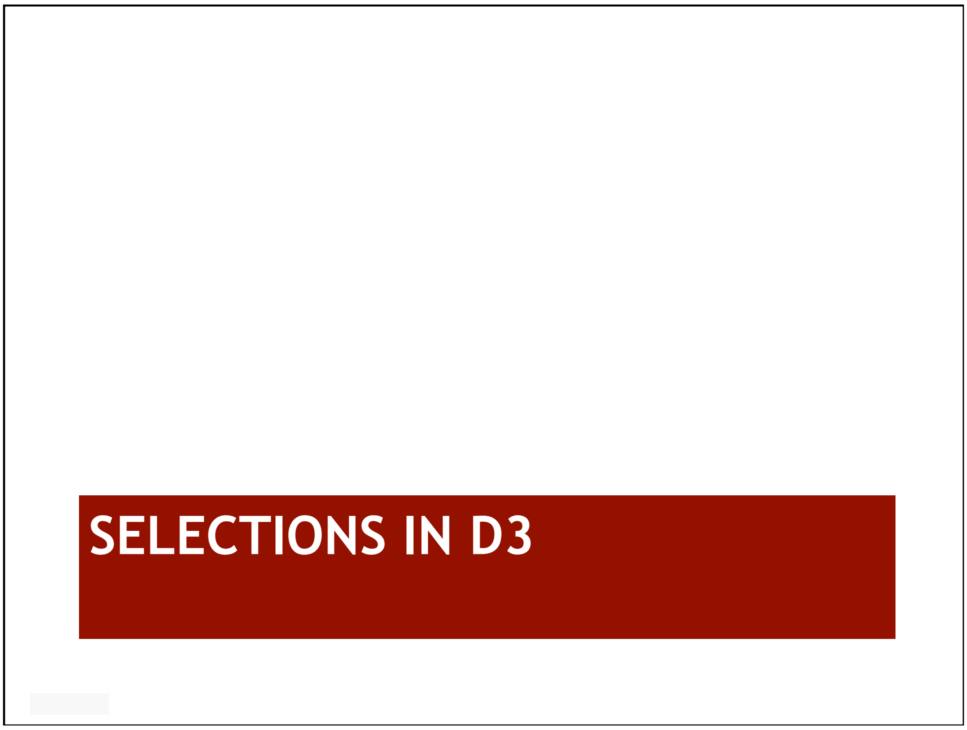
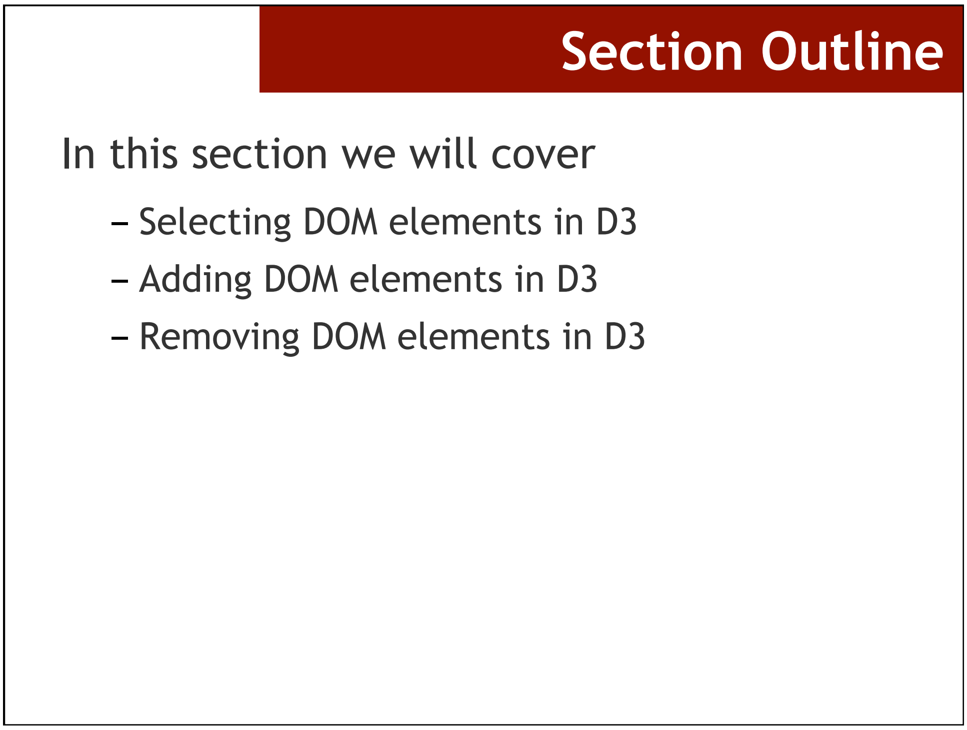


SELECTIONS IN D3

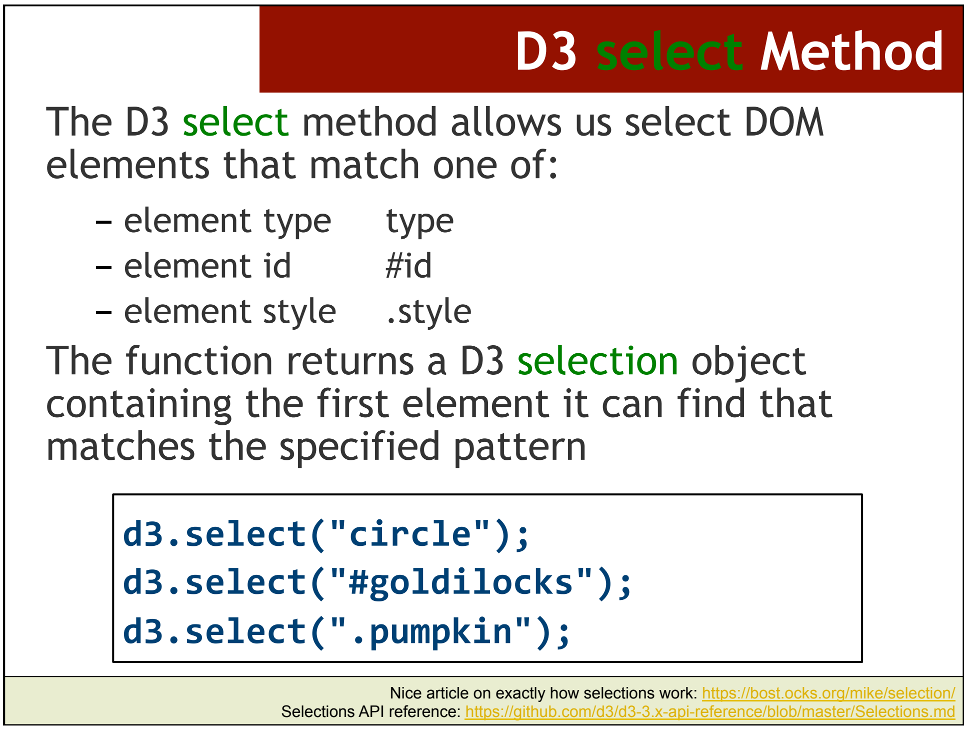


Section Outline

In this section we will cover

- Selecting DOM elements in D3
- Adding DOM elements in D3
- Removing DOM elements in D3

SELECTING ELEMENTS



D3 select Method

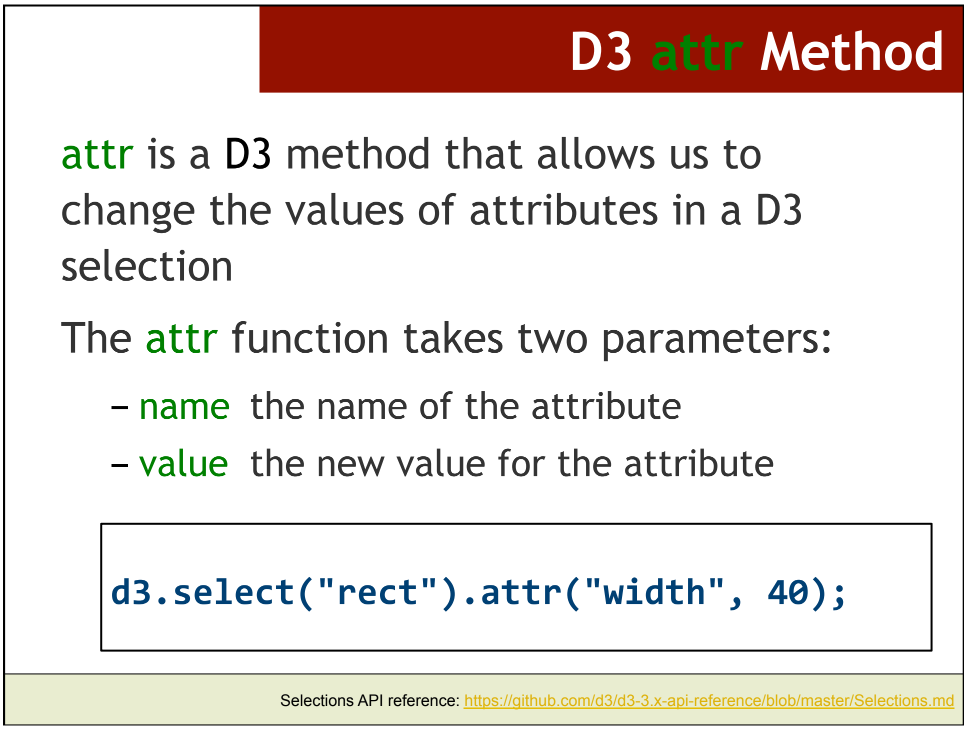
The D3 select method allows us select DOM elements that match one of:

– element type	type
– element id	#id
– element style	.style

The function returns a D3 selection object containing the first element it can find that matches the specified pattern

```
d3.select("circle");
d3.select("#goldilocks");
d3.select(".pumpkin");
```

Nice article on exactly how selections work: https://bost.ocks.org/mike/selection/
Selections API reference: https://github.com/d3/d3-3.x-api-reference/blob/master/Selections.md



D3 attr Method

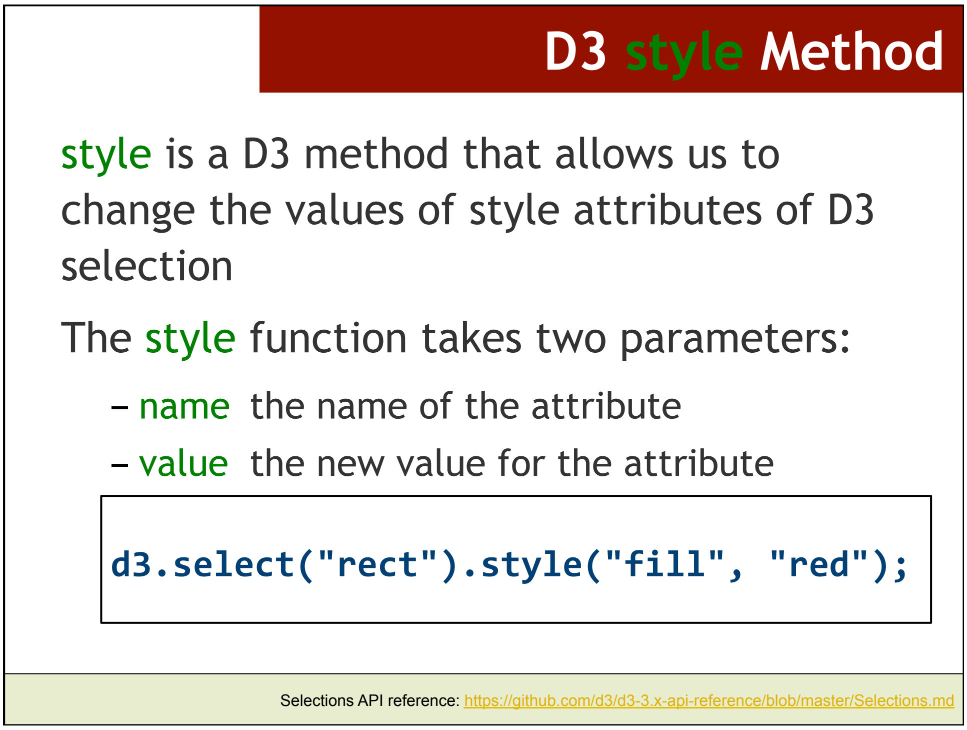
attr is a D3 method that allows us to change the values of attributes in a D3 selection

The attr function takes two parameters:

- name the name of the attribute
- value the new value for the attribute

```
d3.select("rect").attr("width", 40);
```

Selections API reference: https://github.com/d3/d3-3.x-api-reference/blob/master/Selections.md



D3 style Method

style is a D3 method that allows us to change the values of style attributes of D3 selection

The style function takes two parameters:

- name the name of the attribute
- value the new value for the attribute

```
d3.select("rect").style("fill", "red");
```

Selections API reference: https://github.com/d3/d3-3.x-api-reference/blob/master/Selections.md

D3 style Versus attr

The style and attr in D3 are very similar and can often be used interchangeably

Best practice is to use:

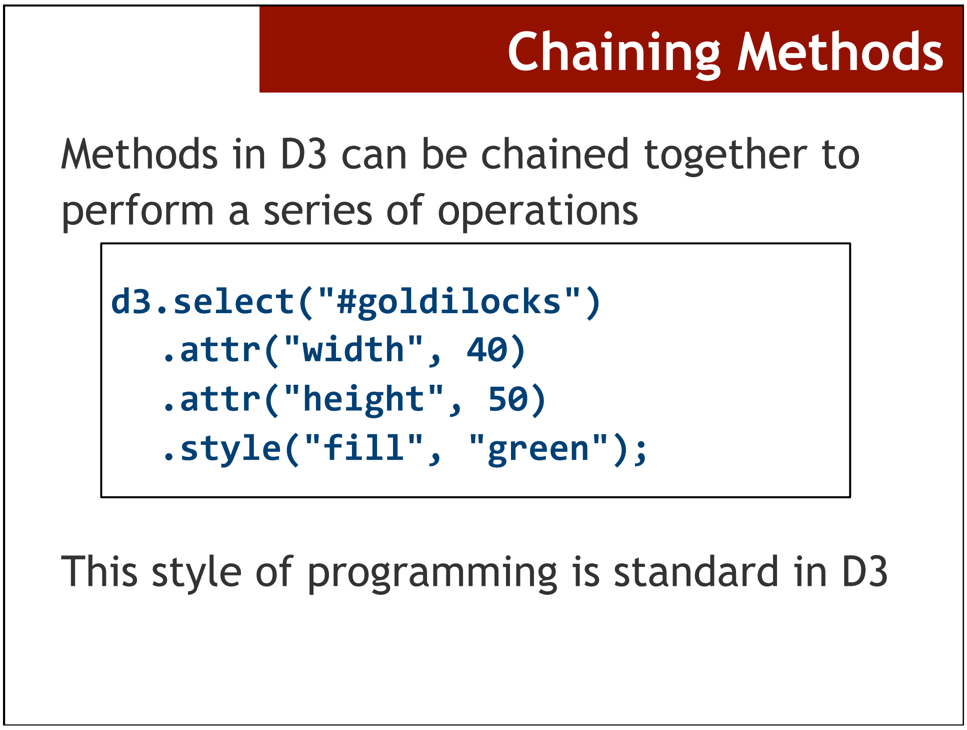
- attr for attributes that control size and position of an SVG shape (e.g. x, y, width, height, …)
- style for styling the appearance of an SVG shape (e.g. fill, stroke, …)

Chaining Methods

We can store the selection returned by select in a variable and then make repeated attr and style calls to it to change the appearance of the elements in the selection

```
goldi = d3.select("#goldilocks");
goldi.attr("width", 40);
goldi.attr("height", 50);
goldi.style("fill", "green");
```

We can, however, be more concise

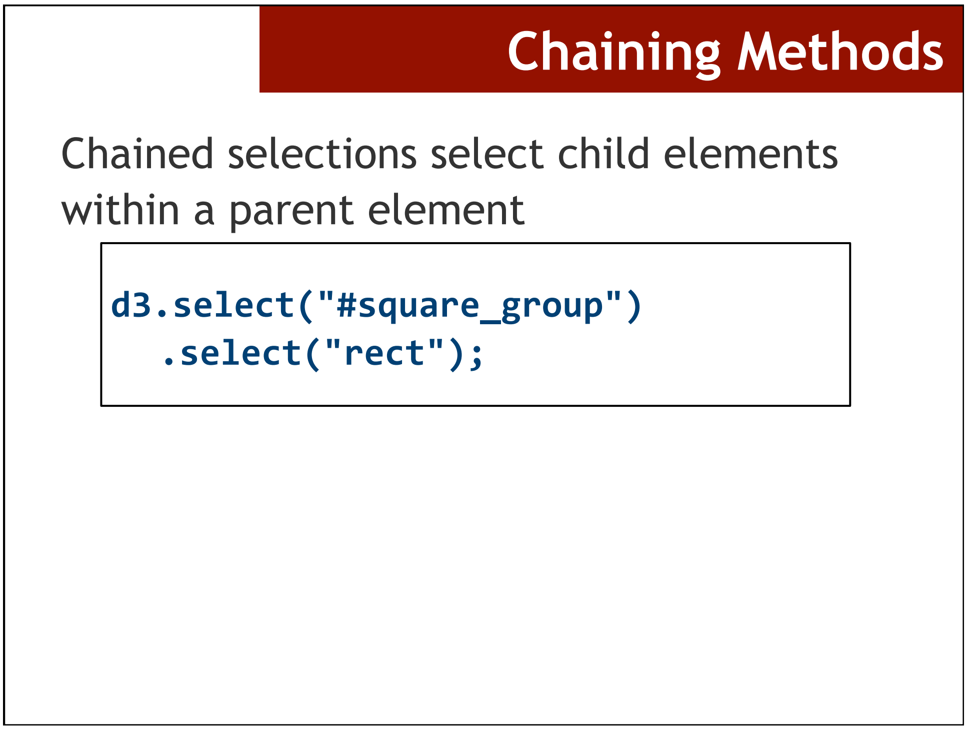


Chaining Methods

Methods in D3 can be chained together to perform a series of operations

```
d3.select("#goldilocks")
   .attr("width", 40)
   .attr("height", 50)
   .style("fill", "green");
```

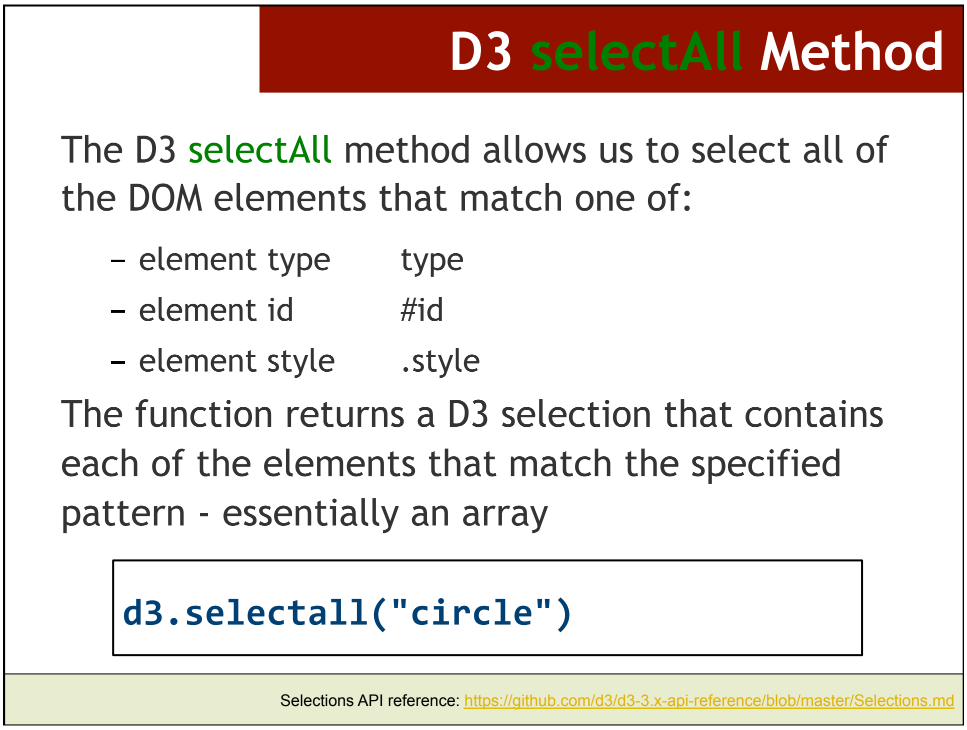
This style of programming is standard in D3



Chaining Methods

Chained selections select child elements within a parent element

```
d3.select("#square_group")
   .select("rect");
```



D3 selectAll Method

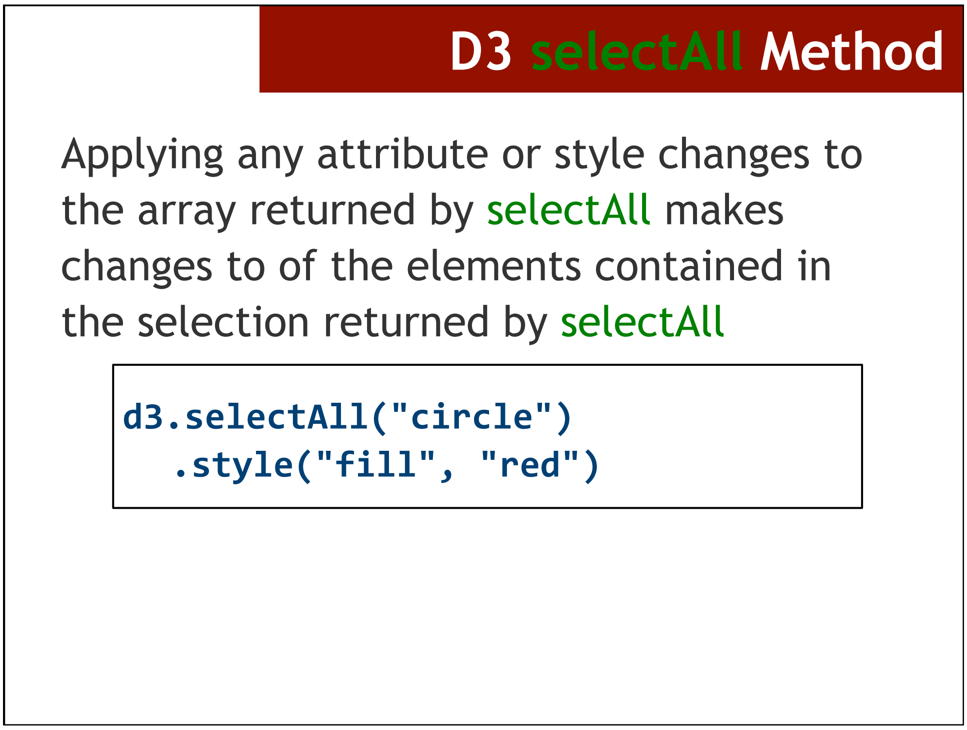
The D3 selectAll method allows us to select all of the DOM elements that match one of:

– element type	type
– element id	#id
– element style	.style

The function returns a D3 selection that contains each of the elements that match the specified pattern - essentially an array

```
d3.selectall("circle")
```

Selections API reference: https://github.com/d3/d3-3.x-api-reference/blob/master/Selections.md



D3 selectAll Method

Applying any attribute or style changes to the array returned by selectAll makes changes to of the elements contained in the selection returned by selectAll

```
d3.selectAll("circle")
  .style("fill", "red")
```

ADDING ELEMENTS

D3 append Method

The D3 append method allows us to add DOM elements programmatically

- append operates on a selection to which it adds a new element

```
d3.select("svg")
   .append("circle");
```

Selections API reference: https://github.com/d3/d3-3.x-api-reference/blob/master/Selections.md

D3 append Method

Typically we append an element and then set its attributes and styles

```
d3.select("svg")
   .append("circle")
   .attr("cx", 100)
   .attr("cy", 100)
   .attr("r", 80)
   .style("opacity", 0.4);
```

D3 insert Method

The D3 insert method allows us to add DOM elements programmatically at specific positions within a selection

The insert method takes two parameters:

- name the name of the new element to add
- before the element within the current selection before which the new element should be added

Selections API reference: https://github.com/d3/d3-3.x-api-reference/blob/master/Selections.md

REMOVING ELEMENTS

D3 remove Method

The D3 remove method allows us to remove elements from a selection

- remove operates on selection and removes everything that it contains

```
d3.select("circle").remove();
```

Selections API reference: https://github.com/d3/d3-3.x-api-reference/blob/master/Selections.md