

What makes a great wine: Alcohol or Density?

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Data Visualization

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Messaging

Since the wine is one of the most popular and consumed liquors throughout the world, in this narrative visualization, I am demonstrating how alcohol percentage and density of water in a bottle of wine influences its quality. The wine is also mysterious about how its price varies a lot for some reason that I have been interested in figuring out what determines its quality, and ultimately its price. Therefore, the two main factors that I chose in this visualization are the alcohol percentage and the density of water in a bottle of wine. Before any statistical or data analysis to create a narrative visualization, I first assumed that the quality would increase when the density of water decreases as more water probably means less alcohol, meaning that high alcohol would end up in the better quality in general.

Narrative Structure

To interpret the result of data, I decided to use the interactive slideshow where the visualization is not demonstrated until any user interaction takes place as the boxplots are only shown when the user clicks the tabs and buttons to draw them. I chose this type of narrative structure because I wanted to show the users only the graphs that are related to the result that I wanted to know about wine quality with previously chosen parameters (alcohol percentage and density). Even though the boxplots for each graph for each type of wine directly show the result (how each parameter affects the quality), the user may interpret these boxplots with their own tastes as there exists some numbers of outliers in this data. For example, in my perspective, from the Quality vs. Alcohol boxplot for Red + White wines, high alcohol percentage results in high quality of wine in general, but another user might think that the alcohol percentage does not affect the quality of wine as much because of its small difference for each quality. Thus, this interactive slideshow visualization would most likely lead to the results that I wanted to demonstrate to users but at the end, it is up to users to interpret with the data visualization given.

Visual Structure

For each scene, as I mentioned in previous paragraphs, I used a graph of combined boxplots to represent the data that I wanted to demonstrate to the users. For the navigation between each scene, I implemented the tabs for each type of wine (Red, White, and Red + White) to make it easier for users to explore the data. Each boxplot is drawn for each quality of wine vs. the parameter that the user chooses (alcohol percentage or density). Each boxplot is also highlighted with different colors, for example, green for quality of 3 and yellow for quality of 4. I set these colors uniform in all graphs that it is more convenient for users to analyze the data from visualization overall and that it also makes it easier to match each boxplot to each quality. Thus, this uniform color scheme for each quality value helps users to understand the connections between each scene more effectively with less confusion.

Scenes & Annotations

The scenes in my narrative visualization are the graphs of boxplots for each type of wines that I selected (Red, White, and Red + White). Under each type, the user can choose to draw either a graph of Quality vs. Alcohol Percentage or a graph of Quality vs. Density, which are scenes of this visualization as well. For the annotations, I made the color scheme consistent for all scenes. The minimum, maximum, and median values are also drawn for each boxplot in each scene for all scenes in this visualization to make users understand the data easier. These annotations do not change in a single scene as the color is uniform and the statistical values cannot be changed unless the original data are modified.

Parameters & Triggers

The parameters here are Wine types, Quality, Alcohol percentage, and Density of a wine bottle from the data file included in the project folder. The Quality parameter is categorical that it has only 7 values (6 for the red wines because there exists no wine of quality 9 for red wines). So, the states are Quality vs. other two numeric parameters for each type, meaning that there exist 6 states in total in this narrative visualization (2 for each type). To sum up, each state is determined by the Wine type parameter first (when the user chooses the tab), then is determined by the numeric parameters (when the user chooses either Alcohol or Density button) along with the Quality parameter which appears in every scene uniformly except “Red” wine scenes. There are two types of triggers in this visualization: Tabs and Buttons. The tabs are implemented to provide users options to choose the Wine type parameter and to provide this project (React application) to transition between each page easily. The buttons are implemented under each tab that they offer users options to choose which numeric parameter that they want to use against the Quality to see the result that they want.