

D3: Data Driven Documents

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What is D3?

D3 is a JavaScript library which allows you to bind arbitrary datasets to the Document Object Model (DOM) and exposes methods for performing data-driven operations to the document.

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- ▶ JSON

Selectors

Using JavaScripts native API to manipulate the DOM can be tiresome. Libraries such as jQuery provide abstractions to make this easier, and D3 exposes its own methods for working with the DOM.

Manipulating paragraphs with JS

```
var paragraphs = document.getElementsByTagName("p");  
for (var i = 0; i < paragraphs.length; i++) {  
  var paragraph = paragraphs.item(i);  
  paragraph.style.setProperty("color", "white", null);  
}
```


Manipulating paragraphs with D3

Much simpler...

```
d3.selectAll("p").style("color", "white");
```

Appending an element

What if we wanted to create an element in our DOM?

```
svg.append("circle")  
  .attr("cx", d.x)  
  .attr("cy", d.y)  
  .attr("r", 2.5);
```

Appending multiple elements

```
var svgContainer = d3.select("body").append("svg")
  .attr("width", 200)
  .attr("height", 200);

svg.selectAll("circle")
  .data(data)
  .enter().append("circle")
    .attr("cx", function(d) { return d.x; })
    .attr("cy", function(d) { return d.y; })
    .attr("r", 2.5);
```

Understanding data joins

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- ▶ Selection is joined to each datum in our data. The `enter` selection holds these placeholders for our data.
- ▶ The missing elements (`circle`) are added to the SVG container by calling `selection.append` on the `enter` selection, which appends a new `circle` for each data point to the SVG container.