

# Budweiser Analysis

**DS 3605 Project 1 – Group 5**

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The Budweiser logo, featuring the word "Budweiser" in a white, cursive script font, set against a red, ribbon-like background that tapers at both ends.The SMU logo, consisting of the letters "SMU" in a large, bold, white, sans-serif font, with a registered trademark symbol (®) to the right.





**THIS  
BUD'S  
FOR  
YOU**

## Agenda

Recap:

- Overview
- Distribution of breweries
- Address missing values
- Analyze ABV and IBU

IPA vs Ale classification

IPA vs Ale by State

**SMU**



# Overview

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Objective: Provide analysis on breweries in the United States with a focus on impact of International Bitterness Unit (IBU) and Alcohol Beer Volume (ABV).

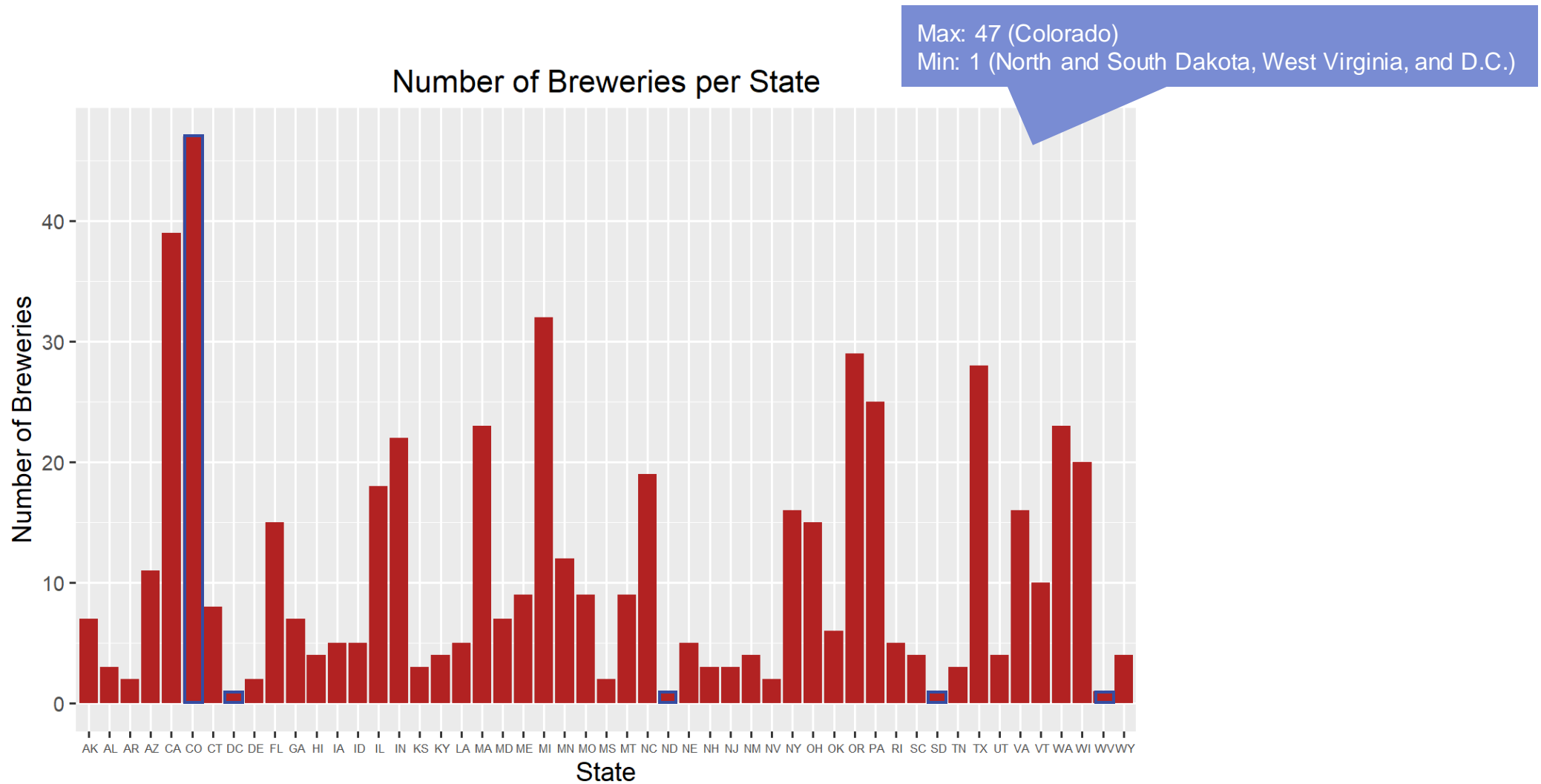
## Brewery Dataset

- » 558 breweries
- » Brewery name
- » City and state

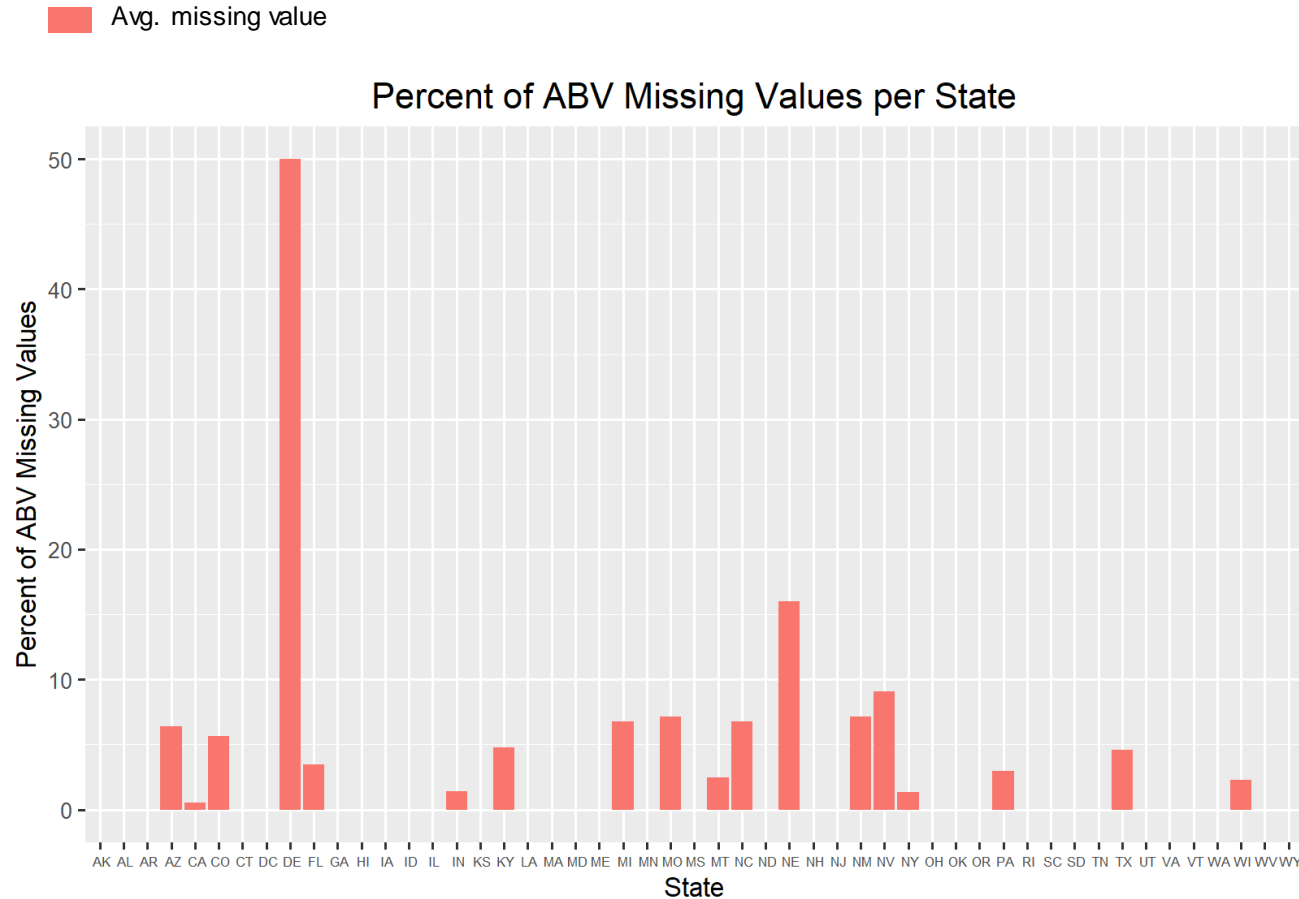
## Beer Dataset

- » Contains 2410 US craft beers
- » IBU: International Bitterness Units of the beer
- » ABV: Alcohol by volume of beer

# Significant difference in number of breweries across the nation



# ABV Missing Values



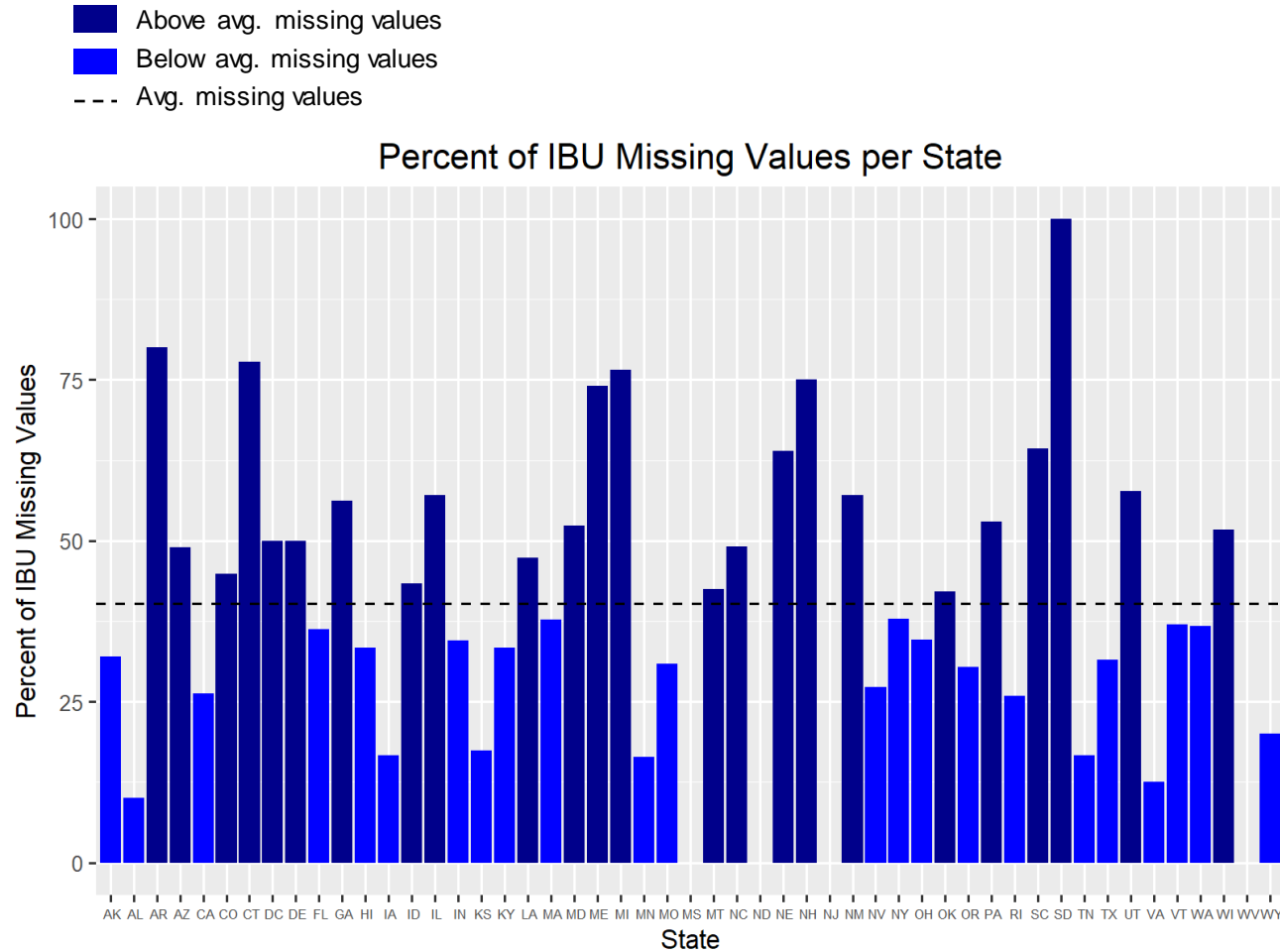
## Address Missing Values

- Total of 62 missing values accounting for ~2.6% of data
- Missing Completely at Random (MCAR)
  - Missingness of ABV does not appear to be dependent on any other variables

## Imputation Method

- Replace missing values for ABV with the overall average
  - Mean ABV imputation: 0.05977

# IBU Missing Values



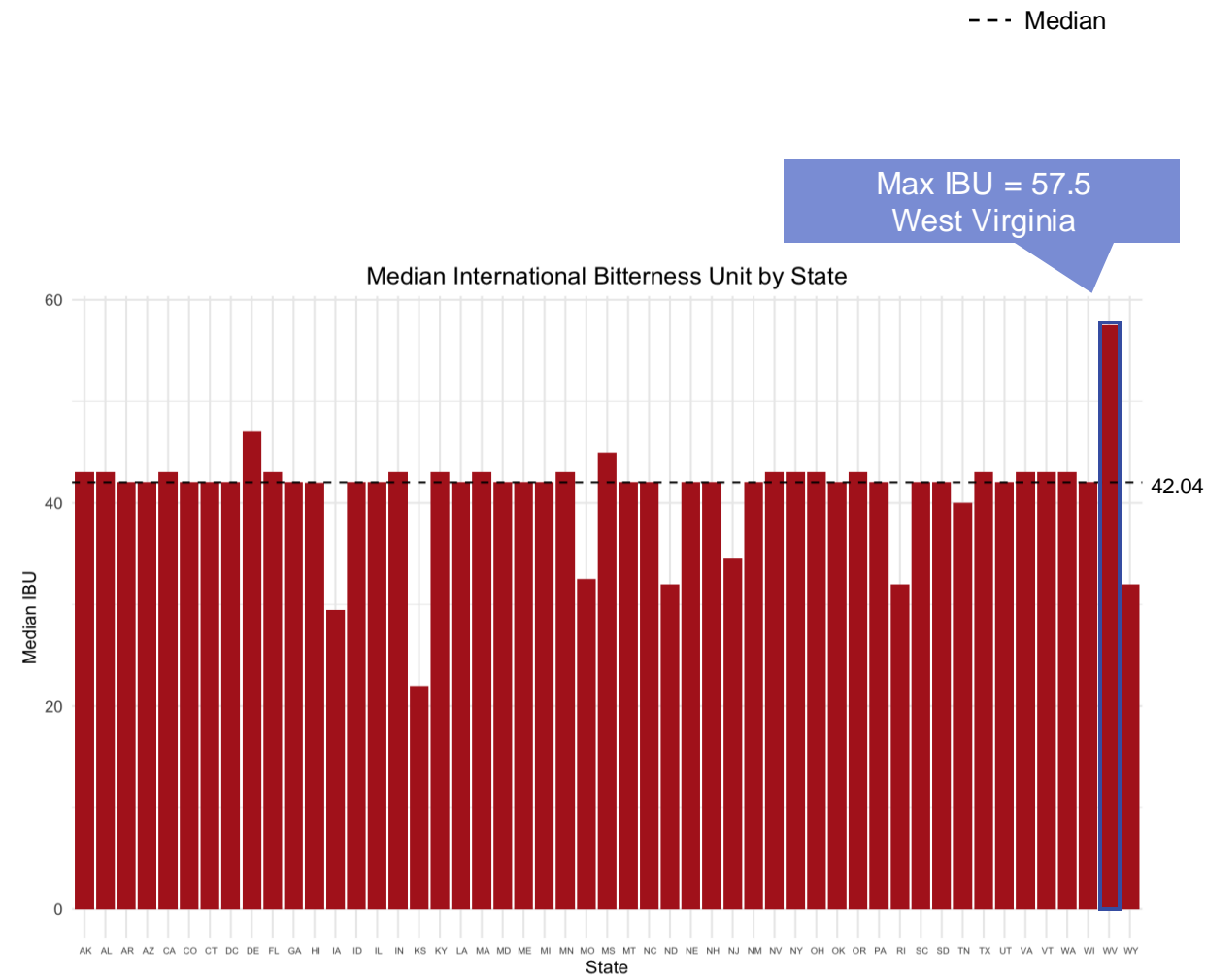
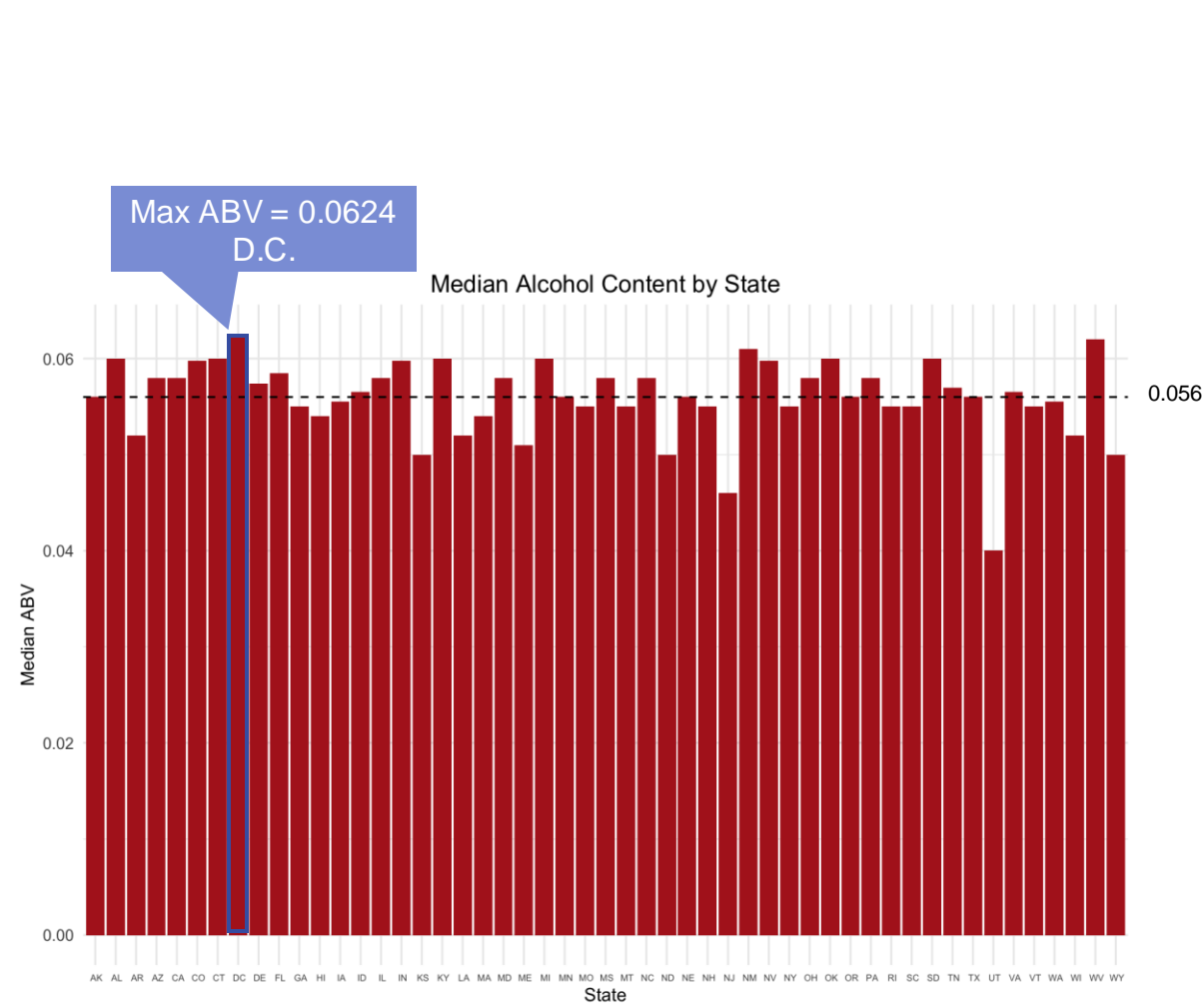
## Address Missing Values

- 1,005 missing values accounting for ~42% of data
- Missing Completely at Random (MCAR)
- Missingness of IBU does not appear to be dependent on any other variables

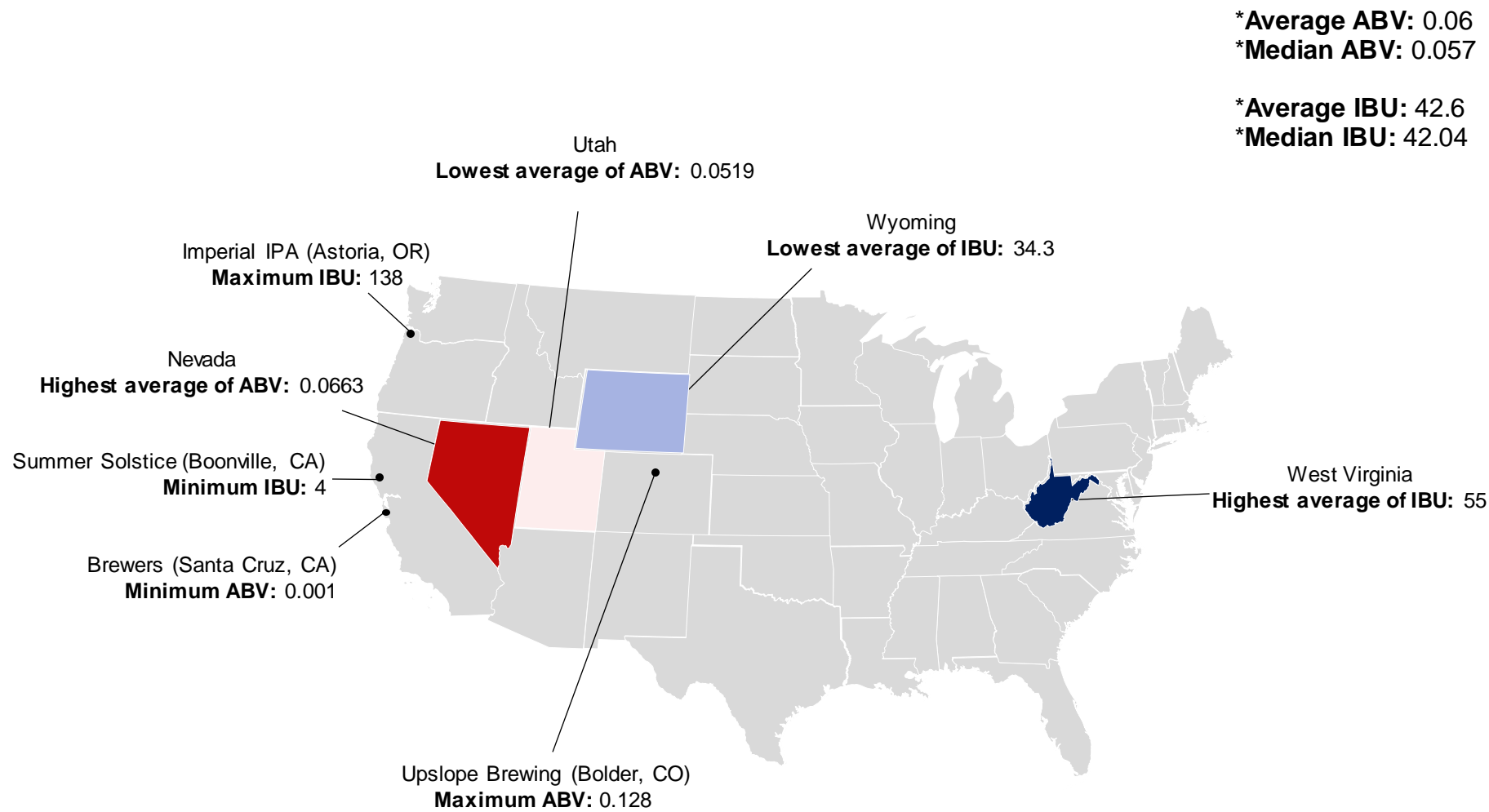
## Imputation Method

- Multiple mean imputation
- Replace missing values for IBU with the separate averages for states with above and below average.
  - Mean IBU imputation above average: 42.04
  - Mean IBU imputation below average: 43.08

# Median ABV & IBU per state



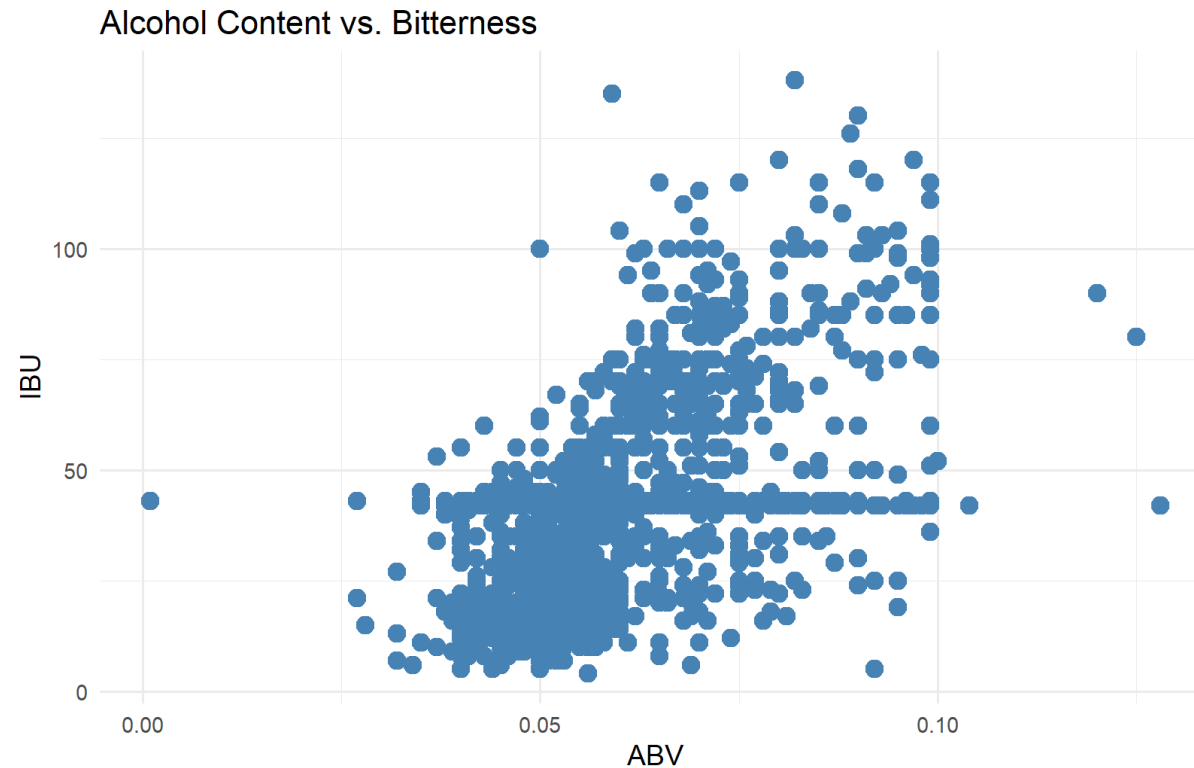
# Statistics of ABV and IBU





# Alcohol content vs. bitterness

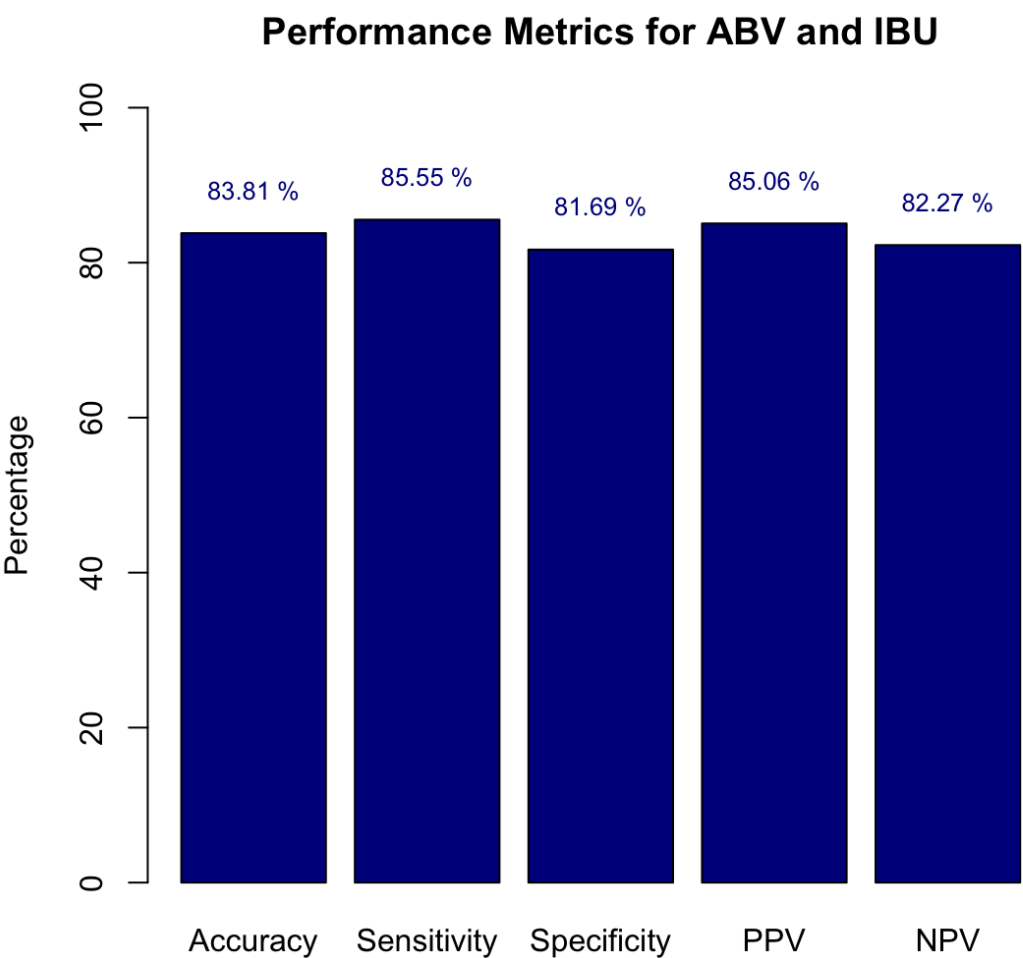
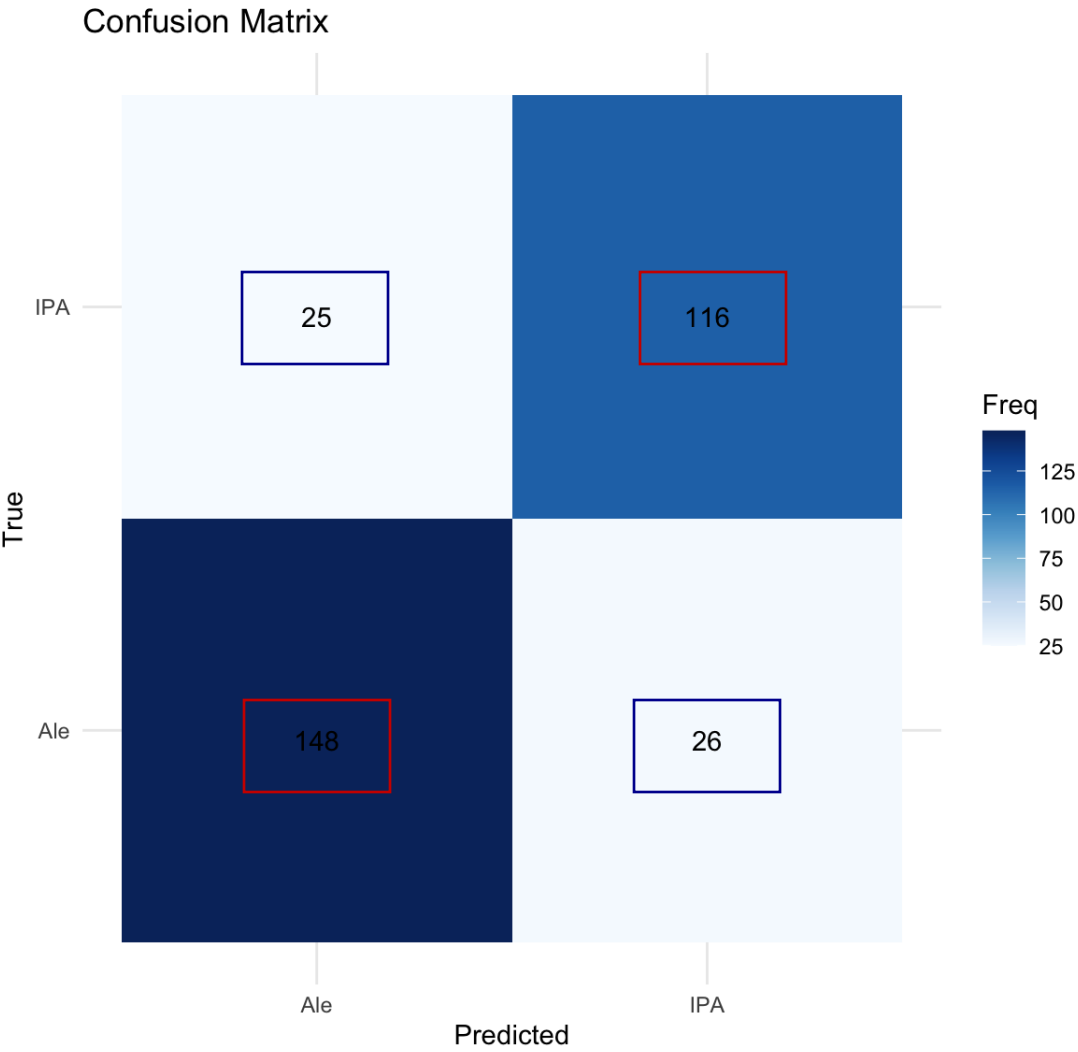
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An increase in alcohol content (ABV) does appear to be associated with bitterness (IBU)

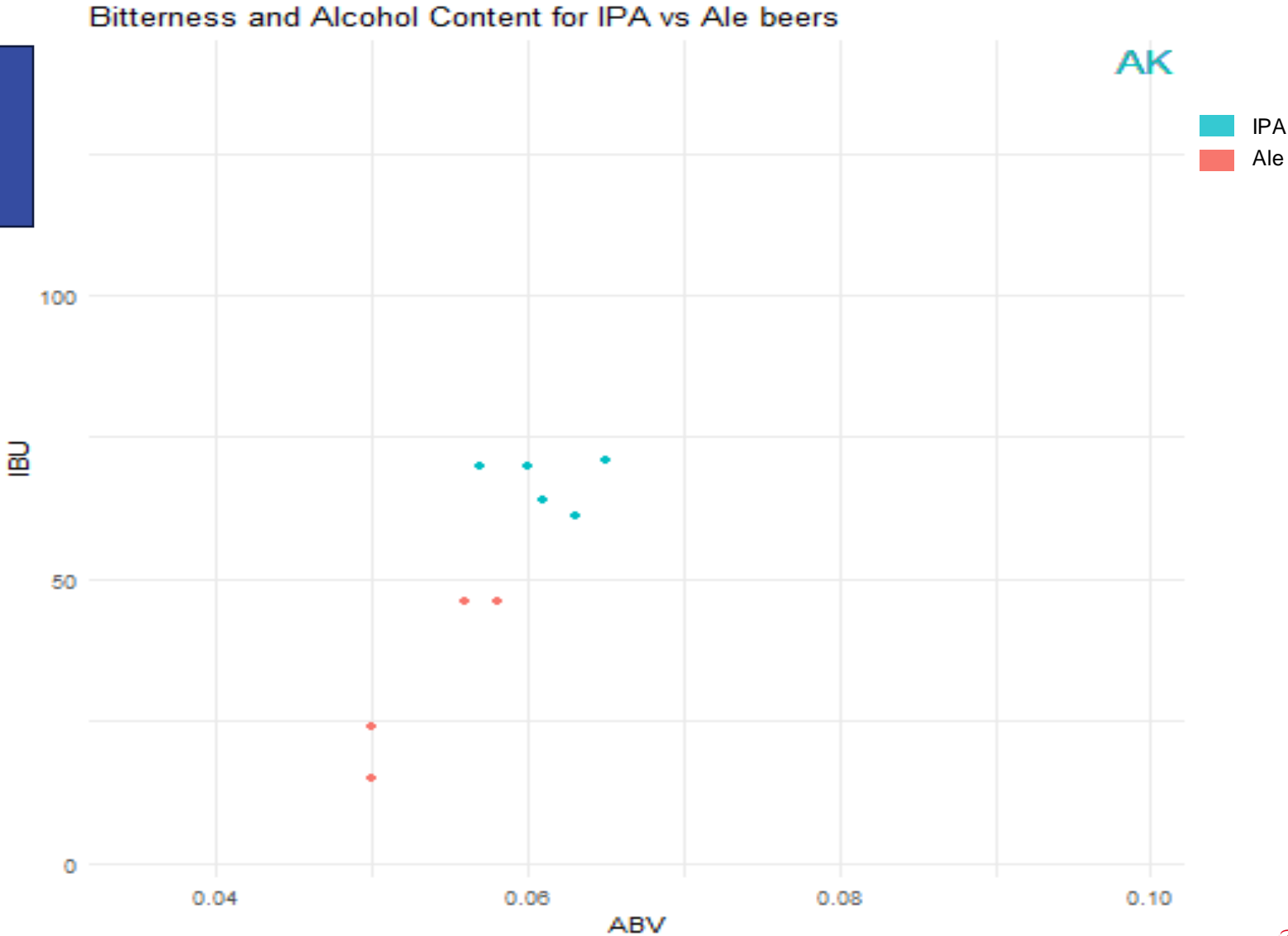
\*Note: Increase in ABV does not cause in IBU or vice versa

# IPA vs Ale classifications



# IPA vs Ale bitterness and alcohol content

On average IPA's have higher bitterness and acholic content than Ale's



# Thank You!



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# Video link

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<https://youtu.be/o5Lu5PT98v4>