Attila Serfozo - Semester Project Documentation

1 Overview

Nowadays there are large amount of coffee beans available in the online shops and supermarkets. In this wide selection it is easy to get lost, therefore the question for me in this exercise is how to choose in this great variety to have the best odds to pick a good quality coffee? As a huge coffee fan, I was always curious in this matter as there can be a huge difference between the aroma, acidity, or aftertaste of different coffees.

My main goal is to find the properties of the top ranked coffees, which can give me a hand in the selection process when I am standing in front of the shelves. Thus, as my main task I will try to look after the top coffee producer countries, considering the countries average coffee quality. In addition, I will try to find good year of harvests and optimal altitudes of coffees.

2 Data Sources

I started with a Kaggle search and found a database scrapped from the Coffee Quality Institute (CQI), a non-profit organization, which ranks the quality of coffee beans in their partner countries. The dataset contains the quality measurement of more than 1,339 different coffee beans from 35 countries. All the coffees included are qualified as specialty or premium coffees measured through strict criteria. The attributes of the dataset I used are ID, country of origin, grading date, altitude. and the 10 quality of measurement (aroma, flavor, aftertaste, acidity, body, balance, uniformity, clean cup, sweetness, cupper points) with the total cup points showing the overall quality of the coffee given on a 0-100 scale. To create my database, I went through several data cleaning process like editing the date formats, removing and standardizing quality of measurement, reducing chance of typos, handling empty cells, adding continent field, removing unnecessary columns.

I also wanted to amend my dataset with a database about coffee export of the countries, presented in my CQI table. I searched on Google and found my coffee export dataset on the International Trade Centre with a snapshot of the world coffee exporters in 2019. I exported it into an excel file and filtered it down to the countries included in the CQI database to have a look at the connection between coffee quality and coffee export. The main attributes are the countries, export value and trade balance in USD thousand, quantity exported in tons. unit value of the coffees measured in USD/tons, shares in world coffee export (%).

3 Analytics Questions

- How does the South-American and African coffees perform compared to each other regarding coffee quality?
- What are the top coffee producing countries in average coffee quality?
- How does altitude and Harvest year effects the coffee quality?
- Relation between quality of coffee and export quantity/value of the country?
- How does the value of coffee varies over country, which are the most expensive and how does it relates to quality?

4 Dashboard Specification – Coffee Quality by Properties

4.1 Summary

The first dashboard aims to show the average coffee quality, based on CQI total cup points scores, for partner countries, for altitude of coffee plantation, for the date of grading.

4.2 Components description

- The map shows the countries colored based on the selected ranking method, which includes the 10 measurement criteria and the total cup points of the country.
- The bar chart below the map shows the average coffee quality for different altitude of plantations. I wanted to show these details on a bar chart to easily highlight the score differences and provide an easier visualization for grouped the altitudes.
- The line chart shows the average coffee quality for different continents over time. It can provide an interesting insight to compare the coffee quality of continents. I selected the line chart as it is the easiest way to show the differences over time.
- The table shows the countries with coffee quality above average (82.09 total cup points) in coffee quality order. I selected a table visual as I it provides an easy understanding for the order of countries.

4.3 Functionality / tableau techniques / interactivity

- The filter on the top left corner can be used to select the ranking criteria according to which we would like to color the map. It is a measure selector based on a calculated field. Also, there is a continent filter in addition to select the preferred continents.
- An action filter enables the visuals to filter each other (except the table). The user can select a country on the map, a preferred altitude or a year and continent and the dashboard reacts to that.

- The map enables the user to hover the cursor on a country and a tooltip appears with the average score of the different variety of coffees available in the country.
- The bar chart about altitude has the heights grouped on the x axis with 400m wide bins until 2,000m and then special bins for altitudes between 2,000-2,999m and heights above 3,000, as there are less observations above 2,000m. There is an option to drill down into further details with 200m groups on the x axis or to simply hover the cursor over the preferred column and a 200m groups breakdown can be seen on the tooltip.
- The table with the countries above average coffee quality is filtered down by a formula.

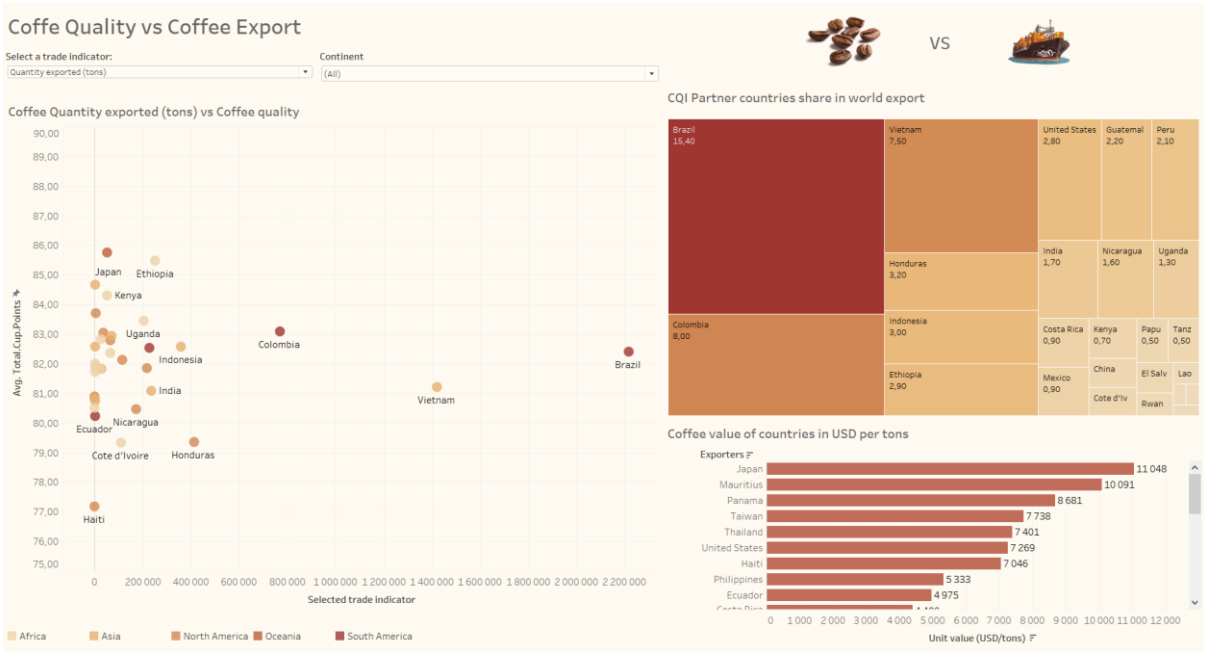
4.4 Key findings

I think it is clear, that the African countries have the best coffee quality in average, besides mainly Ethiopia, Kenya and Uganda are top quality. For me it was an interesting finding that they are above the South American coffee qualities which would come as first into our mind. It is interesting to see on the line chart that South America could only surpass Africa in 2013. Even though in the table we can see that Papua New Guinea coffee has the highest rank and the Japanese coffee is also well ranked, I would choose Ethiopian coffees as the preferred as there were more samples available from there. But we can also conclude that these countries with less samples can have some specialty which worth to look after.
Also, I found an answer for my question on coffee properties. We can see on the visuals, what can be a good year of harvest for preferred continents or preferred altitude (around 2000m) for a top-quality coffee.

5 Dashboard Specification – second dashboard

5.1 Summary

The goal of the second dashboard is to show the connection between average coffee quality of a country and their trade indicators like coffee export value and quantity, share of global coffee export, value of exported coffee per tons.



5.2 Components description

- The scatter plot chart shows the coffee quality of countries versus the selected trade indicator like export value, export quantity, trade balance or unit value. I decided to choose a scatter plot for this visual, because the distribution of the countries in a coordinate system is good to show alignment.
- The treemap shows the share of CQI partner countries from world export. I selected this visual as I really like how it highlights the proportion of the values.
- The horizontal bar chart shows the countries unit value of exported coffees per tons. I decided to show it on a bar chart as this way I could better emphasize how valuable is the coffee of some countries compared to others.

5.3 Functionality / tableau techniques / interactivity

- The filter on the top left corner can be used to select the trade indicator for the scatter plot chart. It is a measure selector based on a calculated field.
- There is also an option for the user to filter down to selected continents.
- An action filter enables the visuals to highlight each other on the dashboard. There is an extra action filter created for the horizontal bar chart, which enables the other charts to filter it not highlight, as it is more practical because of the scroll option.
- The horizontal bar chart is space efficient as the user can have the ability to scroll up and down in it to examine the different countries.

5.4 Key findings

I think it is very interesting to see if we put aside the area and population size of the countries, that even though Brazil is the largest coffee exporter country, according to CQI coffee rankings in average it is only in the upper middle class of coffee quality. It is also surprising how small is the African countries share of world export, compared to the quality of their coffees, not mentioning that the top 3 African coffee producers are not small countries. It is also suspicious that mainly smaller islands have more expensive coffees (except Japan), probably because of the small scale of production. However it is very interesting to see Haiti being the 7th most expensive with the lowest average coffee quality in the analyzed dataset.