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Tugas Grafika Komputer : Algoritma Pembentukan Lingkaran Bresenham & Midpoint di JavaScript

CODE :

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Algoritma Lingkaran Bresenham & Midpoint</title>
    <script>
        function drawPixel(ctx, x, y, color) {
            ctx.fillStyle = color;
            ctx.fillRect(x, y, 2, 2);
        }

        function drawCircleBresenham(ctx, xc, yc, r, color) {
            let x = 0, y = r;
            let d = 3 - 2 * r;
            while (x <= y) {
                plotCirclePoints(ctx, xc, yc, x, y, color);
                x++;
                if (d > 0) {
                    y--;
                    d += 4 * (x - y) + 10;
                } else {
                    d += 4 * x + 6;
                }
            }
        }
```
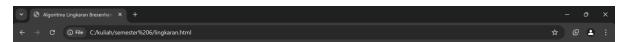
```javascript
function drawCircleMidpoint(ctx, xc, yc, r, color) {

    let x = r, y = 0;

    let p = 1 - r;

    while (x >= y) {

        plotCirclePoints(ctx, xc, yc, x, y, color);

        y++;

        if (p <= 0) {

            p += 2 * y + 1;

        } else {

            x--;

            p += 2 * (y - x) + 1;

        }

    }

}


function plotCirclePoints(ctx, xc, yc, x, y, color) {

    drawPixel(ctx, xc + x, yc + y, color);

    drawPixel(ctx, xc - x, yc + y, color);

    drawPixel(ctx, xc + x, yc - y, color);

    drawPixel(ctx, xc - x, yc - y, color);

    drawPixel(ctx, xc + y, yc + x, color);

    drawPixel(ctx, xc - y, yc + x, color);

    drawPixel(ctx, xc + y, yc - x, color);

    drawPixel(ctx, xc - y, yc - x, color);

}


function drawText(ctx, text, x, y) {

    ctx.fillStyle = "black";

    ctx.font = "bold 16px Arial";

    ctx.textAlign = "center";

    ctx.fillText(text, x, y);

}


function draw() {
```

```
        let canvas = document.getElementById("canvas");

        let ctx = canvas.getContext("2d");

        ctx.clearRect(0, 0, canvas.width, canvas.height);


        drawCircleBresenham(ctx, 200, 200, 100, "red");

        drawCircleMidpoint(ctx, 500, 200, 100, "blue");


        drawText(ctx, "Lingkaran Bresenham", 200, 210);

        drawText(ctx, "Lingkaran Midpoint", 500, 210);

        }

    </script>

</head>

<body onload="draw()">

    <h1>Algoritma Lingkaran Bresenham & Midpoint</h1>

    <canvas id="canvas" width="800" height="400" style="border:1px solid
black;"></canvas>

</body>

</html>
```

OUTPUT :