i, 0] = j;

}

if (areCVE(g.GetPixel(j, i), g.GetPixel(20, 100)) && x1 != 0)

{

x2 = j - 1;

array[i, 1] = j;

}

}

x1 = 0; x2 = 0;

}

}

private bool areCVE(Color clr1, Color clr2)

{

return (clr1.ToArgb() == clr2.ToArgb());

}

void plott\_color(int XX, int YY, Color color)

{

if (XX >= 1 & YY >= 1 & XX <= 256 & YY <= 256)

{

g.SetPixel(XX, YY, color);

}

}

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

{

DrawFigure(g);

FillFigure();

DIZERING();

pictureBox1.Image = g;

}

}

}

