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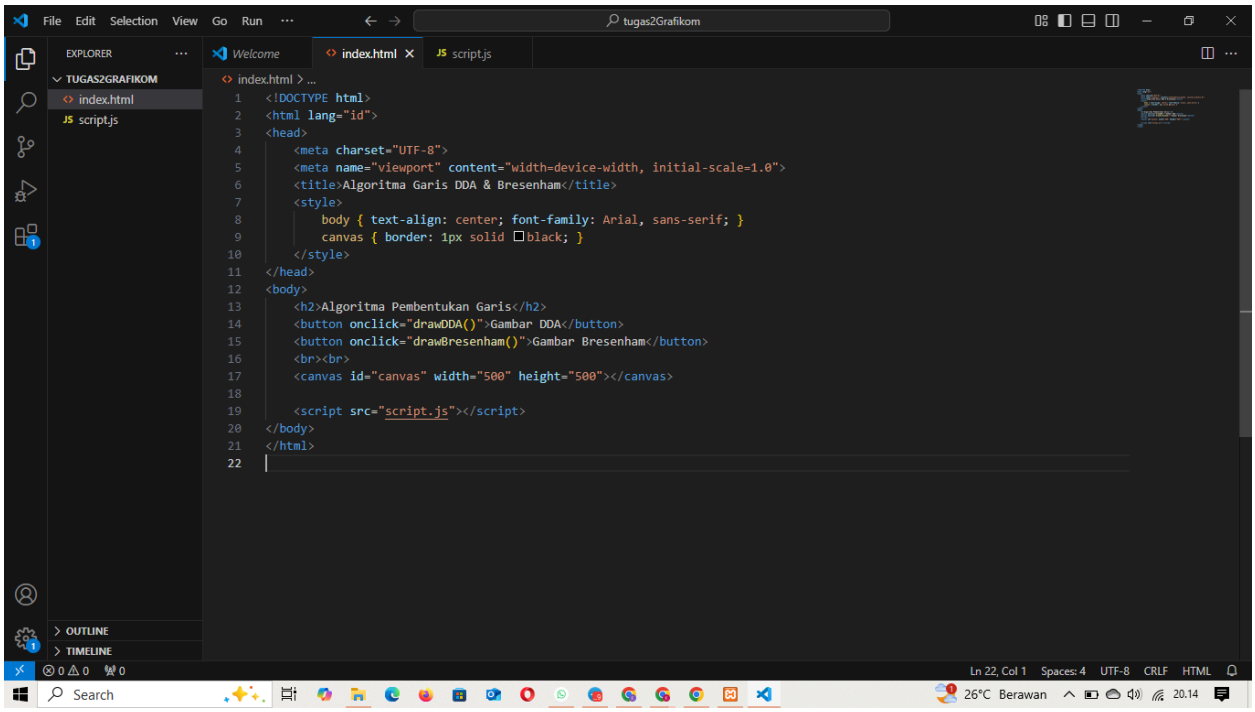
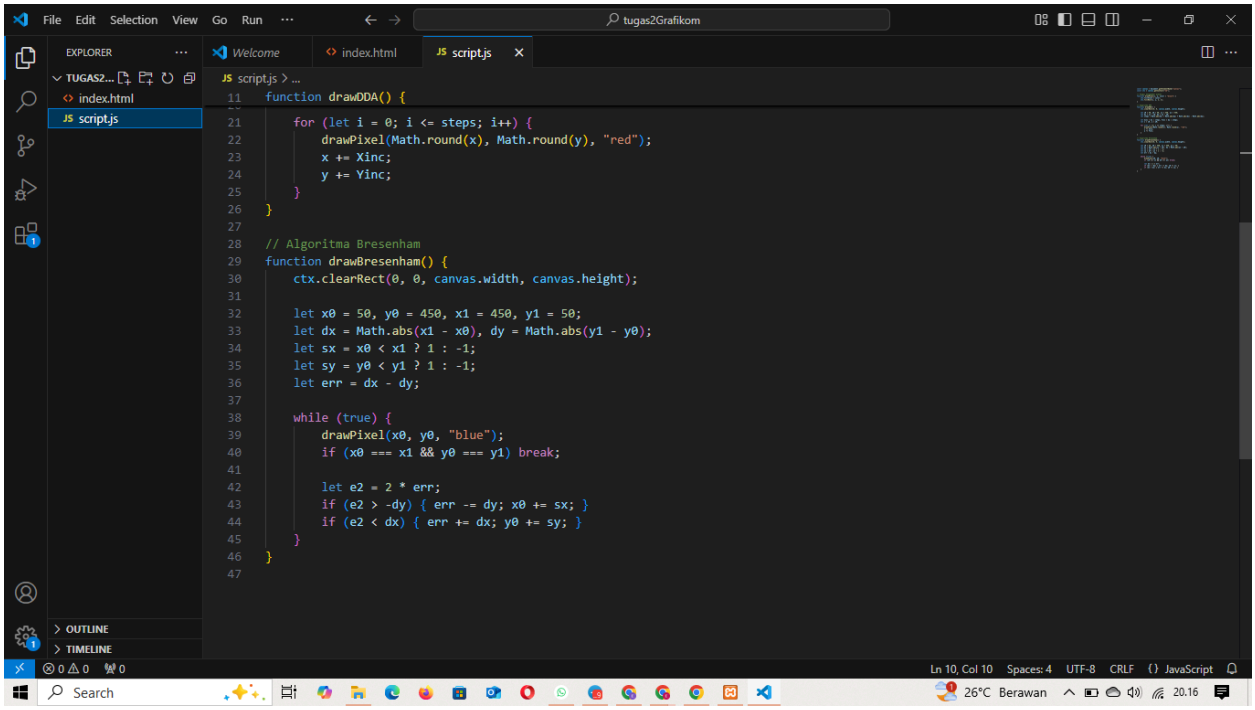
Kelas : C

Tugas 2 Grafika Komputer
Algoritma Pembentukan Garis

1. Algoritma Bresenham

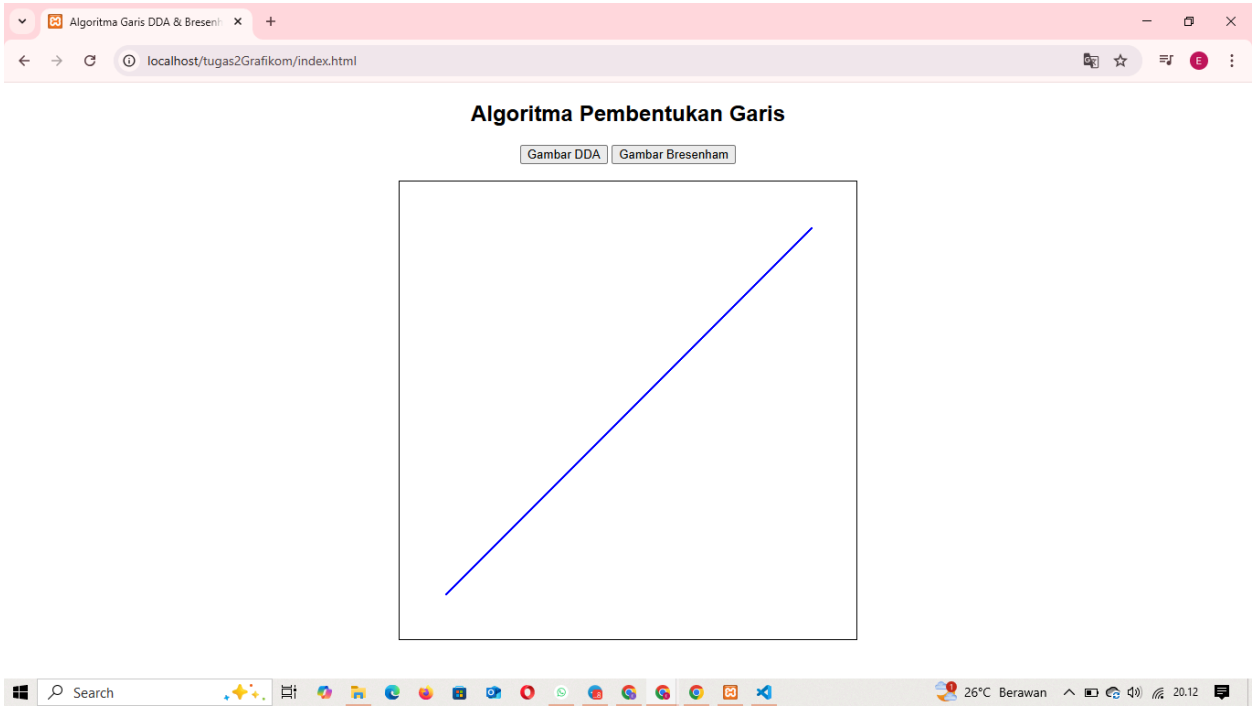
Source code untuk tampilan Pembentukan Garis Algoritma Bresenham





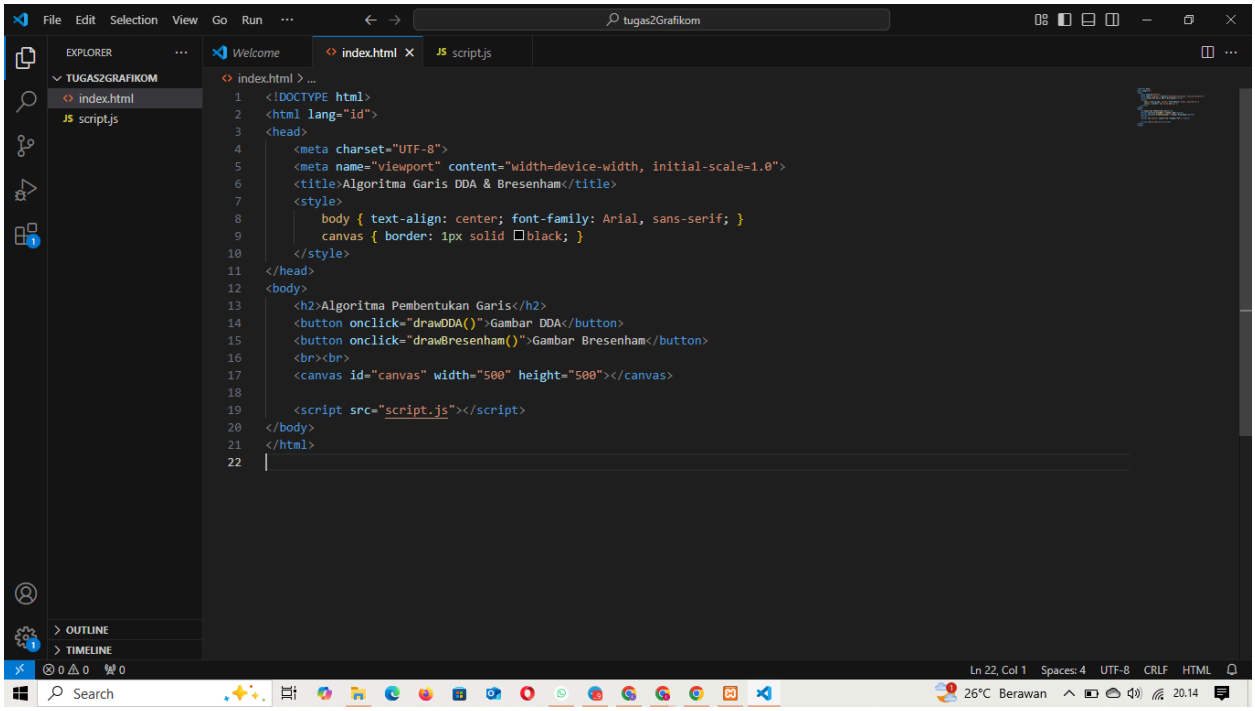
```
function drawDDA() {
    for (let i = 0; i <= steps; i++) {
        drawPixel(Math.round(x), Math.round(y), "red");
        x += Xinc;
        y += Yinc;
    }
}

// Algoritma Bresenham
function drawBresenham() {
    ctx.clearRect(0, 0, canvas.width, canvas.height);

    let x0 = 50, y0 = 450, x1 = 450, y1 = 50;
    let dx = Math.abs(x1 - x0), dy = Math.abs(y1 - y0);
    let sx = x0 < x1 ? 1 : -1;
    let sy = y0 < y1 ? 1 : -1;
    let err = dx - dy;

    while (true) {
        drawPixel(x0, y0, "blue");
        if (x0 === x1 && y0 === y1) break;

        let e2 = 2 * err;
        if (e2 > -dy) { err -= dy; x0 += sx; }
        if (e2 < dx) { err += dx; y0 += sy; }
    }
}
```

Hasil tampilan Pembentukan Garis Algoritma Bresenham

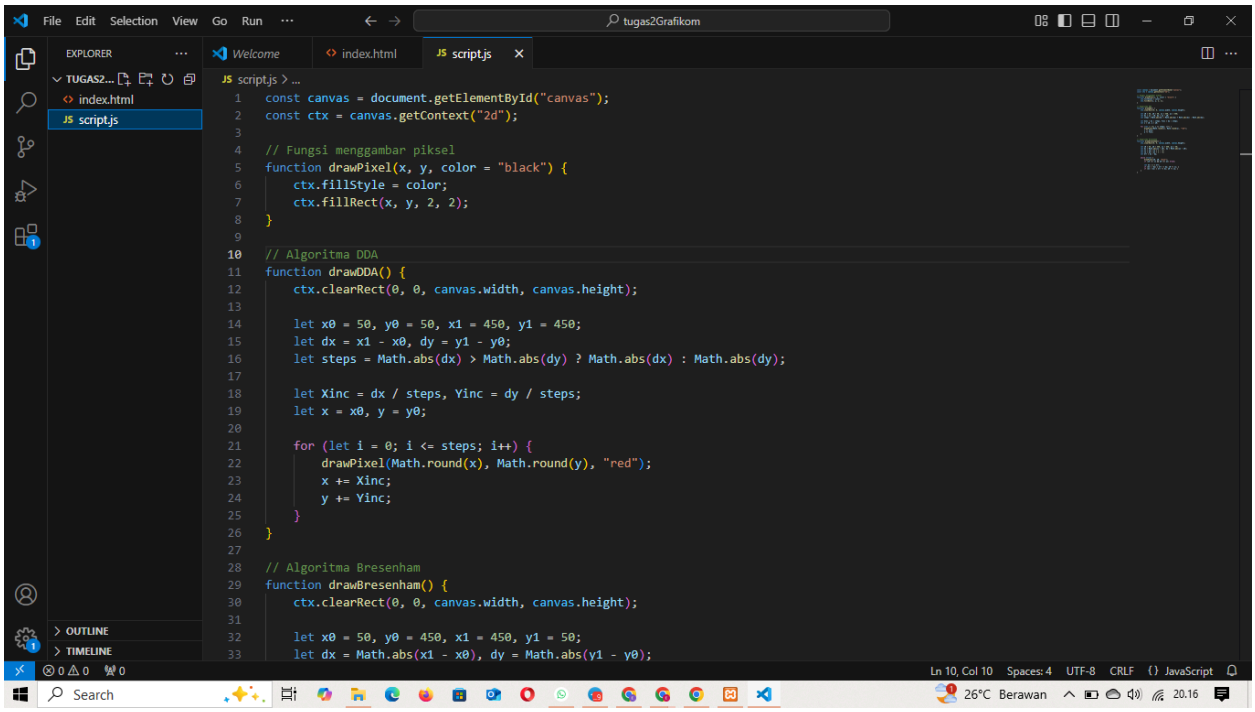


2. Algoritma DDA

Source code untuk tampilan Pembentukan Garis Algoritma DDA



```
<!DOCTYPE html>
<html lang="id">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Algoritma Garis DDA & Bresenham</title>
    <style>
        body { text-align: center; font-family: Arial, sans-serif; }
        canvas { border: 1px solid black; }
    </style>
</head>
<body>
    <h2>Algoritma Pembentukan Garis</h2>
    <button onclick="drawDDA()">Gambar DDA</button>
    <button onclick="drawBresenham()">Gambar Bresenham</button>
    <br><br>
    <canvas id="canvas" width="500" height="500"></canvas>

    <script src="script.js"></script>
</body>
</html>
```



```
const canvas = document.getElementById("canvas");
const ctx = canvas.getContext("2d");

// Fungsi menggambar piksel
function drawPixel(x, y, color = "black") {
    ctx.fillStyle = color;
    ctx.fillRect(x, y, 2, 2);
}

// Algoritma DDA
function drawDDA() {
    ctx.clearRect(0, 0, canvas.width, canvas.height);

    let x0 = 50, y0 = 50, x1 = 450, y1 = 450;
    let dx = x1 - x0, dy = y1 - y0;
    let steps = Math.abs(dx) > Math.abs(dy) ? Math.abs(dx) : Math.abs(dy);

    let Xinc = dx / steps, Yinc = dy / steps;
    let x = x0, y = y0;

    for (let i = 0; i <= steps; i++) {
        drawPixel(Math.round(x), Math.round(y), "red");
        x += Xinc;
        y += Yinc;
    }
}

// Algoritma Bresenham
function drawBresenham() {
    ctx.clearRect(0, 0, canvas.width, canvas.height);

    let x0 = 50, y0 = 450, x1 = 450, y1 = 50;
    let dx = Math.abs(x1 - x0), dy = Math.abs(y1 - y0);
```

Hasil tampilan Pembentukan Garis Algoritma DDA