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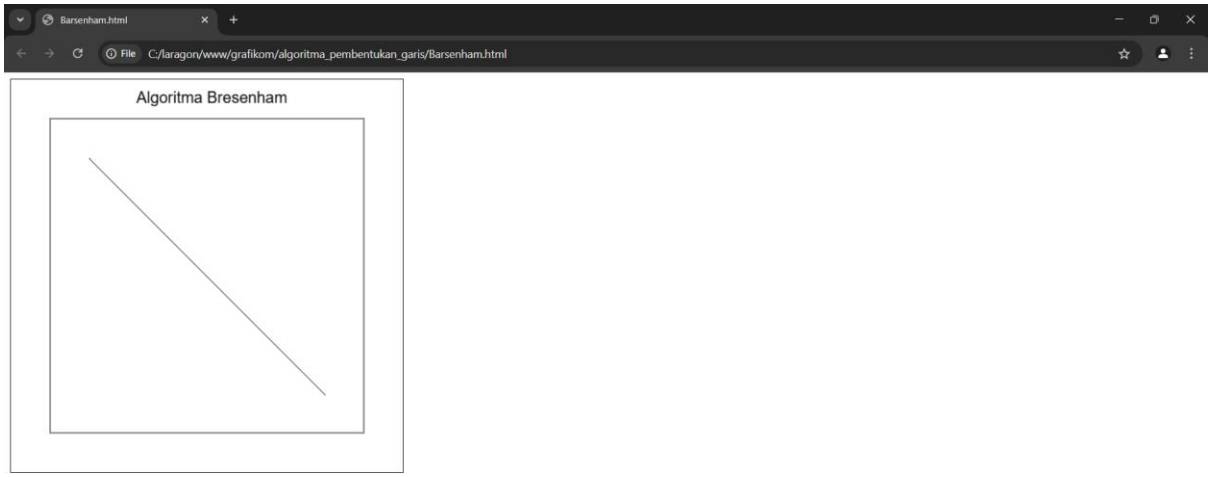
Tugas 2 Algoritma Pembentukan Garis

1. **Algoritma Bresenham**

```
<!DOCTYPE html>
<html>
<body>
    <canvas id="myCanvas" width="500" height="500" style="border:1px solid
black;"></canvas>
    <script>
        var canvas = document.getElementById("myCanvas");
        var context = canvas.getContext("2d");

        context.strokeStyle = "black";
        context.strokeRect(50, 50, 400, 400);

        context.font = "20px Arial";
        context.fillStyle = "black";
        context.fillText("Algoritma Bresenham", 160, 30);

        function Titik(x, y) {
            context.fillStyle = "black";
            context.fillRect(x, y, 1, 1);
        }

        function GarisBres(x0, y0, x1, y1) {
            let x = x0;
            let y = y0;
            let dx = x1 - x0;
            let dy = y1 - y0;
            let D = 2 * dy - dx;

            Titik(x, y);

            for (let x = x0; x <= x1; x++) {
                if (D >= 0) {
                    y++;
                    D = D + (2 * dy - 2 * dx);
                } else {
                    D = D + 2 * dy;
                }
                Titik(x, y);
            }
        }
```

```
        GarisBres(100, 100, 400, 400);
    </script>
</body>
</html>
```



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2. Algoritma DDA (*Digital Differential Analyzer*)

```
<!DOCTYPE html>
<html>
<body>
    <canvas id="canvasDDA" width="500" height="500" style="border:1px solid
black;"></canvas>
    <script>
        function setupCanvas(id, title) {
            let canvas = document.getElementById(id);
            let context = canvas.getContext("2d");

            context.strokeStyle = "black";
            context.strokeRect(50, 50, 400, 400);

            context.font = "20px Arial";
            context.fillStyle = "black";
            context.fillText(title, 140, 30);

            return context;
        }

        function Titik(context, x, y) {
```

```
            context.fillStyle = "black";
            context.fillRect(x, y, 1, 1);
        }

        function GarisDDA(context, x0, y0, x1, y1) {
            let dx = x1 - x0;
            let dy = y1 - y0;
            let step = Math.max(Math.abs(dx), Math.abs(dy));
            let Xinc = dx / step;
            let Yinc = dy / step;
            let X = x0;
            let Y = y0;

            for (let i = 0; i <= step; i++) {
                Titik(context, Math.round(X), Math.round(Y));
                X += Xinc;
                Y += Yinc;
            }
        }

        let contextDDA = setupCanvas("canvasDDA", "Algoritma DDA");
        GarisDDA(contextDDA, 100, 100, 400, 400);
    </script>
</body>
</html>
```