***Courtesy:*** *Codeacademy.com*

**D3.js**

D3 injects data visualization to the existing Document Object Model (DOM). DOM is nothing but the html/css structure that have those ‘div’, ‘h1’,’p’ etc. These ‘div’,’h1’ etc are called elements.

D3 adds/injects/binds data to these elements.

D3 methods for various operations:

* D3.select()
* D3.selectall()
* D3.data()
* D3.text()
* Function(d) {return d. + “:”+d.}
* D3.attr(“class”,”class-name”)----html element class such as (“div”,”bar”)
* D3.style()-----css style such as ‘width’+px
* d3.enter()
* d3.append()

Sample html code for d3:

<!DOCTYPE html>

<html>

<head>

<link rel="stylesheet" href="style.css">

<script src="https://d3js.org/d3.v5.min.js"> </script>

<script src="main.js" defer></script>

</head>

<body>

<div id="one">

</div>

<div id="two">

</div>

<div id="three">

</div>

</body>

</html>

We will work on a file name main.js which is a javascript file:

D3.select(‘#visualization’);

D3.select(‘div’);

D3.select(): returns the first element that matches the selector, in this case an id (#) with visualization

D3.selectall(): returns all elements with ‘div’

D3.selectall(‘div’).text(‘select all’); : this statement will add a text select all with all the div elements.

Lets add video data to the ‘div’ elements in html:

Sample html:

<!DOCTYPE html>

<html>

<head>

<link rel="stylesheet" href="style.css">

<script src="https://d3js.org/d3.v5.min.js"> </script>

<script src="main.js" defer></script>

</head>

<body>

<h3>Most Streamed YouTube Videos in Billions:</h3>

</body>

<div></div>

<div></div>

<div></div>

<div></div>

<div></div>

<div></div>

<div></div>

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<div></div>

</html>

Here 13 div elements.

#assign variable to hold video data

let videoData = [{title: "Despacito", amount: 5.68},

{title: "Shape of You", amount: 3.89},

{title: "See You Again", amount: 3.85},

{title: "Uptown Funk", amount: 3.32},

{title: "Masha and the Bear: Recipe for Disaster", amount: 3.31},

{title: "Gangam Style", amount: 3.23},

{title: "Sorry", amount: 3.03},

{title: "Sugar", amount: 2.80},

{title: "Shake it Off", amount: 2.67},

{title: "Roar", amount: 2.65},

{title: "Bailando", amount: 2.63},

{title: "Thinking Out Loud", amount: 2.53},

{title: "Counting Stars", amount: 2.51},

{title: "Dark Horse", amount: 2.46},

{title: "Lean On", amount: 2.43}

];

Now select all ‘div’ elements to add the video data.

Use variable to do that:

Let divSelection = d3.select(“body”).selectall(“div”);

Add video data:

divSelection.data(videoData).text(function(d) {return d}); #using function that takes an argument ‘d’ and return the same ‘argument value d’ in this case the video data itself.

Graphical user interface, text

Description automatically generated

The function does not always have to be anonymous. But you must include argument ‘d’ and customize your function.

Such as if you want to show the video title and their number of views you just simply pass the title and views using .text() method. Lets see,

.divSelection.data(videoData).text(function(d) {return d.title + “: “ +d.amount + “view”});

A screenshot of a computer

Description automatically generated with medium confidence

Use bar to be an equal amount of views:

Just add to chain using .attr(‘div’,’bar’).style(‘width’,function(d) {return d.amount\*50 +’px’});

Text

Description automatically generated

If the html has no ‘div’ element:

<!DOCTYPE html>

<html>

<head>

<link rel="stylesheet" href="style.css">

<script src="https://d3js.org/d3.v5.min.js"> </script>

<script src="main.js" defer></script>

</head>

<body>

<h3>Most Streamed YouTube Videos in Billions:</h3>

</body>

</html>

Then we can add ‘div’ using .enter() and .append(‘div’) after .data and before .text() methods

Text

Description automatically generated

Let’s put all our knowledge together:

* Create a selection variable that creates a selection by first selecting the #viz element and then selecting all p elements.
* Bind the poemVerses array to it as the .data()
* Since there are no paragraphs inside the #viz element in our **index.html** we need to create them, use .enter() and .append() to calculate the number of elements that need to be added to selection and to add the p elements. Add a simple string of .text() to each element that says “Click Me!”. We’ll make this part interactive in the next step.
* let poemVerses = ["Always","in the middle", "of our bloodiest battles", "you lay down your arms","like flowering mines","to conquer me home."];
* d3.select("#viz")
* .selectAll("p")
* .data(poemVerses)
* .enter()
* .append("p")
* .text("Click Me!")
* .on('click', function(d, i) {
* d3.select(this).text(d);
* });

Graphical user interface, text, application

Description automatically generated

**Review:**

* Selections are array-like data structures that include a reference to the elements with D3 methods and their hierarchy in the DOM. You can create a selection with .selectAll() or a single-item selection with .select()
* The .data(), .enter() and .append() methods all work in unison to create elements and associate their corresponding data with the existing DOM
* The d parameter inside functions used in a D3 context represents the datum associated with the element at hand
* The .attr() and .style() methods allow you to customize the appearance of each element based on data.
* The .on() method can bind an event listener on the elements in the selection.