16.3 Lesson Summary - Line Charts, Scatterplots, and More with D3

Using D3 with Scalable Vector Graphics (SVG) provides a wide range of functionality to make your data visualizations look more professional. You can use these tools to add multiple lines and scales to your charts. You can also integrate tooltips and transition animations to your charts that are triggered by user interactions.

Concept: In the same manner that a line can be added to a chart, **multiple lines** can be added to a chart. If different chart elements need to be **scaled** differently then you can create and apply different scales.

* Activity: 01-Evr\_Multiline, 02-Evr\_Multiple\_Axes, 03-Evr\_Readability, 04-Stu\_Multi\_Lines\_Axes

Concept: Creating charts by manipulating SVG elements with D3 allows you to link the changing of those SVG elements' properties to JavaScript **events**. To create a bar chart with bars that change color as you hover over them you could use the following code:

*chartGroup.selectAll("rect")*

*.data(dataArray)*

*.enter()*

*.append("rect")*

*.attr("x", (d, i) => xScale(dataCategories[i]))*

*.attr("y", d => yScale(d))*

*.attr("width", xScale.bandwidth())*

*.attr("height", d => chartHeight - yScale(d))*

*.attr("fill", "blue")*

*.on("mouseover", function() {*

*d3.select(this)*

*.attr("fill", "red");*

*})*

*.on("mouseout", function() {*

*d3.select(this)*

*.attr("fill", "blue");*

*});*

* Activity: 05-Evr\_Event\_Listeners

Concept: **Tooltips** can be added to charts by linking the display of blocks of info to a mouseover event. For example:

*toolTippableGroup.on("mouseover", function(d, i) {*

*toolTip.style("display", "block");*

*toolTip.html(`My Info: <strong>${dataArray[i]}</strong>`)*

*.style("left", d3.event.pageX + "px")*

*.style("top", d3.event.pageY + "px");*

*})*

*.on("mouseout", function() {*

*toolTip.style("display", "none");*

*});*

* Activity: 06-Ins\_Tooltips, 07-Stu\_Add\_Tooltips

Concept: The **d3-tips** library allows you to more easily integrate **tooltips** into your data visualizations. Once the tooltip has been created and added to your charts group you can specify how it's displayed using the following command:

*circlesGroup.on("mouseover", function(d) {*

*toolTip.show(d, this);*

*})*

*.on("mouseout", function(d) {*

*toolTip.hide(d);*

*});*

* Activity: 08-Ins\_D3\_Tip, 09-Stu\_Hair\_Metal

Concept: D3 **transitions** can be used to animate your charts. To smoothly change the color of a bar in a bar chart from green to red when your mouse hovers over it you could use the following code:

*barsGroup.on("mouseover", function() {*

*d3.select(this)*

*.transition()*

*.duration(500)*

*.attr("fill", "red");*

*})*

*.on("mouseout", function() {*

*d3.select(this)*

*.transition()*

*.duration(500)*

*.attr("fill", "green");*

*});*

* Activity: 10-Ins\_Transitions, 11-Stu\_Transitions, 12-Par\_Hair\_Metal\_Conclusion