Jaclyn

1. Intro

As data scientists for Budweiser we were thrilled to help decide on the type of beer that will compete with the booming microbrewery growth in the United States. During this discussion we will be presenting an analysis of beer bitterness (or IBU) and alcohol by volume (ABV) by state. This will lead into our recommendations for new beer releases by regional market in the US. We expect Budweiser to be able to compete and excel in this rapidly expanding sector.

First, we would like to introduce ourselves.

Huy Hoang Nguyen: (As a mathematician, I am in love with numbers, formulas and I always want to discover new things. Some time ago, I discovered the area of Data Science and since then, it became my interests. I have invested my time and my work seriously in this field. I can define myself as a data cruncher and a hype crew. With all of theses ambition, I can spend hours to hours to perform analysis on data. I’m so happy to be here with my colleague Jaclyn and to be hired from your company. We have done the best as we could.)

* Data cruncher
* Hype crew

Jaclyn Coate: I have always had a passion for beer and as a new data scientist with Budweiser I am ecstatic to be able to help our team make crucial business decisions when it comes to competing in the microbrewery industry.

* Architect
* Visualization lover

Jaclyn

Data Review

* We have use R to compete our Exploratory Data Analysis we are showing you all today
* We have done our initial analysis in research population ABV and IBU across the United Sates and have performed this on separate data sets.
* We are excited to show you our findings!

Jaclyn

1. Breweries by State
   * As we can see there is a large distribution of breweries throughout the United States. California, Colorado, Michigan, and Oregon are all some of the leaders is breweries in the US. Texas gets an honorable mention and is not close behind.

Jaclyn

1. Median ABV by State
   * In reviewing our bar chart and geo map of you can see that there is not a lot of variation in the color spectrum. This immediately tells us that while there may be some high ABVs present but the median ABV is pretty centralized in a small range.
2. State with highest ABV
   * The state with the highest ABV is Colorado at 12.8%
3. ABV Summary Statistics
   * From the summary statistics we can see the median ABV has a small distribution. The majority of the beers (75%) that are produced fall between 5.5% - 5.8%. This is slightly higher than the mass-produced Budweiser products of 4.2%. Whenever local consumers are given an option, they are likely to choose a microbrew that contains a slightly higher ABV than your traditional products. For this reason, we will be recommending new Budweiser releases by region and of a different ABV than what Budweiser is used to.

Huy

1. Median IBU by State
   * As we can see here, by comparing this bar chart with the other one of ABV level, after sorting the data from the lowest level IBU to the highest level of IBU, in the bar chart, the median is not like as in ABV ( the line is not straight. The median from state to state is changing from 20 to more than 60 in IBU levels. Then the taste of beer are so different.
2. State with highest IBU
   * The state with the highest IBU is Oregon at 138
3. IBU Summary Statistics
   * IBU is a scale that goes from 1 to 100 and measure the amount of isomerizes alpha acids in a beer. The standard IBU of Budweiser is 7 in IBU, in generally. Now we take a look on the boxplot and we see the actual rang in median of IBU level of beer produced by microbreweries are around 30-43 (75%). So, the medians are much higher than the IBU of Budweiser. For this reason, we will be recommending new Budweiser releases by region and of a different IBU than what Budweiser is used to.

Jaclyn

1. Relationship between bitterness and alcoholic content
   * There is a relationship between IBU and ABV. In order to investigate further we will look for correlation.
   * Based on the above scatter plot and correlation line we can see a positive linear relationship. This tells us that as the alcohol content (ABV), in general, so does the bitterness (IBU). This linear correlation means there is a relationship but does not mean that we can provide causation. Therefore, in general we can confirm that when the ABV of a beer rises so will its bitterness. However, one does not necessarily cause the other.
   * Here we have also decided to analyze the relationship between ABV and IBU by State. We were looking for any trend among the states themselves. Upon this investigation we were able to determine that there is no particular trend by states individually. So we ended our EDA here.
   * As you previous say with so many states there is no real grouping by state for ABV by IBU comparison. So here we’ve decided to show you grouping by region. We can see some more definite clustering by region.
     1. With this discovery we are going to complete a ABV, IBU, and Style analysis by region to present to you next week our recommendations for new beers releases for Budweiser to be able to compete against the microbreweries in these markets.
     2. Thank you for taking the time to meet with us today and does anyone have any questions?