

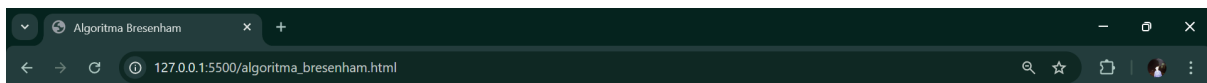
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Kelas : CD
Tugas Grafika Komputer Algoritma Pembentukan Garis

1). Algoritma Bresenham

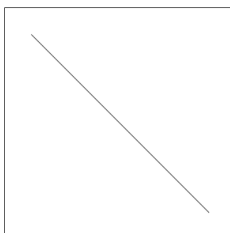
```
algorithm_bresenham.html > html > body > script > onload
1  <!DOCTYPE html>
2  <html lang="id">
3  <head>
4      <meta charset="UTF-8">
5      <meta name="viewport" content="width=device-width, initial-scale=1.0">
6      <title>Algoritma Bresenham</title>
7  </head>
8  <body>
9      <h2>Algoritma Bresenham</h2>
10     <canvas id="canvas" width="300" height="300" style="border:1px solid black;"></canvas>
11
12     <script>
13         function garisBresenham(x1, y1, x2, y2) {
14             let canvas = document.getElementById("canvas");
15             let ctx = canvas.getContext("2d");
16
17             let dx = Math.abs(x2 - x1), dy = Math.abs(y2 - y1);
18             let sx = (x1 < x2) ? 1 : -1;
19             let sy = (y1 < y2) ? 1 : -1;
20             let err = dx - dy;
21
22             while (true) {
23                 ctx.fillStyle = "black";
24                 ctx.fillRect(x1, y1, 1, 1);
25
26                 if (x1 === x2 && y1 === y2) break;
27                 let e2 = 2 * err;
28
29                 if (e2 > -dy) {
```

```
Welcome x <> algoritma_bresenham.html x <> algoritma_dda.html
<> algoritma_bresenham.html > html > body > script > onload
2 <html lang="id">
8 <body>
12 <script>
13 function garisBresenham(x1, y1, x2, y2) {
22 while (true) {
23 ctx.fillStyle = "black";
24 ctx.fillRect(x1, y1, 1, 1);
25
26 if (x1 === x2 && y1 === y2) break;
27 let e2 = 2 * err;
28
29 if (e2 > -dy) {
30 err -= dy;
31 x1 += sx;
32 }
33 if (e2 < dx) {
34 err += dx;
35 y1 += sy;
36 }
37 }
38 }
39
40 window.onload = function() {
41 garisBresenham(35, 35, 270, 270);
42 };
43 </script>
44 </body>
45 </html>
46
```

Hasil output garis :



Algoritma Bresenham

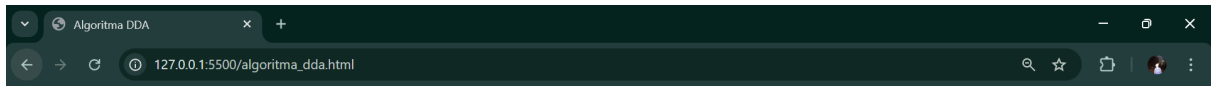


2). Algoritma DDA

```
algorithm_dda.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>Algoritma DDA</title>
7 </head>
8 <body>
9   <h2>Algoritma DDA</h2>
10  <canvas id="canvasDDA" width="300" height="300" style="border:1px solid black;"></canvas>
11
12  <script>
13    function drawPixel(ctx, x, y) {
14      ctx.fillStyle = "black";
15      ctx.fillRect(x, y, 1, 1);
16    }
17
18    function drawLineDDA(x1, y1, x2, y2) {
19      let ctx = document.getElementById("canvasDDA").getContext("2d");
20
21      x1 = Math.max(0, Math.min(299, x1));
22      y1 = Math.max(0, Math.min(299, y1));
23      x2 = Math.max(0, Math.min(299, x2));
24      y2 = Math.max(0, Math.min(299, y2));
25
26      let dx = x2 - x1;
27      let dy = y2 - y1;
28      let steps = Math.max(Math.abs(dx), Math.abs(dy));
29      let xIncrement = dx / steps;
```

```
algorithm_dda.html > html > body > script > onload
2 <html lang="id">
8 <body>
12 <script>
18   function drawLineDDA(x1, y1, x2, y2) {
23     x2 = Math.max(0, Math.min(299, x2));
24     y2 = Math.max(0, Math.min(299, y2));
25
26     let dx = x2 - x1;
27     let dy = y2 - y1;
28     let steps = Math.max(Math.abs(dx), Math.abs(dy));
29     let xIncrement = dx / steps;
30     let yIncrement = dy / steps;
31     let x = x1, y = y1;
32
33     for (let i = 0; i <= steps; i++) {
34       drawPixel(ctx, Math.round(x), Math.round(y));
35       x += xIncrement;
36       y += yIncrement;
37     }
38   }
39
40
41   window.onload = function() {
42     drawLineDDA(30, 30, 270, 270);
43   };
44 </script>
45 </body>
46 </html>
47
```

Hasil output garis :



Algoritma DDA

