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Tugas Grafika Komputer Algoritma Pembentukan Lingkaran

1). Algoritma Bresenham

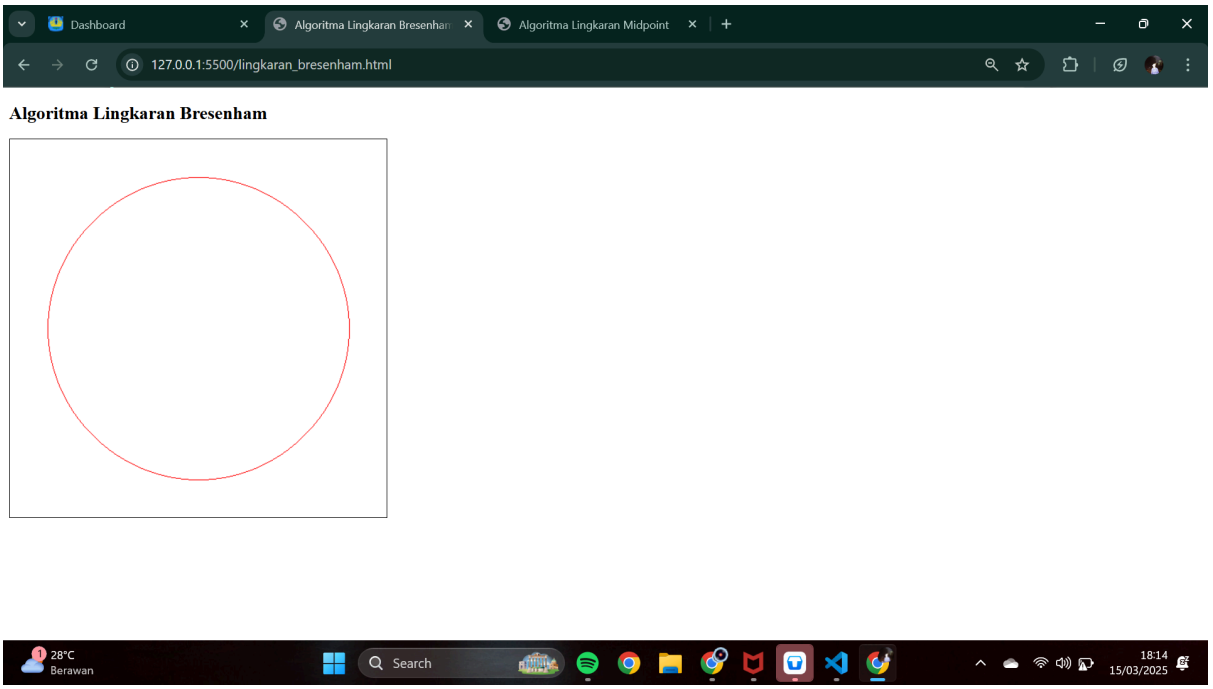
Berikut kode pembentukan lingkaran dengan metode algoritma brensenham :

lingkaran_bresenham.html × lingkaran_midpoint.html

lingkaran_bresenham.html > html > body > script > bresenhamCircle

```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</title>
</head>
<body>
    <h2>Algoritma Lingkaran Bresenham</h2>
    <canvas id="canvasBresenham" width="500" height="500" style="border:1px solid black;"></canvas>

    <script>
        const canvasB = document.getElementById("canvasBresenham");
        const ctxB = canvasB.getContext("2d");

        function putPixel(x, y, color) {
            ctxB.fillStyle = color;
            ctxB.fillRect(x, y, 1, 1);
        }

        function drawCircle(x0, y0, x, y, color) {
            putPixel(x0 + x, y0 + y, color);
            putPixel(x0 - x, y0 + y, color);
            putPixel(x0 + x, y0 - y, color);
            putPixel(x0 - x, y0 - y, color);
            putPixel(x0 + y, y0 + x, color);
            putPixel(x0 - y, y0 + x, color);
            putPixel(x0 + y, y0 - x, color);
            putPixel(x0 - y, y0 - x, color);
            putPixel(x0 - y, y0 - x, color);
        }
        function bresenhamCircle(x0, y0, r, color) {
            let x = 0;
            let y = r;
            let d = 3 - 2 * r;

            drawCircle(x0, y0, x, y, color);

            while (x < y) {
                x++;
                if (d < 0) {
                    d += 4 * x + 6;
                } else {
                    y--;
                    d += 4 * (x - y) + 10;
                }
                drawCircle(x0, y0, x, y, color);
            }
        }

        bresenhamCircle(250, 250, 200, "red");
    </script>
</body>
</html>
```

Hasil output lingkaran :



2). Algoritma Midpoint

Berikut kode pembentukan lingkaran dengan metode algoritma midpoint :

lingkaran_bresenham.html | lingkaran_midpoint.html

lingkaran_midpoint.html > html > body > script > putPixel

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Algoritma Lingkaran Midpoint</title>
</head>
<body>
    <h2>Algoritma Lingkaran Midpoint</h2>
    <canvas id="canvasMidpoint" width="500" height="500" style="border:1px solid black;"></canvas>

    <script>
        const canvasM = document.getElementById("canvasMidpoint");
        const ctxM = canvasM.getContext("2d");

        function putPixel(x, y, color) {
            ctxM.fillStyle = color;
            ctxM.fillRect(x, y, 1, 1);
        }

        function drawCircle(x0, y0, x, y, color) {
            putPixel(x0 + x, y0 + y, color);
            putPixel(x0 - x, y0 + y, color);
            putPixel(x0 + x, y0 - y, color);
            putPixel(x0 - x, y0 - y, color);
            putPixel(x0 + y, y0 + x, color);
            putPixel(x0 - y, y0 + x, color);
            putPixel(x0 + y, y0 - x, color);
            putPixel(x0 - y, y0 - x, color);
```

```
            putPixel(x0 - y, y0 - x, color);
        }
        function midpointCircle(x0, y0, r, color) {
            let x = 0;
            let y = r;
            let p = 1 - r;

            drawCircle(x0, y0, x, y, color);

            while (x < y) {
                x++;
                if (p < 0) {
                    p += 2 * x + 1;
                } else {
                    y--;
                    p += 2 * (x - y) + 1;
                }
                drawCircle(x0, y0, x, y, color);
            }
        }

        midpointCircle(250, 250, 200, "blue");
    </script>
</body>
</html>
```

Hasil output lingkaran :