

AGENDA

- Introduction.
- Business overview and motivation.
- Recommendations.
- Modeling

This project under the supervision of
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05 June, 2022 | Work Planning



Presence

[Favorita Corporation](#) and its commercial, industrial and real estate subsidiaries have a strong presence throughout the country.

Its different lines of business and formats allows us to adapt our products, services and experiences offering to the local realities, according to your needs. Internationally, the Corporation's subsidiaries have activities in six countries in the region, in addition to the ones in [Ecuador](#).

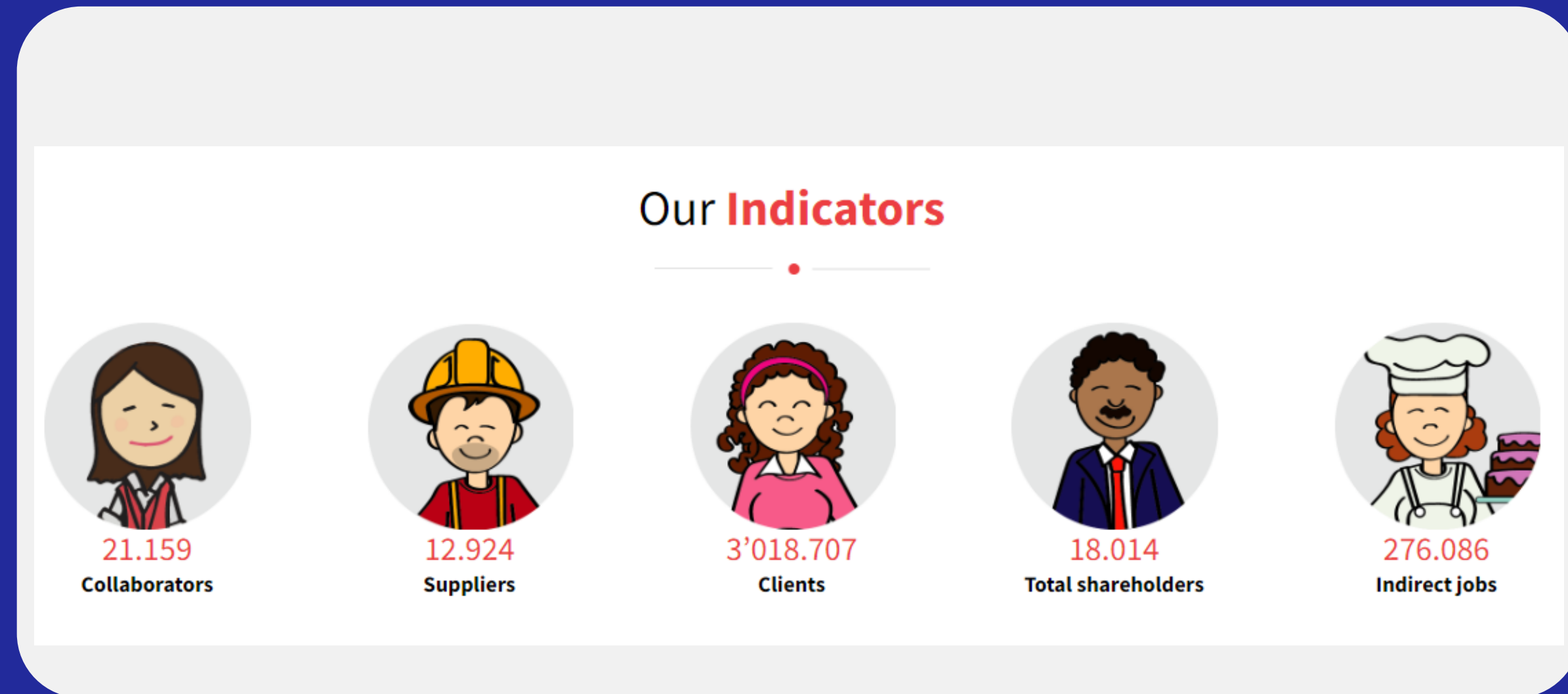


Business Motivation

- Give the board members a brief about our presence in Ecuador.
- overview about our hot place (highest revenue in sales) in this region.
- Most families of products our customers loves.
- overview about revenue over our presence in the market.
- Recommendations for further improvements.

Our Social impact

How do we affect our community ?



Where are we located?

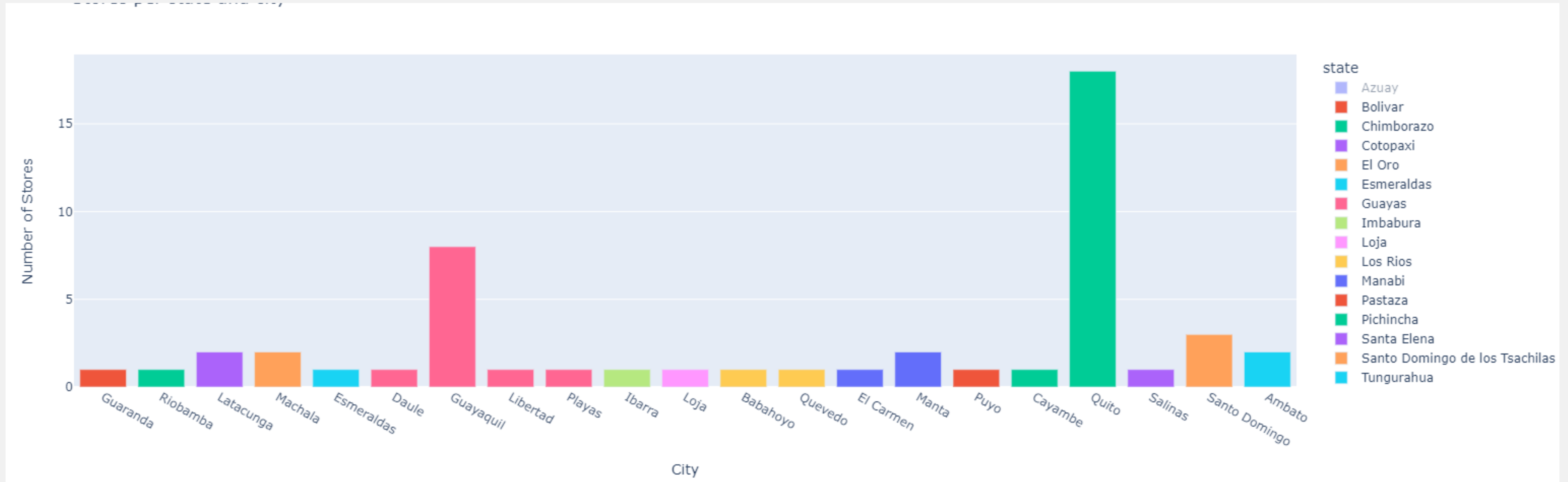
As of Aug 2017

We are located in 16 different states out of Ecuador's 24 states.

And in particular 22 different cities.



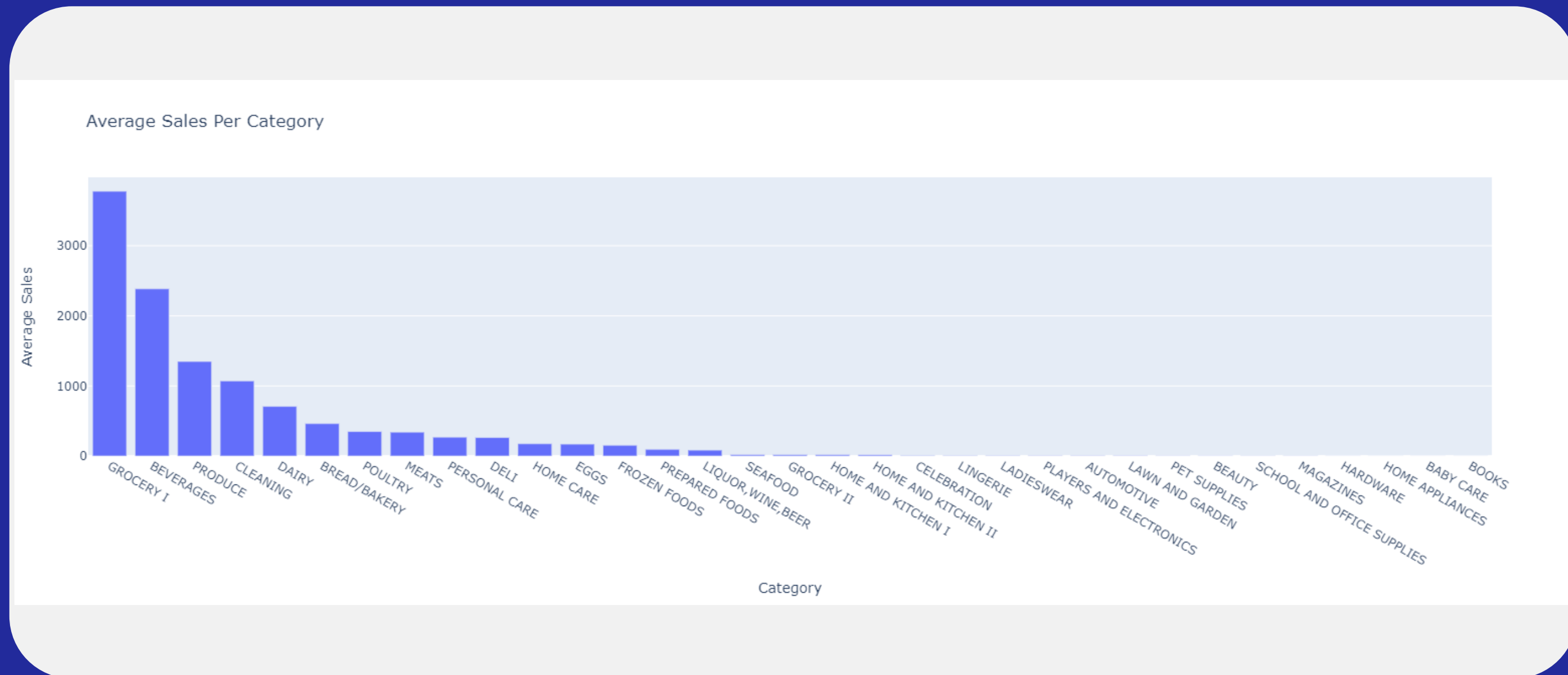
Our Stores in different cities



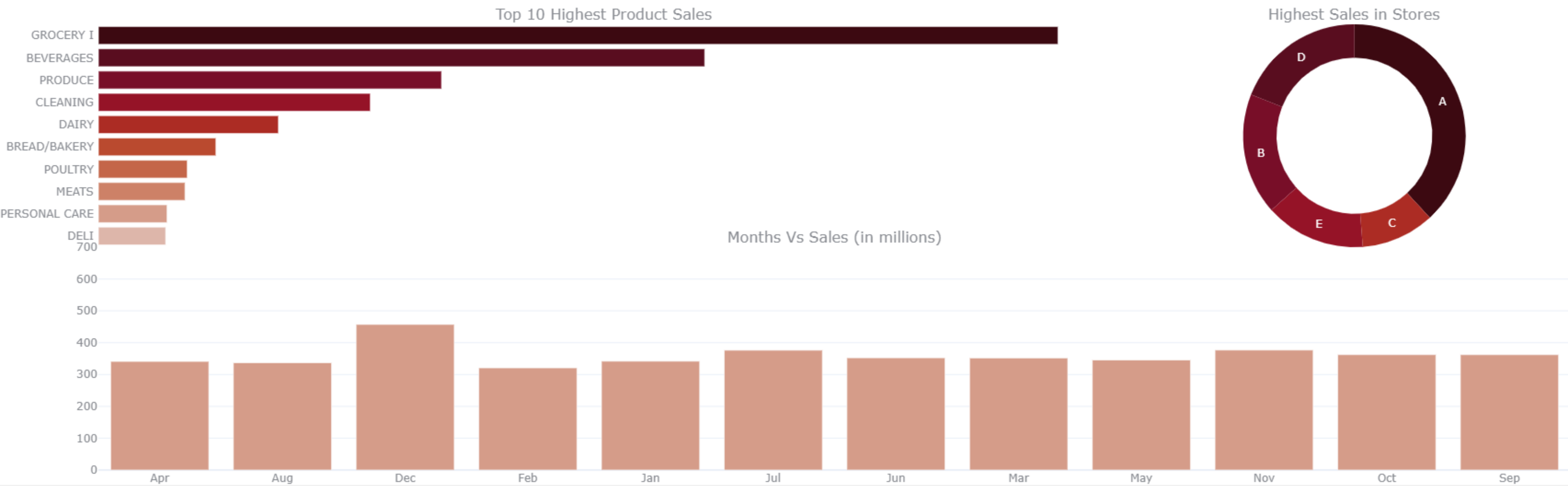
We could see our stores in different states in count, and state that only **5** states have more than 2 stores. Also most of our stores are located in the capital city (Quito).

Our Stores Shelves In numbers

Our stores are build on 33 different type of categories:



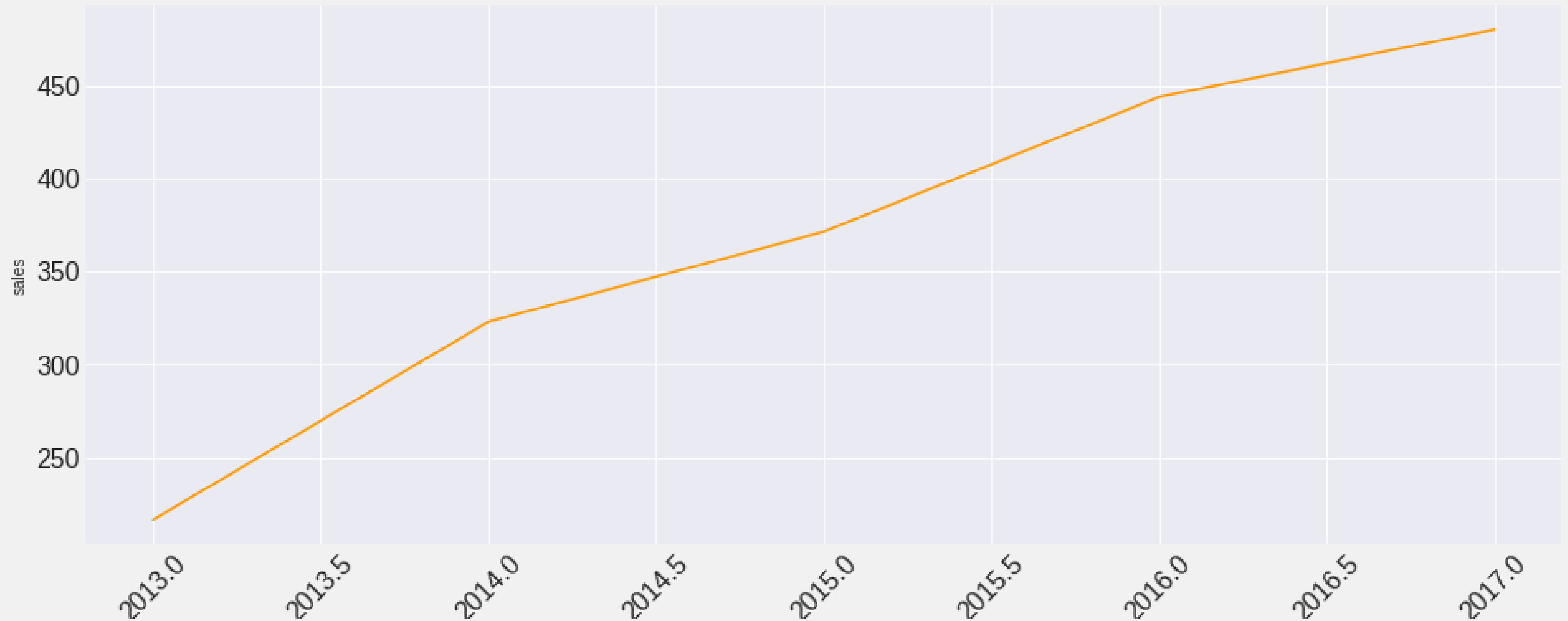
Average Sales Analysis



AS of Aug,2017

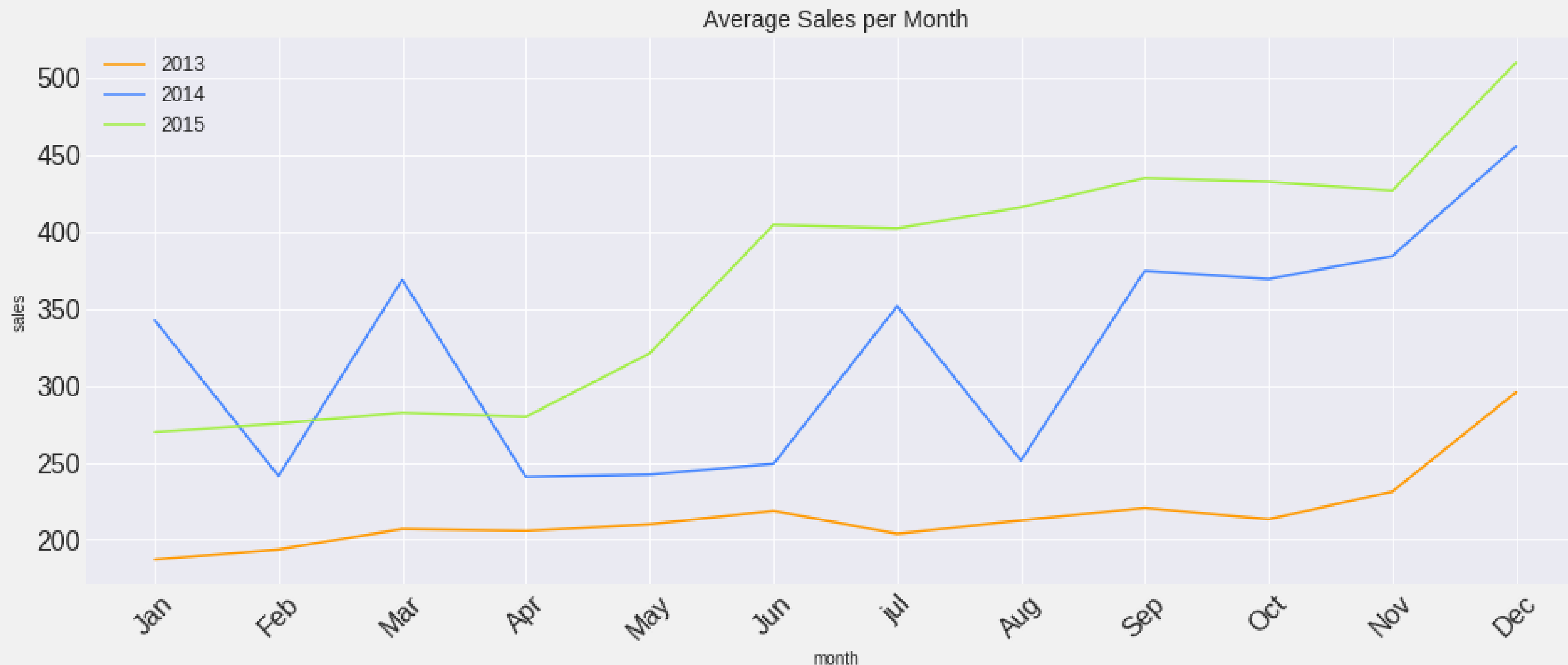
We can see our average sales per month is almost the same by excluding December on every year

Average Sales Over Years



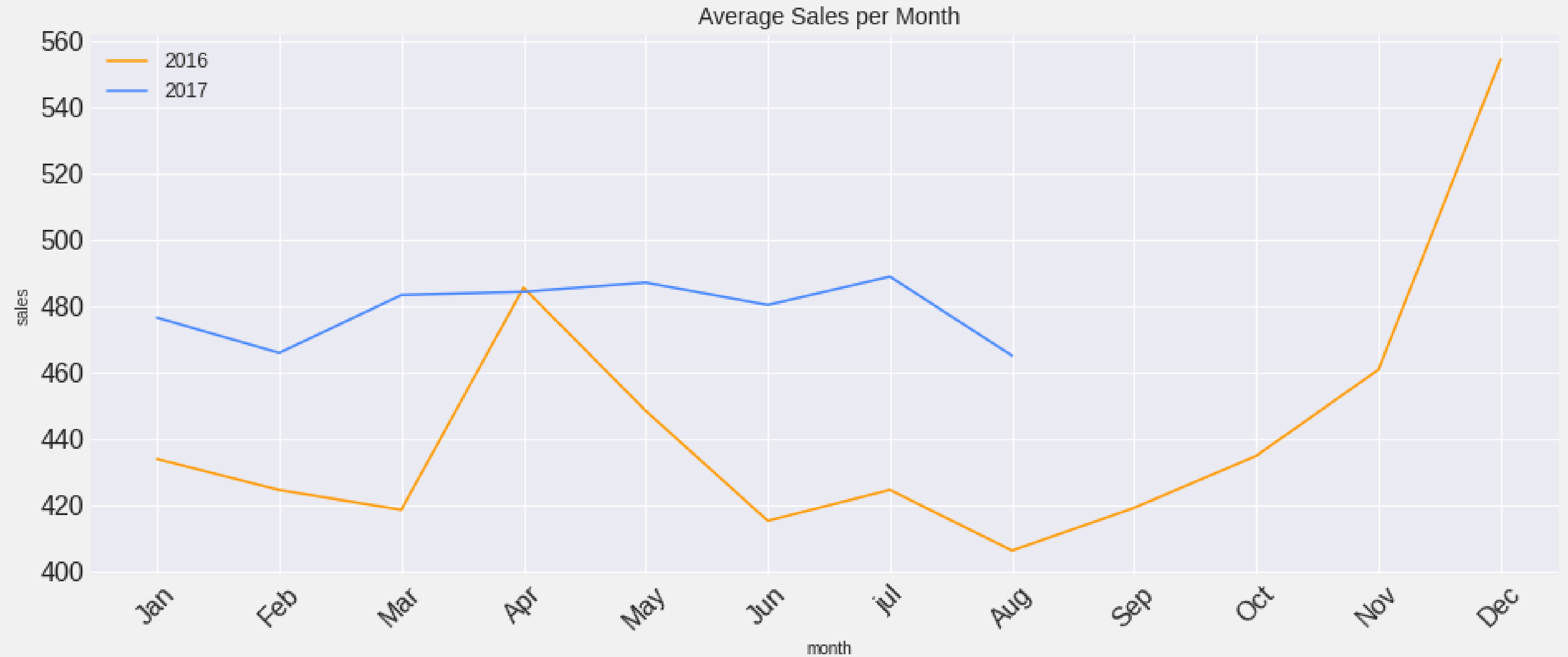
We can see that our average sales increases year by year since 2013

Sales per Month over Years(2013-2014-2015)



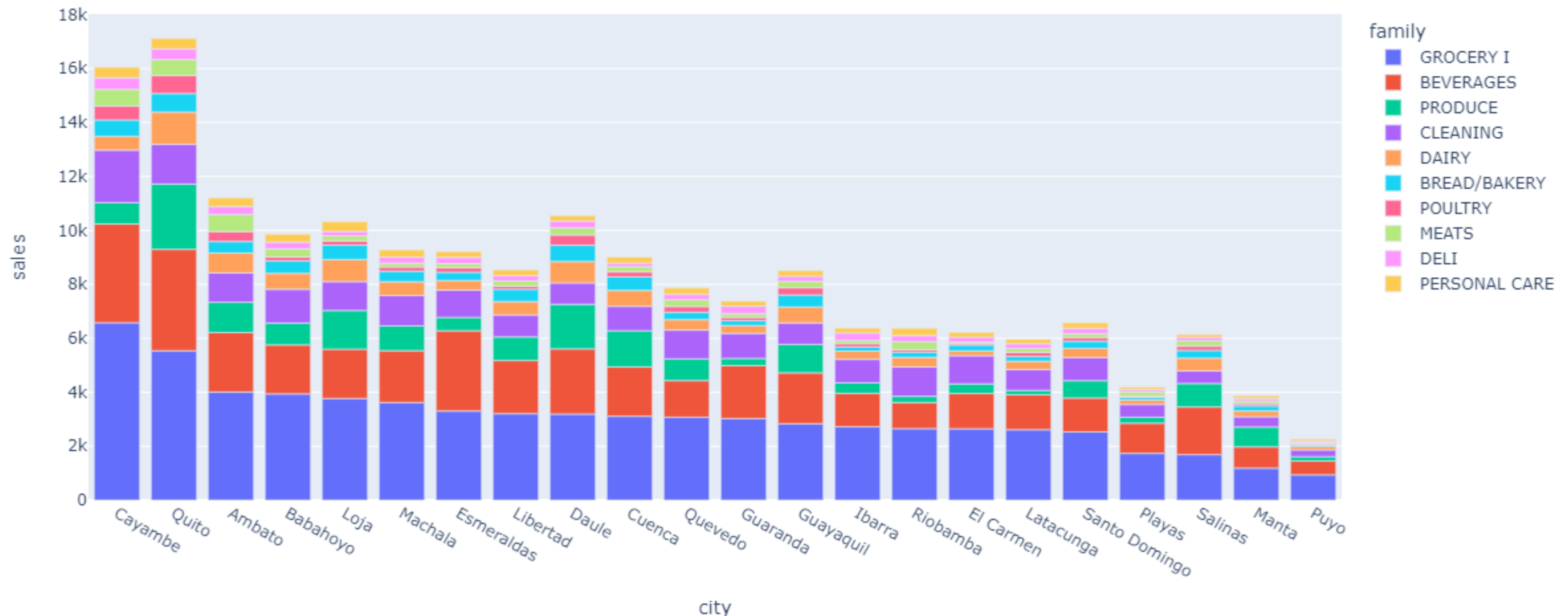
We could see that every year sales starts above the preceding ones,however,In2015 we got sales shortage at the beginning of the year.

Sales per Month over Years(2016-2017)

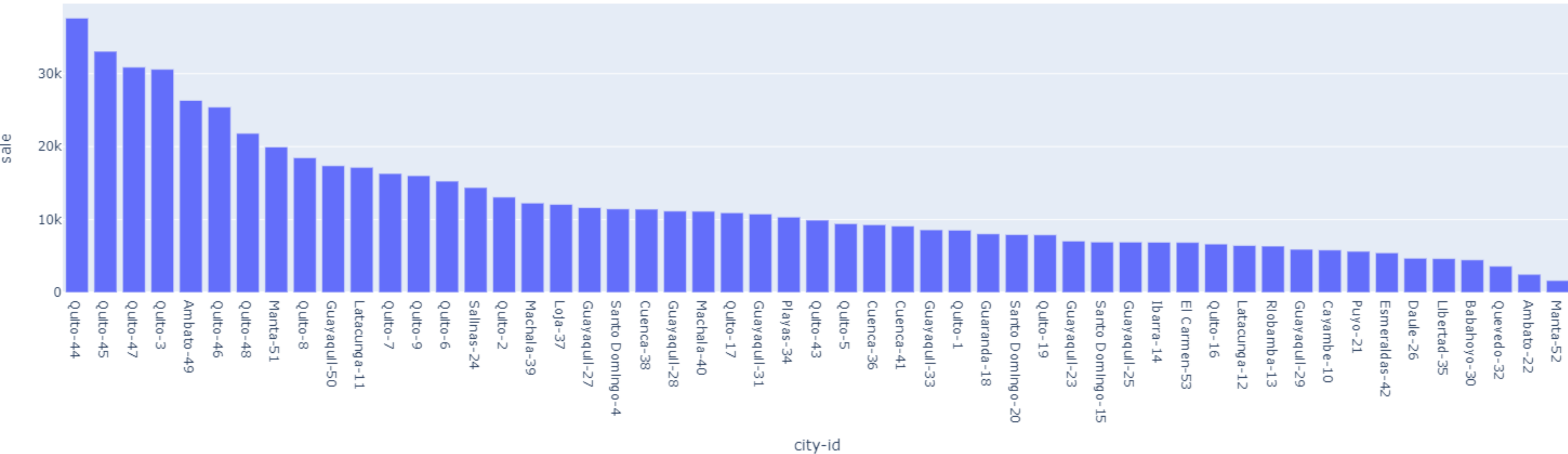


And It keeps Increasing over years

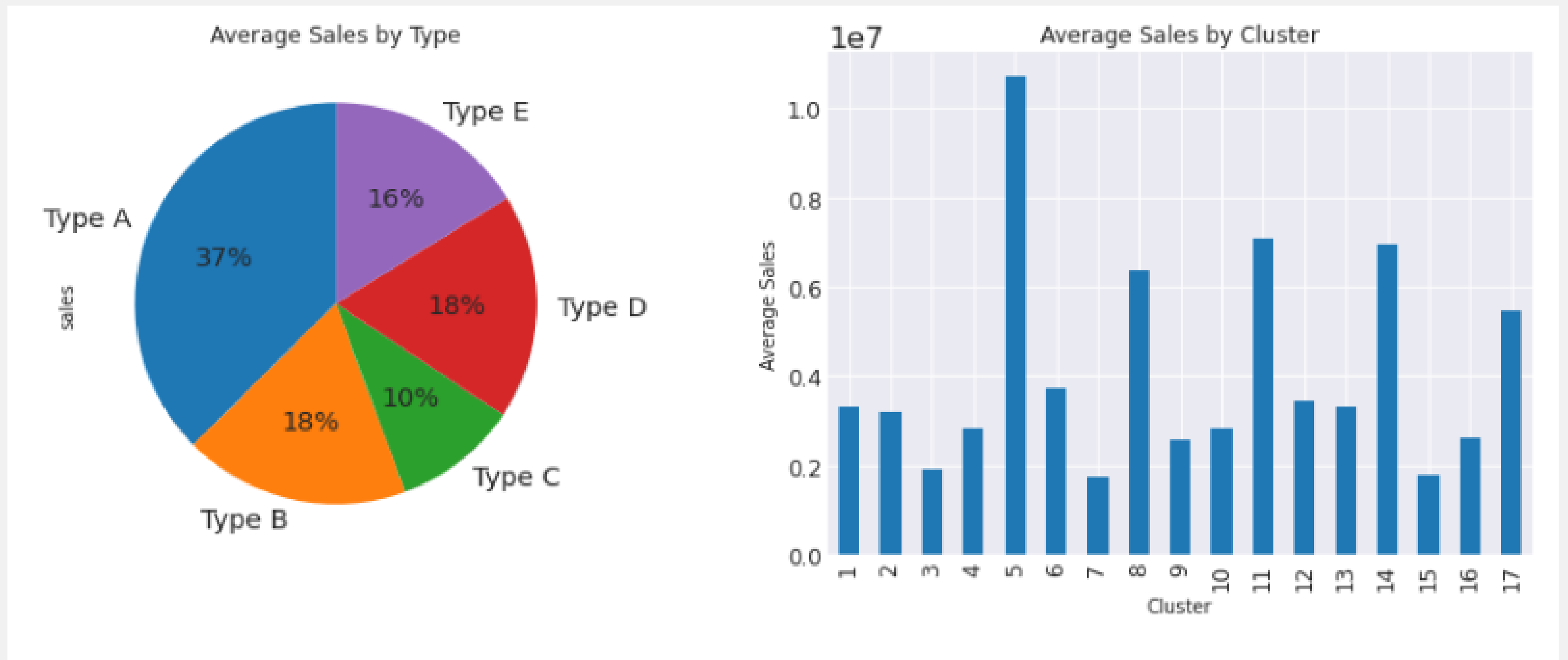
Our Sales in catetegries per city



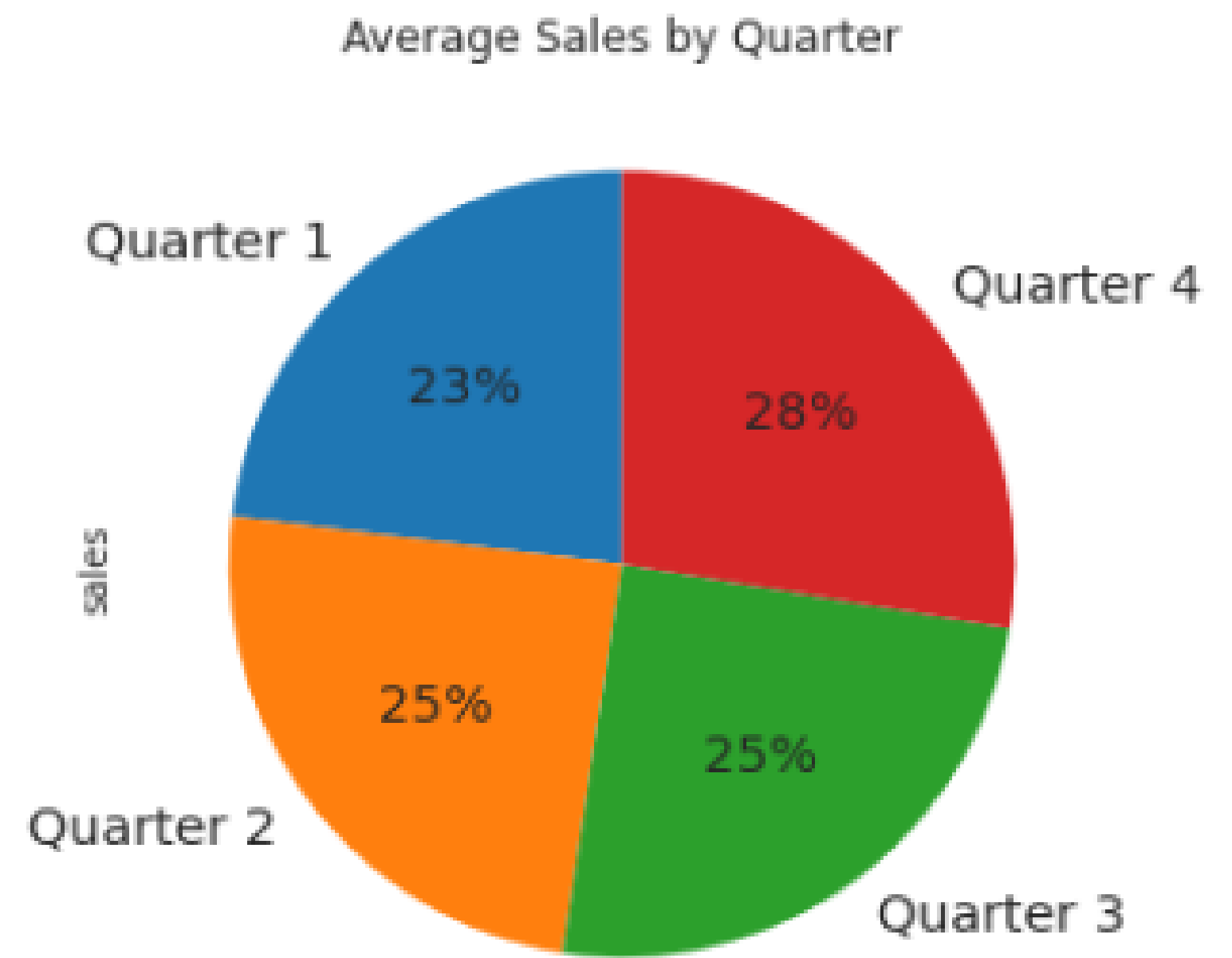
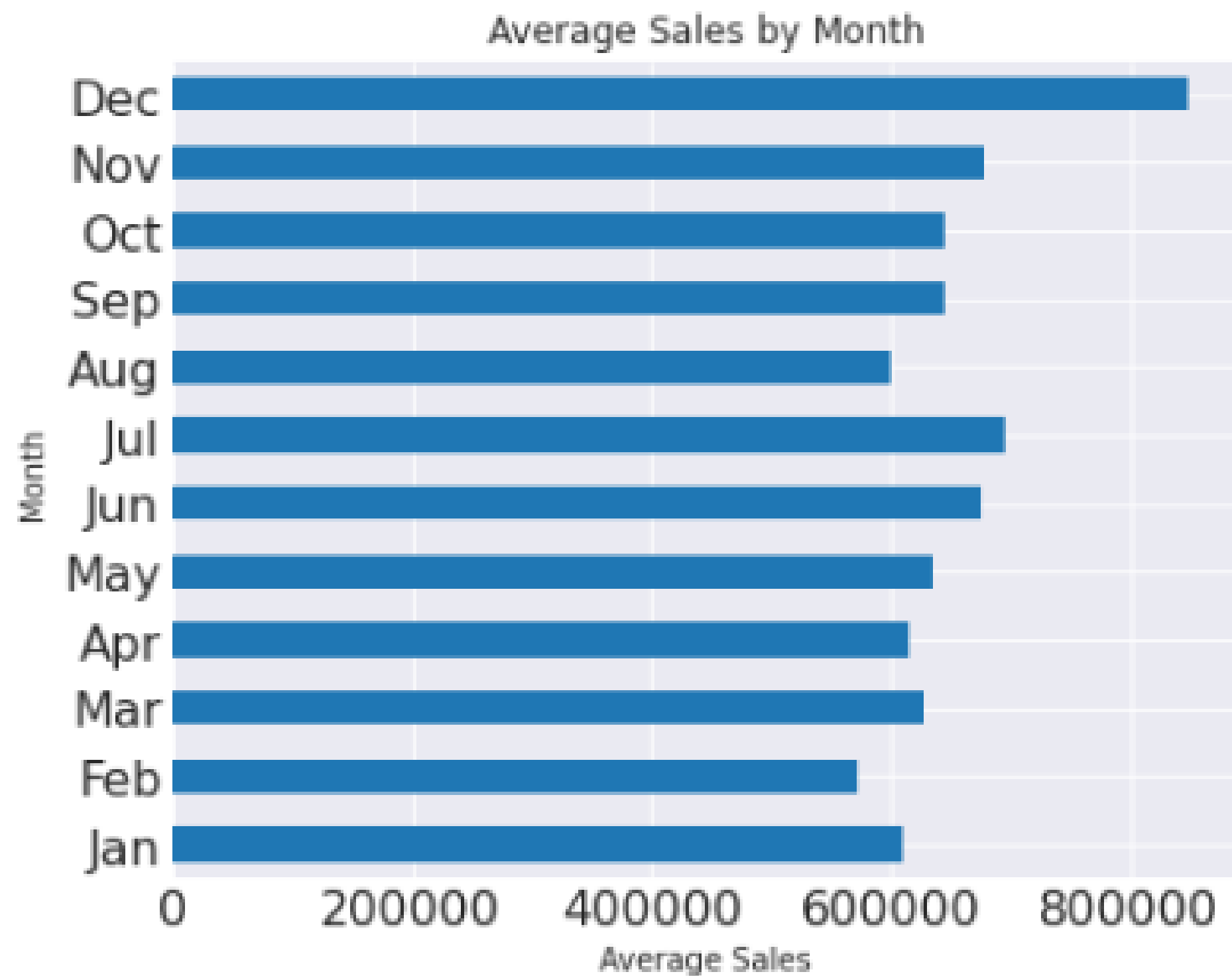
Average sales per given store



There are 54 stores at different locations (including different cities and states). However, the averages of sales per day are not similar. Most effective stores are located in **Quito** city. There are also about 10 stores running badly. An available suggestion is to shut down these stores or look for effective solutions to improve the business. (Average of avg sales is 12k)

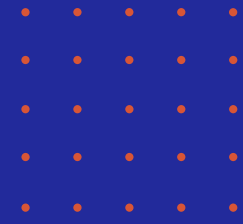


We can see that most of our **Type A** stores and **5th Cluster** makes most of our sales. Further data needed for our stores types and differences to conclude a recommendation that building a Type A stores and 5th clusters are more beneficial.



Most of the sales occurred in **December**. People tend to stock for the end of the year to prepare for a new year or to decorate the house, or schedule for a long holiday starting from Christmas.

SHORT-TERM PLANNING



- Shutting down stores with less than 12k average sales or trying to make more promotions on grocery I type of products.
- *Investing more on both Grocery I and Beverages Will enhance more our sales in overall as these are the leading type of products most of our consumers love.*
- Invest more on our second most located sales other than the capital (Quito), which is (Guayaquil)



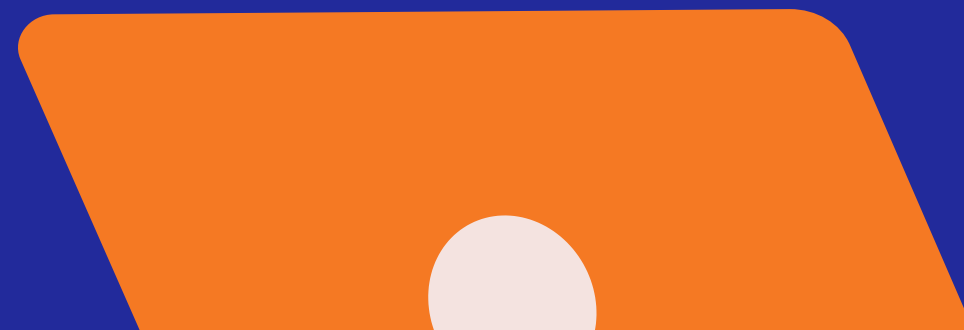
LONG-TERM PLANNING



Long-term planning is generally rooted in any company's identity and purpose.

So our recommendation is when thinking about opening new store is to take inconsideration the type of store and cluster.

05 June, 2022





LONG-TERM PLANNING (Cont.)

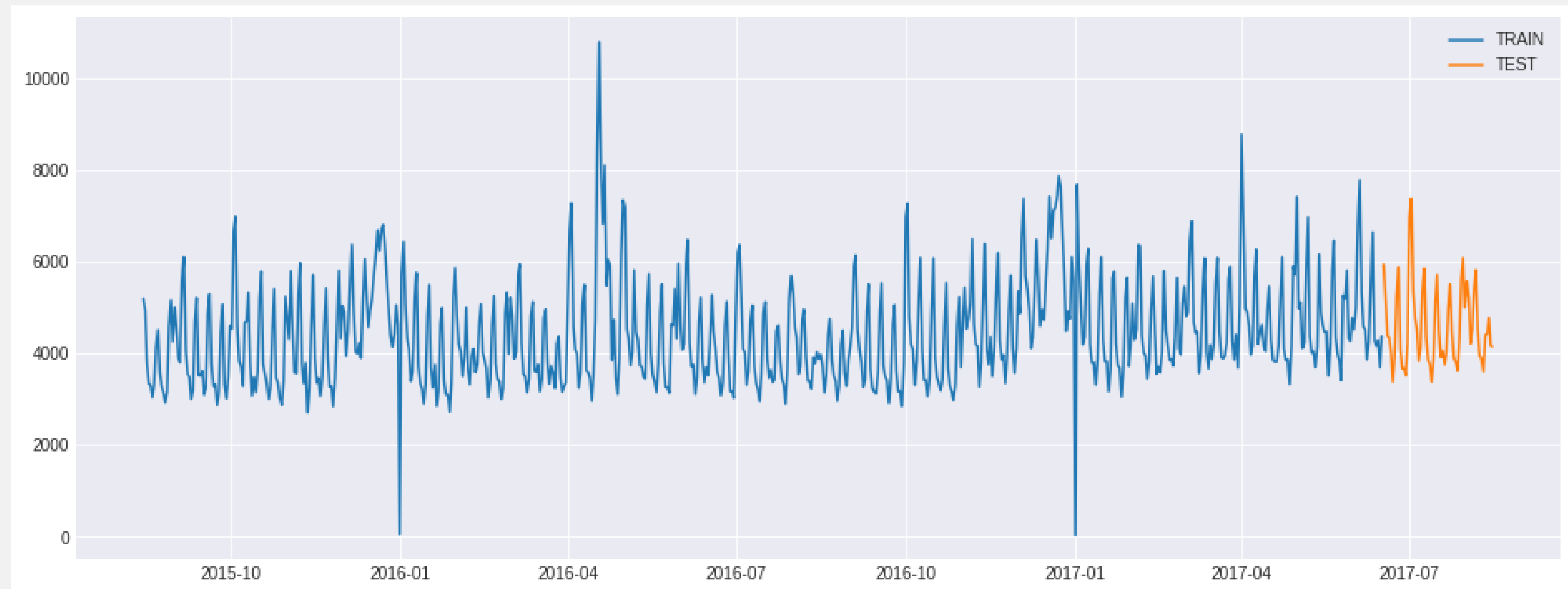
Unfortunately, it is somewhat impossible to foresee market conditions and current events over such a lengthy time frame. So we are asking our Data engineering manager to support with further data to ensure our claims.

Modeling

I have worked on the highest family in sales ('**GROCERY I**') for the last 2 years. I used **ADFuller** to check if data is stationary or not.

Result: Stationary (H0: non-stationary, p-value: 0.001)

Then I split data to take the last 2 months for the prediction period



Modeling (cont.)

Configuring a **SARIMA** requires selecting hyperparameters for both the trend and seasonal elements of the series.

Trend Elements

There are three trend elements that require configuration. They are the same as the **ARIMA** model; specifically:

- **p**: Trend autoregression order.
- **d**: Trend difference order.
- **q**: Trend moving average order.

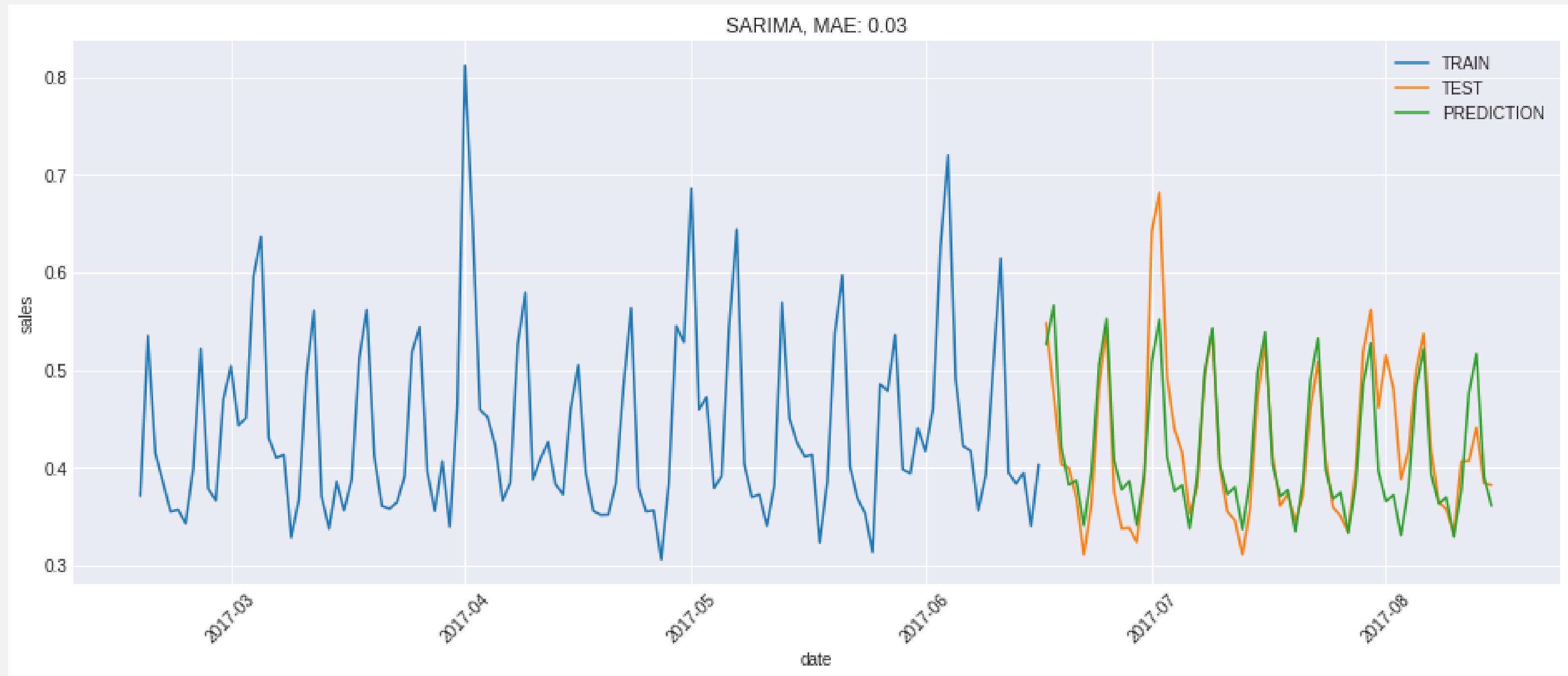
Seasonal Elements

There are four seasonal elements that are not part of ARIMA that must be configured; they are:

- **P**: Seasonal autoregressive order.
- **D**: Seasonal difference order.
- **Q**: Seasonal moving average order.
- **m**: The number of time steps for a single seasonal period.

Modeling (cont.)

We used **MinMaxScaler** to scale data then we have tried multiple hyperparameters to reach to the most optimum results with **MAE = 0.03**



Michael Ghaly | Anas mohamed

THANK YOU

<https://www.kaggle.com/code/anasmohamed21/sales-forecasting>

