CSCE 5320 Scientific Data Visualization

Interaction Techniques

ICE-10: Tutorial

Making Interactive Visualizations with Python

Resources for data visualization in Python:

https://byuidatascience.github.io/python4ds/data-visualisation.html

You can import any library for this lab.

Import library in Python for data visualization:

```
import pandas as pd

import altair as alt
```

Example data: https://github.com/vega/vega-datasets

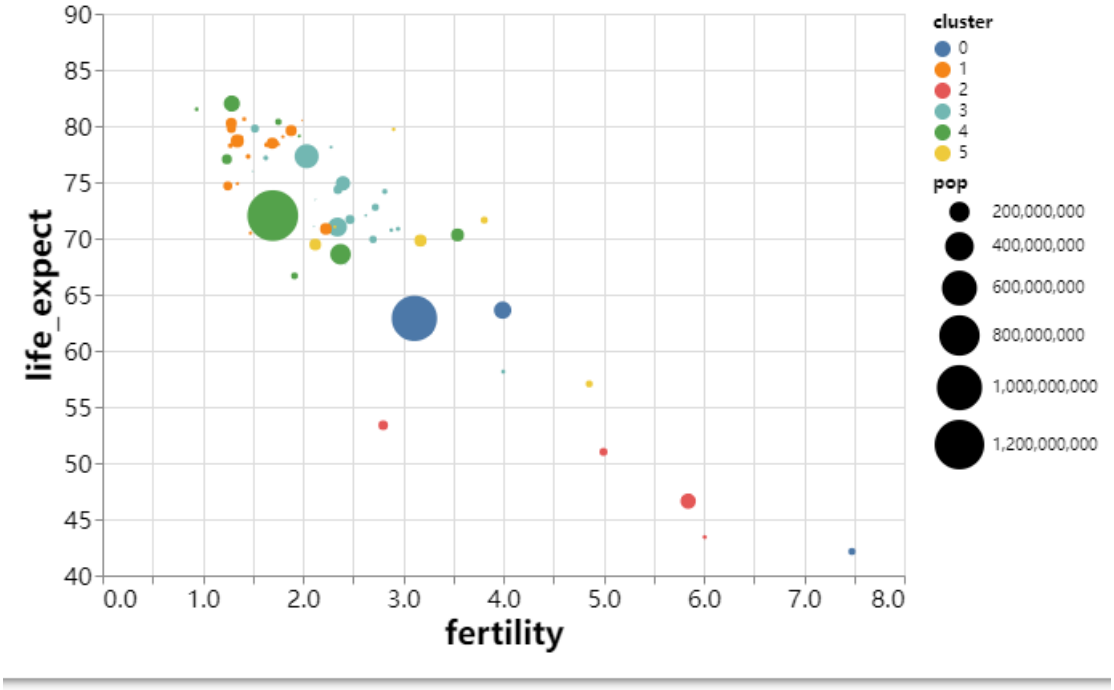
This data shows the global health and population for a number of countries, over the time period of 1955 to 2005.

Python Data Visualization Libraries: https://mode.com/blog/python-data-visualization-libraries/

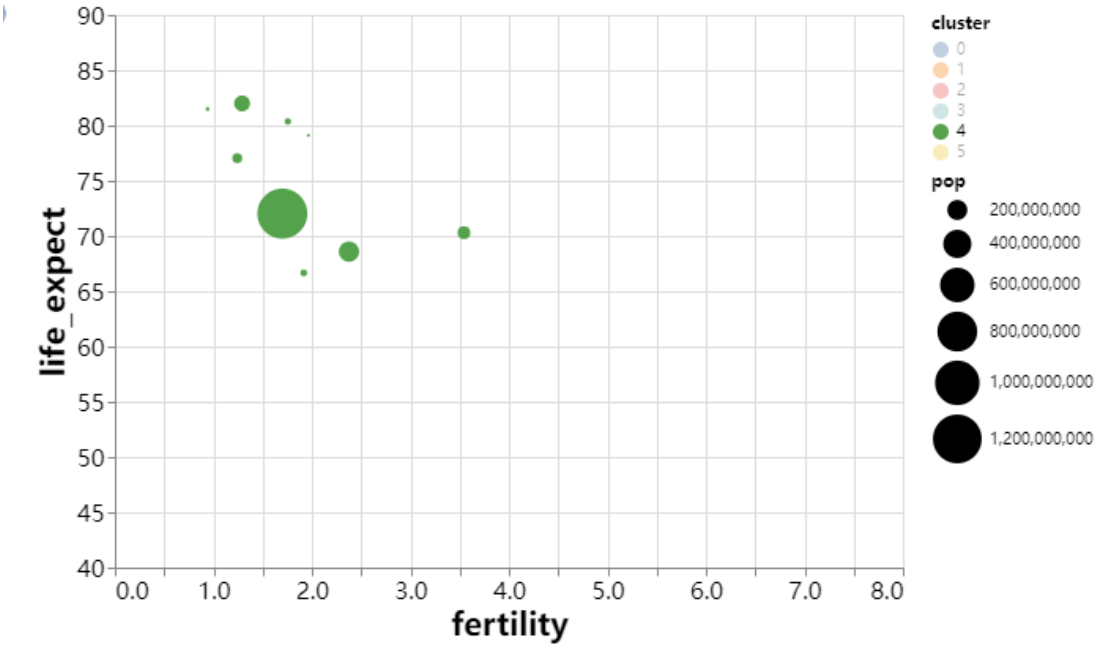
You should use your own data for this lab. The data should contain multiple quantitative values to show different attributes.

Example:

This is the standard scatter plot from last lab, we need to add elements and see how to make it interactive in few different ways.

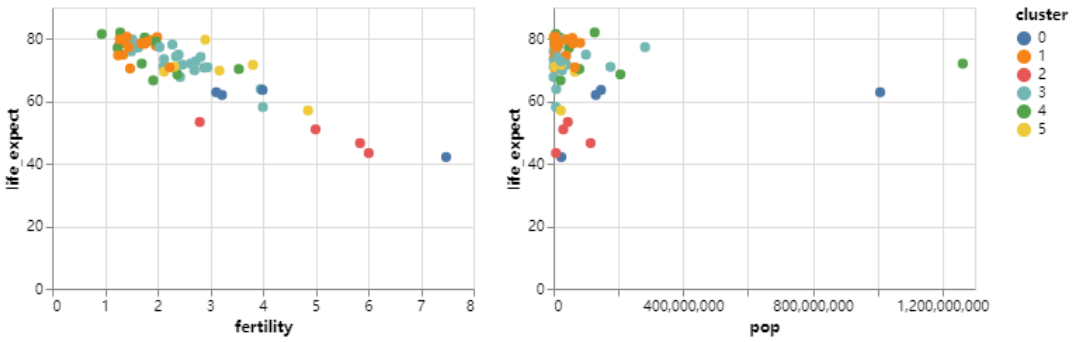


A selection object on the cluster column, and it is bound to the legend. The opacity parameter that changes the opacity of points according to the selected cluster **(cluster 4)**.

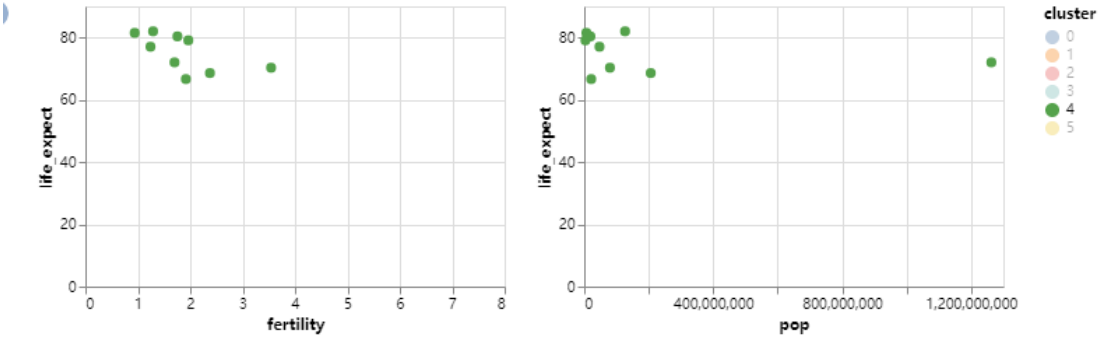


Interactive legend with multiple plots:

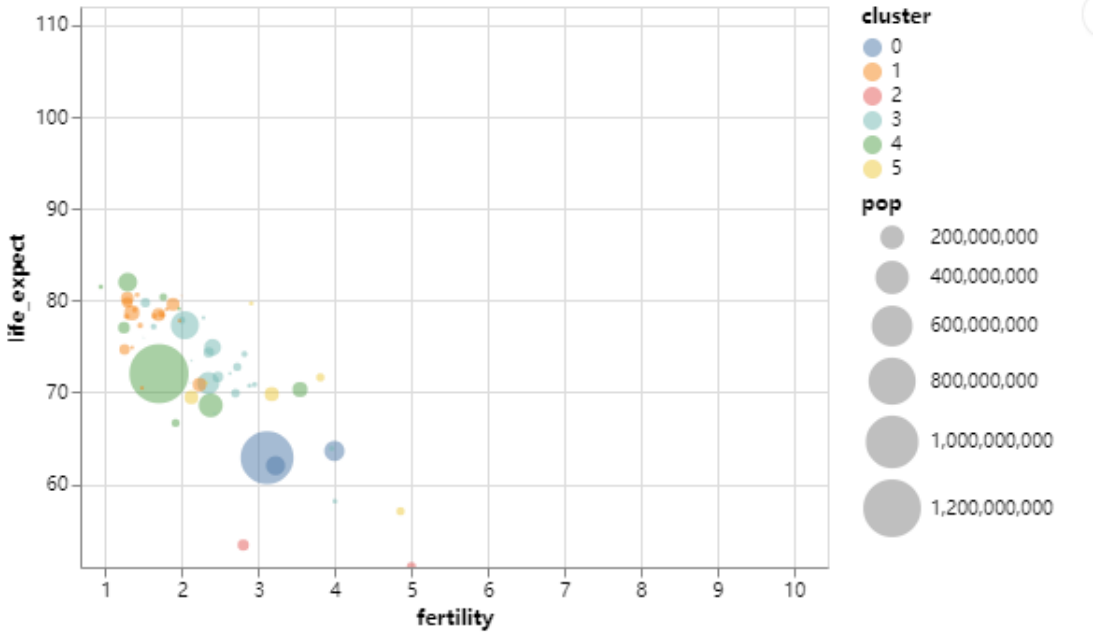
Connecting a legend to multiple subplots, we can see the effect of our selection on different relationships simultaneously:



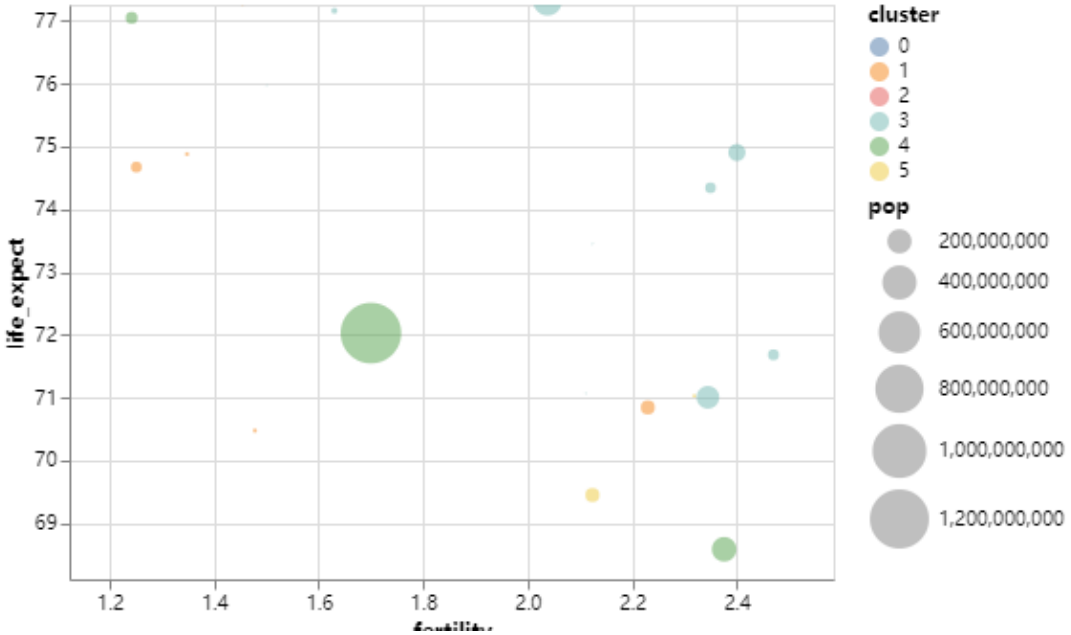
Example of selecting one cluster (cluster 4):

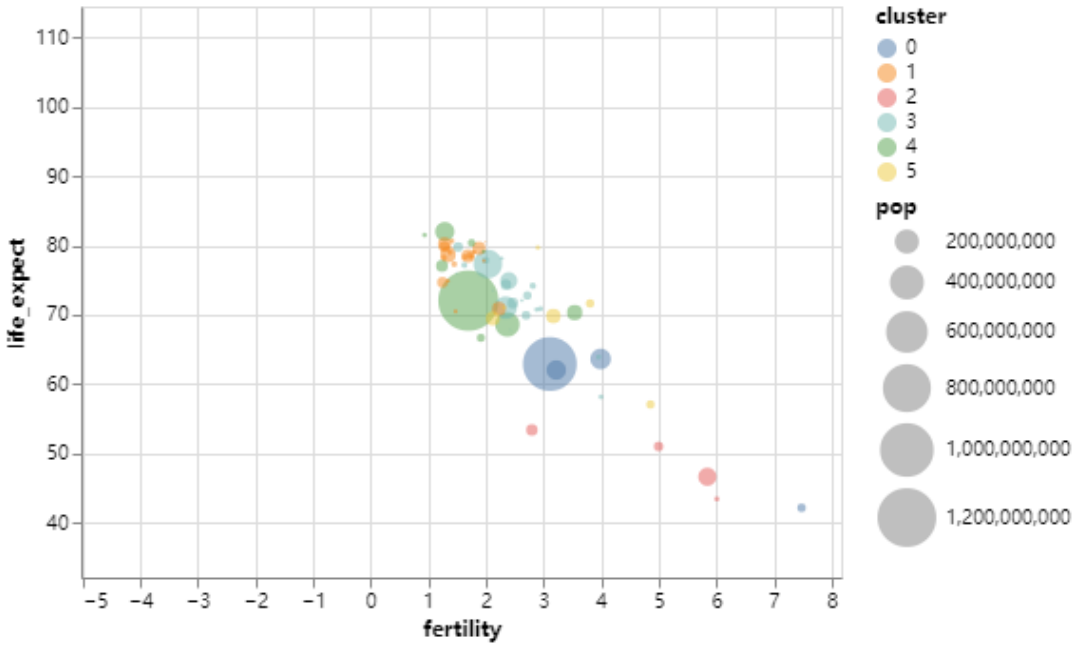


Panning on the graph:

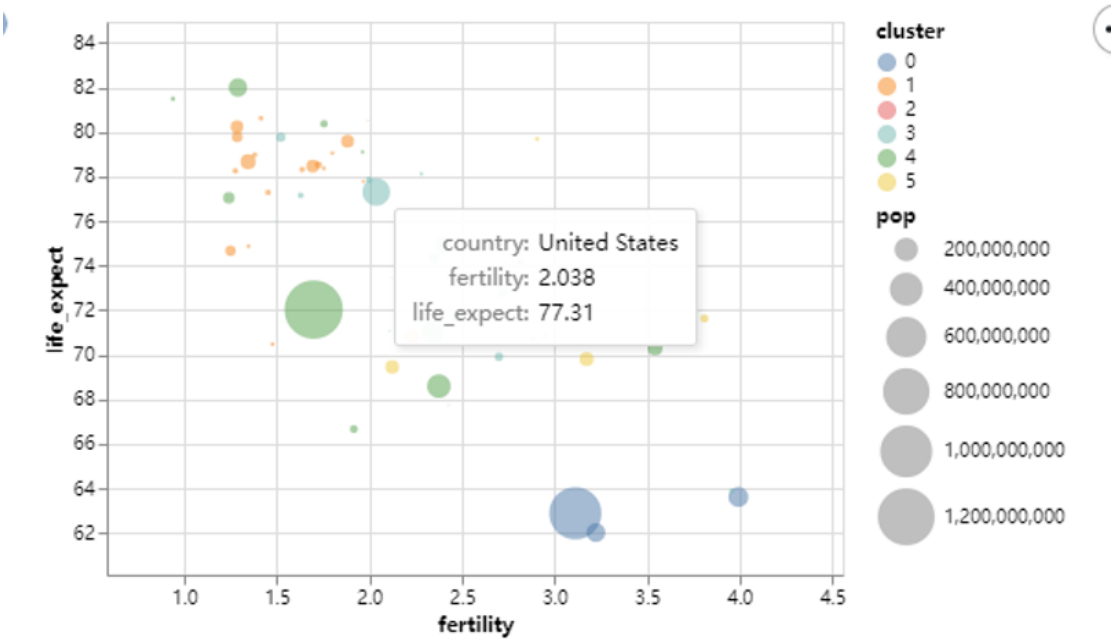


Zoom in and out on the plot:





Adding Tooltips:


life_expect
84
82
80
78
76
74
72
70
68
66
64
62
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
fertility
country: United States
fertility: 2.038
life_expect: 77.31
cluster
0
1
2
3
4
5
pop
200,000,000
400,000,000
600,000,000
800,000,000
1,000,000,000
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