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Shiny App: [https://ykim846.shinyapps.io/hw2\\_app/](https://ykim846.shinyapps.io/hw2_app/)

Data: <https://uwmadison.box.com/s/ao0kuonmmi01h55j0b9s9gcoivthbri0>

## **Heart Health Visualization**

### **Revised Interesting Findings**

The scatter plot presents a bifurcated analysis of cholesterol and high blood pressure readings for individuals with and without a history of heart attacks. Remarkably, the data points indicate a more pronounced cluster of higher cholesterol levels among individuals who have suffered a heart attack, which is expectable. It's interesting to note that some people have high cholesterol levels but haven't had a heart attack. This makes me wonder why heart attacks happen and how many factors contribute to them. It seems like high cholesterol is an important factor but not the only one that determines whether someone will have a heart attack.

### **Refined Data Visualization Approach**

The visualization was created with a minimalist design to avoid clutter and focus on the essential aspects of the data. The scatter plot, facilitated by ggplot2 within the Shiny interface, allows us to easily compare two groups—those with and without a history of heart attacks. The interface's simplicity ensures that the user is not overwhelmed by data but can still engage with it meaningfully through dynamic queries. To arrive at this level of clarity, data was cleaned and prepared meticulously. Blood pressure readings were split into systolic and diastolic pressures for precise plotting. Custom labels for heart attack history enhance user understanding.

### **Enhanced Reactive Graph Structure**

The reactivity of the application is more than a technical feature; it is central to the user experience. The scatter plot reacts immediately to user inputs, which allows for a real-time understanding of how changes in demographics or health indicators correlate with heart attack history. This responsiveness of the visualization is not merely a function of good coding practices but of deliberate design choices that prioritize user engagement and interaction.

### **Concluding Reflection**

This application goes beyond being a mere assignment; it has the potential to provide genuine insights into heart health data. It helps in visualizing complex medical data in a way that is accessible to both health professionals and laypersons. The scatter plot is a powerful tool for hypothesis generation, prompting users to consider factors that could contribute to heart health beyond the obvious ones. While it provides a snapshot of the data at hand, the underlying story it tells is of the nuanced nature of health data and the importance of visualizing such data to uncover hidden patterns and insights.

The design choices and the reactive structure of the application ensure that the interface is not just a static picture but a window into a dynamic and interactive exploration of data. This is a visualization that invites curiosity and could potentially be used to educate and inform a broader audience about the complexities of heart health.