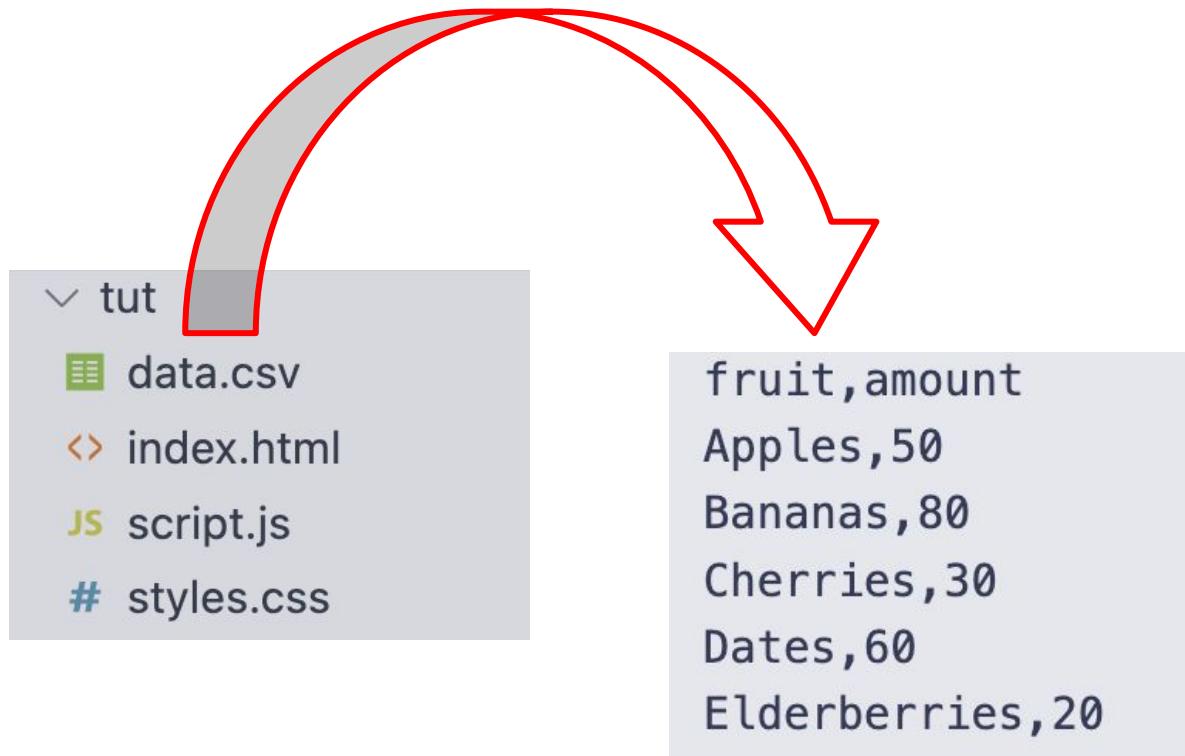


Intro to D3

Data Visualisation - Tutorial 1

What does D3 do?

Setting Up



```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>D3 Fruit Stand Tutorial</title>
    <script src="https://d3js.org/d3.v7.min.js"></script>
    <link rel="stylesheet" href="styles.css">
</head>
<body>
    <h1>Fruit Stand Inventory Visualization</h1>

    <div id="bar-chart"></div>
    <div id="line-chart"></div>

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

Loading & formatting data

```
// 1. Load the data
d3.csv("data.csv").then(function(data) {
    // 2. Format the data
    data.forEach(d => {
        d.amount = +d.amount; // The '+' forces text into a number
    });
})
```

The Scales

```
// 3. Set Dimensions and Margins
const width = 500;
const height = 300;
const margin = {top: 40, right: 150, bottom: 50, left: 50};
```

// 4. Create the Translators (Scales)

```
const xScale = d3.scaleBand()          Categorical
  .domain(data.map(d => d.fruit))
  .range([margin.left, width - margin.right])
  .padding(0.2);
```

```
const yScale = d3.scaleLinear()        Continuous Numerical
  .domain([0, 100])
  .range([height - margin.bottom, margin.top]); // Flipped for SVG
```

Top-left is (0,0)

Bar graph Setup

```
const svgBar = d3.select("#bar-chart").append("svg")
    .attr("width", width)
    .attr("height", height);
```

Scalable Vector Graphic

```
// Draw X Axis
svgBar.append("g")
    .attr("transform", `translate(0, ${height - margin.bottom})`)
    .call(d3.axisBottom(xScale));
```

```
// Draw Y Axis
svgBar.append("g")
    .attr("transform", `translate(${margin.left}, 0)`)
    .call(d3.axisLeft(yScale));
```

Creating Bars

```
// Create Bars (Selection Pattern)
svgBar.selectAll("rect")
  .data(data)
  .enter().append("rect")
    .attr("class", "bar")
    .attr("x", d => xScale(d.fruit))
    .attr("y", d => yScale(d.amount))
    .attr("width", xScale.bandwidth())
    .attr("height", d => (height - margin.bottom) - yScale(d.amount));
```

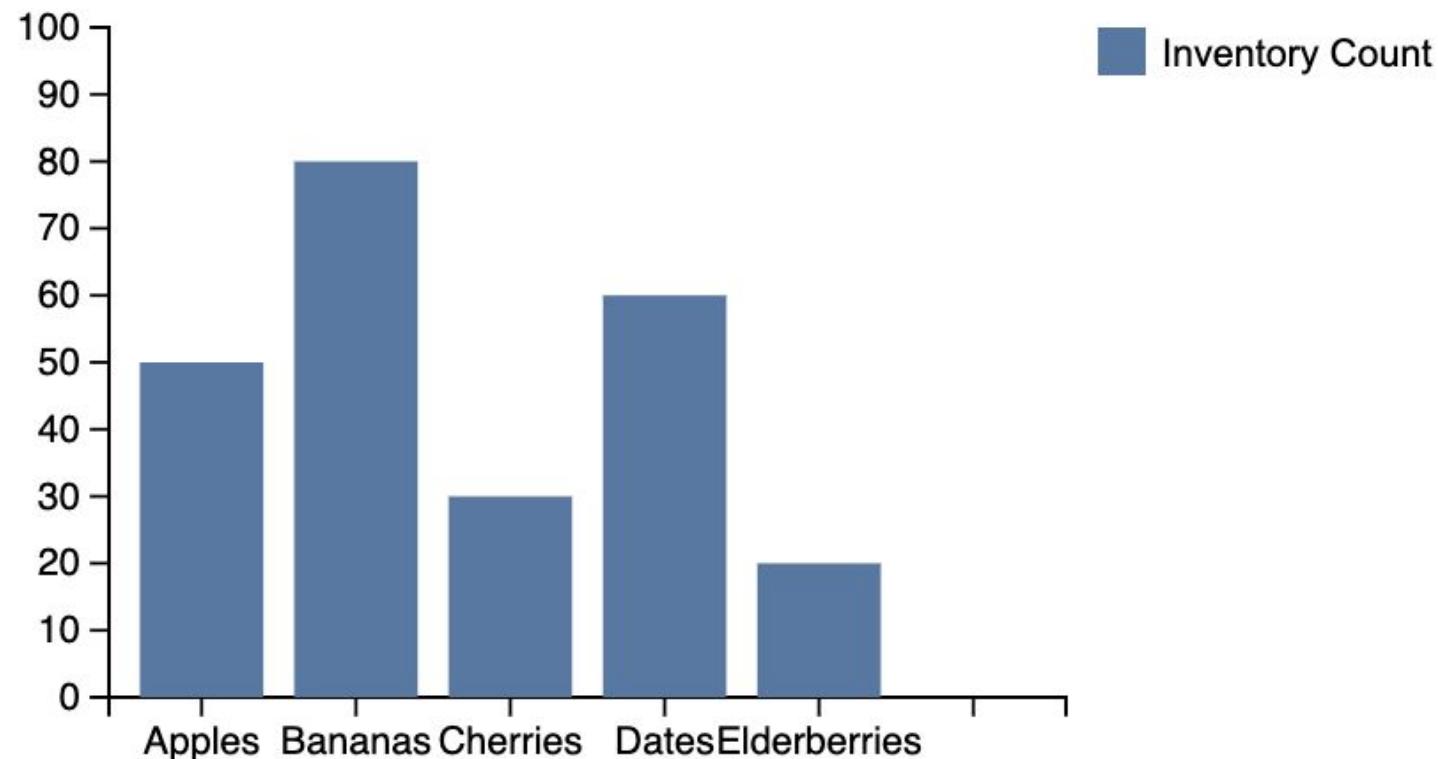
Bottom - Top

Adding a legend

```
// Add Legend to Bar Chart
const legend = svgBar.append("g")
    .attr("transform", `translate(${width - 140}, ${margin.top})`);

legend.append("rect")
    .attr("width", 15).attr("height", 15).attr("fill", "#4e79a7");

legend.append("text")
    .attr("x", 20).attr("y", 12)
    .text("Inventory Count").style("font-size", "12px");
```



Line graph

```
const svgLine = d3.select("#line-chart").append("svg")
  .attr("width", width)
  .attr("height", height);

// Draw Axes for Line Chart
svgLine.append("g")
  .attr("transform", `translate(0, ${height - margin.bottom})`)
  .call(d3.axisBottom(xScale));
svgLine.append("g")
  .attr("transform", `translate(${margin.left}, 0)`)
  .call(d3.axisLeft(yScale));
```

```
// Line Generator
const lineGen = d3.line()
  .x(d => xScale(d.fruit) + xScale.bandwidth() / 2) // Center in the band
  .y(d => yScale(d.amount));

// Draw the Path (Single Shape)
svgLine.append("path")
  .datum(data) // Use .datum for single objects
  .attr("class", "line-path")
  .attr("d", lineGen);
```

