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/** Program to Draw an Ellipse using Mid - Point Algorithm */  
  
#include <stdio.h>  
#include <dos.h>  
#include <graphics.h>  
  
void ellipseMidpoint(float, float, float, float);  
void drawEllipse(float, float, float, float);  
  
void main()  
{  
    float xc, yc, rx, ry;  
  
    int gd = DETECT, gm;  
    initgraph(&gd, &gm, "");  
  
    printf("\nEnter the center coordinates of ellipse: ");  
    scanf("%f %f", &xc, &yc);  
    printf("\nEnter x-radius coordinate: ");  
    scanf("%f", &rx);  
    printf("\nEnter y-radius coordiante: ");  
    scanf("%f", &ry);  
  
    ellipseMidpoint(xc, yc, rx, ry);  
  
    getch();  
}  
  
void ellipseMidpoint(float xc, float yc, float rx, float ry)  
{  
    float rxSq = rx * rx;  
    float rySq = ry * ry;  
    float x = 0, y = ry, p;  
    float px = 0, py = 2 * rxSq * y;
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drawEllipse(xc, yc, x, y);

//Region 1
p = rySq - (rxSq * ry) + (0.25 * rxSq);

while (px < py)
{
    x++;
    px = px + 2 * rySq;

    if (p < 0)
        p = p + rySq + px;
    else
    {
        y--;
        py = py - 2 * rxSq;
        p = p + rySq + px - py;
    }

    drawEllipse(xc, yc, x, y);
    delay(30);
}

//Region 2
p = rySq*(x+0.5)*(x+0.5) + rxSq*(y-1)*(y-1) - rxSq*rySq;

while (y > 0)
{
    y--;
    py = py - 2 * rxSq;

    if (p > 0)
        p = p + rxSq - py;
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        else
        {
            x++;
            px = px + 2 * rySq;
            p = p + rxSq - py + px;
        }

        drawEllipse(xc, yc, x, y);
        delay(30);
    }
}

void drawEllipse(float xc, float yc, float x, float y)
{
    putpixel(xc+x, yc+y, RED);
    putpixel(xc-x, yc+y, RED);
    putpixel(xc+x, yc-y, RED);
    putpixel(xc-x, yc-y, RED);
}
```