

Tugas Pembentukan Lingkaran dengan Algoritma Bresenham dan Midpoint

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1. Lingkaran dengan Algoritma Bresenham

Kode :

```

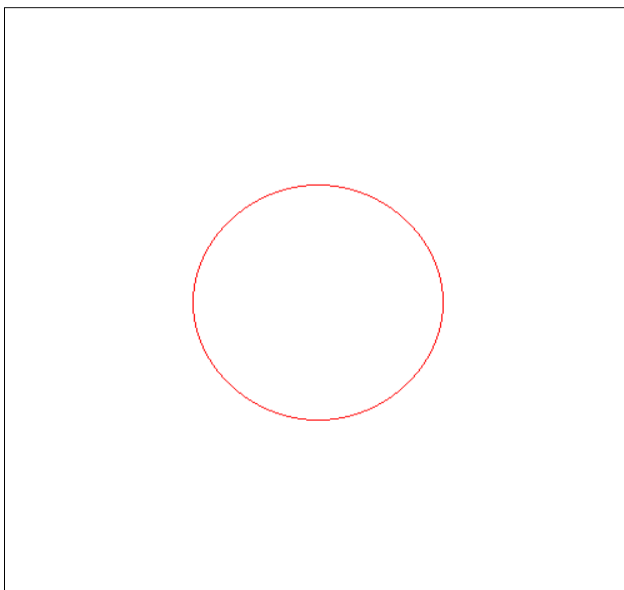
Welcome  Bresenham.html X  Midpoint.html
Bresenham.html > ...
1  <!DOCTYPE html>
2  <html lang="id">
3  <head>
4    <meta charset="UTF-8">
5    <meta name="viewport" content="width=device-width, initial-scale=1.0">
6    <title>Lingkaran Bresenham</title>
7  </head>
8  <body>
9    <h2>Lingkaran dengan Algoritma Bresenham</h2>
10   <canvas id="canvas" width="500" height="500" style="border:1px solid black;"></canvas>
11
12   <script>
13     function putPixel(x, y, color) {
14       const ctx = document.getElementById('canvas').getContext('2d');
15       ctx.fillStyle = color;
16       ctx.fillRect(x, y, 1, 1);
17     }
18
19     function drawCircle(xc, yc, x, y, color) {
20       putPixel(xc + x, yc + y, color);
21       putPixel(xc - x, yc + y, color);
22       putPixel(xc + x, yc - y, color);
23       putPixel(xc - x, yc - y, color);
24       putPixel(xc + y, yc + x, color);
25       putPixel(xc - y, yc + x, color);
26       putPixel(xc + y, yc - x, color);
27       putPixel(xc - y, yc - x, color);
28     }
29
30     function bresenhamCircle(xc, yc, r, color) {
31       let x = 0;
32       let y = r;
33       let d = 3 - 2 * r;
34
35       drawCircle(xc, yc, x, y, color);
36       while (x < y) {
37         x++;

```

```
rminal Help < > Grafika
Welcome Bresenham.html x Midpoint.html
Bresenham.html > ...
2 <html lang="id">
8 <body>
12 <script>
19 function drawCircle(xc, yc, x, y, color) {
25     putPixel(xc - y, yc + x, color);
26     putPixel(xc + y, yc - x, color);
27     putPixel(xc - y, yc - x, color);
28 }
29
30 function bresenhamCircle(xc, yc, r, color) {
31     let x = 0;
32     let y = r;
33     let d = 3 - 2 * r;
34
35     drawCircle(xc, yc, x, y, color);
36     while (x < y) {
37         x++;
38         if (d < 0) {
39             d += 4 * x + 6;
40         } else {
41             y--;
42             d += 4 * (x - y) + 10;
43         }
44         drawCircle(xc, yc, x, y, color);
45     }
46 }
47
48 window.onload = function() {
49     const canvas = document.getElementById('canvas');
50     const ctx = canvas.getContext('2d');
51     ctx.clearRect(0, 0, canvas.width, canvas.height);
52     bresenhamCircle(250, 250, 100, 'red'); // Menggambar lingkaran Bresenham warna merah
53 }
54 </script>
55 </body>
56 </html>
57 |
Ln 57, Col 1 Spaces: 4 UTF-8 CRLF {} HTML Port: 5500
```

Hasil :

Lingkaran dengan Algoritma Bresenham



2. Lingkaran dengan Algoritma Midpoint

Kode :

```
terminal Help < -> Grafika
Welcome Bresenham.html Midpoint.html X
Midpoint.html > ...
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>Lingkaran Midpoint</title>
7 </head>
8 <body>
9 <h2>Lingkaran dengan Algoritma Midpoint</h2>
10 <canvas id="canvas" width="500" height="500" style="border:1px solid black;"></canvas>
11
12 <script>
13     function putPixel(x, y, color) {
14         const ctx = document.getElementById('canvas').getContext('2d');
15         ctx.fillStyle = color;
16         ctx.fillRect(x, y, 1, 1);
17     }
18
19     function circlePlotPoints(x0, y0, x, y, color) {
20         putPixel(x0 + x, y0 + y, color);
21         putPixel(x0 - x, y0 + y, color);
22         putPixel(x0 + x, y0 - y, color);
23         putPixel(x0 - x, y0 - y, color);
24         putPixel(x0 + y, y0 + x, color);
25         putPixel(x0 - y, y0 + x, color);
26         putPixel(x0 + y, y0 - x, color);
27         putPixel(x0 - y, y0 - x, color);
28     }
29
30     function circleMidpoint(x0, y0, radius, color) {
31         let x = 0;
32         let y = radius;
33         let p = 1 - radius;
34         circlePlotPoints(x0, y0, x, y, color);
35         while (x < y) {
36             x++;
37             if (p < 0) {
```

```
terminal Help < -> Grafika
Welcome Bresenham.html Midpoint.html X
Midpoint.html > ...
2 <html lang="id">
8 <body>
12 <script>
29
30     function circleMidpoint(x0, y0, radius, color) {
31         let x = 0;
32         let y = radius;
33         let p = 1 - radius;
34         circlePlotPoints(x0, y0, x, y, color);
35         while (x < y) {
36             x++;
37             if (p < 0) {
38                 p += 2 * x + 1;
39             } else {
40                 y--;
41                 p += 2 * (x - y) + 1;
42             }
43             circlePlotPoints(x0, y0, x, y, color);
44         }
45     }
46
47     window.onload = function() {
48         const canvas = document.getElementById('canvas');
49         const ctx = canvas.getContext('2d');
50         ctx.clearRect(0, 0, canvas.width, canvas.height);
51         circleMidpoint(250, 250, 100, 'blue'); // Menggambar lingkaran Midpoint warna biru
52     }
53 </script>
54 </body>
55 </html>
56
```

Hasil :

Lingkaran dengan Algoritma Midpoint

