CS360 Data Visualization Alpha Release Report

Title: Diabetes in the US
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Repo: https://github.com/EricLYao/CS360-Final-Project
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Background and Motivation:

Both my parents are pre-diabetic and so I wanted to do some more in depth research on it. I have a couple friends that are also Type 1 Diabetic. I also recently interviewed for a company that does CGM (continuous glucose monitoring) and I really liked their project goals and the people that I talked to who worked there.

Project Objectives:

1. Show the age distribution of the proportion of diabetics
2. Indicate the progression of the proportion of diabetics throughout time
3. Display the proportion of diabetics in each state

Data:

All of my data in the form of CSV files can be obtained from here:
https://data.cdc.gov/browse?limitTo=datasets

Data Processing:

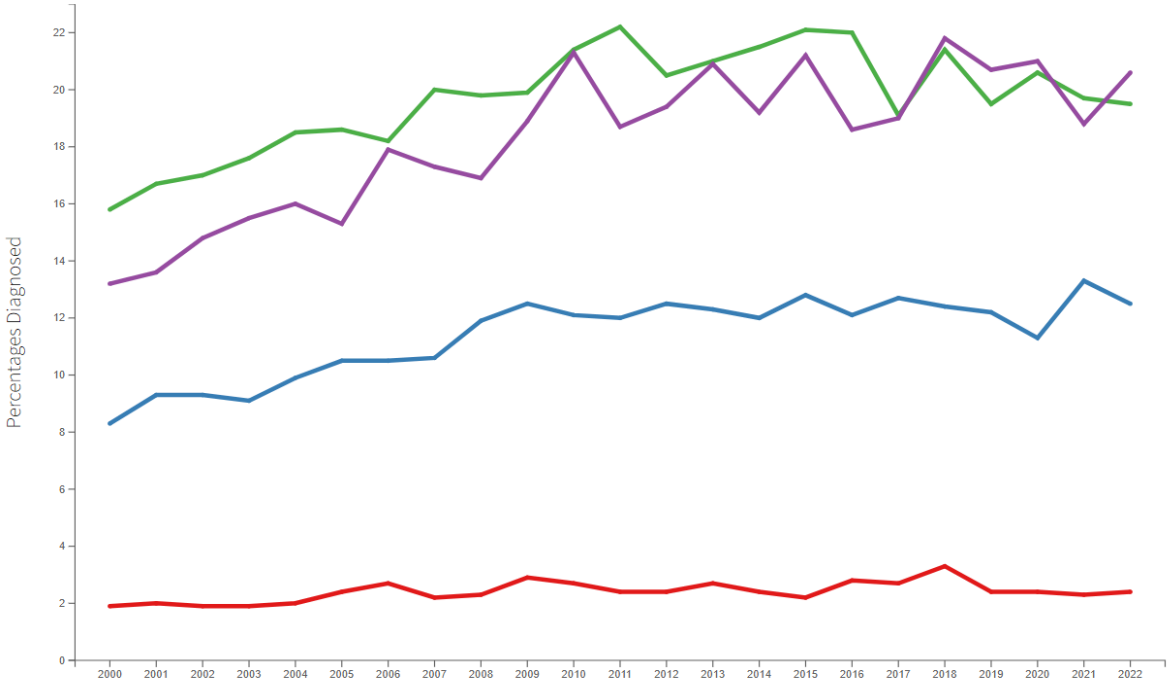
I will process it manually (mainly through google sheets or tableau). I want to get the age ranges, totals, geographical locations, and their corresponding values.

Visualization Design:

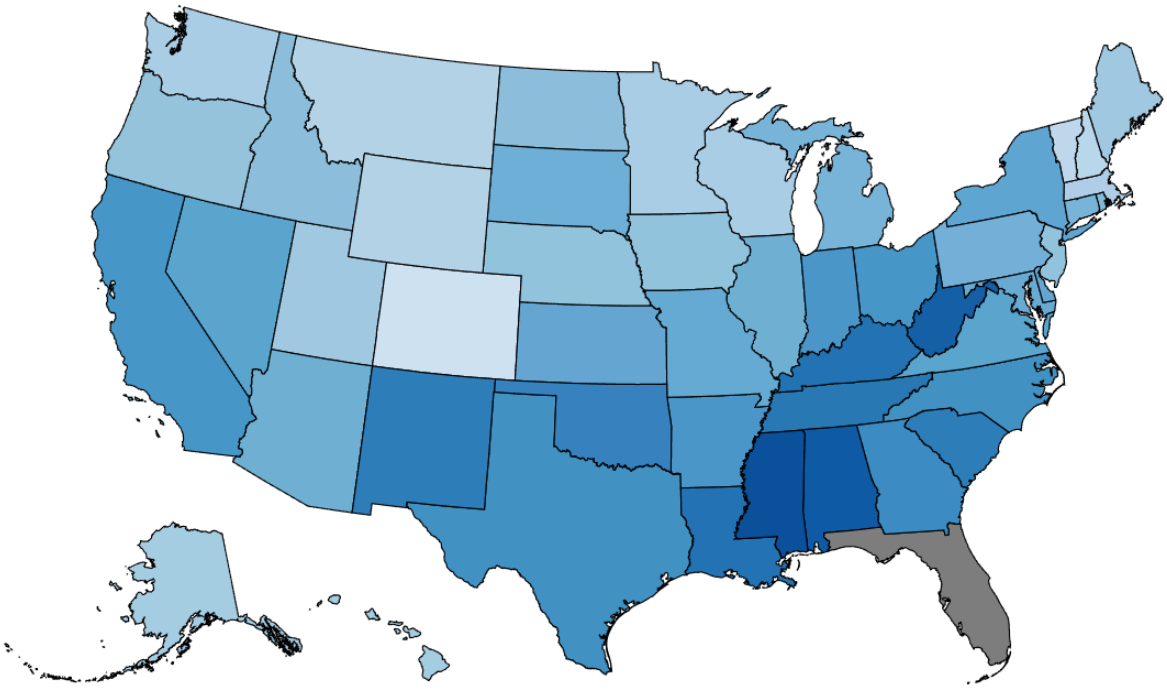
- Objective 1: comprehensive multi-line chart - Baseline D3 visualization completed
  - X axis = years, Y axis = percent, each line = different age group
  - Must-Have Features:
    - Hovers to see specific data points
  - Optional Features:
    - Option to display each age group's specific line
- Objective 2 and 3: Geographical Map - Baseline D3 visualization completed
  - Display of each state and their proportion of total diabetics
  - Must-Have Features:
    - Hovers to see specific data points
    - Slider to see the map at different points in time
  - Optional Features:
    - Click to display a separate line chart for that specific state

- Objective 2 and 3: Cleveland Dot Plot
    - X axis - percent, y axis - top 10 states, lines - male vs female
    - Must-Have Features:
        - Ability to choose which year to display
    - Optional Features:
        - Connect the slider for the cleveland dot plot with the slider for the geographical map to create a linked view
- Objective 3: Line chart
    - X axis = years, Y axis = percent
    - Must-Have Features:
        - Hover to see specific data points
        - Dropdown menu to select state
    - Optional Features:
        - Have the map click automatically choose a state from the dropdown menu

Multi-Line Chart:

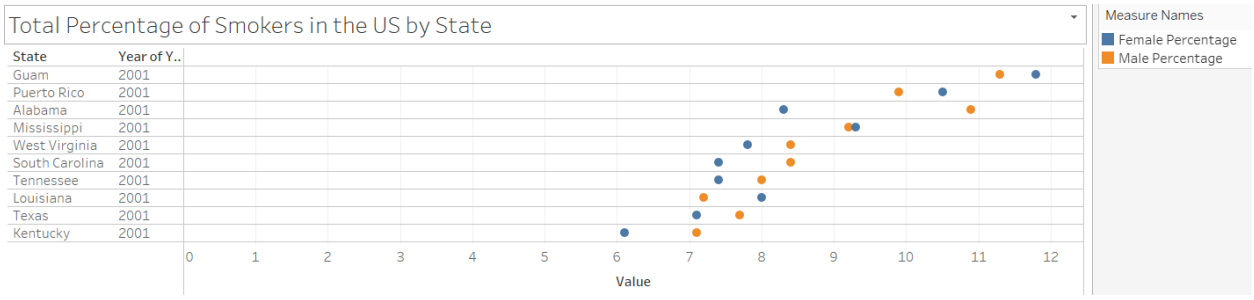


Geographical map (2020):

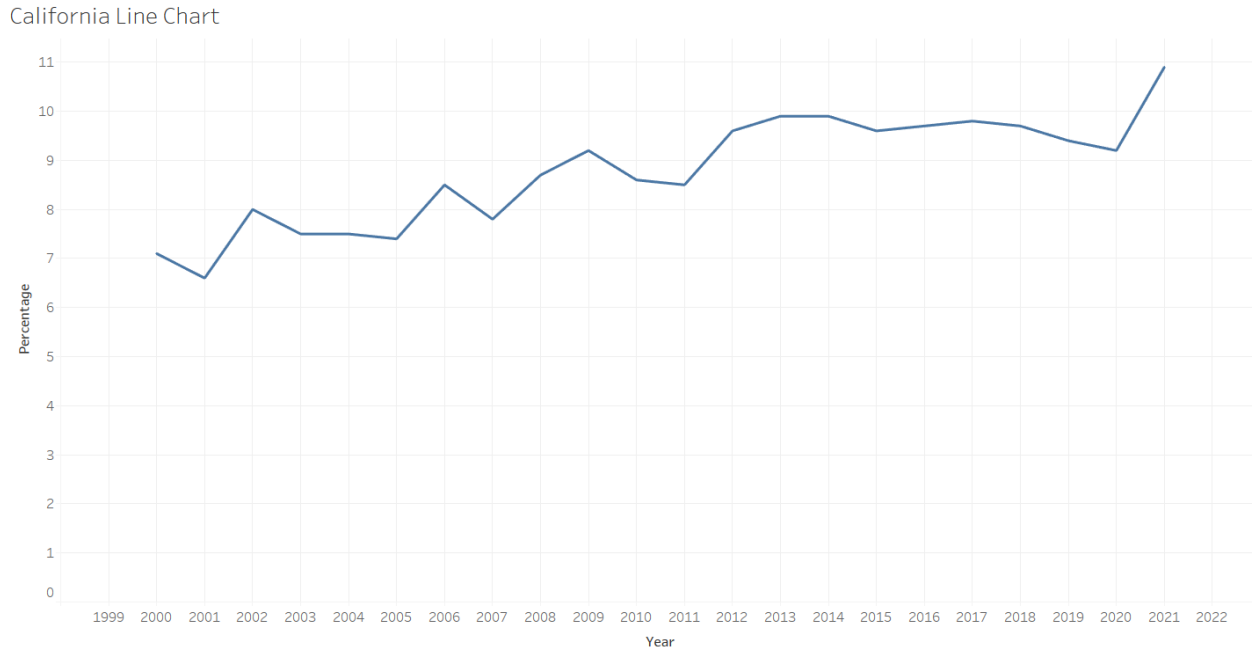


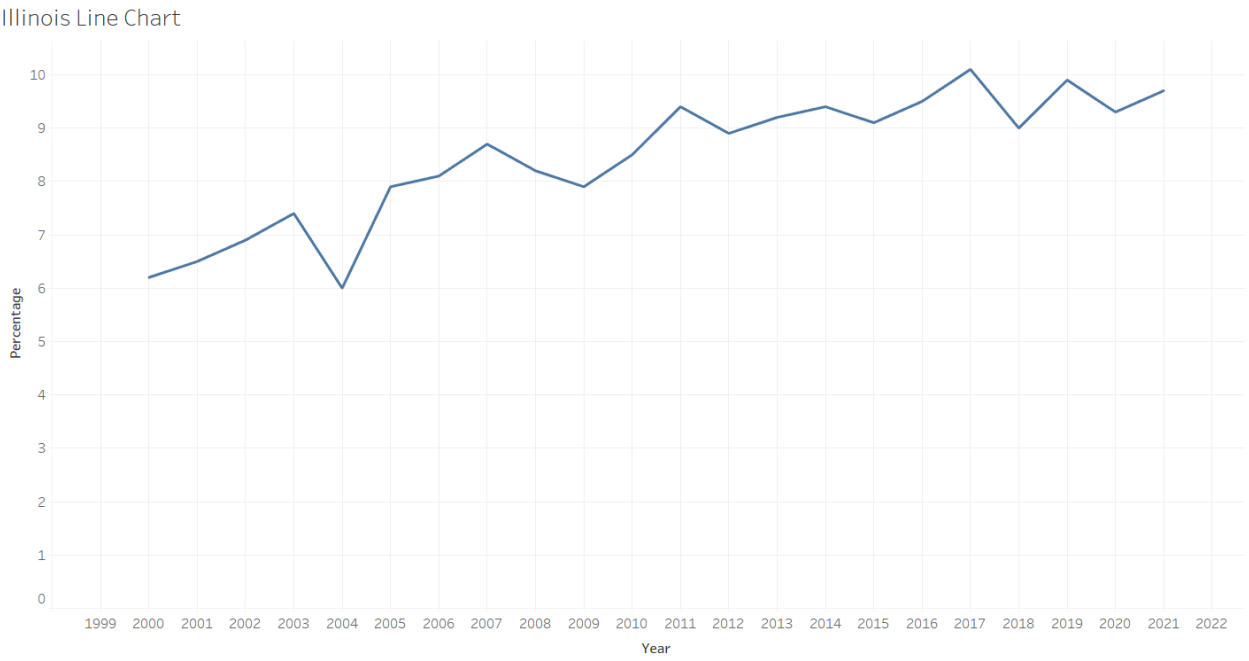
Cleveland Dot Plot (Made in Tableau):

- This only considers the top 10 countries (might remove guam, puerto rico, virgin islands, and district of colombia)
- Also considering adding the “total percentage” dot as well (that’s how they are sorted in the picture at the moment)



Line Charts (Made in Tableau):





Project Schedule:

Date	Task
3/29	Project Proposal Submission
4/1	Finish data processing and get draft of website layout/look
4/5	Revised proposal, Related work, and Website Finish choosing website and requirements for assignment Figure out how to use html and css to do what I want it to
4/7	Work on line charts for any given state (no hovers, no connection to geomap yet)
4/9 - 4/10	Work on the Multi-Line chart (no hovers)
4/11	Work on the Geomap Have basic graph done for any given year Try to figure out how to make a slider to propagate info for the year to display on the SVG

4/12	Try to figure out Cleveland Dot plot Alpha Release
4/14	Add features for line charts (both types) Figure out cleveland dot plot if I haven't already
4/17	Add features for geomap (hovers, slider, maybe click-through?)
4/21	Add features for cleveland dot plot (hovers, dropdown for year)
4/22	Try to figure out linked view and other optional features if I am feeling it
4/24	Beta Release
4/26	Last touch-ups, finish anything or revise anything that hasn't been done
5/6	Project Presentation
5/12	Project Report Draft
5/15	Final Submission

Related Work (The 4th Related work is inaccessible through google scholar but just from the title I have found other information on the "diabetes belt" on the internet)**:**

Mokdad, A. H., Ford, E. S., Bowman, B. A., Nelson, D. E., Engelgau, M. M., Vinicor, F., & Marks, J. S. (2000). Diabetes trends in the US: 1990-1998. *Diabetes care,* 23(9), 1278-1283.

Gale, E. A., & Gillespie, K. M. (2001). Diabetes and gender. *Diabetologia,* 44, 3-15.

Deshpande, A. D., Harris-Hayes, M., & Schootman, M. (2008). Epidemiology of diabetes and diabetes-related complications. *Physical therapy,* 88(11), 1254-1264.

Barker, L. E., Kirtland, K. A., Gregg, E. W., Geiss, L. S., & Thompson, T. J. (2011). Geographic distribution of diagnosed diabetes in the US: a diabetes belt. *American journal of preventive medicine,* 40(4), 434-439.

Harris, M. I. (1998). Diabetes in America: epidemiology and scope of the problem. *Diabetes care,* 21(Supplement_3), C11-C14.

Completed Milestones:

- Completed outline and layout for the multi-line chart.
- Completed outline and layout for the geomap.
- Found the library to make a slider.
- Created a variable to hold the slider's information given.
- Found info online on how to create the Cleveland dot plot
- Finished website layout for current visualizations
- Added routing to the main assignments page

Upcoming Milestones:

- Finish the outline and layout for the cleveland dot plot and individual line charts
- Figure out how to route each state to have a clickable feature to display the individual line charts
- Add the slider to change the "Year" variable for the Geomap
- Add checkboxes for multi-line chart display to display lines by themselves
- Consider being able to add multiple lines to each individual state's line chart to compare against different states
- Add interaction to all visualizations (hovers, tooltips, etc)

Roadblocks:

- Surprisingly nothing, might run into some with the clickable map and linked view with cleveland dot plot.