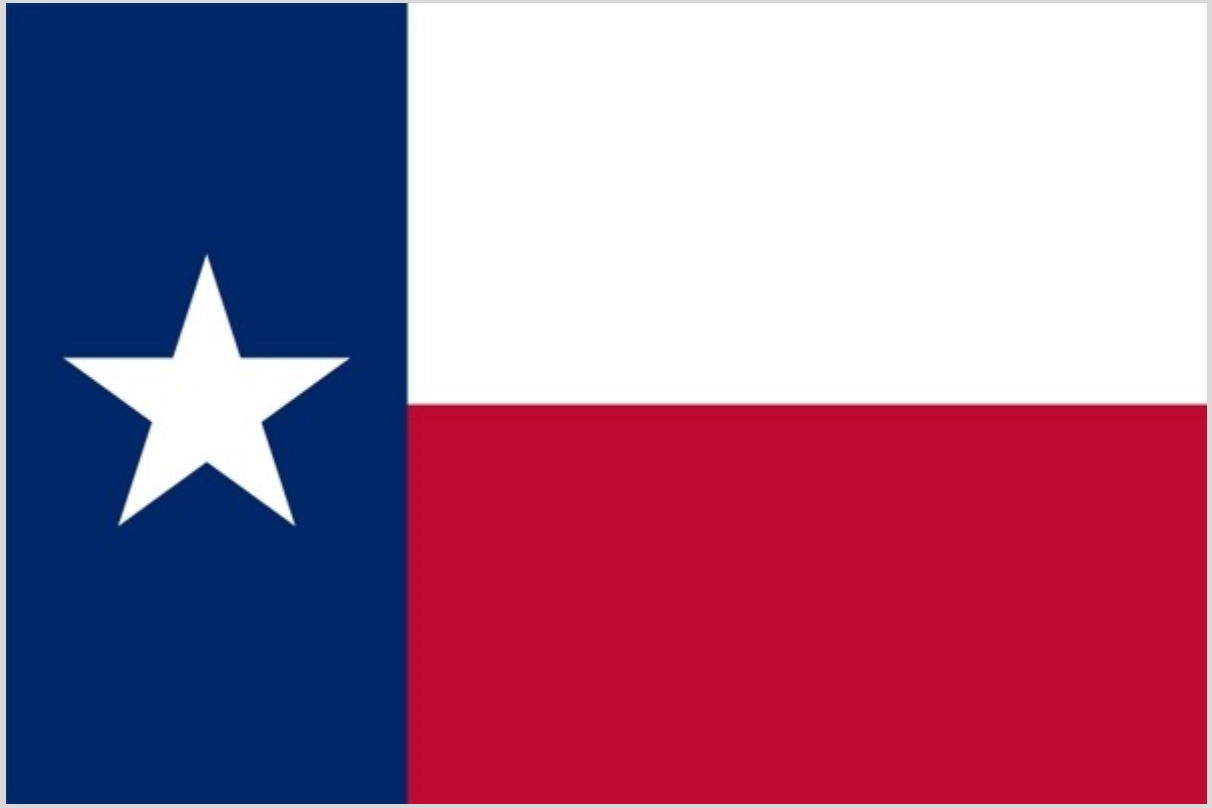


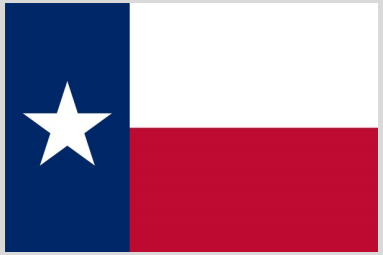
TEXAS MIXED BEVERAGE ANALYSIS

GROUP 1

BETZY, JORGE, KELLI & SAATVI

AGENDA

- Inspiration
- Hypothesis
- Analysis
- Key Takeaways
- Limitations & Future analysis
- Q&A

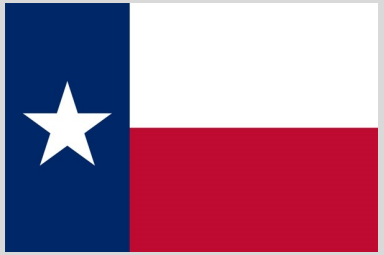


INSPIRATION

- Use skills learned during bootcamp to prove antidotal claims we've heard about the liquor industry. We no longer just must trust what we hear; we can investigate ourselves!

- Who else might be interested in this dataset? - Investors

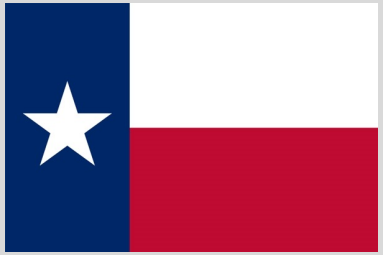
- The data is from the years 2019 and 2020 and in the top 5 markets in the state: Dallas, Ft. Worth, Houston, Austin & San Antonio.



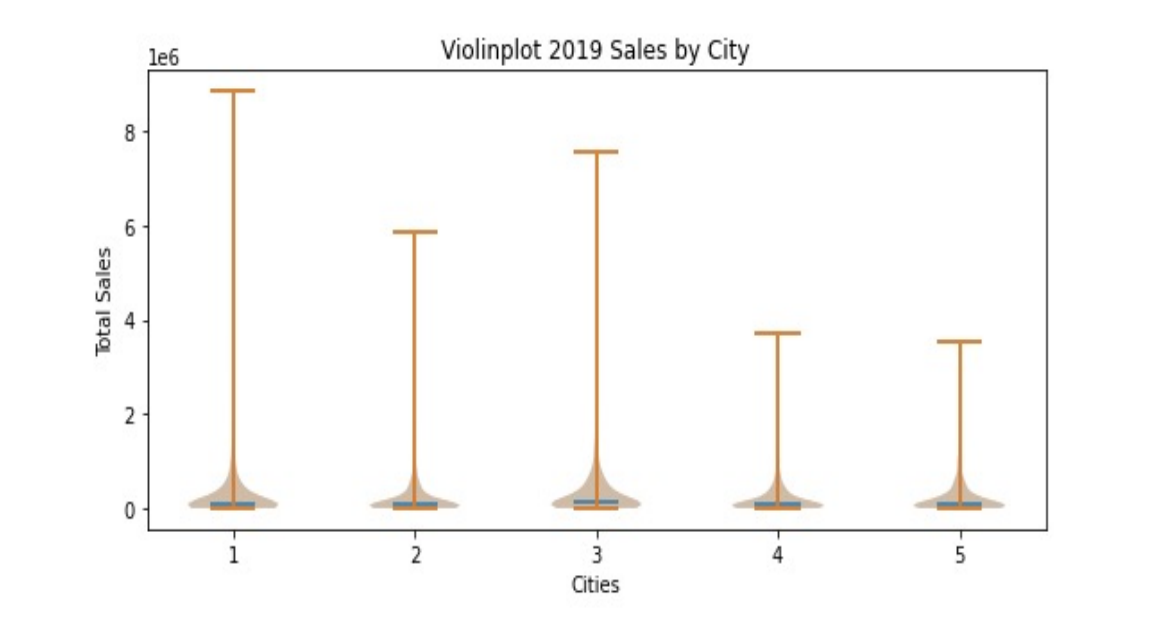
HYPOTHESIS

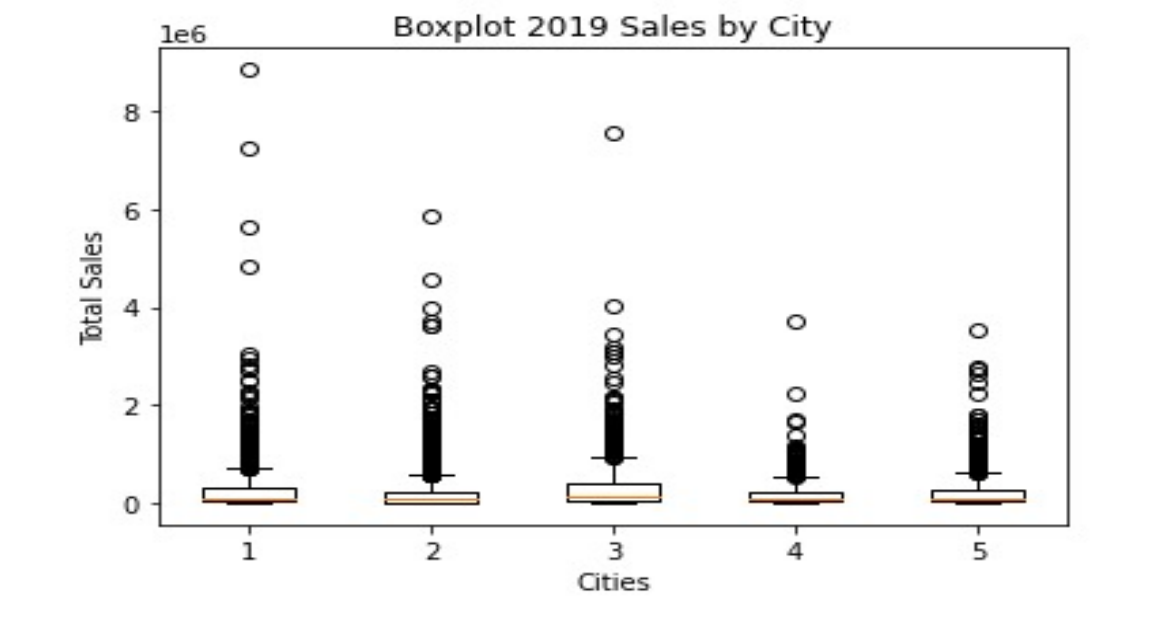
- Unemployment and liquor beverage sales have a positive correlation, exception might be covid due to forced closures.

- We expected to see mixed beverage sales increase around holidays, such as New Years, Easter, Independence Day, Thanksgiving and Christmas.

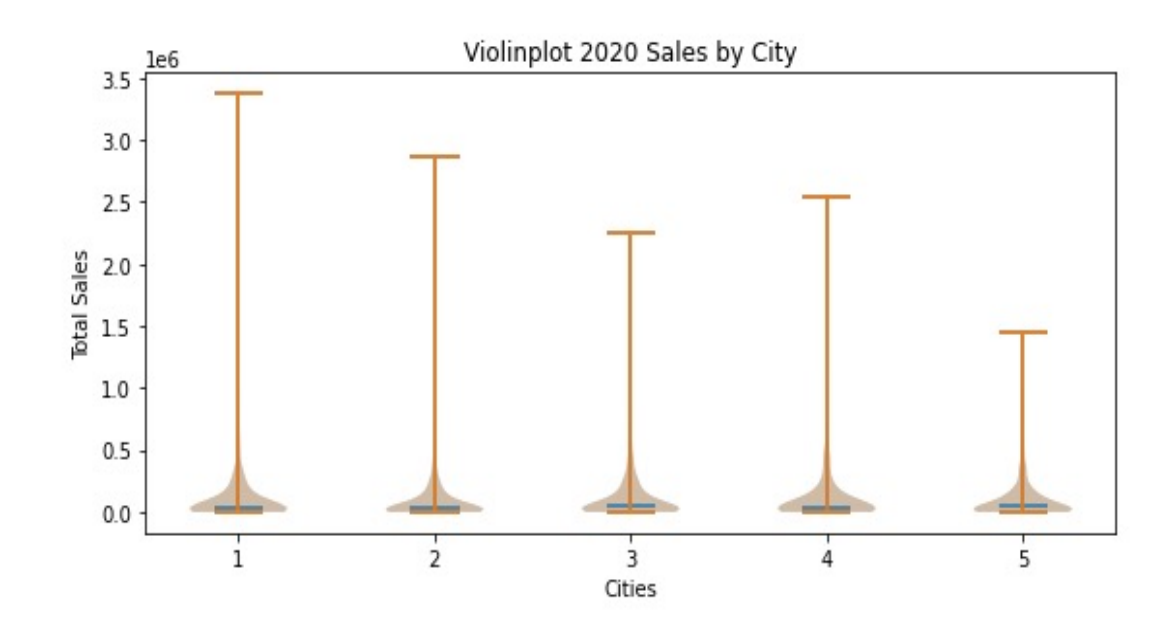


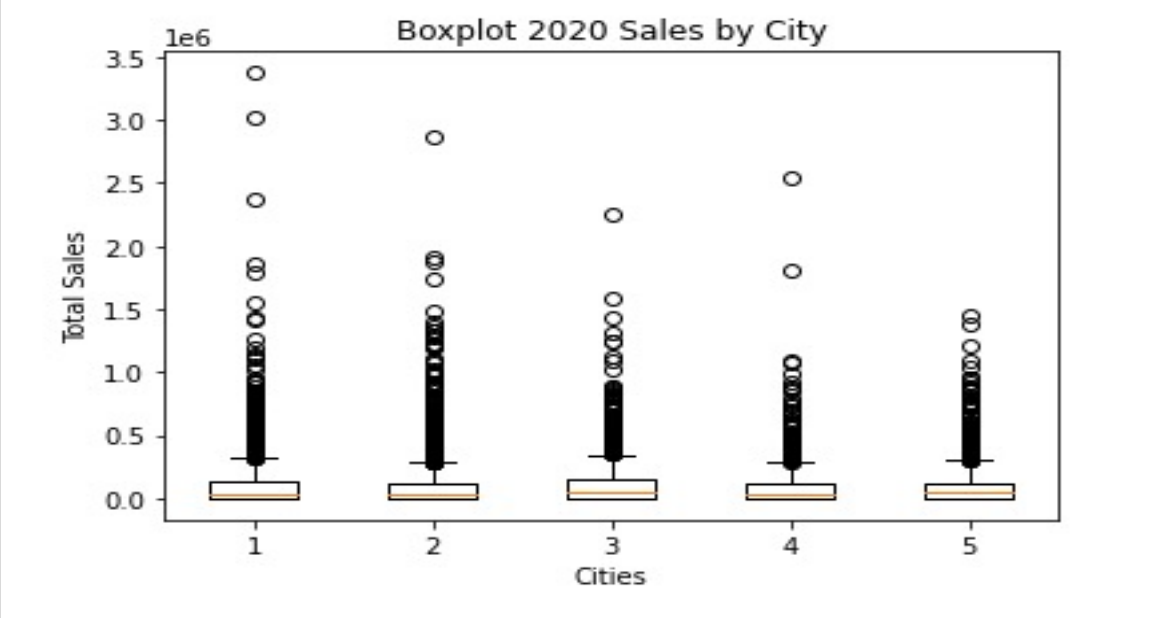
VIOLIN PLOT & BOXPLOTS 2019 SALES BY CITIES



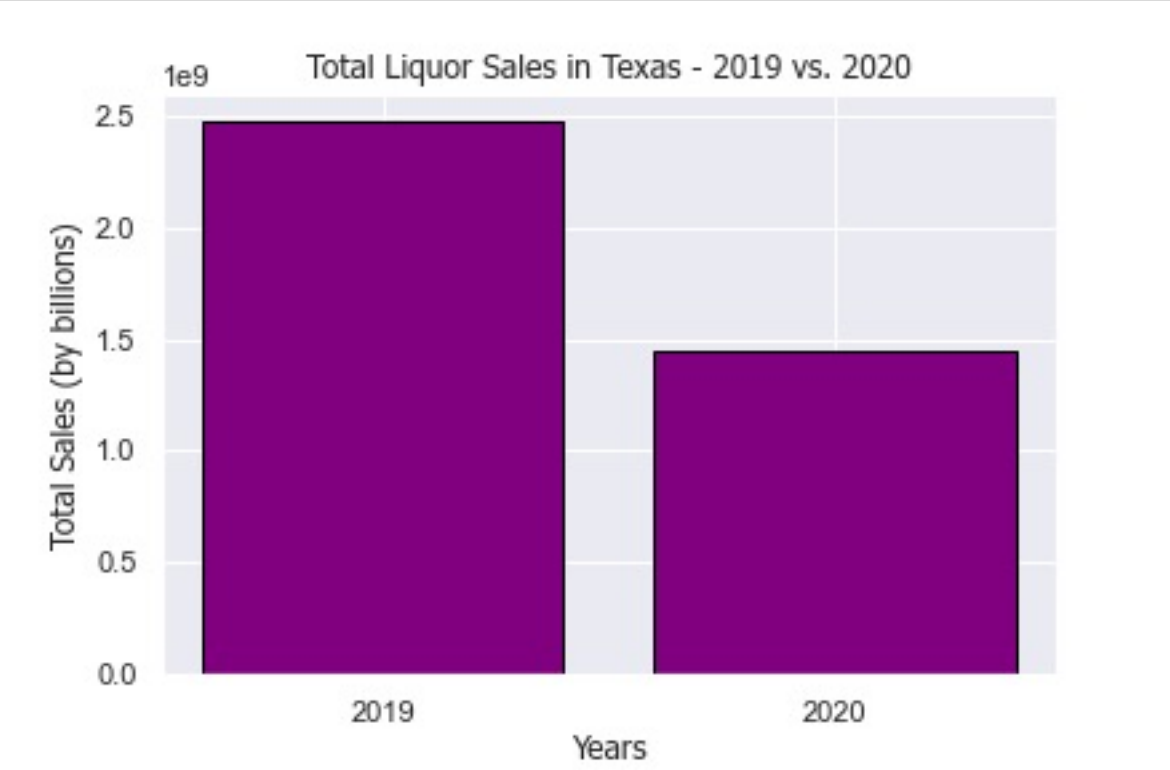


VIOLIN PLOT & BOXPLOTS 2020 SALES BY CITIES



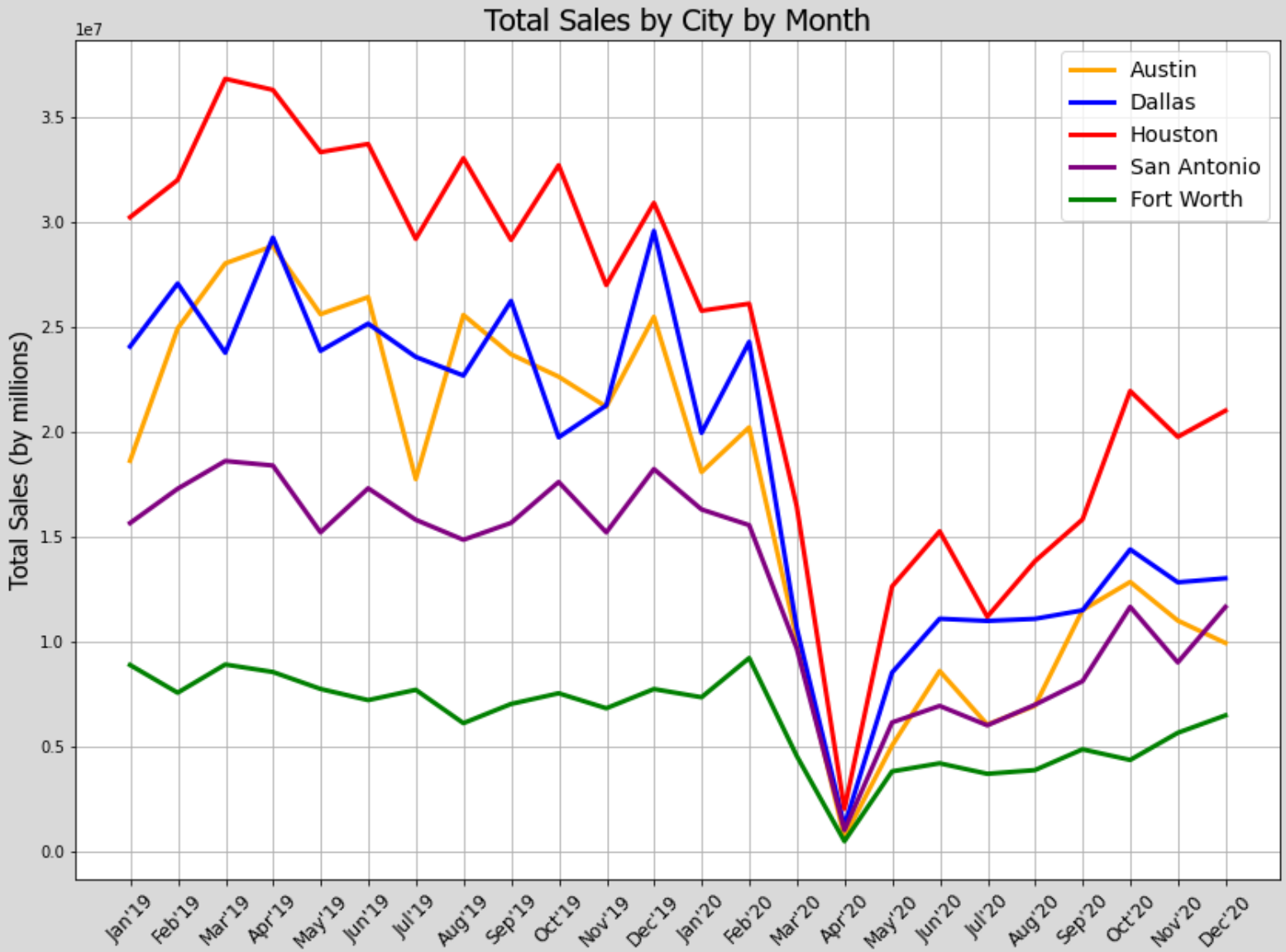


LIQUOR SALES 2019 VS 2020

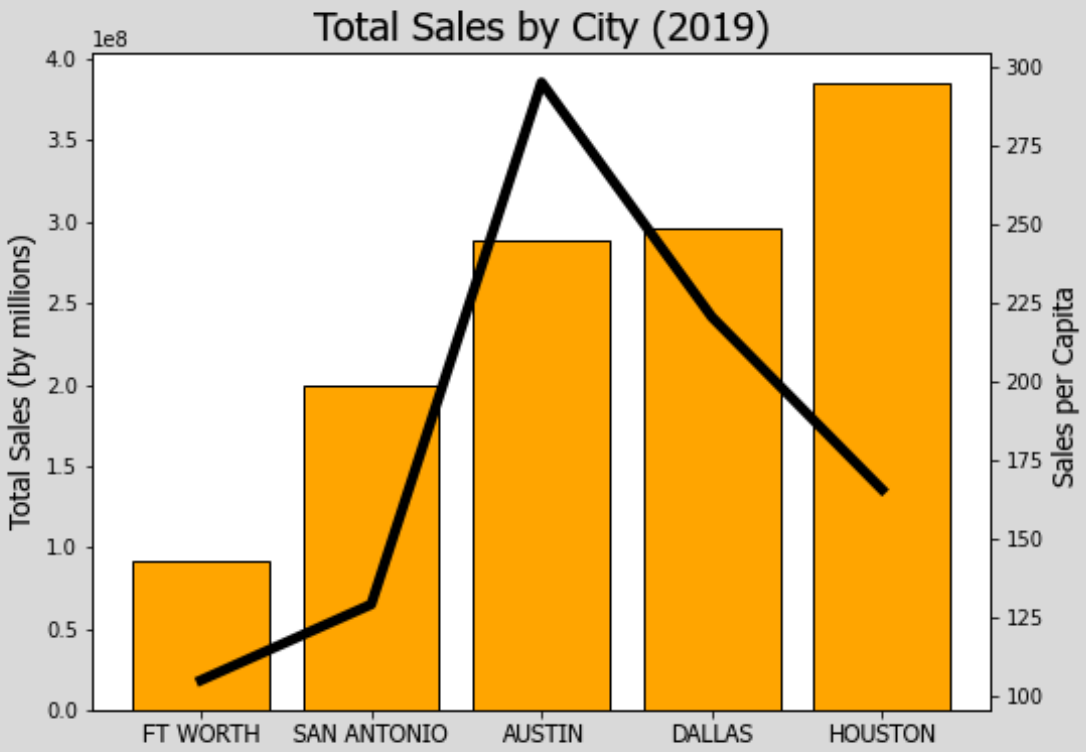


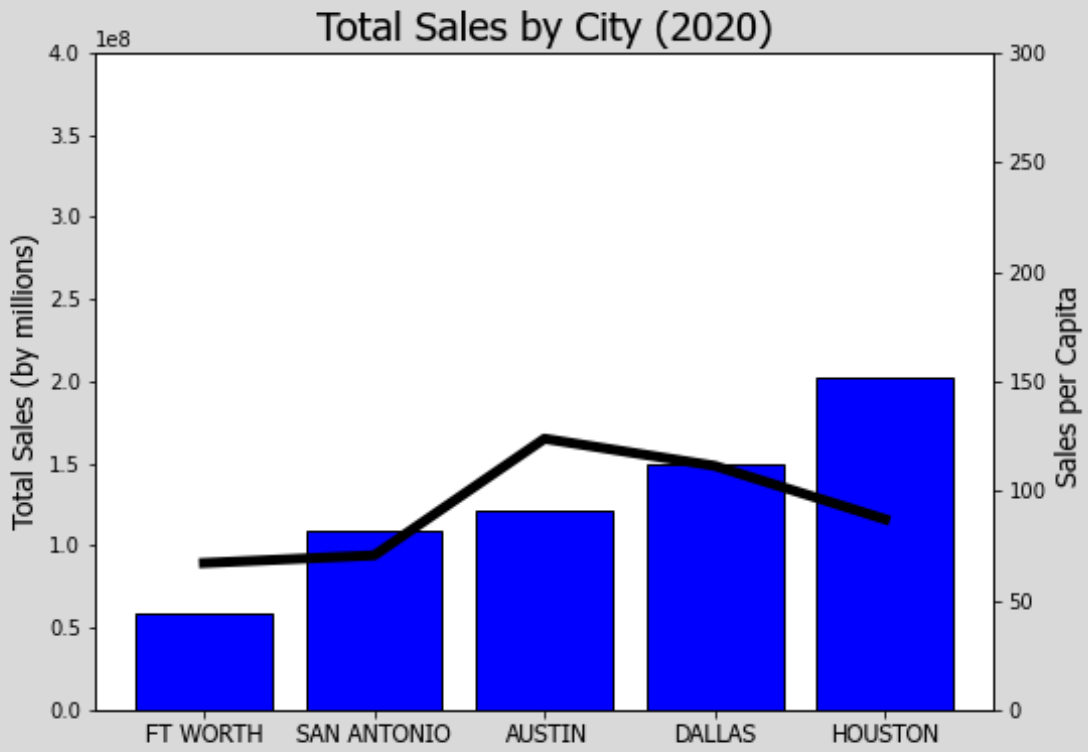
LIQUOR SALES BY MONTH

TOTAL SALES CITY BY MONTH



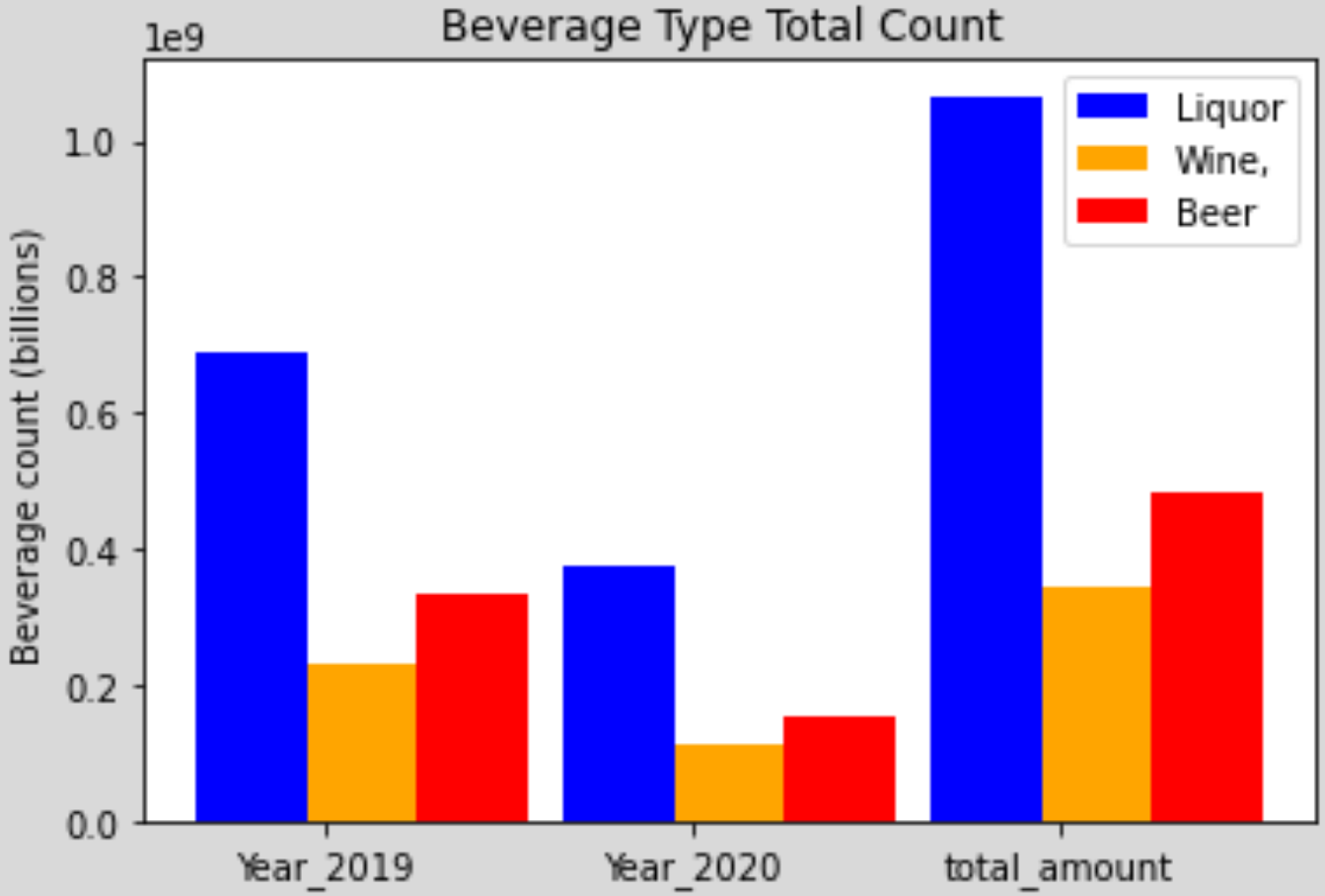
TOTAL SALES BY CITY



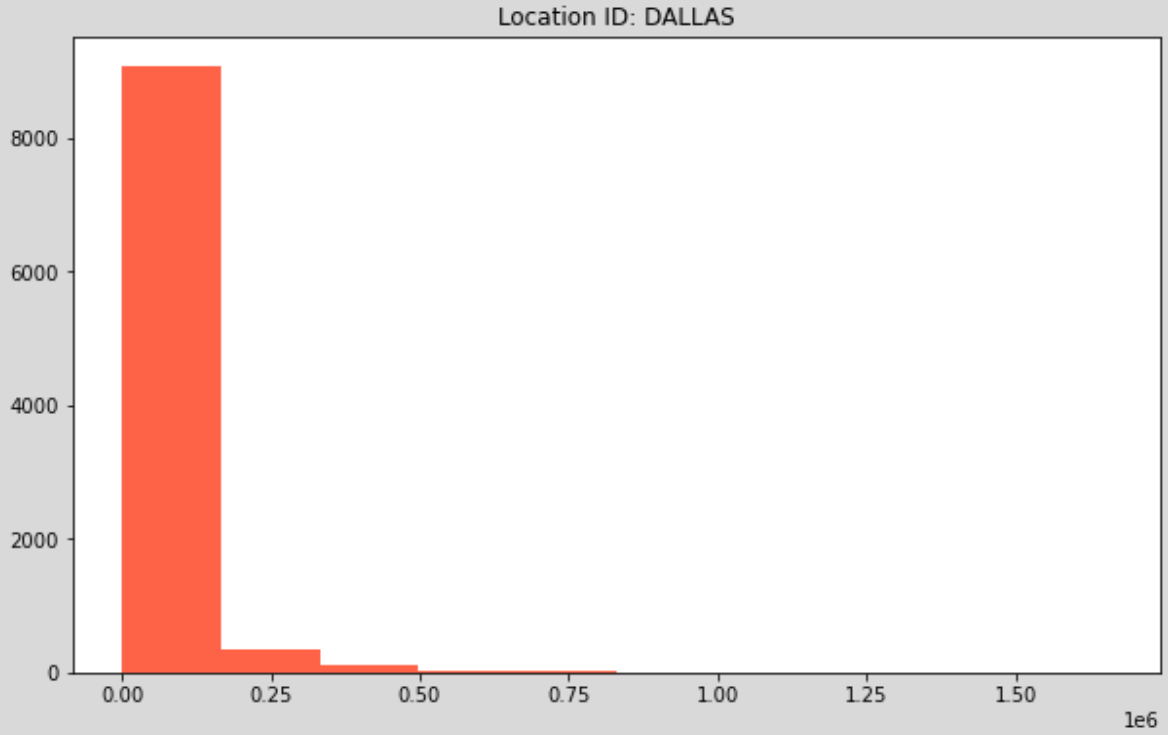


Austin Ranked 3rd in Total Sales but 1st in Sales per Capita

BEVERAGE PREFERENCES



T-TEST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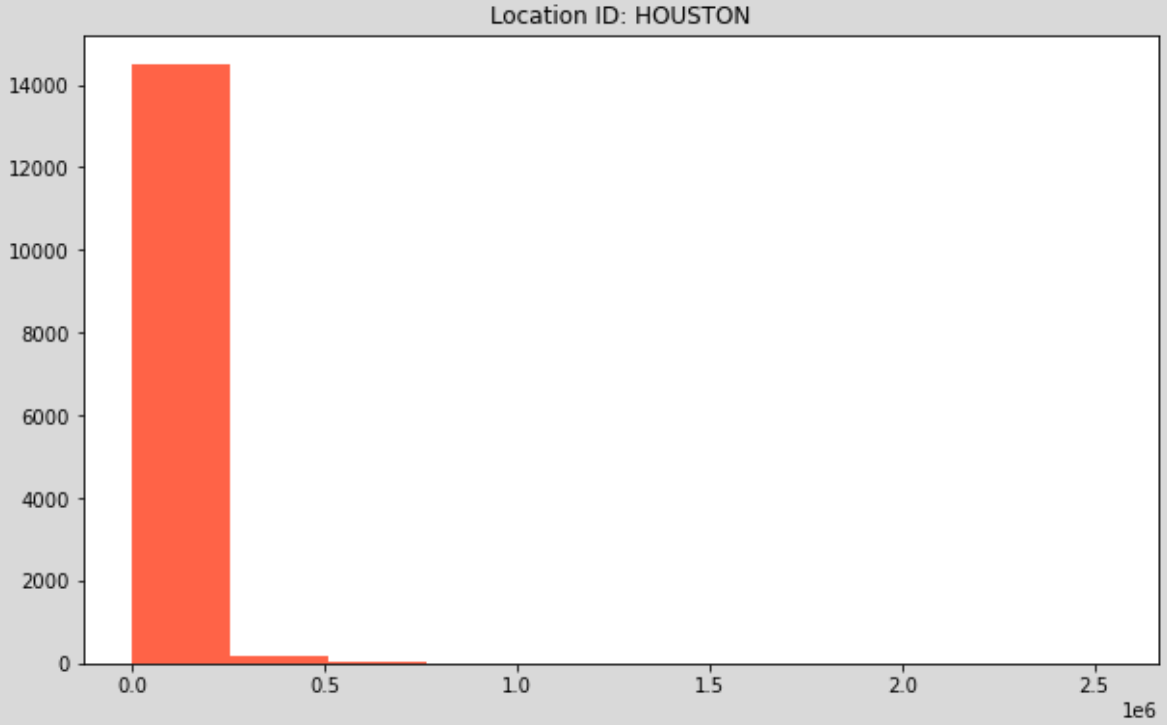
1e6


Location ID: HOUSTON
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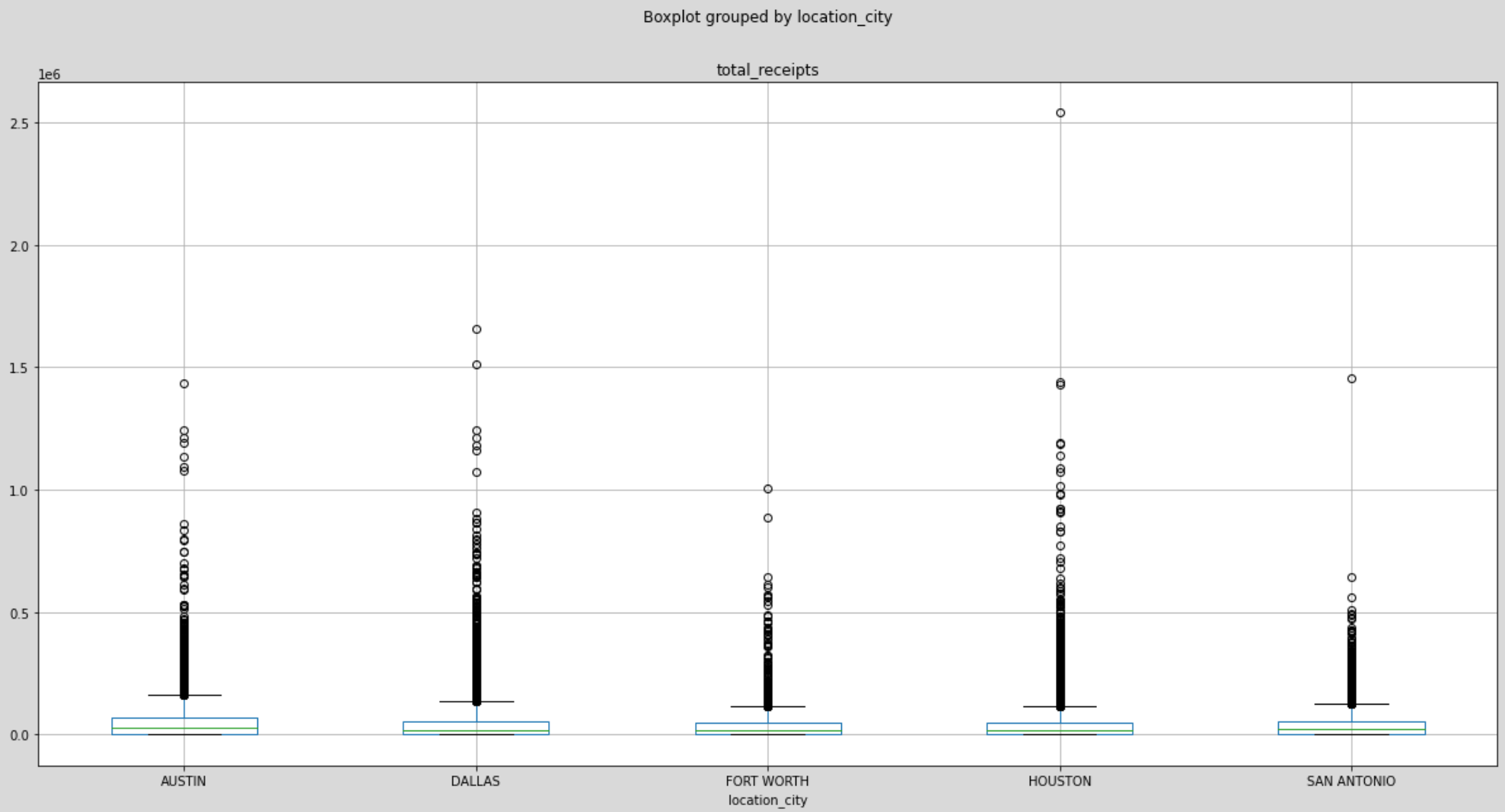
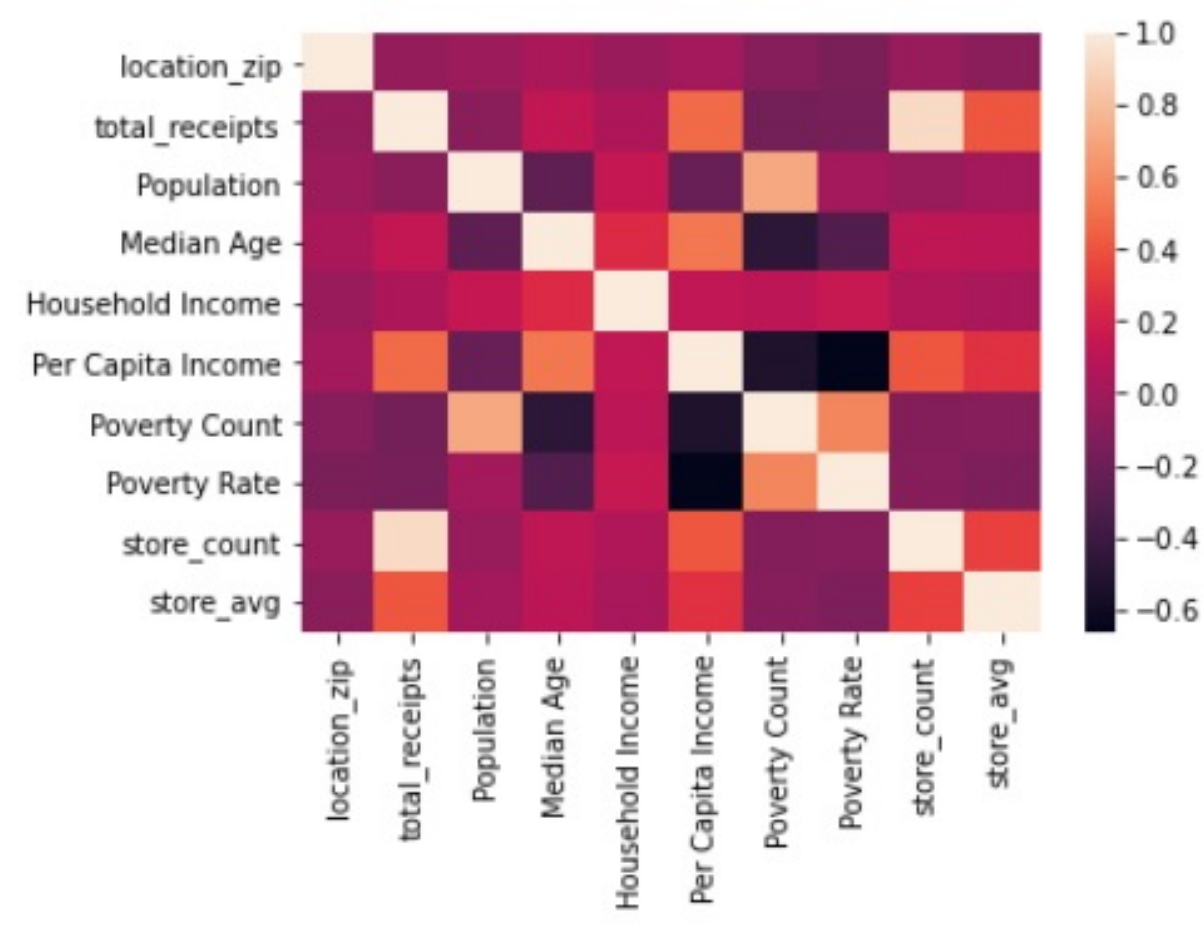
2.5
1e6

ANOVA TEST

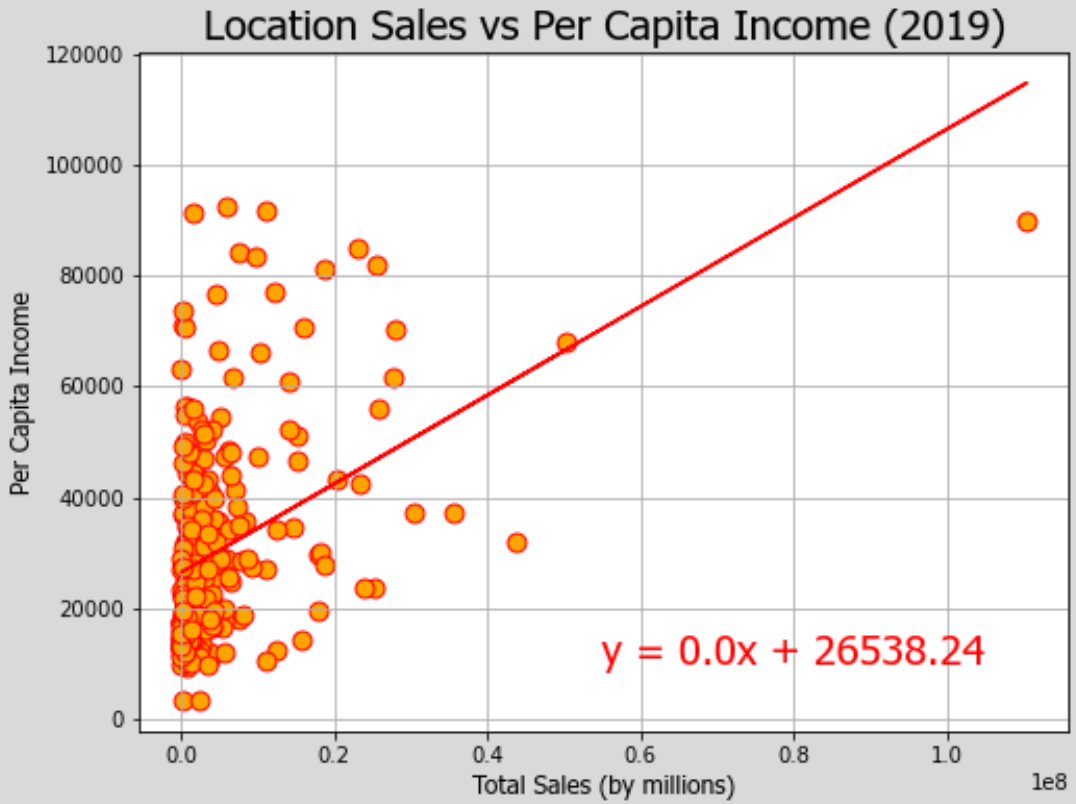


F onewayResult(statistic=51.08573623104522, pvalue=5.517933878848488e-43)

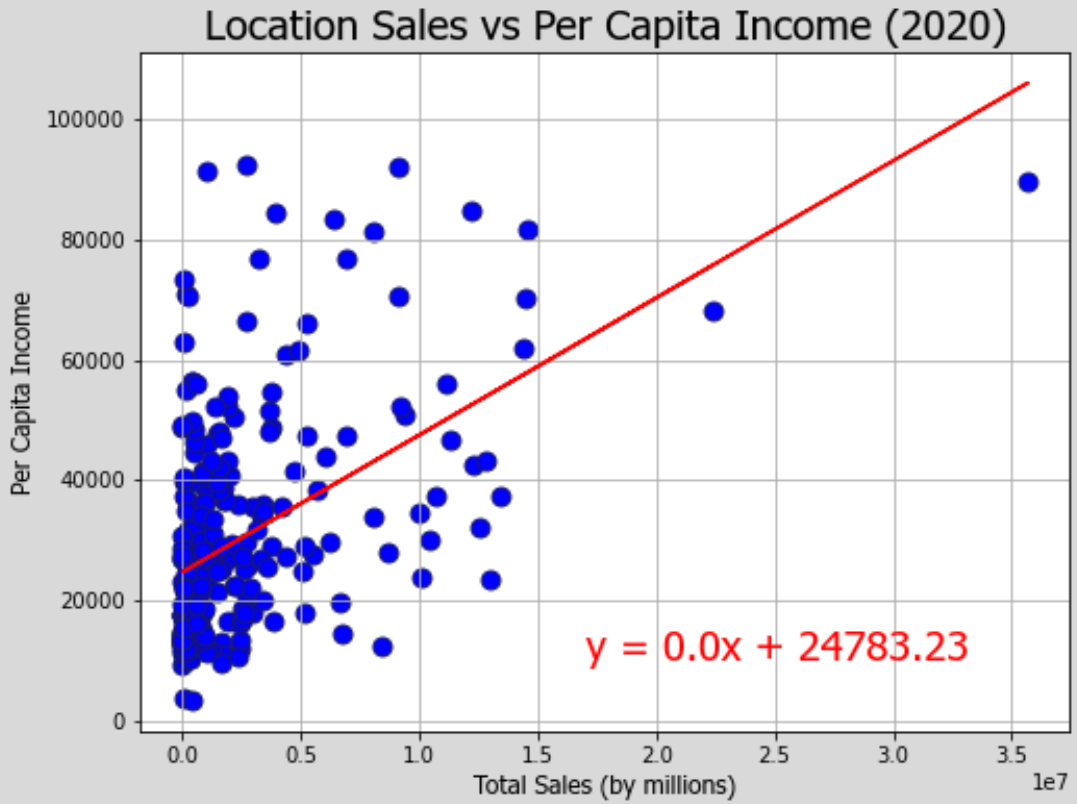
REGRESSION CHARTS



REGRESSION CHARTS

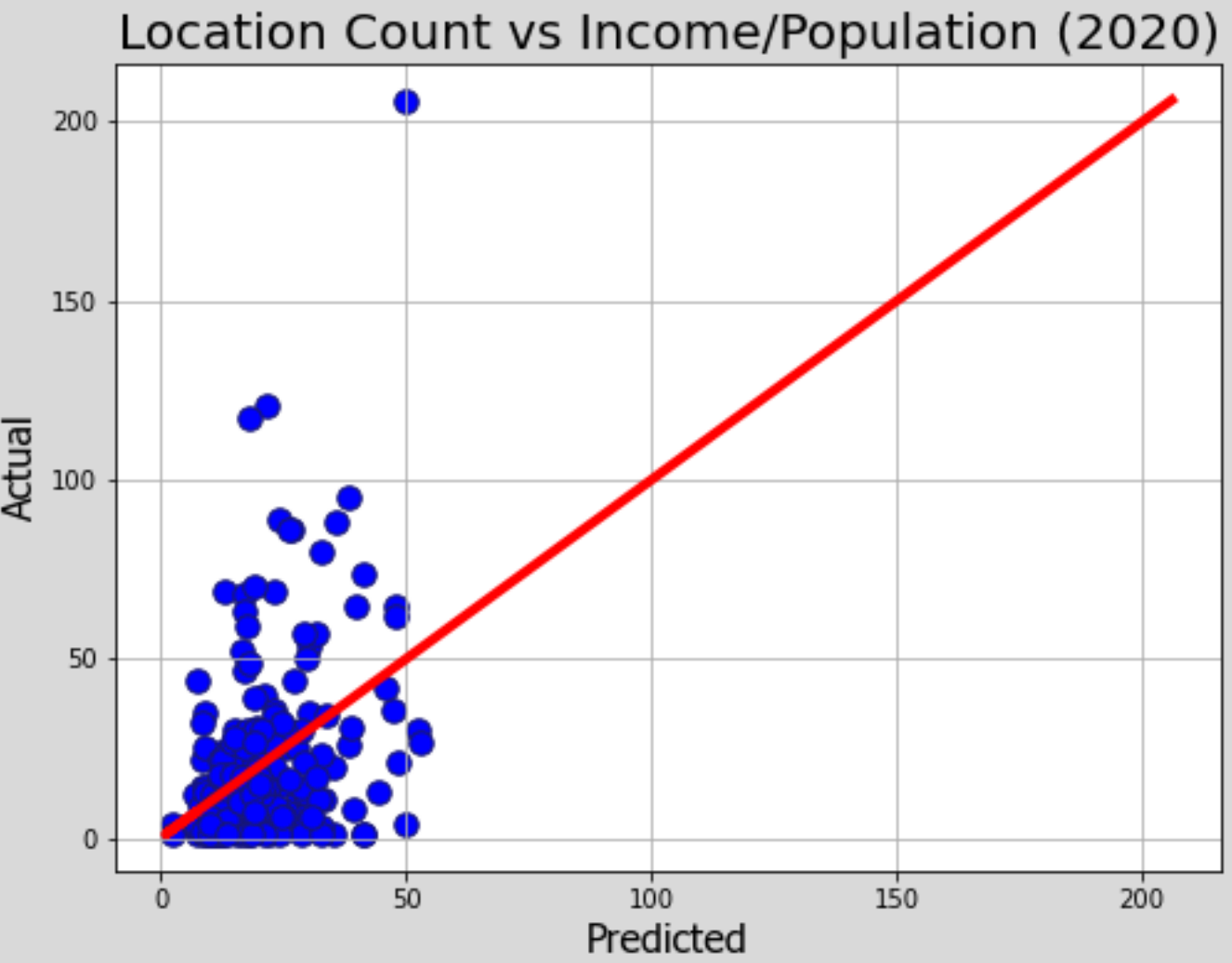


THE R-SQUARED IS: 0.17128906610663705



THE R-SQUARED IS: 0.23548527744499823

MULTIPLE REGRESSION CHARTS

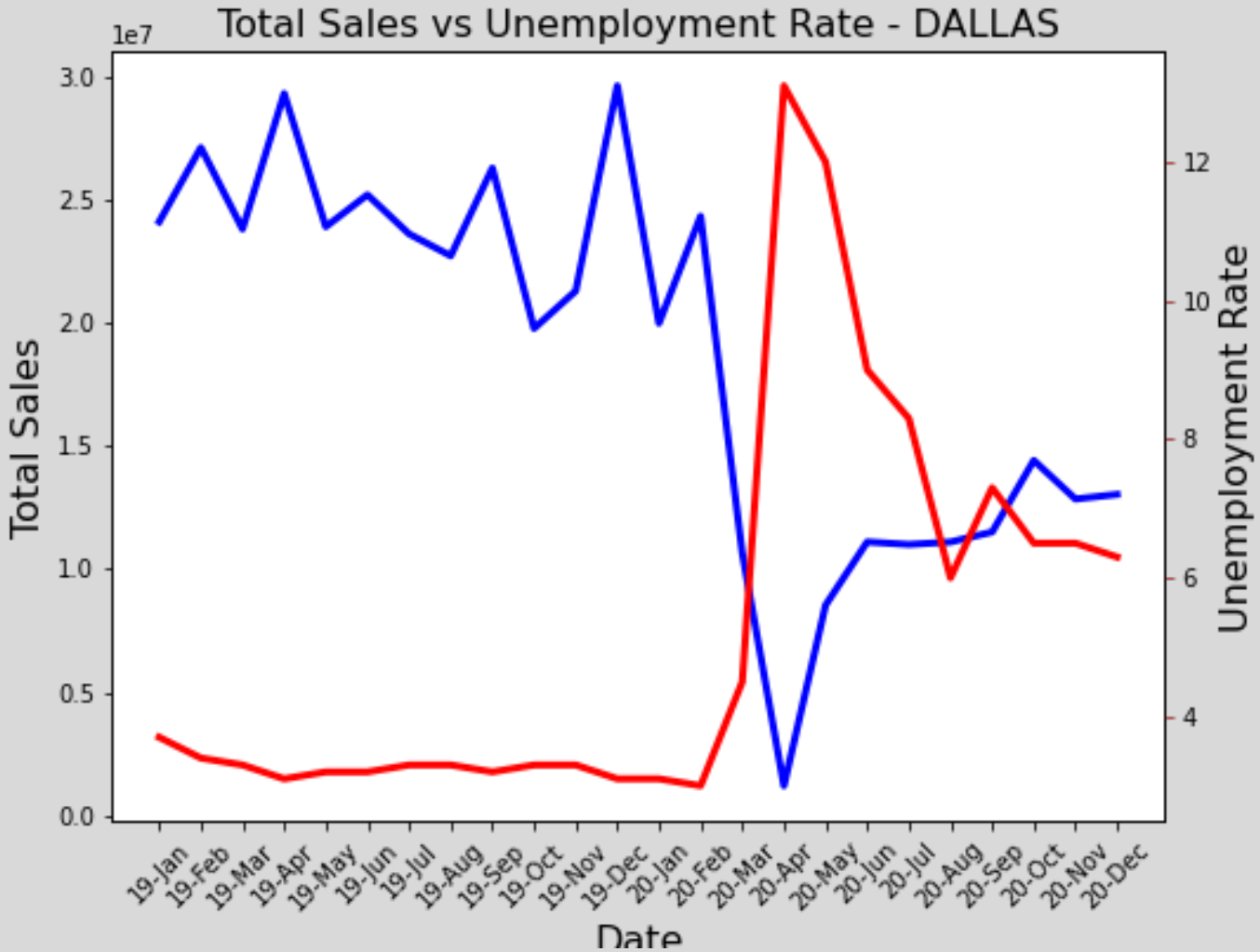


Dep. Variable:	store_count	**R-squared:**	0.170
Model:	OLS	**Adj. R-squared:**	0.164
Method:	Least Squares	**F-statistic:**	26.48
Date:	Wed, 04 Aug 2021	**Prob (F-statistic):**	3.46e-11
Time:	12:05:28	**Log-Likelihood:**	-1174.1
No. Observations:	261	**AIC:**	2354.
Df Residuals:	258	**BIC:**	2365.
Df Model:	2		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
const	0.2390	3.877	0.062	0.951	-7.396	7.874
Per Capita Income	0.0005	7.51e-05	7.259	0.000	0.000	0.001
Population	8.868e-05	8.25e-05	1.075	0.283	-7.37e-05	0.000

Omnibus:	182.833	**Durbin-Watson:**	1.585
Prob(Omnibus):	0.000	**Jarque-Bera (JB):**	2108.752
Skew:	2.700	**Prob(JB):**	0.00
Kurtosis:	15.836	**Cond. No.**	1.28e+05

REGRESSION CHARTS



Dep. Variable:	total_receipts	**R-squared:**	0.765
Model:	OLS	**Adj. R-squared:**	0.755
Method:	Least Squares	**F-statistic:**	71.77
Date:	Wed, 04 Aug 2021	**Prob (F-statistic):**	2.25e-08
Time:	12:08:15	**Log-Likelihood:**	-396.57
No. Observations:	24	**AIC:**	797.1
Df Residuals:	22	**BIC:**	799.5
Df Model:	1		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
const	3.053e+07	1.61e+06	18.992	0.000	2.72e+07	3.39e+07
Unemployment Rate	-2.292e+06	2.71e+05	-8.472	0.000	-2.85e+06	-1.73e+06

Omnibus:	1.796	**Durbin-Watson:**	1.881
Prob(Omnibus):	0.407	**Jarque-Bera (JB):**	0.761
Skew:	-0.404	**Prob(JB):**	0.683
Kurtosis:	3.329	**Cond. No.**	12.6

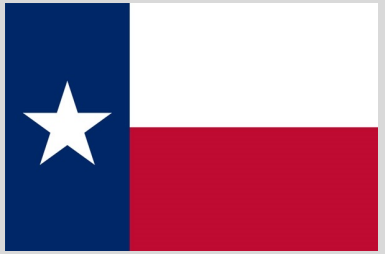
FINAL CONCLUSION

- Unemployment and mixed beverage sales have a positive correlation, exception might be ”covid” due to forced closures.

  False – Unemployment had a negative impact on sales

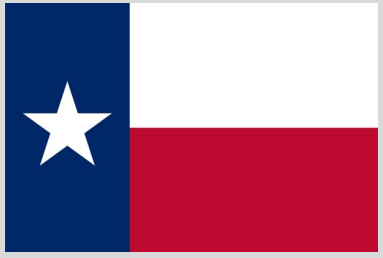
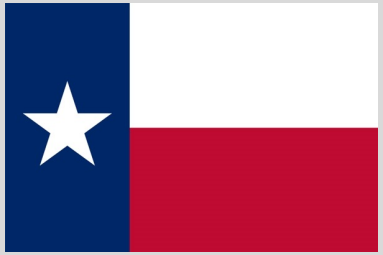
- We expect to see mixed beverage sales increase around holidays, such as New Years, Easter, Independence Day, Thanksgiving and Christmas.

  False – monthly sales were very volatile by cities, no strong seasonal tend identified.



LIMITATIONS & FUTURE ANALYSIS

- Analyze full data set
  - longer time frame as 2020 was not a normal year.
  - full details for all cities in Texas.
- Segment out location types
  - Venues, hotels, restaurants, liquor stores, etc.
- More time to analyze outliers and remove from dataset
- Inner city vs outer city analysis
- Research if additional data sets are available.



Q&A