

Business Case Storyboard: Analyzing Iowa Liquor Transactions

Introduction:

- **Who:** Stakeholders, analysts, and businesses interested in Iowa liquor sales.
- **What:** Exploration of Google Big Query dataset with 27,711,028 rows and 24 columns.
- **When:** Data spans from 2012 to 2017.
- **Where:** Explored in Google Colab, shared on GitHub, and visualized in Tableau Public.
- **Why:** Gain insights into liquor sales patterns, locations, and impactful factors.

Exploratory Analysis:

- Identified missing values across columns, focusing on county_number and store_location.
- Numeric summary statistics provided insight into data distribution.

Hypotheses and Information:

1. Store Location Impact Hypothesis:

- Geospatial Analysis.
- Testing if the location of a store impacts profits.

2. Sales and Profit Correlation Hypothesis:

- Regression Analysis.
- Examining the correlation between sales and profit.

3. Bottle Volume Impact Hypothesis:

- Regression Analysis.
- Investigating if the volume of bottles sold impacts profit.

4. Bottle Size vs Retail Cost Hypothesis:

- Regression Analysis.
- Assessing consistency in retail cost across different bottle sizes.

5. Seasonal Trends in Sales:

- Time Series Analysis.
- Identifying seasonal trends in monthly liquor sales.

6. Characteristics of Liquor type and Demographic:

- Clustering Analysis.
- Analyzing characteristics like bottle volume, cost, and location.

Key Questions Answered:

- Lowest Profit Store:

- HY-VEE FOOD STORE #1 in Mason City with a negative loss of \$242.00.

- Highest Profit Store:

- HY-VEE FOOD STORE #5 in Cedar Rapids with a positive gain of \$3,840.00.

- Highest Profit Item:

- Cedar Ridge Reserve Bourbon Private Cask DNO.

- Lowest Profit Item:

- Corazon Reposado Buy the Barrel - 100% Agave Tequila.

- Top 5 Selling Items:

- Black Velvet, Hawkeye Vodka, Five O'Clock Vodka, Fireball Cinnamon Whiskey, Titos Handmade Vodka.

- Top Liquor Brands:

- Diageo Americas, Jim Beam Brands, Sazerac Company Inc., Heaven Hill Brands, Luxco Inc.

- Type of Liquor with Highest Sales:

1. Canadian Whiskies
2. American Vodkas
3. Straight Bourbon Whiskies
4. Vodka 80 Proof
5. Spiced Rum

- Sales Evolution Through the Years:

- Noticeable sales increase from 2020 to 2022.

Conclusion:

- The analysis provided actionable insights into store profitability, item performance, and liquor sales patterns.
- Recommendations for further predictive modeling and external data incorporation are suggested.
- Acknowledged limitations, including potential data inaccuracies and generalization caution.