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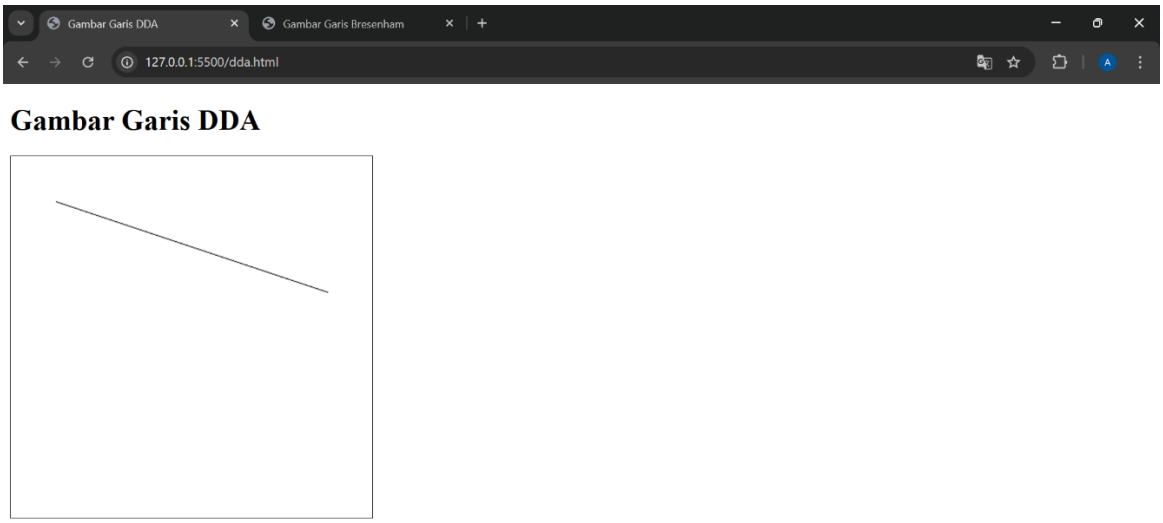
Tugas 2 Grafika Komputer

1. Algoritma Pembentukan Garis DDA (Digital Differensial Analyzer)

```
<!DOCTYPE html>
<html lang="id">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Gambar Garis DDA</title>
    <style>
        canvas {
            border: 1px solid black;
        }
    </style>
</head>
<body>
    <h1>Gambar Garis DDA</h1>
    <canvas id="canvas" width="400" height="400"></canvas>
    <script>
        const canvas = document.getElementById('canvas');
        const ctx = canvas.getContext('2d');

        function drawLineDDA(x0, y0, x1, y1) {
            let dx = x1 - x0;
            let dy = y1 - y0;
            let steps = Math.max(Math.abs(dx), Math.abs(dy));

            let xIncrement = dx / steps;
            let yIncrement = dy / steps;

            let x = x0;
            let y = y0;

            for (let i = 0; i <= steps; i++) {
                ctx.fillRect(Math.round(x), Math.round(y), 1, 1); // Menggambar titik
                x += xIncrement;
                y += yIncrement;
            }
        }

        // Menggambar garis menggunakan DDA
        drawLineDDA(50, 50, 350, 150); // Garis DDA
    </script>
</body>
</html>
```



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2. Algoritma Pembentukan Garis Bresenham

```
1.  <!DOCTYPE html>
2.  <html lang="id">
3.  <head>
4.      <meta charset="UTF-8">
5.      <meta name="viewport" content="width=device-width, initial-scale=1.0">
6.      <title>Gambar Garis Bresenham</title>
7.      <style>
8.          canvas {
9.              border: 1px solid black;
10.         }
11.     </style>
12. </head>
13. <body>
14.     <h1>Gambar Garis Bresenham</h1>
15.     <canvas id="canvas" width="400" height="400"></canvas>
16.     <script>
17.         const canvas = document.getElementById('canvas');
18.         const ctx = canvas.getContext('2d');
19.
20.         function drawLineBresenham(x0, y0, x1, y1) {
21.             let dx = x1 - x0;
22.             let dy = y1 - y0;
23.             let sx = (dx > 0) ? 1 : -1;
24.             let sy = (dy > 0) ? 1 : -1;
25.
26.             dx = Math.abs(dx);
```

```
            dy = Math.abs(dy);

            let err = dx - dy;

            while (true) {
                ctx.fillRect(x0, y0, 1, 1); // Menggambar titik

                if (x0 === x1 && y0 === y1) break;

                let err2 = err * 2;

                if (err2 > -dy) {
                    err -= dy;
                    x0 += sx;
                }

                if (err2 < dx) {
                    err += dx;
                    y0 += sy;
                }
            }
        }

        // Menggambar garis menggunakan Bresenham
        drawLineBresenham(50, 200, 350, 300); // Garis Bresenham
    </script>
</body>
</html>
```

Gambar Garis Bresenham