STAT 436: homework 2

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1 Introduction

This is a shiny app about heart disease data set from kaggle. There are 16 columns in this data frame and I want to explore whether and how these factors(BMI, age, heart rate and glucose) can correlate with whether heart stroke happen. I have uploaded the .Rmarkdown file and data set to the github. So you can download directly.

2 Discussion

2.1 What are some interesting facts that you learned through the visualization. Provide at least one unexpected finding.

Generally, people believe that heart disease has something to do with factors like BMI, age, and heart rate. So in this shiny app, users can choose certain ranges for age and BMI, and correspondingly, it will generate a scatter plot and a ratio based on the selected data. As I chose different combinations of age and BMI, I found that when I fixed the range of age, and changed the range of BMI, the ratio grew as BMI grew. The same thing happened when I fixed BMI and changed age. Also, it seemed that those who have heart stroke have a slightly higher heart rate and glucose.

2.2 How did you create the interface? Were there any data preparation steps? What guided the style customizations and interface layout that you used.

For data pre_process, I drop NULL in the data set and use "siderbatlayout" function to roughly divide the page into two parts. Users can set the ranges for "age" and "BMI" on the left side, and the result will show on the right side.

2.3 What is the reactive graph structure of your application?

There are two reactive graph in this app. One is the histogram of "age" showing the distribution of age in the sample, where users can brush the range of "age" they want.

The other is the scatter plot with "heart rate" as x-axis and "glucose" as y-axis. By highlighting the selected data points, users can visualize the distribution of selected data in this 2D feature space. I use "facet_wrap" function to draw plot for heart stroke and no heart stroke sample.

3 Example Figure

Fig. 1 is an example figure of this shiny app.

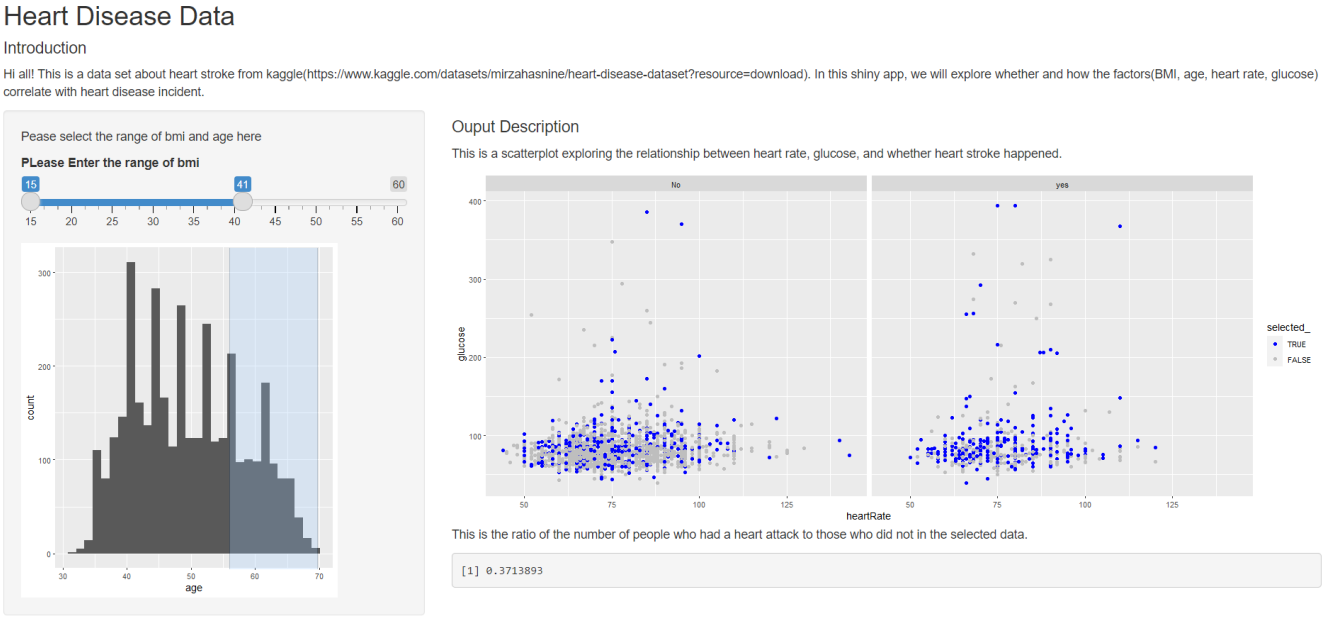

Figure 1: An example image.