Ex. No. 05	DATA DRIVEN DOCUMENTS
09.08.2024	

AIM:
To demonstrate data using D3.js.

ALGORITHM:
1. Start
2. Create a new html document.
3. Include the d3.js script in the head section.
4. Define a svg container and add its properties in a js script.
5. Create an object with numeric values to plot in bar chart.
6. Create an appropriate viewbox and add x-axis and y-axis.
7. Open the page and show the plot.
8. Stop

PROGRAM:

1. **Dynamic circle:**

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Static Circle with D3.js</title>
    <script src="https://d3js.org/d3.v7.min.js"></script>
    <style>
        body {
            display: flex;
            justify-content: center;
            align-items: center;
            height: 100vh;
            background-color: #f0f0f0;
        }
        svg {
            border: 1px solid #ccc; /* Adding a border around the graph */
        }
        .circle {
```

```
            transition: fill 0.3s, stroke 0.3s; /* Smooth transition for hover effect */
        }
    </style>
</head>
<body>
    <svg width="600" height="400"></svg>
    <script>
        const svg = d3.select("svg");

        // Create a static circle with a dark outline and lighter fill
        const circle = svg.append("circle")
            .attr("class", "circle")
            .attr("cx", 300)  // Center X position
            .attr("cy", 200)  // Center Y position
            .attr("r", 100)    // Radius
            .attr("fill", "#add8e6") // Lighter fill color (light blue)
            .attr("stroke", "darkblue") // Dark outline color
            .attr("stroke-width", 3); // Width of the outline

        // Add hover effects
        circle.on("mouseover", function() {
            d3.select(this)
                .attr("fill", "lightcoral") // Change fill color on hover
                .attr("stroke", "red"); // Change stroke color on hover
        })
        .on("mouseout", function() {
            d3.select(this)
                .attr("fill", "#add8e6") // Reset fill color
                .attr("stroke", "darkblue"); // Reset stroke color
        });
    </script>
</body>
</html>
```

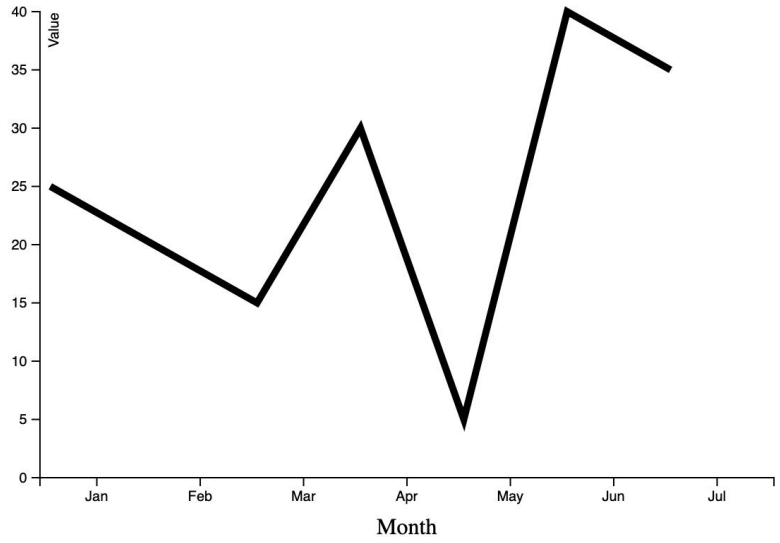
2. Bar graph:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>D3.js Bar Chart</title>
    <script src="https://d3js.org/d3.v7.min.js"></script>
    <style>
        .bar { fill: steelblue; transition: fill 0.3s; }
        .bar:hover { fill: orange; }
        .axis path, .axis line { fill: none; shape-rendering: crispEdges; }
        .axis-label { font-size: 14px; font-weight: bold; }
        svg { border: 1px solid #ccc; }
    </style>
</head>
<body>
    <svg width="600" height="400"></svg>

    <script>
        const data = Array.from({length: 10}, () => Math.floor(Math.random() * 101));
        const names = ["Annette", "Bob","Christy" ,"Deborah", "David", "Grace", "Hannah",
"Ian","Jorryn","Levin"];

        const svg = d3.select("svg"), margin = { top: 20, right: 30, bottom: 60, left: 60 };
        const width = +svg.attr("width") - margin.left - margin.right;
        const height = +svg.attr("height") - margin.top - margin.bottom;

        const x = d3.scaleBand().domain(names).range([0, width]).padding(0.1);
        const y = d3.scaleLinear().domain([0, d3.max(data)]).nice().range([height, 0]);

        const g = svg.append("g").attr("transform",
`translate(${margin.left},${margin.top})`);

        g.append("g").attr("class", "axis axis--x").attr("transform", `translate(0,${height})`)
            .call(d3.axisBottom(x));
```

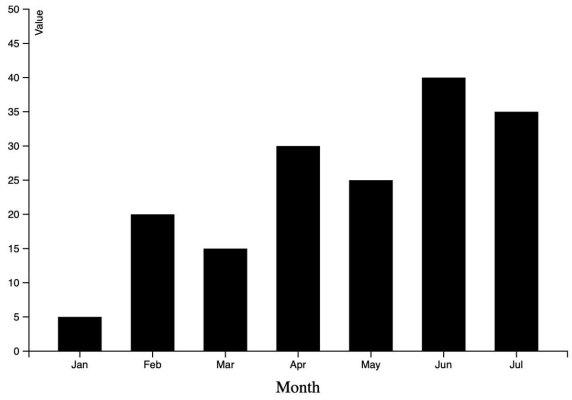
```
        g.append("g").attr("class", "axis axis--y")
            .call(d3.axisLeft(y));

        g.selectAll(".bar").data(data).enter().append("rect")
            .attr("class", "bar").attr("x", (d, i) => x(names[i])).attr("y", d => y(d))
            .attr("width", x.bandwidth()).attr("height", d => height - y(d));

        svg.append("text").attr("class", "axis-label").attr("x", width / 2 + margin.left)
            .attr("y", height + margin.top + 40).attr("text-anchor", "middle").text("Names");

        svg.append("text").attr("class", "axis-label").attr("transform", "rotate(-90)")
            .attr("x", -height / 2 - margin.top).attr("y", margin.left - 40)
            .attr("text-anchor", "middle").text("Marks");
    </script>
</body>
</html>
```

Output:

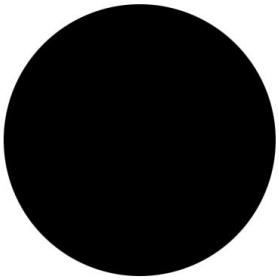
Line Plot



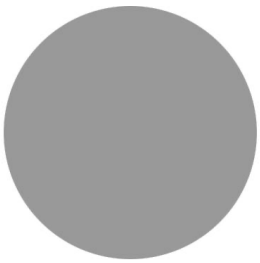
Bar Chart



Circle



Circle



RESULT:

The above D3.js visualization of a dynamic circle and a bar graph is successfully plotted.