Beer Classification to Determine Abnormal Drinks

1. Problemtoworkon

The minimal goal of this project is to classify different beer types. While beers and their properties are commonly labeled when drinking one from a can or at a bar/brewery, there are plenty of social settings where this may not be the case. A device to classify beer types can be useful for a drinker to ensure they have a beverage satisfactory for their tastes. The next step of this project is to implement an “abnormal” beer category, or a false prediction of a beer that is not anticipated. This might guide the decision if a beer is safe for consumption due to the addition of drugs that would impact the physical properties of the beer.

2. Potentialwaystosolvetheproblem

This project will measure the color, bitterness, and alcohol content to classify the beer. If the beer does not fit a specific classification, then the user will be notified indicating that the beverage is not what was expected. This project can be expanded to identify if a drink is unsafe by collecting data on how different types of drugs impact the beer’s physical properties, such as changes in pH, color, and alcohol content. In addition, this project can be broadened to encompass different types of alcoholic beverages such as mixed drinks, wine, and whiskey.

3. CommercialPotential

Commercially, this could simply be used to help beer lovers classify their beer. Where this can have more useful applications is in classifying whether a beer is safe to drink. In a survey conducted by Suzanne C. Swan, PhD, of the University of South Carolina, 7.8% of the college participants reported that they had incidents of a drink being drugged. This study highlights the importance of accurate drink detection. In addition the same study found that, “... of 805 Australians aged 18-35 found 25 percent had experienced drink spiking.” There is a safety need for identifying a drink’s integrity. Our initial model hopes to classify beer and identify an “abnormal” beer, but further data collection and model building would be needed to accurately detect the presence of drugs in different beverages.

4. ProjectLogistics

This model will focus on the detection of abnormal inputs resulting in anomalies using k-mean clustering predictive models.

Equipment that will be used to classify the beer based on color, bitterness, and alcohol content is listed below:

- Color(spectrometer-measurethelightthatgoesthroughthebeer)
- Bitterness(pHsensor-measuresacidity levels)
- Alcohol(gassensor-determinealcoholcontent)

Below is the primary dataset that will be used to build this model:

- Dataset:https://www.kaggle.com/jtrofe/beer-recipes

5. References

Some referenced articles on the prevalence of drink spiking
https://www.apa.org/news/press/releases/2016/05/drink-spiking
https://alcohol.org/guides/spiked/#