Github Repo: <https://github.com/JaclynCoate/6306_Case_Study_1>

Jaclyn

1. Intro

Good evening everyone and thank you for joining us this evening for our Exploratory Data Analysis on Beer and Breweries.

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, our contributors will introduce themselves

Huy Hoang Nguyen: As a mathematician, I am in love with numbers, formulas and I always want to discover new things. I am excited to be here with Budweiser and talk about the different competitors within the United States.

* 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

Huy

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 of Median ABV by state, you can see that there is not a lot of variation in median ABV when comparing state to state. This tells us that while there may be some high ABVs present, normally most breweries fall within a small range.
   * To further show this closeness in Median ABV, we see here our geo map does not have a large range in gradient color. This again shows median ABV does not vary much between states.
2. State with highest ABV
   * The state with the highest ABV is Colorado, currently producing and selling a beer with 12.8% ABV.
3. ABV Summary Statistics
   * In reviewing this boxplot we can see our Median ABV distribution is small.
   * 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 our 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. Based on this scatter plot and correlation line we can see a positive linear relationship. In general, we can confirm that when the ABV of a beer rises so will its IBU.
   * Here we have also decided to analyze the relationship 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 changed to a larger grouping: by region.
   * We can see some more definite clustering by region. Which gives us a more finite view.

Huy

1. Next Week
   * With this discovery we are going to complete a ABV, IBU, and Style analysis by region
   * Next week will have an official recommendation for beer releases by region and have Style, IBU, and ABV included.
   * This will assist Budweiser in breaking into and competing against the microbreweries by regional market.

Huy

1. Thank You
   * Thank you for taking the time to meet with us today and does anyone have any questions?