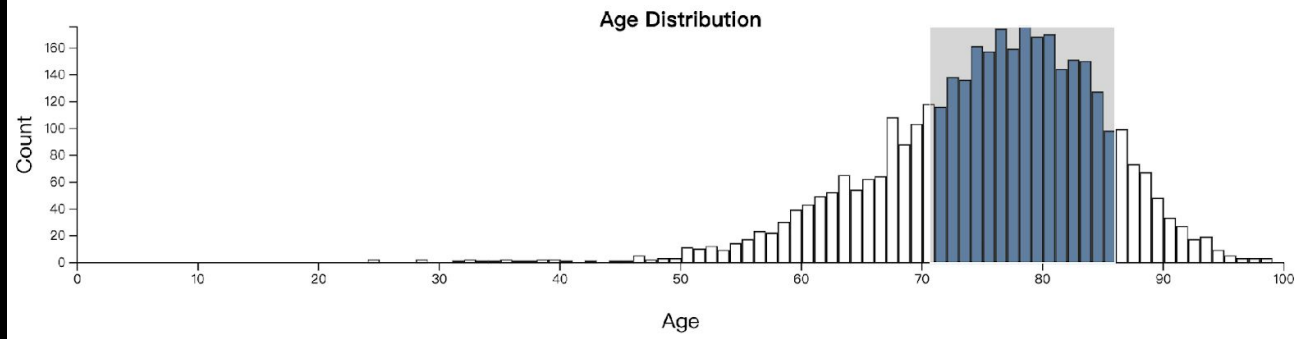
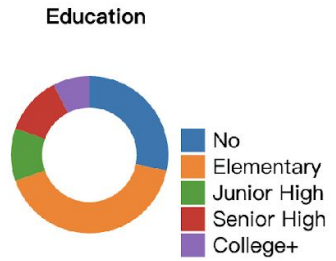
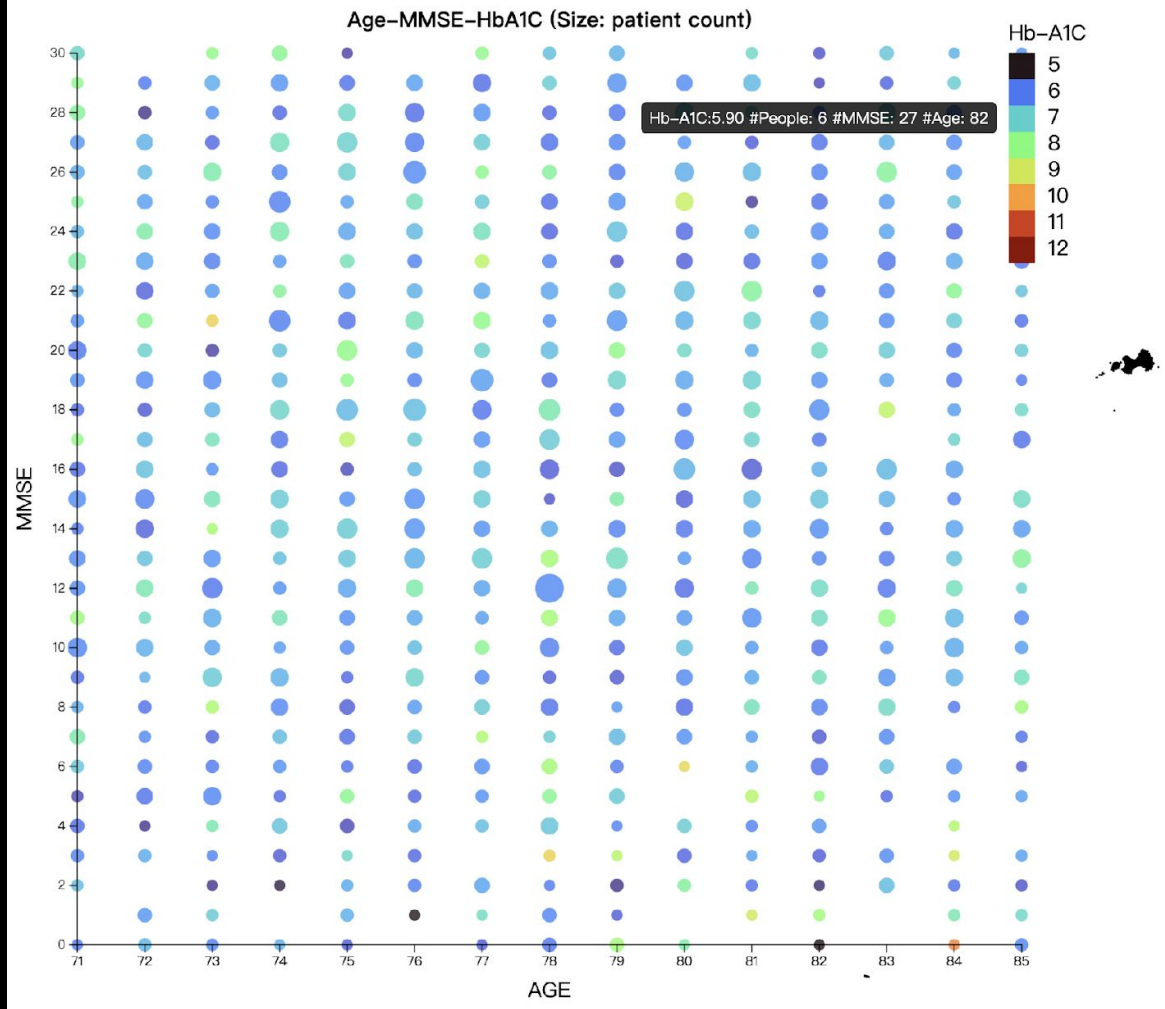
D3: Interactive Visualization

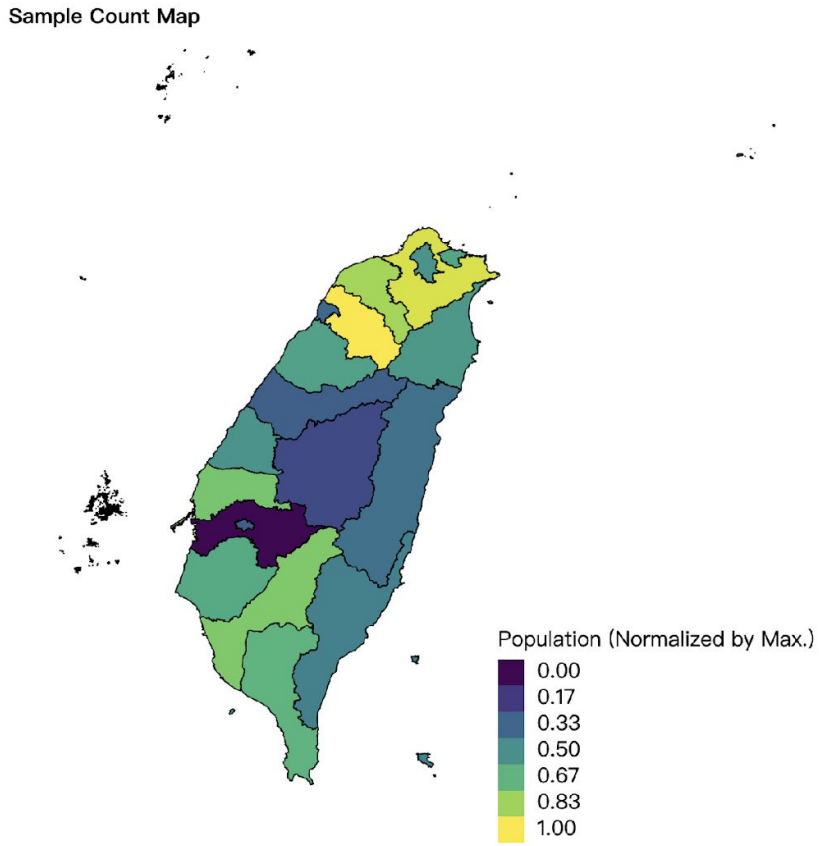
Homework3

This one is an extension of the last D3 homework



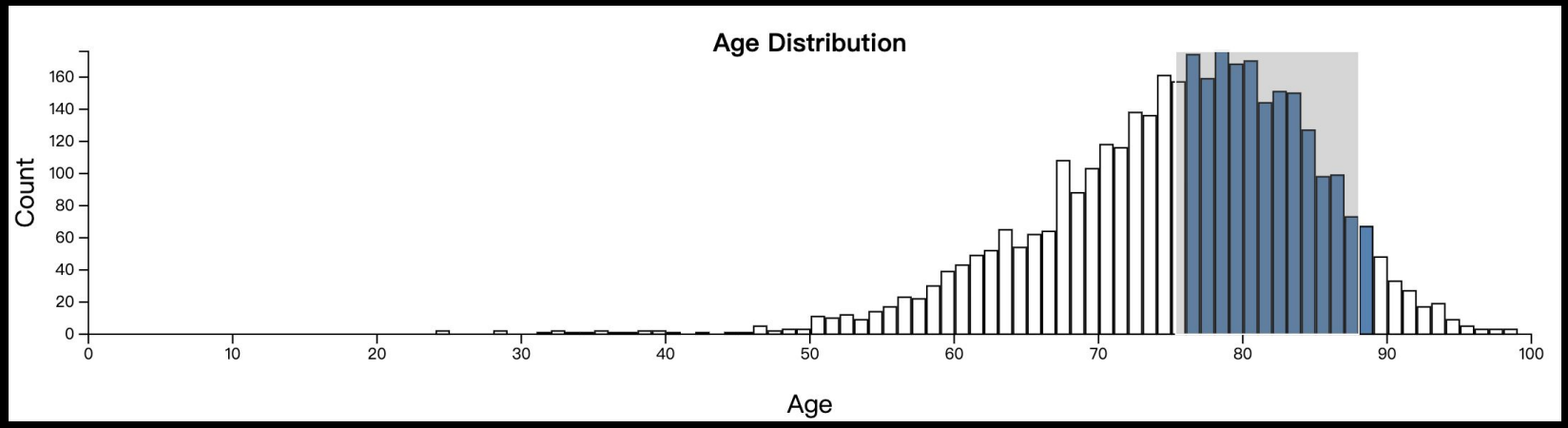






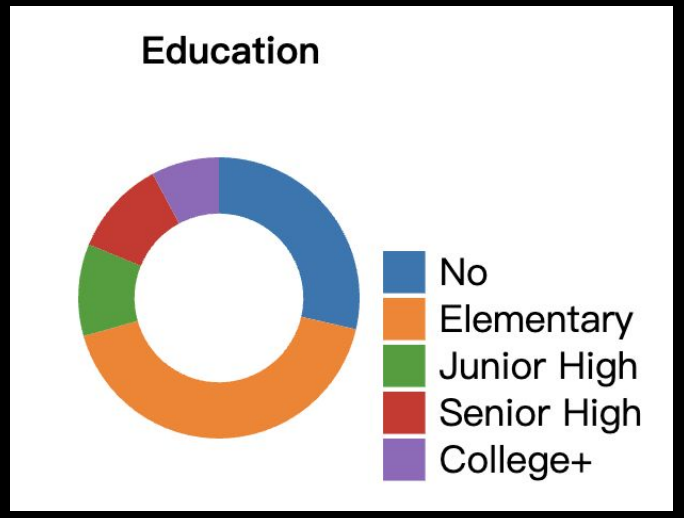
Interactions

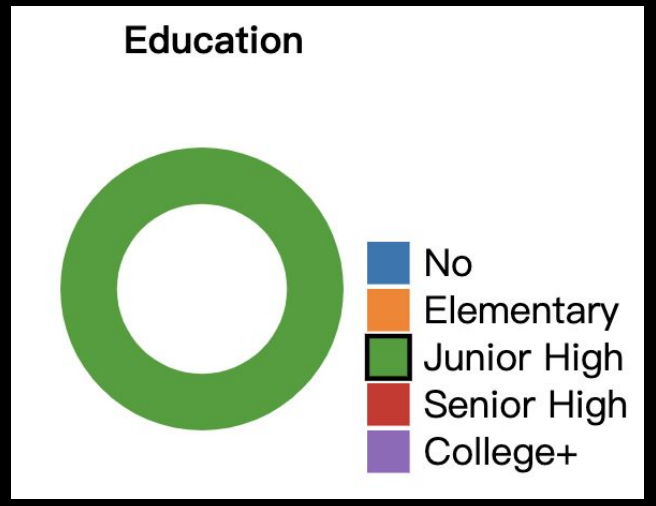
- Bar Chart (age distribution)
  - Users can brush along the x axis direction to select an age range
  - Allow users to cancel the selection by clicking on the empty space
  - Use rect outline to always show original age distribution



Interactions

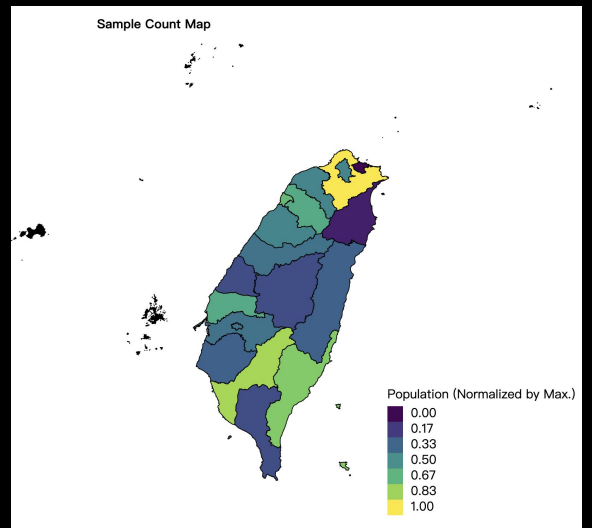
- Donut Chart (Education)
  - Allow users to select an education level when users click an item of the legend
  - Allow users to deselect an education level when users click on the same item of the legend
  - It is NOT necessary to allow multi-education level selection

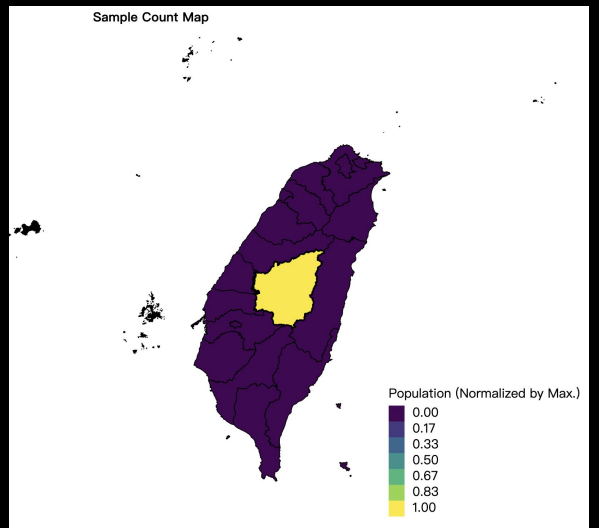




Interactions

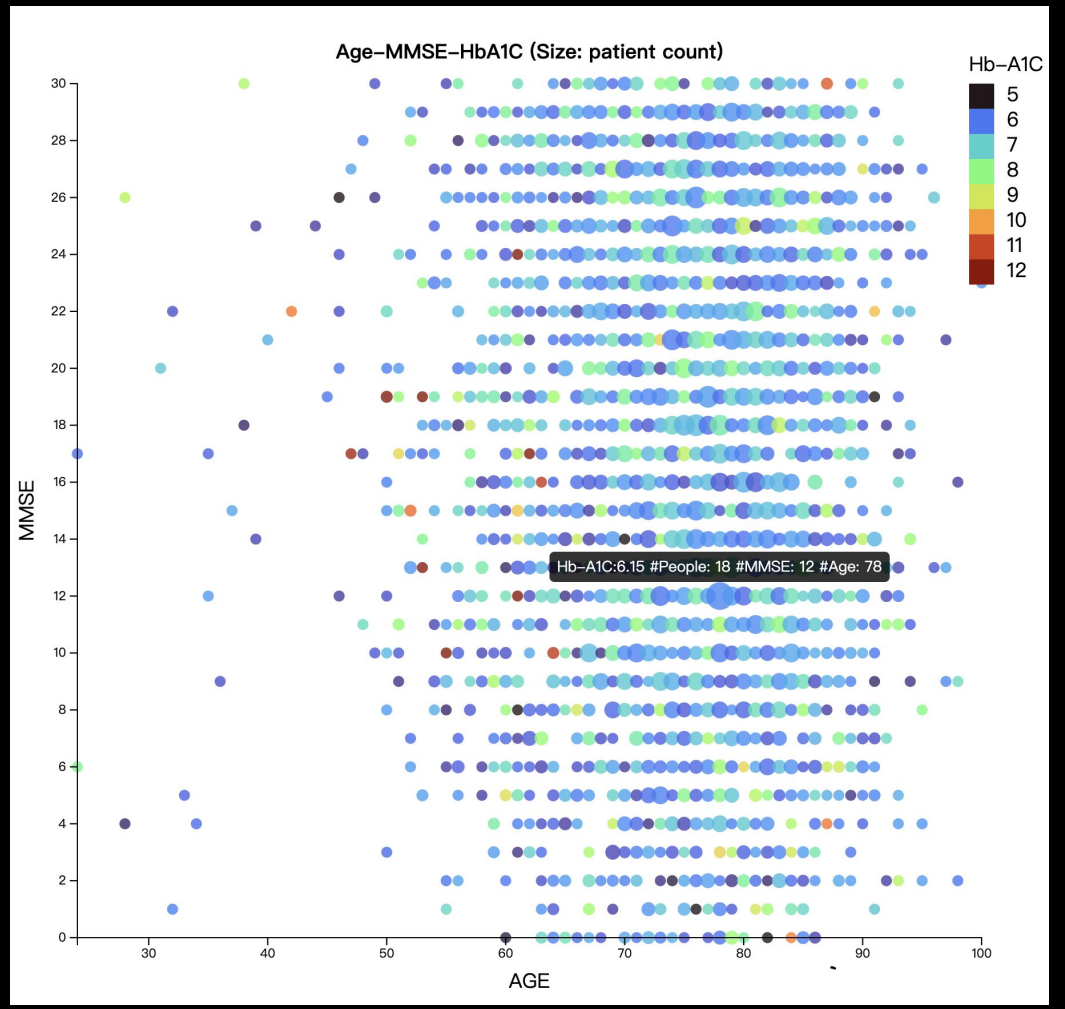
- Map
  - Allow users to select a city/county by clicking
  - Allow users to deselect a city/county if they click on the same one again
  - It is NOT necessary to allow multiple city/county selection
- Color/legend
  - The color represented the normalized sampled count in each city/county
  - Normalize the city/county with maximal sample count to 1.0
  - Normalize the city/county with minimal sample count to 1.0





Interactions

- Scatter plot
  - Add a “tooltip” to every circle
  - The tooltip should show the average Hb-A1C, number of patients, average MMSE value, and age of the group(circle)
  - Show the tooltip when the mouse hover on the circle
- Hint: D3 has not build-in tooltip function
  - If you import an external library for tooltip, some tooltip external libraries only work on some D3 versions. So, you should check whether the tooltip library you use matches your D3 library version or not.



Cross-Filtering

- Only sample (patients) that matches all user's input conditions (brushed age interval on the bar chart, selected education level on the donut chart, selected city/county on the map) are used to update all views.

Transition When Updating View

- Suggestion: set the transition duration to 1 second (1000ms)
- Animated transition
  - Bar chart: when updating the bar lengt
  - Donut chart: when updating the arcs' angle
    - You may need this function, attrTween(), for donut/pie chart transition
  - Map: when updating the color of cities/counties
  - Scatterplot:
    - When updating the circles' locations, sizes and locations
    - When updating the ranges of the x-axis and y-axis
      - The x-axis and y-axis should be updated by the minimal and maximal values of the samples(patients) that meet the users' input conditions

D3 Versions

- There is no restriction on the version of the D3 library to be used for our D3 homework.
  - The material I provided is bsed on D3-v5
  - The updated D3 version is v7 (7.8.5)
  - While the change from v5 to v6/v7 is minor, it is important to note that some APIs have been rewritten.
  - If you test an example from my material or from Internet, but it does not work, please check whether that causes by version problems.
- You should read the D3 version migration guides
  - https://github.com/d3/d3/blob/main/CHANGES.md