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Kelas : D
Tugas : Algoritma Pembentukan Lingkaran

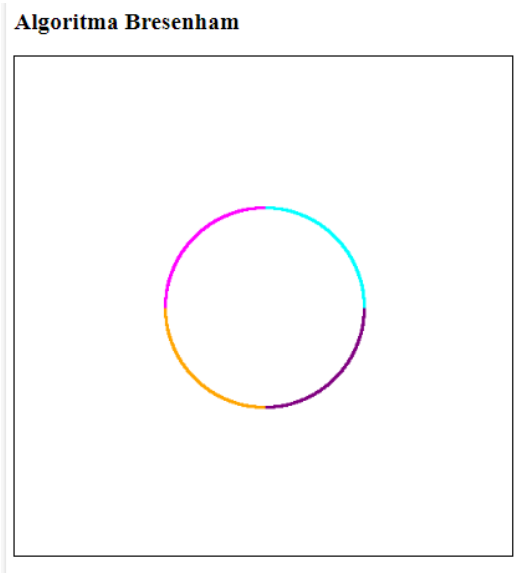
1. **Algoritma Bresenham**
   - Source Code

bresenham3.html | midpoint.html

bresenham3.html > html > body > script > plotCirclePoints

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Bresenham Circle Algorithm</title>
</head>
<body>
    <h2>Algoritma Bresenham</h2>
    <canvas id="bresenhamCanvas" width="500" height="500" style="border: 1px solid black;"></canvas>
    <script>
        const canvas = document.getElementById("bresenhamCanvas");
        const ctx = canvas.getContext("2d");

        function drawPixel(x, y, color = "black") {
            ctx.fillStyle = color;
            ctx.fillRect(x, y, 3, 3); // Menggunakan ukuran pixel yang lebih besar
        }

        function plotCirclePoints(xc, yc, x, y) {
            let colors = ["purple", "orange", "cyan", "magenta"];
            drawPixel(xc + x, yc + y, colors[0]);
            drawPixel(xc - x, yc + y, colors[1]);
            drawPixel(xc + x, yc - y, colors[2]);
            drawPixel(xc - x, yc - y, colors[3]);
            drawPixel(xc + y, yc + x, colors[0]);
            drawPixel(xc - y, yc + x, colors[1]);
            drawPixel(xc + y, yc - x, colors[2]);
            drawPixel(xc - y, yc - x, colors[3]);
        }

        function drawCircleBresenham(xc, yc, r) {
            let x = 0, y = r;
            let d = 1 - r; // Menggunakan nilai d yang berbeda
            plotCirclePoints(xc, yc, x, y);

            while (x < y) {
                x++;
                if (d < 0) {
                    d = d + 2 * x + 1;
                } else {
                    y--;
                    d = d + 2 * (x - y) + 1;
                }
                plotCirclePoints(xc, yc, x, y);
            }
        }

        drawCircleBresenham(canvas.width / 2, canvas.height / 2, 100);
    </script>
</body>
</html>
```

- Hasil Pembentukan Lingkaran



2. Algoritma Midpoint

- Source Code

bresenham3.html | midpoint.html

midpoint.html > html > body > canvas#canvasMidpoint

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Midpoint Circle Algorithm</title>
    <style>
        canvas { border: 1px solid black; }
    </style>
</head>
<body>
    <h2>Algoritma Midpoint</h2>
    <canvas id="canvasMidpoint" width="500" height="500"></canvas>
    <script>
        const canvasMid = document.getElementById("canvasMidpoint");
        const ctxMid = canvasMid.getContext("2d");

        function drawPixelMid(x, y, color = "red") {
            ctxMid.fillStyle = color;
            ctxMid.fillRect(x, y, 3, 3);
        }

        function plotMidCircle(xc, yc, x, y) {
            let colors = ["pink", "purple", "green", "yellow"];
            drawPixelMid(xc + x, yc + y, colors[0]);
            drawPixelMid(xc - x, yc + y, colors[1]);
            drawPixelMid(xc + x, yc - y, colors[2]);
            drawPixelMid(xc - x, yc - y, colors[3]);
            drawPixelMid(xc + y, yc + x, colors[0]);
            drawPixelMid(xc - y, yc + x, colors[1]);
            drawPixelMid(xc + y, yc - x, colors[2]);
            drawPixelMid(xc - y, yc - x, colors[3]);
```

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```
            drawPixelMid(xc - y, yc + x, colors[1]);
            drawPixelMid(xc + y, yc - x, colors[2]);
            drawPixelMid(xc - y, yc - x, colors[3]);
        }

        function drawCircleMidpoint(xc, yc, r) {
            let x = 0, y = r;
            let p = 1 - r;
            plotMidCircle(xc, yc, x, y);

            while (x < y) {
                x++;
                if (p < 0) {
                    p += 2 * x + 1;
                } else {
                    y--;
                    p += 2 * (x - y) + 1;
                }
                plotMidCircle(xc, yc, x, y);
            }
        }

        drawCircleMidpoint(canvasMid.width / 2, canvasMid.height / 2, 100);
    </script>
</body>
</html>

```

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- Hasil Pembentukan Lingkaran

Algoritma Midpoint