

Tugas Pembentukan Lingkaran dengan Algoritma Bresenham dan Midpoint

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1. Lingkaran dengan Algoritma Bresenham

Kode:

```
<script>
    function putPixel(x, y, color) {
        const ctx =
document.getElementById('canvas').getContext('2d');
        ctx.fillStyle = color;
        ctx.fillRect(x, y, 1, 1);
    }

    function drawCircle(xc, yc, x, y, color) {
        putPixel(xc + x, yc + y, color);
        putPixel(xc - x, yc + y, color);
        putPixel(xc + x, yc - y, color);
        putPixel(xc - x, yc - y, color);
        putPixel(xc + y, yc + x, color);
        putPixel(xc - y, yc + x, color);
        putPixel(xc + y, yc - x, color);
        putPixel(xc - y, yc - x, color);
    }

    function bresenhamCircle(xc, yc, r, color) {
        let x = 0;
        let y = r;
        let d = 3 - 2 * r;

        drawCircle(xc, yc, x, y, color);

        while (x < y) {
            x = x + 1;
```

```

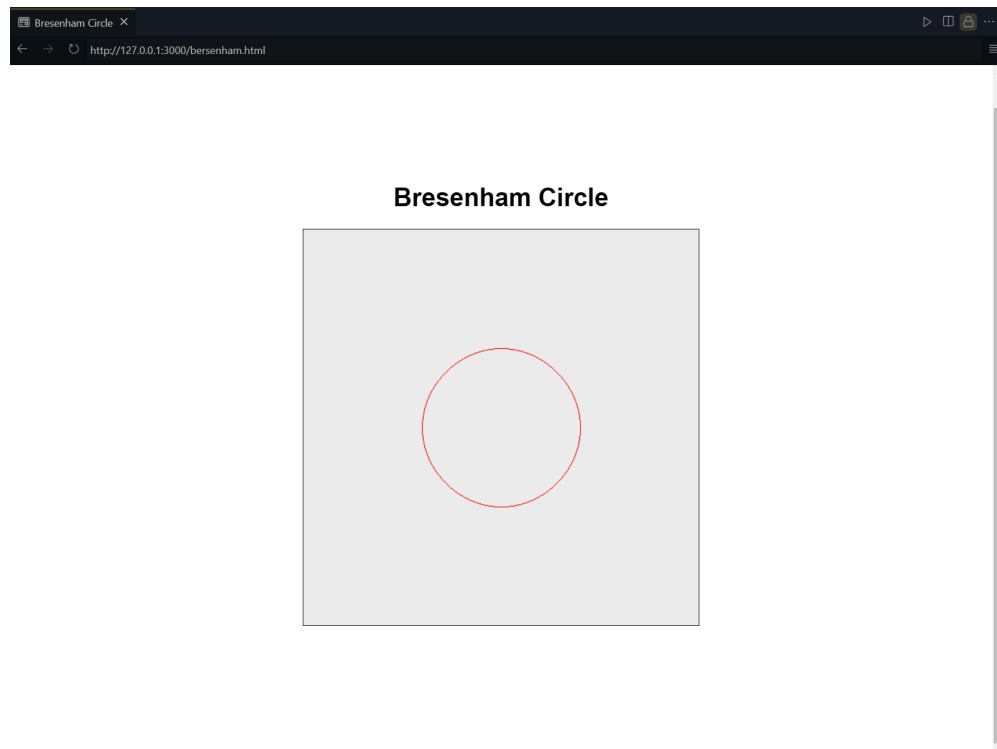
        if (d < 0) {
            d = d + 4 * x + 6;
        } else {
            y = y - 1;
            d = d + 4 * (x - y) + 10;
        }

        drawCircle(xc, yc, x, y, color);
    }
}

window.onload = function() {
    const canvas = document.getElementById('canvas');
    const ctx = canvas.getContext('2d');
    ctx.clearRect(0, 0, canvas.width, canvas.height);
    bresenhamCircle(250, 250, 100, 'red');
}
</script>

```

Hasil :



2. Lingkaran dengan Algoritma Midpoint

Kode :

```
<script>
  const canvas = document.getElementById('canvas');
  const ctx = canvas.getContext('2d');

  function putpixel(x, y, color) {
    ctx.fillStyle = color;
    ctx.fillRect(x, y, 1, 1);
  }

  function circlePlotPoints(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);
  }

  function circleMidpoint(x0, y0, radius, color) {
    let x = 0;
    let y = radius;
    let p = 1 - radius;
    circlePlotPoints(x0, y0, x, y, color);
    while (x < y) {
      x++;
      if (p < 0) {
        p += 2 * x + 1;
      } else {
        y--;
        p += 2 * (x - y) + 1;
      }
      circlePlotPoints(x0, y0, x, y, color);
    }
  }
}
```

```
window.onload = function() {  
    circleMidpoint(250, 150, 100, 'blue');  
}  
</script>
```

Hasil:

