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//www.algorytm.org
//Algorytm kreslenia elipsy
//-----
//-----
#include <vcl.h>
#pragma hdrstop
#include "Unit1.h"
#pragma package(smart_init)
#pragma resource "*.dfm"
TForm1 *Form1;
//-----
//-----
__fastcall TForm1::TForm1(TComponent* Owner)
    : TForm(Owner)
{
}
//-----
//-----
void EllipsePoints(int x, int y, int x_move, int y_move)
{
    Form1->Image->Canvas->Pixels[x+x_move][y+y_move] = clBlack;
    Form1->Image->Canvas->Pixels[x+x_move][-y+y_move] =
        clBlack;
    Form1->Image->Canvas->Pixels[-x+x_move][-y+y_move] =
        clBlack;
    Form1->Image->Canvas->Pixels[-x+x_move][y+y_move] =
        clBlack;
}

void __fastcall TForm1::Button1Click(TObject *Sender)
{
    int x, y, limit, d, delta_A, delta_B;
    int x_move, y_move, radius_a, radius_b, radius_a2, radius_b2;

    x_move = StrToInt(Edit1->Text);
    y_move = StrToInt(Edit2->Text);
    radius_a = StrToInt(Edit3->Text);
    radius_b = StrToInt(Edit4->Text);
    radius_a2 = radius_a*radius_a;
    radius_b2 = radius_b*radius_b;
    d = 4*radius_b2 - 4*radius_b*radius_a2 + radius_a2;
    limit = (radius_a2*radius_a2)/(radius_a2+radius_b2);
    x = 0;
    y = radius_b;

    while (x*x < limit) {
        EllipsePoints(x,y, x_move,y_move);
    }
}

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    if (d > 0) {
        d += 8*radius_b2*x + 12*radius_b2 - 8*radius_a2*y +
            8*radius_a2;
        x += 1;
        y -= 1;
    }
    else {
        d += 8*radius_b2*x + 12*radius_b2;
        x += 1;
    }
}

radius_a = StrToInt(Edit4->Text);
radius_b = StrToInt(Edit3->Text);
radius_a2 = radius_a*radius_a;
radius_b2 = radius_b*radius_b;
d = 4*radius_b2 - 4*radius_b*radius_a2 + radius_a2;
limit = (radius_a2*radius_a2)/(radius_a2+radius_b2);
x = 0;
y = radius_b;

while (x*x < limit) {
    EllipsePoints(y,x, x_move,y_move);
    if (d > 0) {
        d += 8*radius_b2*x + 12*radius_b2 - 8*radius_a2*y +
            8*radius_a2;
        x += 1;
        y -= 1;
    }
    else {
        d += 8*radius_b2*x + 12*radius_b2;
        x += 1;
    }
}
}
//-----
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```