

# Cafe Data MRA Project

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# Executive Summary

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CafePOSData  
NoMissingValues  
NoSpecialSymbols  
NoDuplicateData  
10Columns  
NoOutliers

Date	Bill Number	Item Desc	Time	Quantity	Rate	Tax	Discount	Total	Category
1									

145830

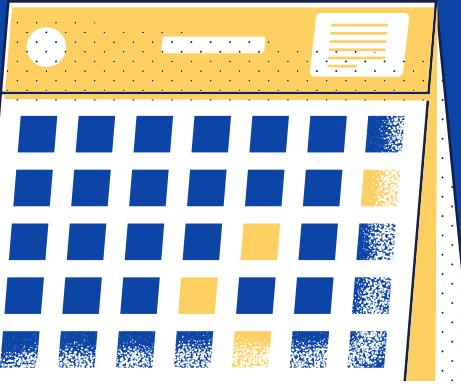
- Given Data set had 10 columns.
- Contained POS Data for a Cafe Chain.
- 145830 Rows
- No Missing Values
- Had no outliers
- No Duplicate Values
- Data Cleanup
  - Removed Bill Number - G0518491.
    - Since it looks like one of instance where discount was really high, which skewed the data.
    - (15 rows dropped).
  - Bill Numbers where Discount and Total was the same were also dropped.
    - As they might have been part of a promotional strategy or might have been on the house.
    - (17 Rows dropped)
  - Additional Column for Revenue was created.
    - Total - Discount - Tax
  - Analysis to maximize the revenue was done.

10

# EDA Key Findings



# QUANTITY, RATE & REVENUE COMPARISON

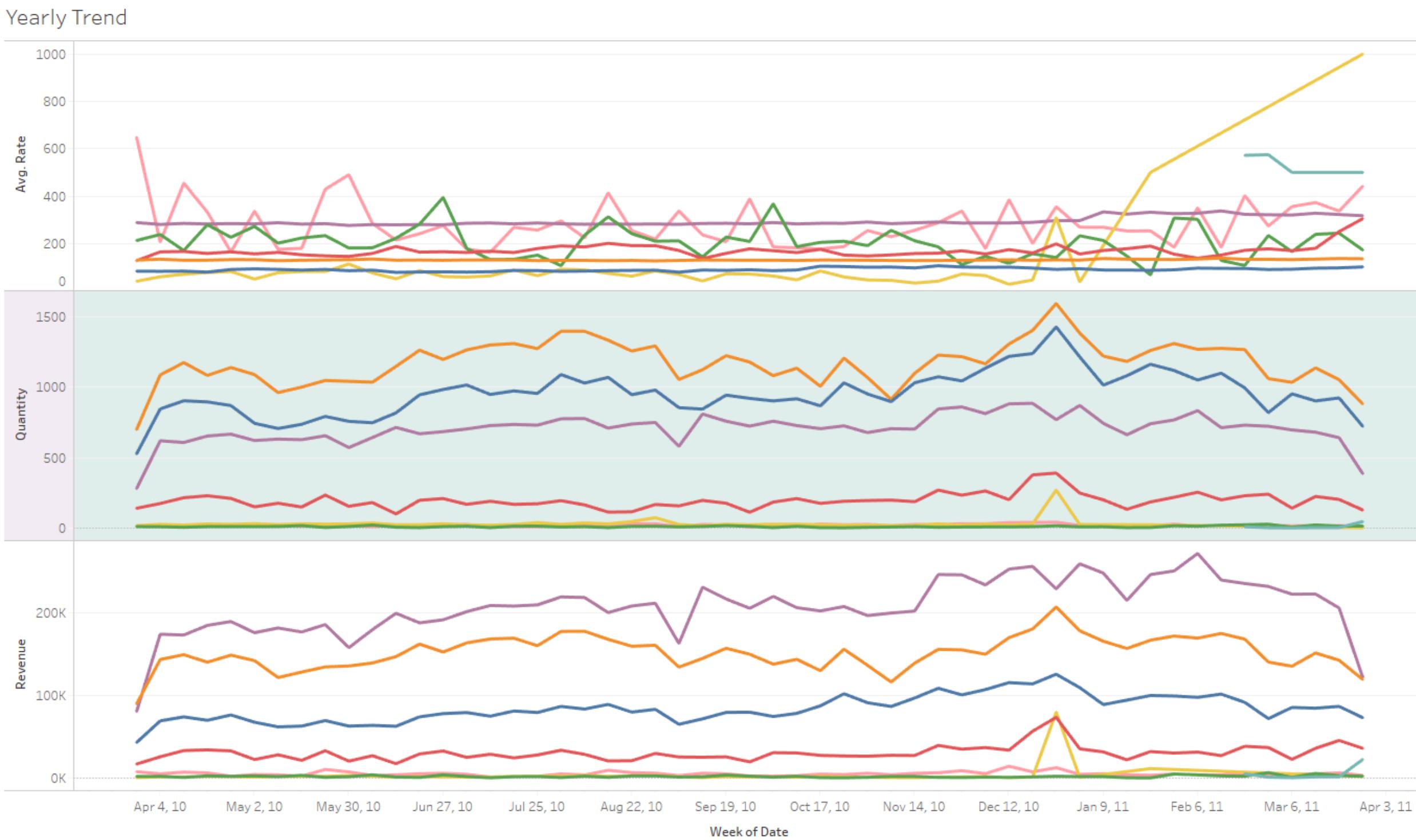


Qty vs. Rate vs. Revenue - Category Wise



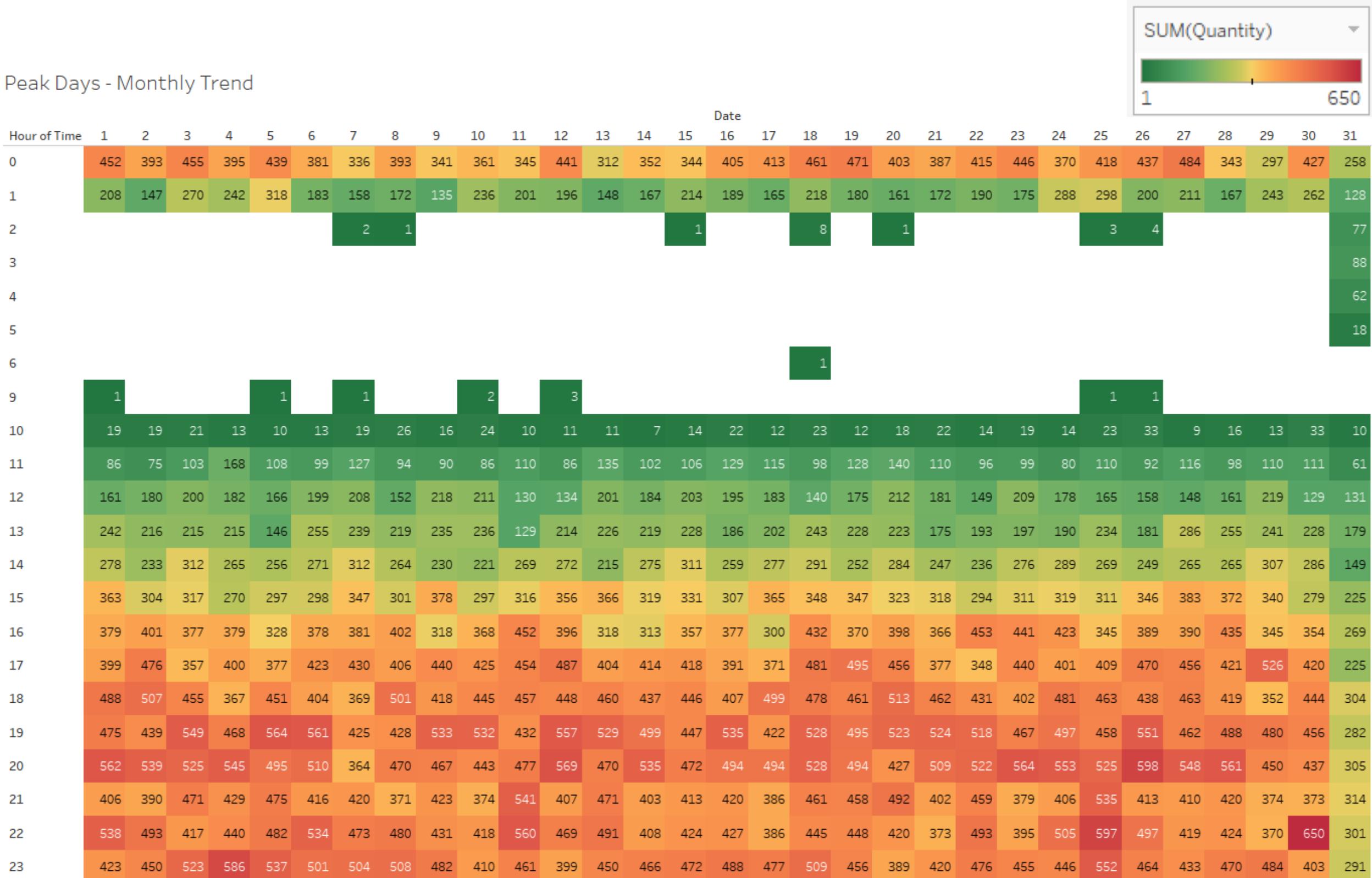
Even though the quantity for Tobacco products is less than Food as well as Beverages, the Revenue generated is more owing to the higher rates that it commands. Food comes in second in terms of Revenue, however it is the most sought after item in terms of quantity.

# YEARLY TRENDS



- Average rate for wine and merchandise has shown wild fluctuations through out the year.
- Average Price for MISC category shows a sharp increase in April 2011.
  - However this is due to 2 Transaction worth Rs. 1300 and 700 respectively.
- Food has remained the most ordered category throughout the year.
- Tobacco has remained the top revenue generator through out the year.
- There was a peak observed in the month of December in terms of quantity as well as Revenue.
  - This can be attributed to the festive season.



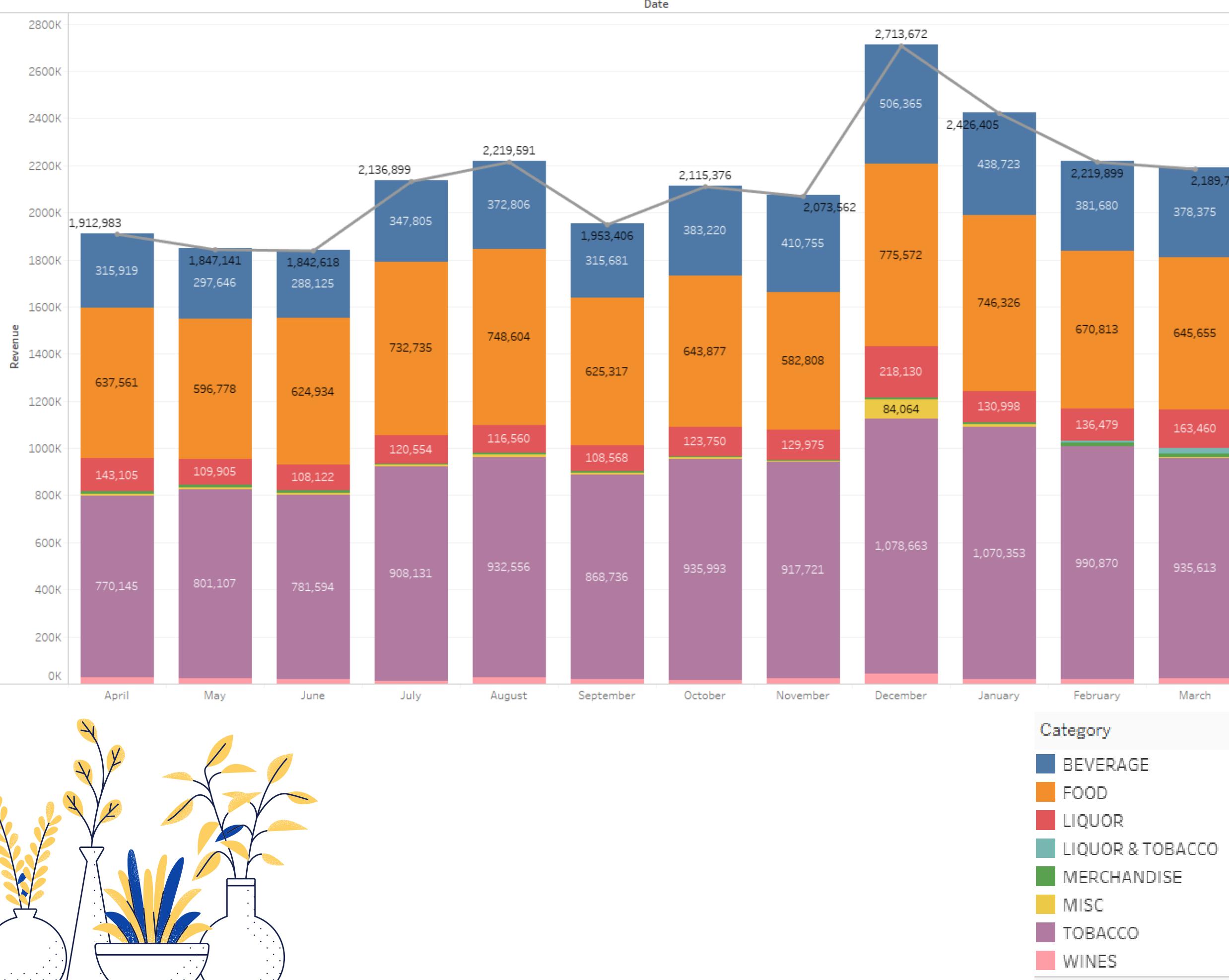


# PEAK HOURS

- Good amount of footfall is observed between 7 PM to midnight.
- Least amount of orders are observed on the last day of the month.
  - Possible because most people are waiting for their salary to get credited.
  - A good opportunity to offer discounts at the end of the month.
- Almost zero footfall is observed between 2 AM and 10 AM.
  - Better to operate cafe in 16X7 mode instead of 24X7.

# CATEGORY VS. REVENUE

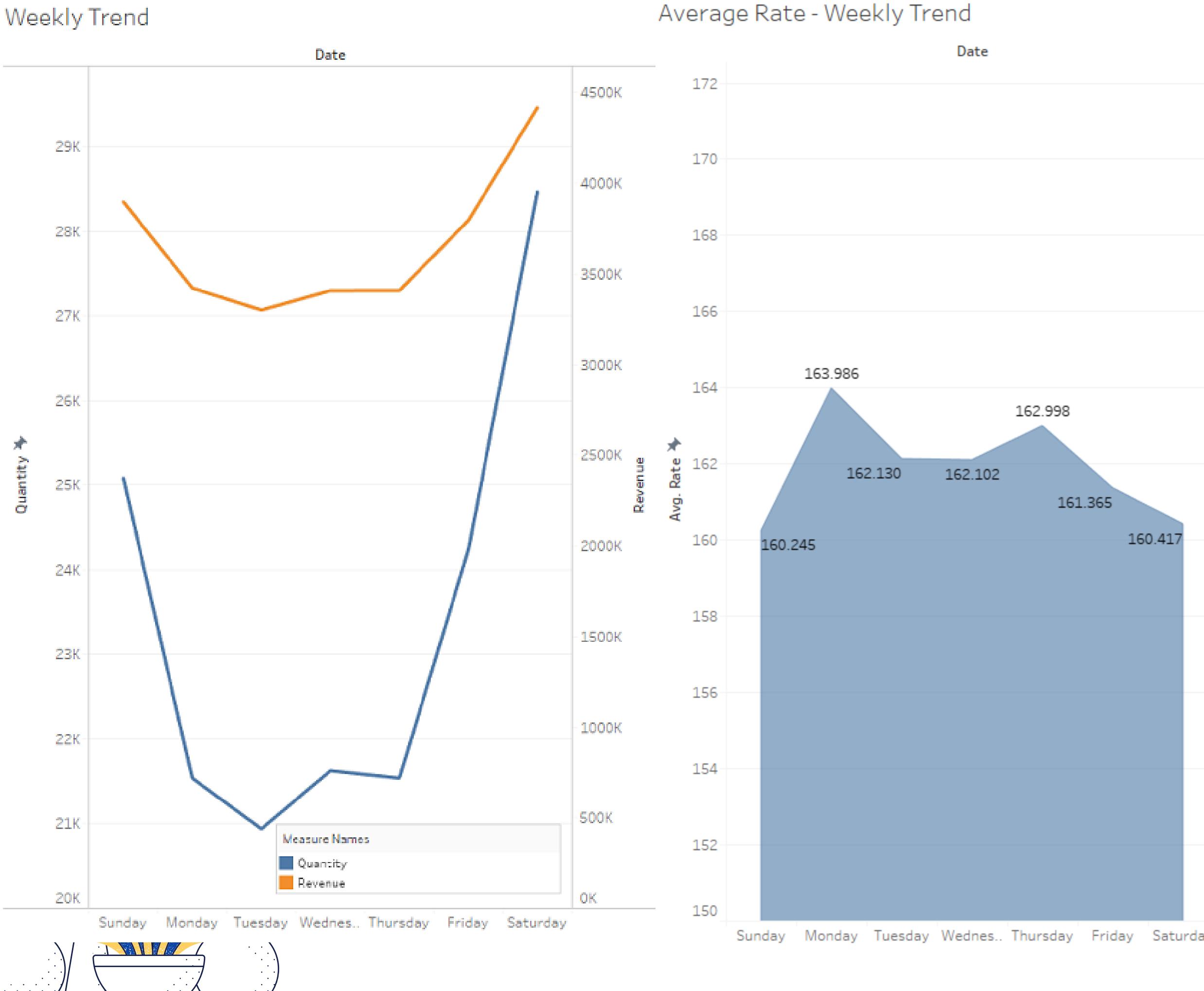
Category Wise Revenue - Monthly Trend



- Category Wise Monthly Trends.
- We can see Tobacco has consistently been the highest revenue generator month over month.
- Followed by Food and Beverage.
- In the Month of December a remarkable increase in MISC category was observed.
  - Probably due to Festive season with Christmas and New Year around the corner.
- Promotional offers can be run for MISC category in the month of December to further boost sales.

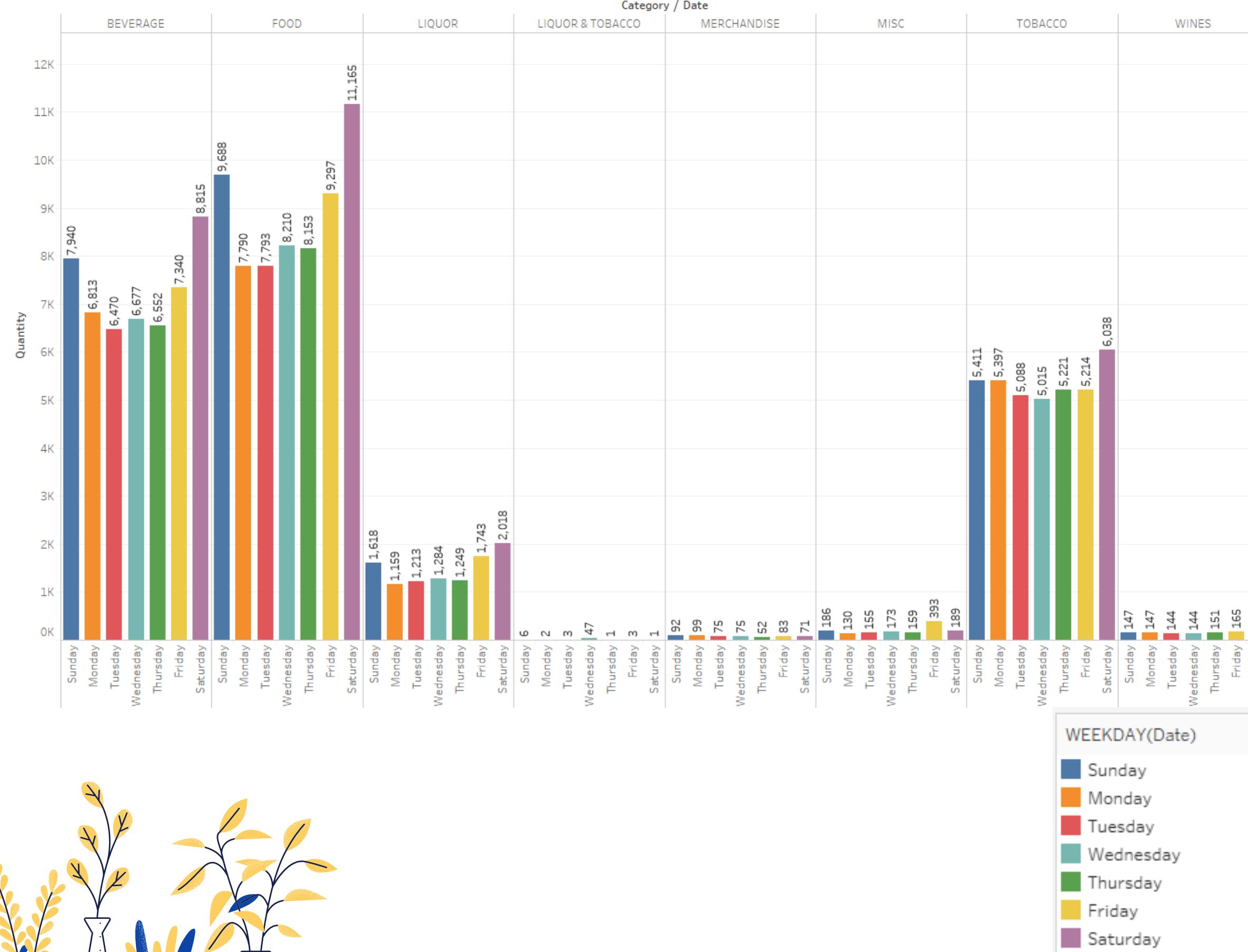


# WEEKLY TRENDS



- Number of items ordered a.k.a Quantity is the highest on Saturdays followed by Sunday and Friday.
- For rest of the week Quantity of items ordered across different categories of products, remains more or less the same.
- Similar Trend is observed for Revenue, which peaks on Saturday and remains relatively high over the weekend.
- Intuitively prices show an inverse trend, with prices being the lowest during the Weekends and higher during weekdays.

## Category / Qty - Weekly Trend

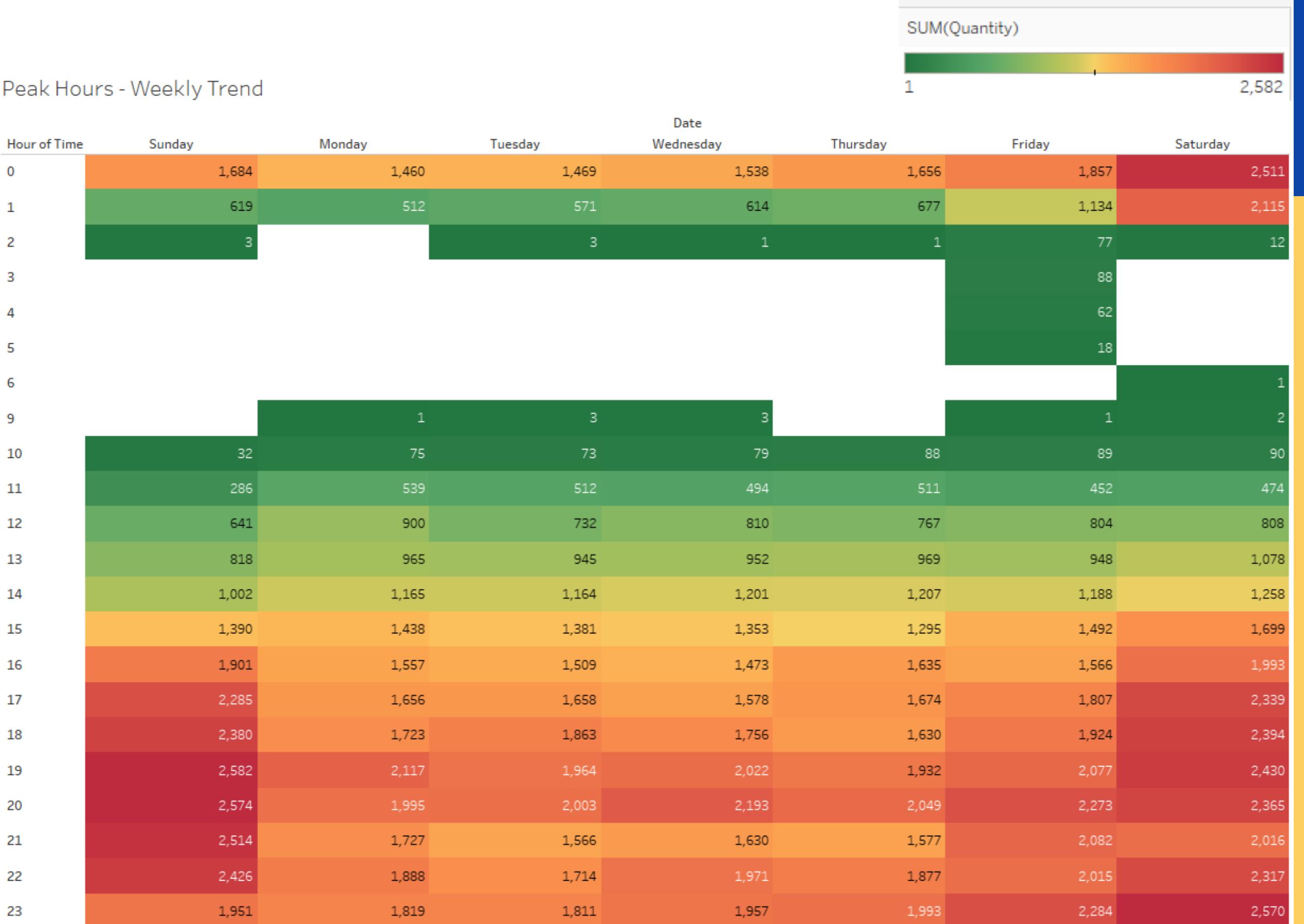


- Demand for almost every category of products peaks on the weekend.
- Demand for Tobacco products almost similar throughout the week.
- Demand for Food and Beverages show the most fluctuation, with peak demand over the weekends.
- Food and Beverages together make up for more than 50% of ordered items.
- Liquor & Tobacco seems to be least in demand throughout the week and does not show any spike even on weekends.

# WEEKLY TRENDS

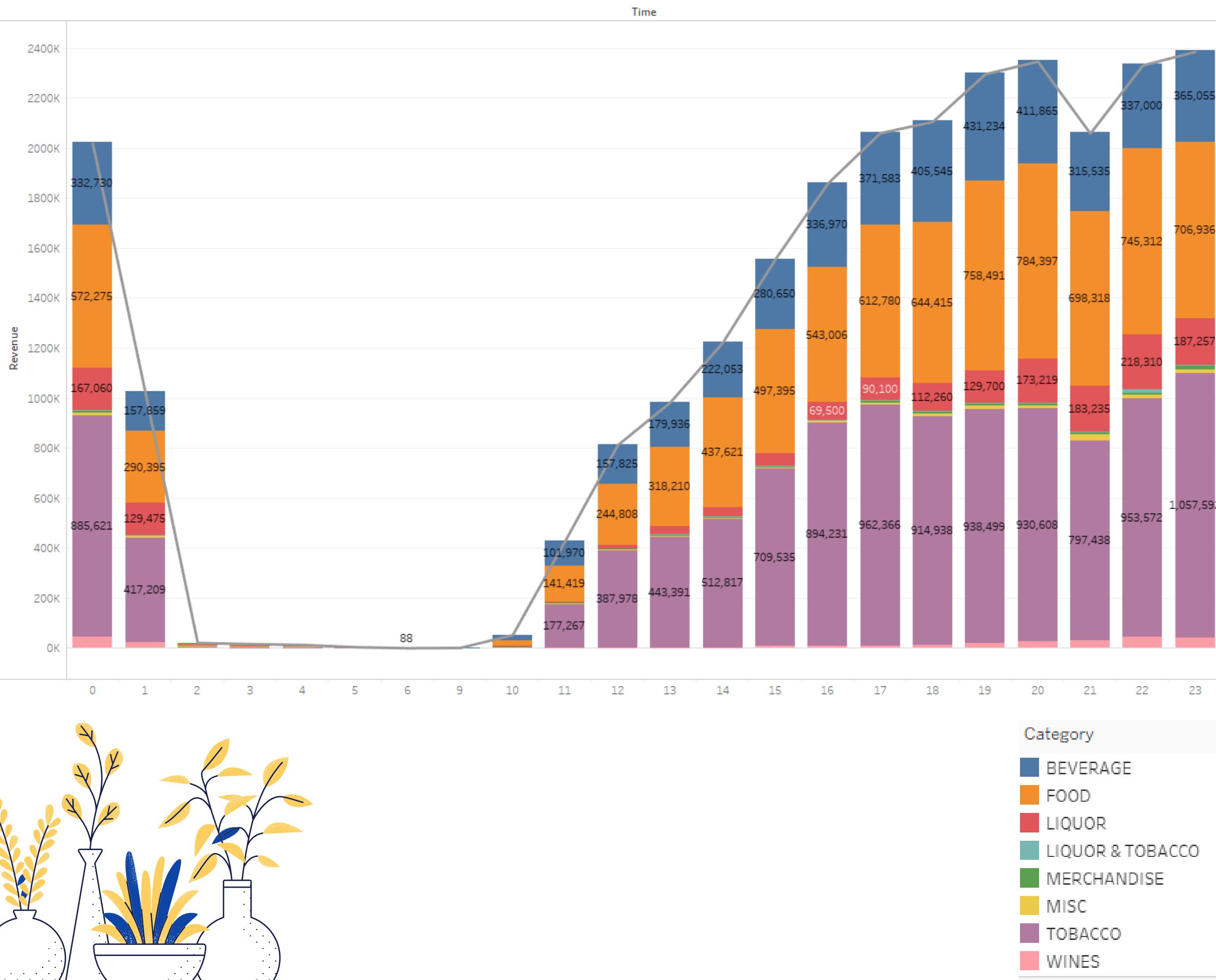
# WEEKLY TRENDS

Peak Hours - Weekly Trend



- 5 PM till 1 AM on Weekends are the busiest period for the Cafe.
- Highest number of orders are placed during this time.
- There is hardly any demand from 3 AM to 6 AM, except on Fridays since most people have Saturday Off.
- People tend to stay out late when there is a holiday the next day i.e. on Fridays and Saturdays.
- People wrap things up earlier on Sunday since Monday is a working day and the same is evident from the peak hour heat map here.

## Revenue - Intraday Trend



## INTRA DAY TRENDS

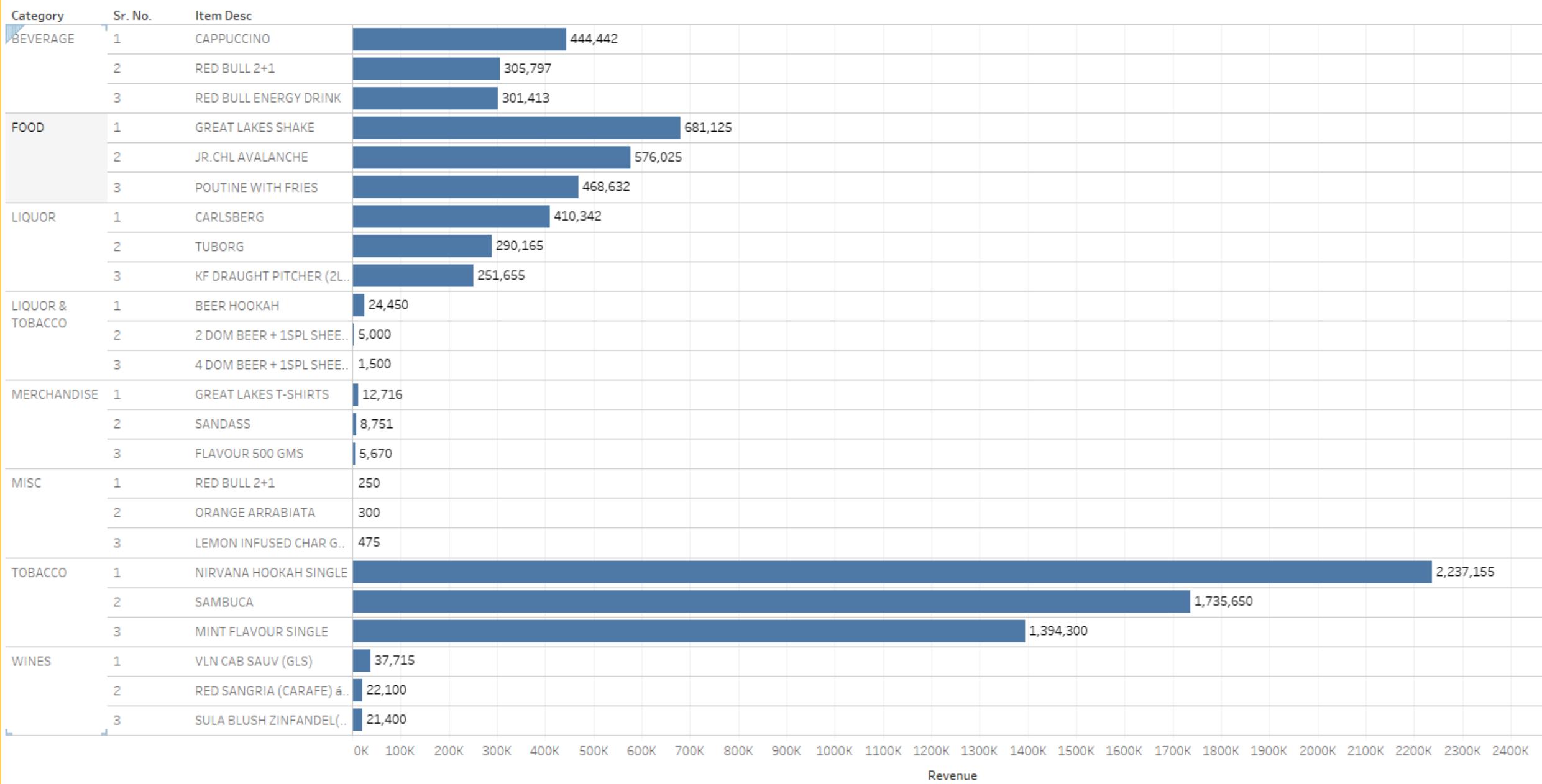
- We can see there is a sharp dip in the revenue generated post 2 AM.
- Highest revenue is generated from 7 PM to midnight.
- Demand for Liquor increases as the day progresses and peaks around 11 PM.
- Demand for Food and Tobacco remains almost the same from 7 PM to midnight i.e. highest revenue period.
- Barely any activity is observed between 2 PM to 11 AM.



# CATEGORY WISE TOP PRODUCTS

- Top 3 revenue generators for each category have been plotted in this graph.
- Nirvana Hookah Single is the overall most profitable item on the menu.
- Followed by Sambuca and Mint Flavor Single.
- Great Lakes Shake is the highest revenue generator in Food category.
- Cappuccino is the highest revenue generator in Beverage category.

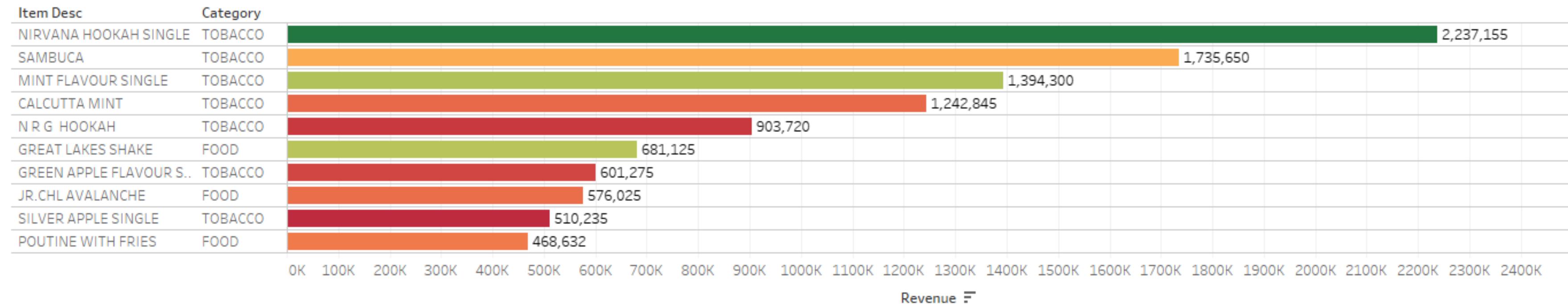
Top Product - Category Wise



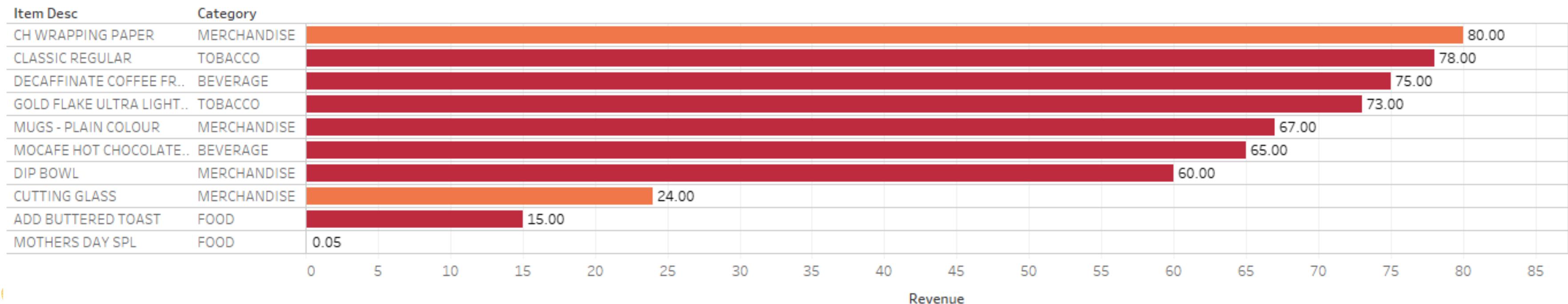
SUM(Quantity)



## Top 10 Products



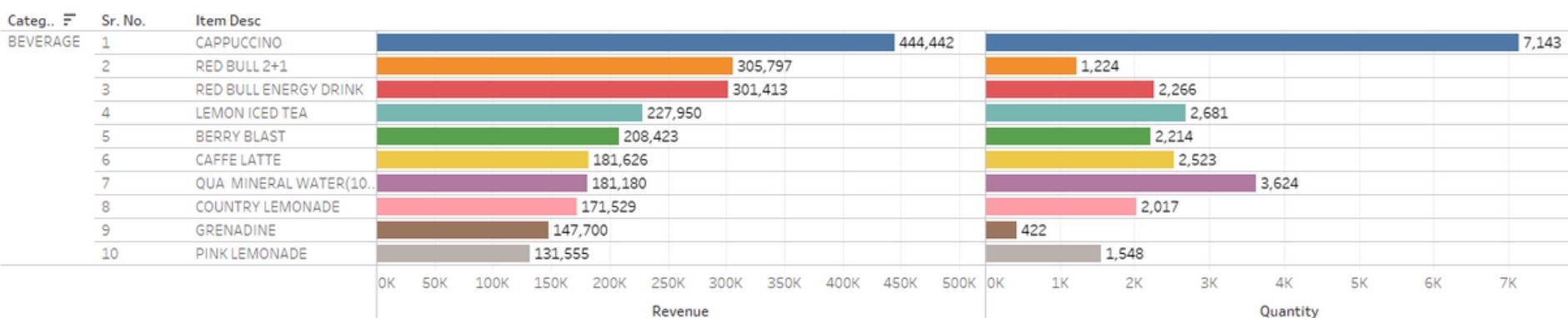
## Bottom 10 Products



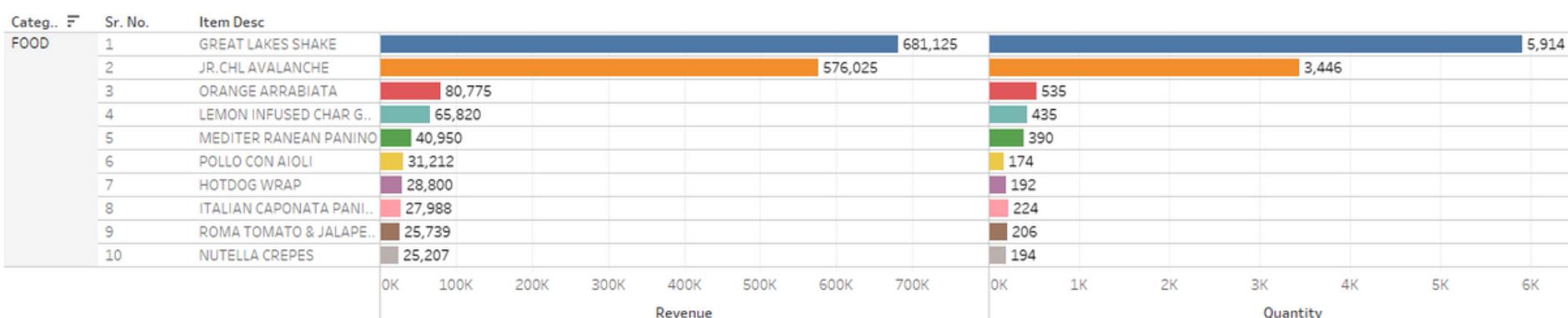
# OVERALL TOP & BOTTOM 10 PRODUCTS

# CATEGORY WISE TOP 10 PRODUCTS

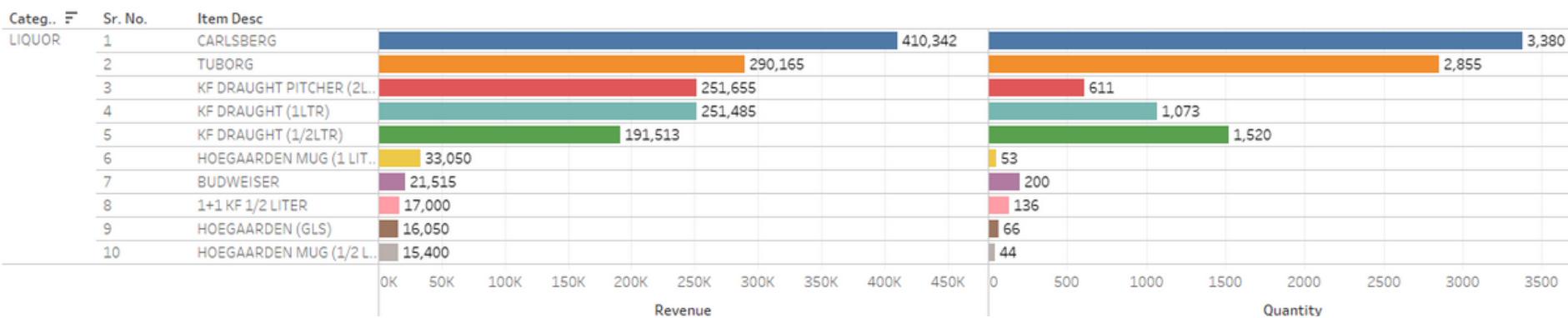
BEVERAGE - Top 10 Products



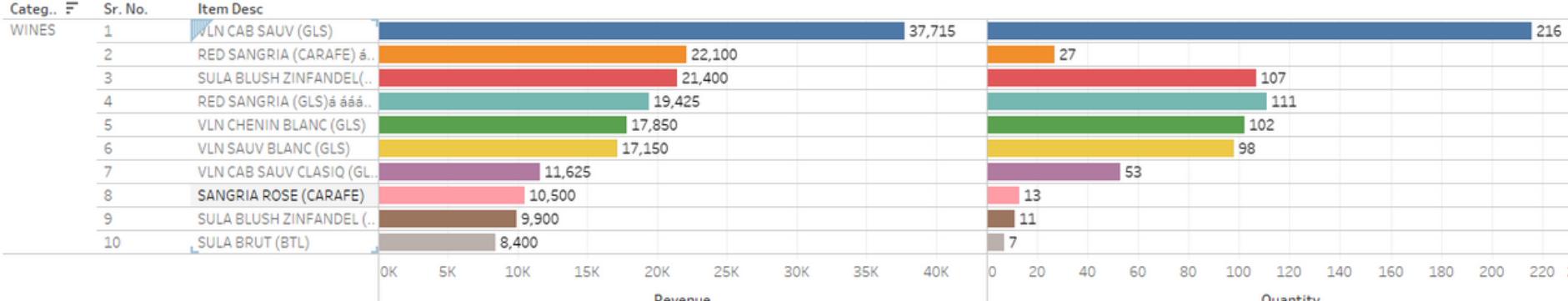
FOOD - Top 10 Products



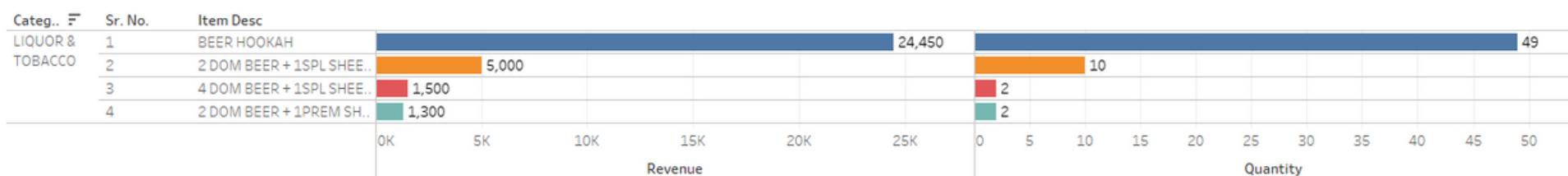
LIQUOR - Top 10 Products



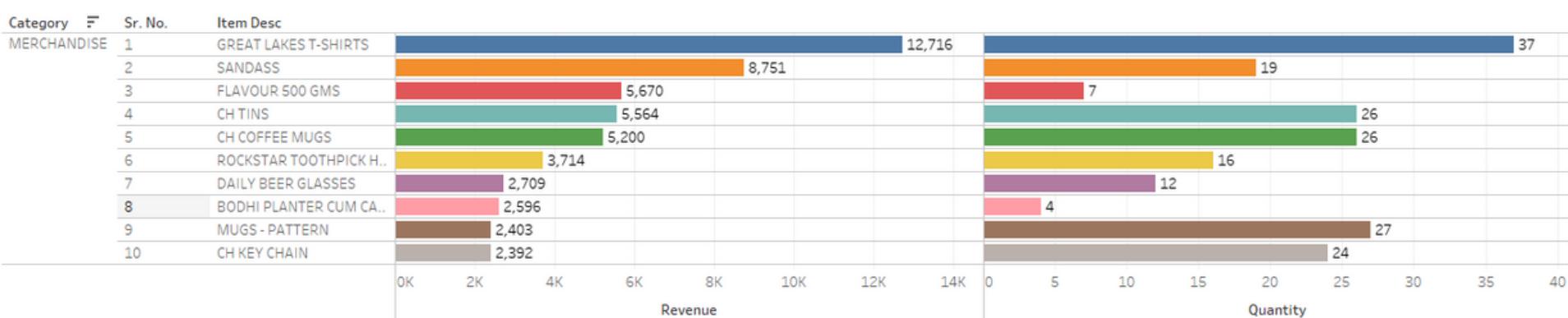
WINES - Top 10 Products



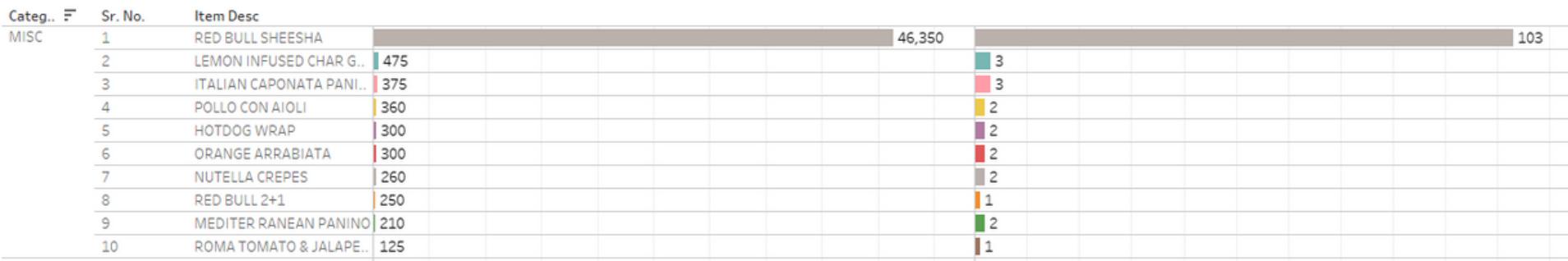
LIQUOR & TOBACCO - Top 10 Products



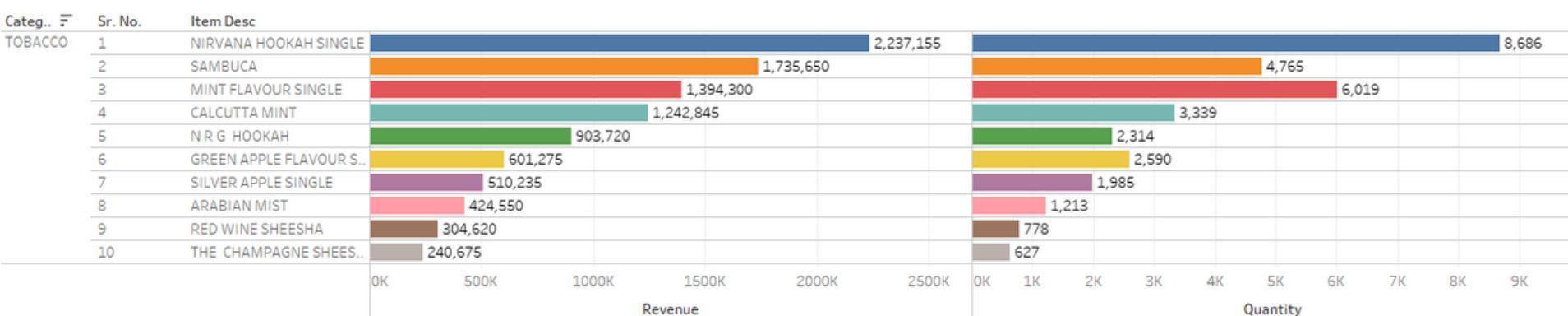
MERCHANDISE - Top 10 Products



MISC - Top 10 Products



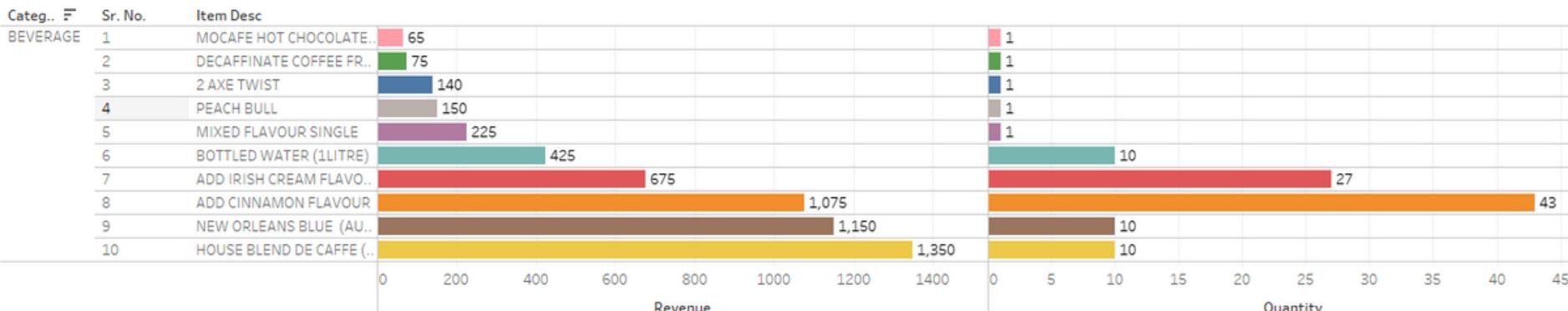
TOBACCO - Top 10 Products



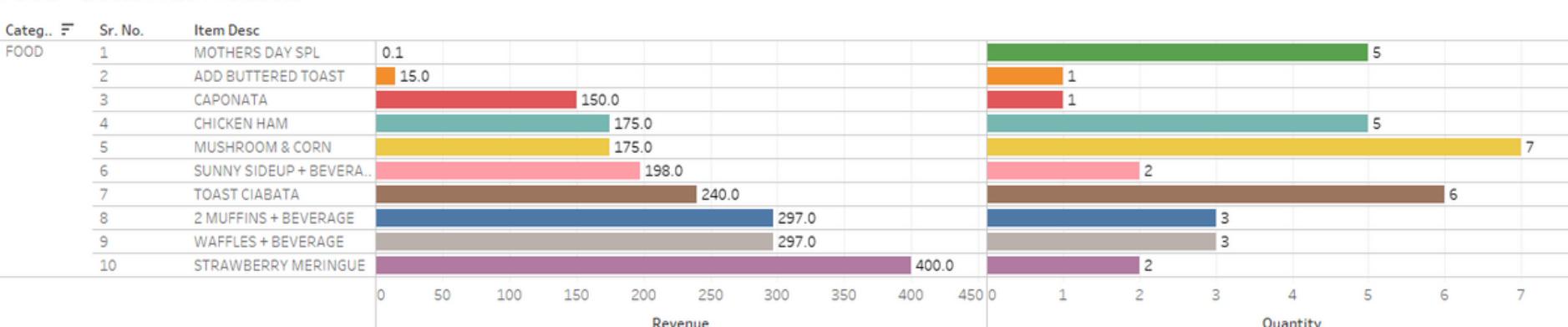
- Higher Quantity does not always translate to higher revenues.



## BEVERAGE - Bottom 10 Products



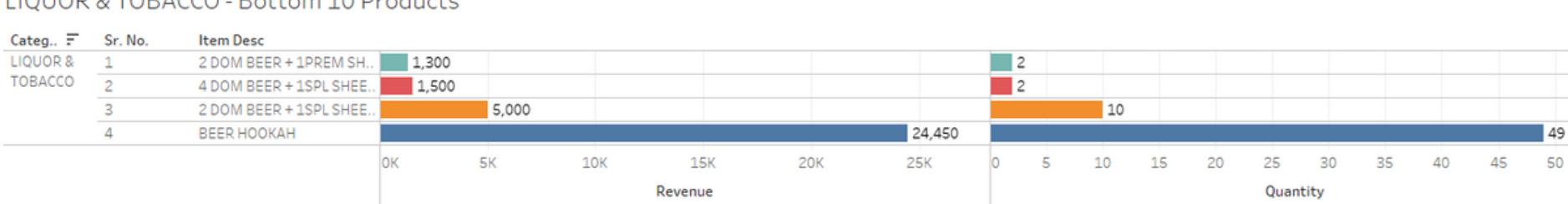
## FOOD - Bottom 10 Products



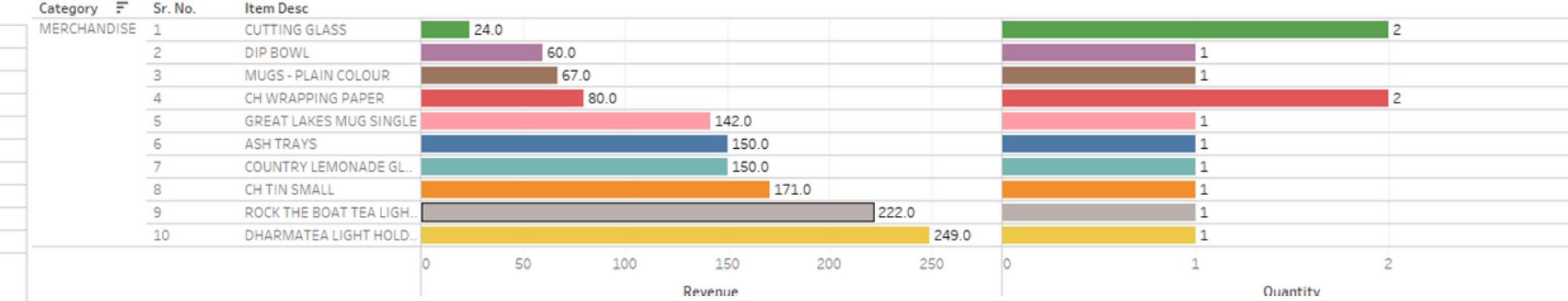
## LIQUOR - Bottom 10 Products



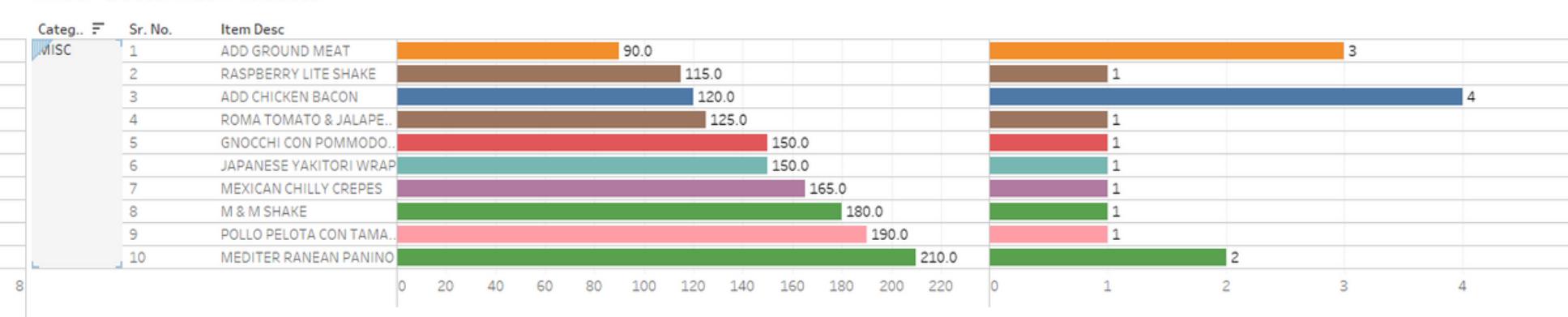
## LIQUOR & TOBACCO - Bottom 10 Products



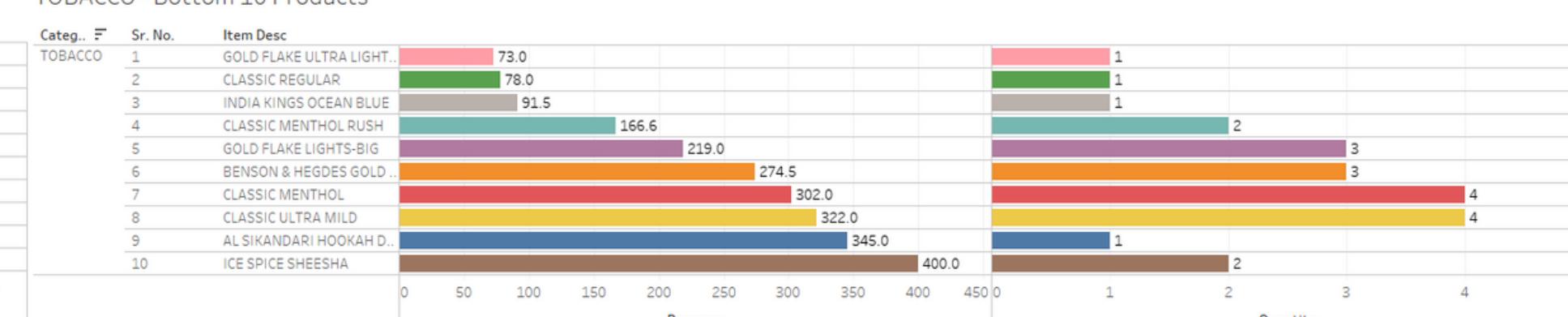
## MERCHANDISE - Bottom 10 Products



## MISC - Bottom 10 Products



## TOBACCO - Bottom 10 Products



## WINES - Bottom 10 Products



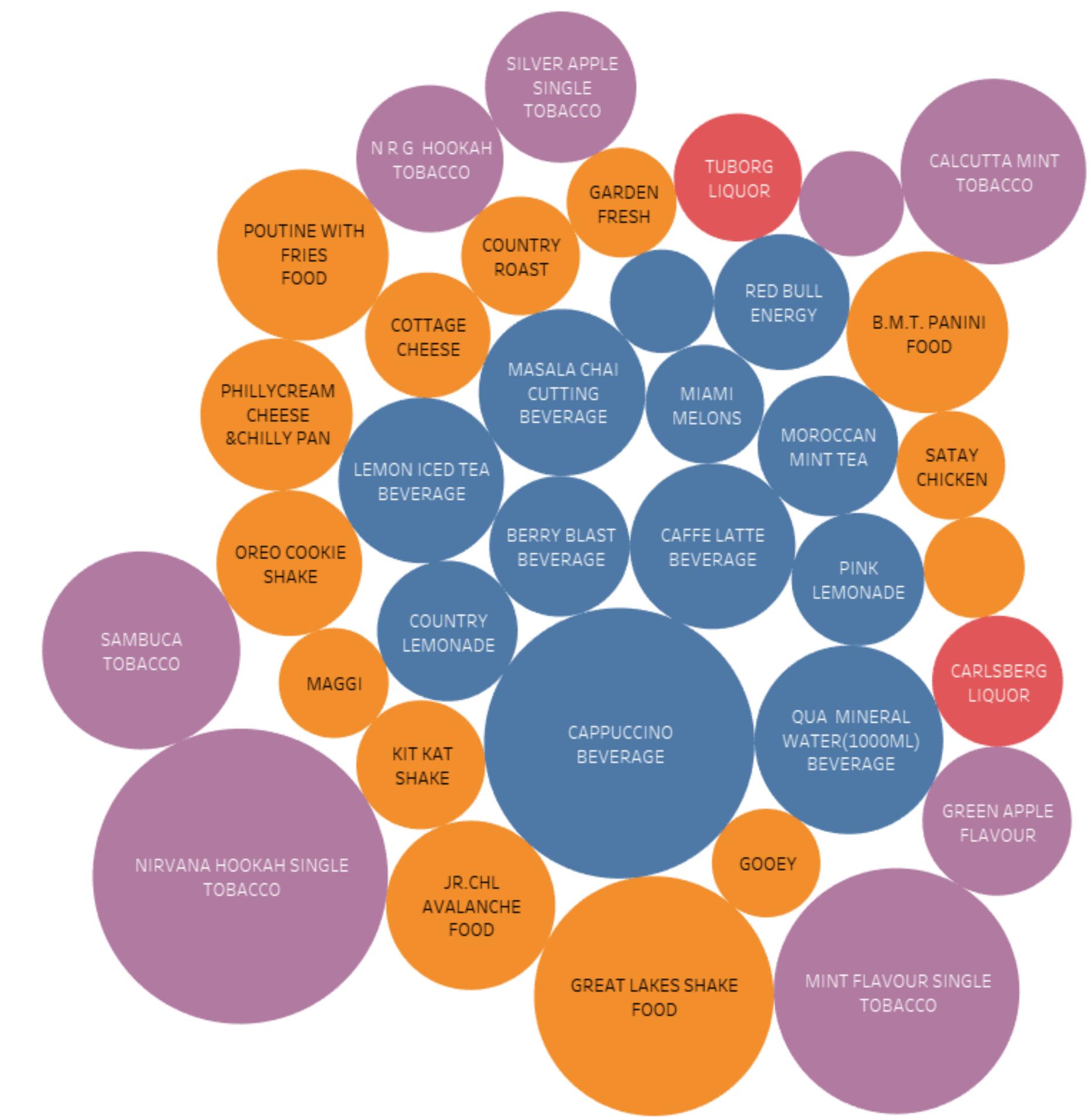
- Products in these graphs are prime candidates to be dropped from the menu as they are the lowest revenue generators and more often than not are also the lowest in demand in terms of Quantity.

# CATEGORY WISE BOTTOM 10 PRODUCTS

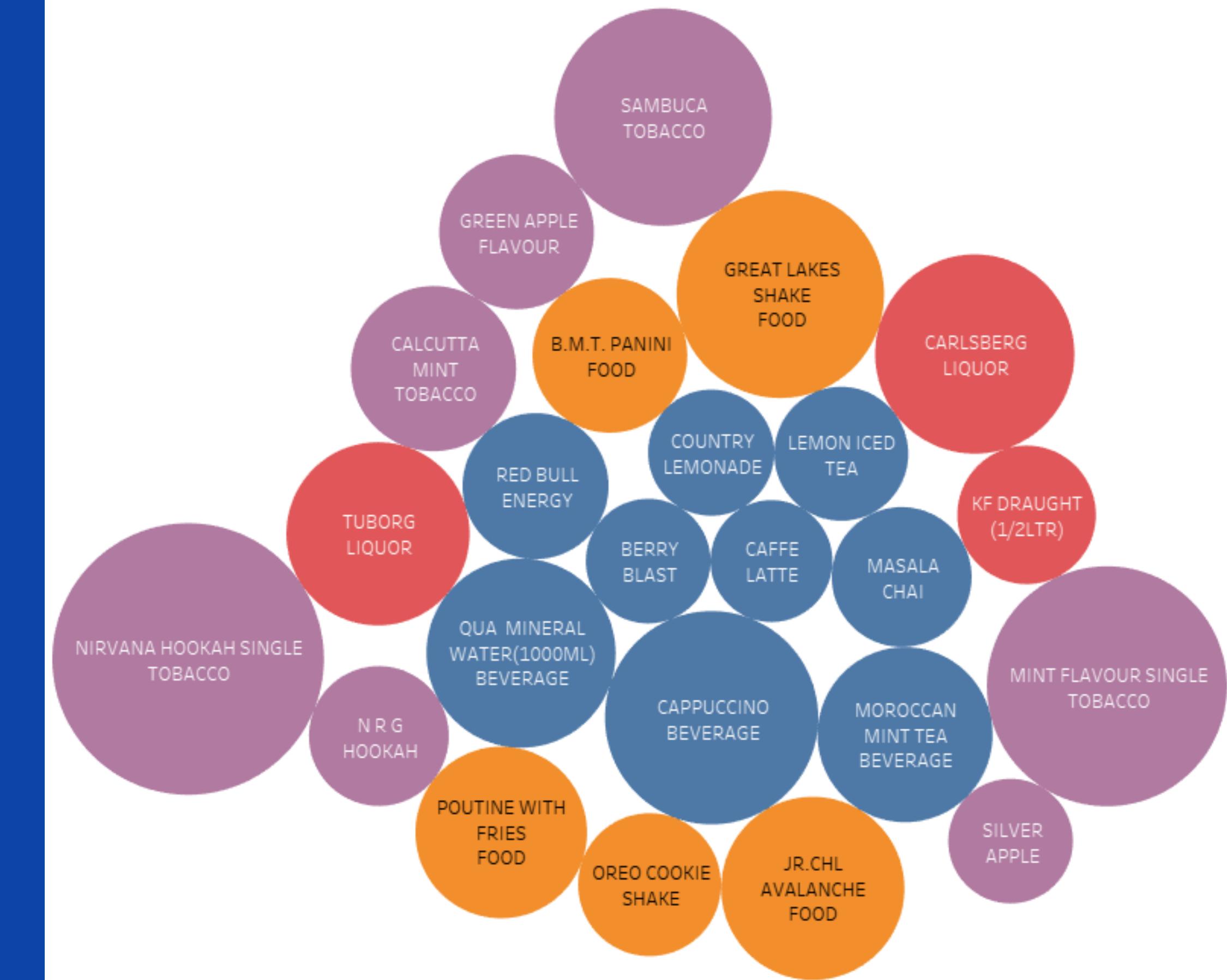


# DAY TIME ORDERS

- More Food and Beverages related orders during the day.
- Offers for Food & Beverages to be introduced during day time.

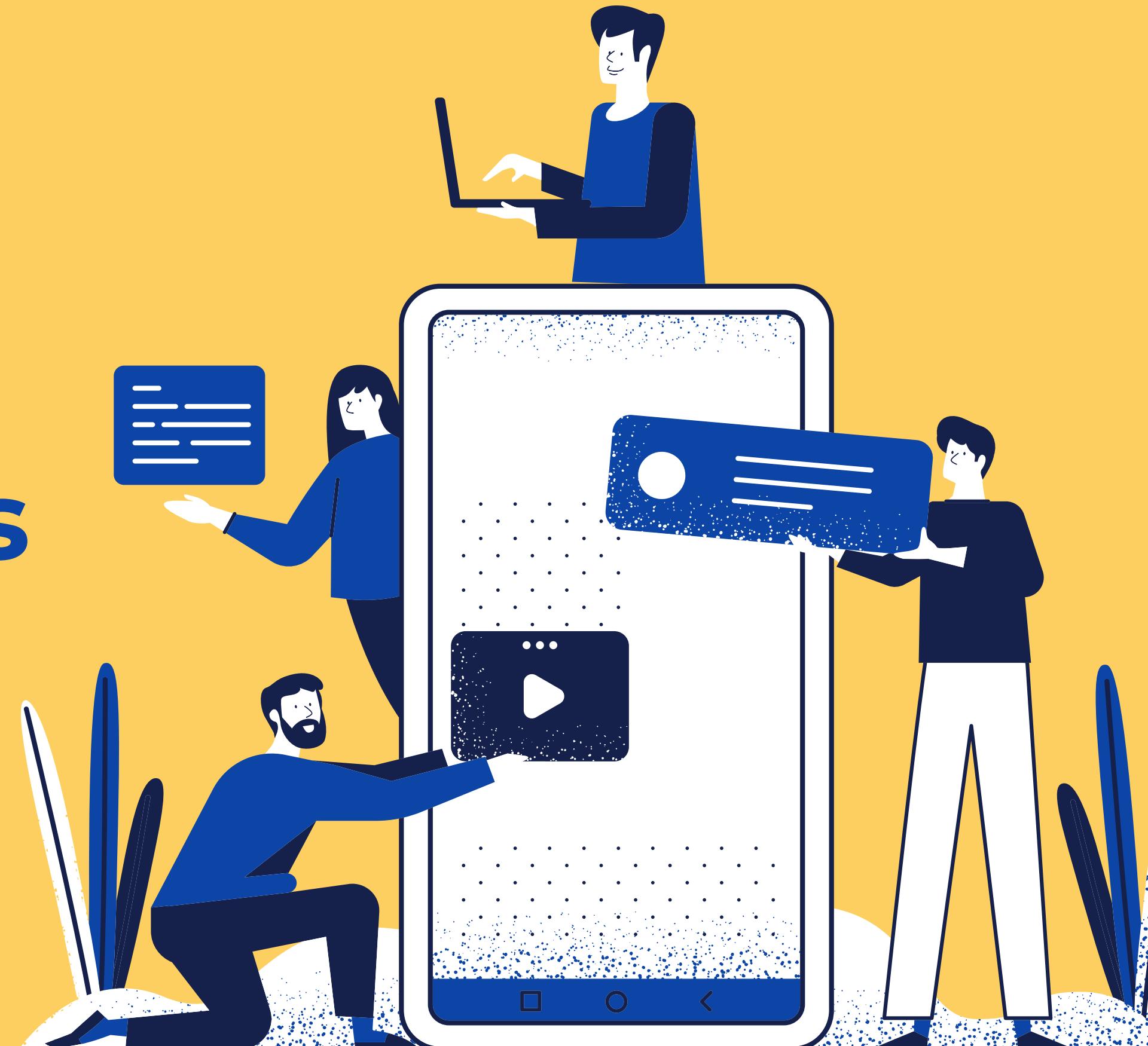


# MIDNIGHT ORDERS



- More Orders for Liquor and Tobacco and less orders for Food.
- Offers on Liquor and Tobacco products post midnight to be introduced.

# Recommendations



# BASED ON THE DAY AND THE TIME



Promotional offers on different Food & Beverage items can be offered during the day time. Combos from these two categories of products are highly recommended during day time.

Offers on Liquor and Tobacco products are recommended during night time. Clubbing them together to offer combos might also be a good idea to boost sales and revenue.

Give promotional offers like 1 + 1 and discount coupons to boost sale during non peak hours typically between 10 AM to 5 PM. This will help generate revenue during lean period.

# BASED ON THE DAY AND THE TIME

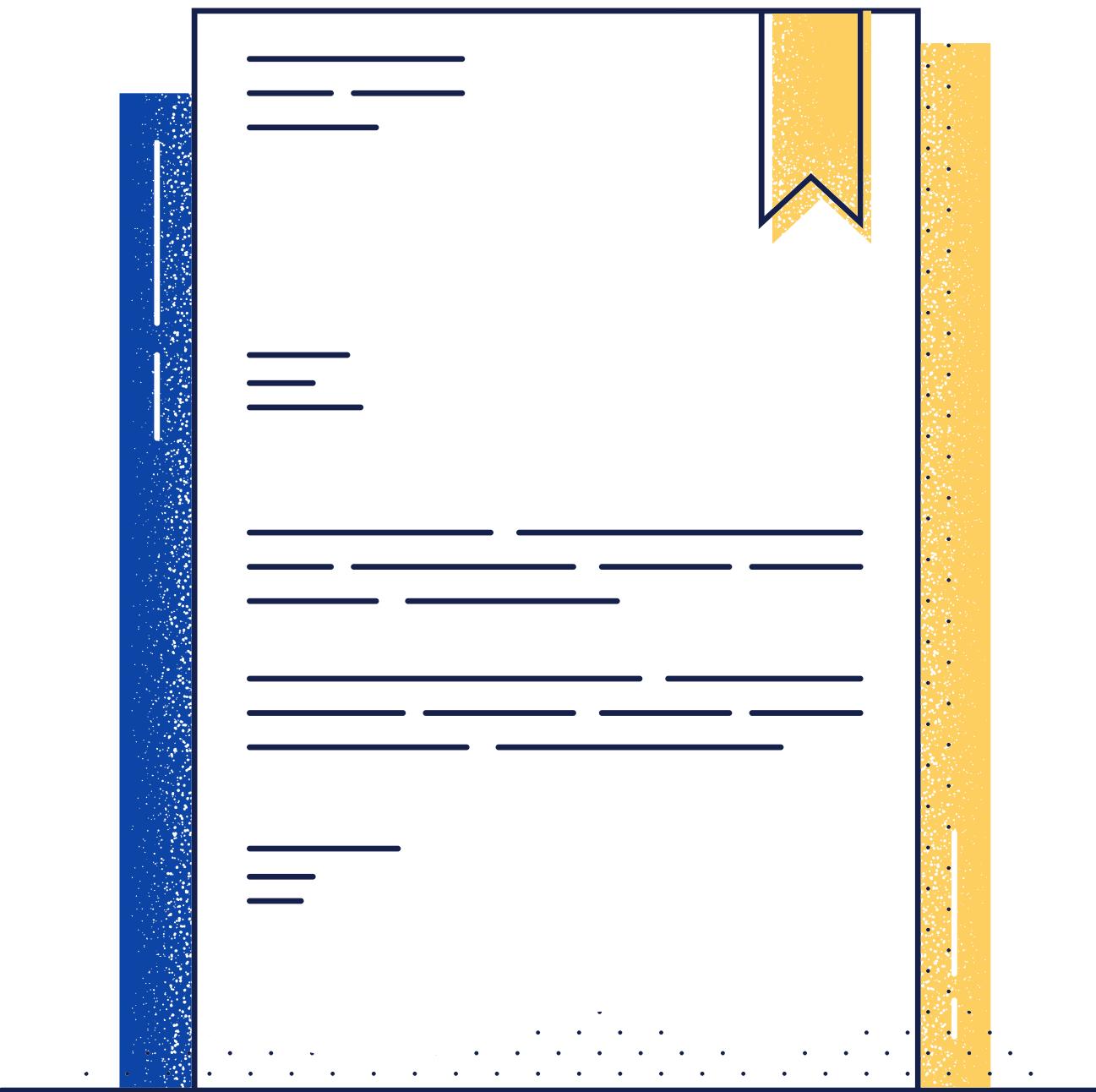


Café barely does any business between 2 AM to 10 AM. Hence instead of operating 24 Hrs., it might be recommended to switch to 16 Hrs. working. Also save on staff salary by working in 2 X 8 Hrs. shifts.

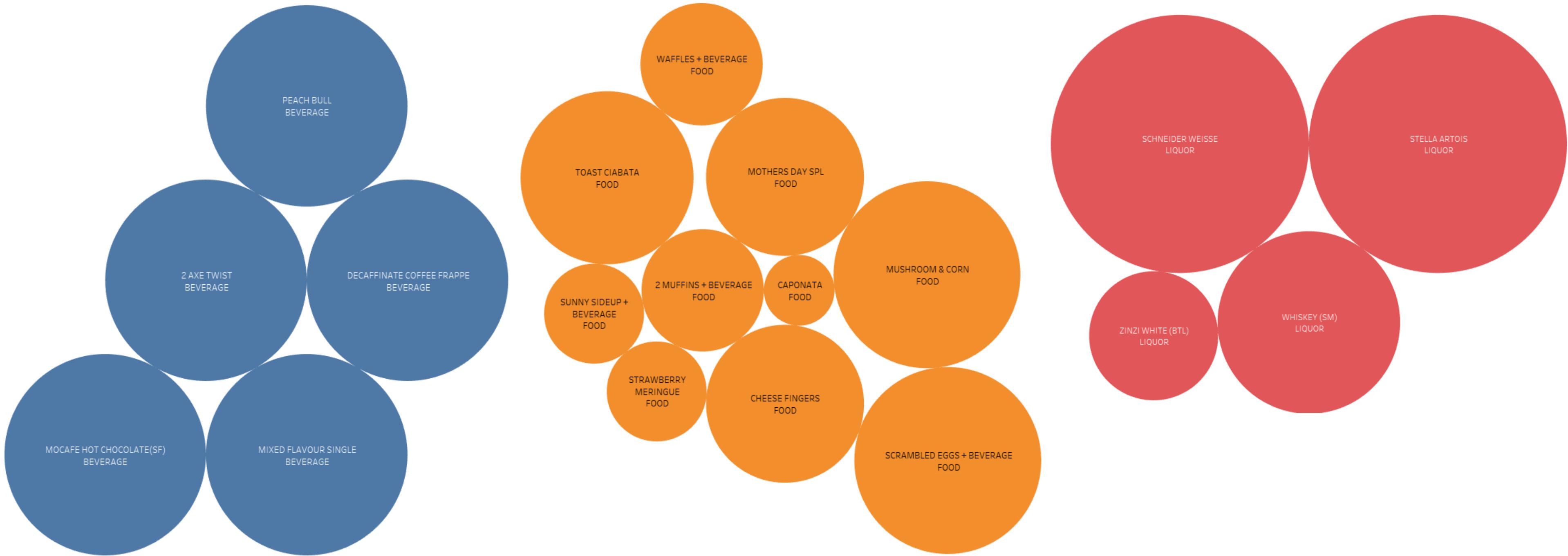
Breakfast offers can be introduced to increase the inflow of customers during the 10 AM to 12 noon timings. Introducing special breakfast menu might also help attract more customers at this time.

Convenience fees or premium can be charged to customers ordering after midnight. There are good amount of people ordering after midnight, hence this would boost the revenue further.

# MENU ITEMS TO DROP



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- Menu Items for different categories of food that generate least revenue.
- These are also the least ordered items in their respective categories and are hence eligible to be dropped from the menu.

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**Have more promotions running in the month of December (Festive Season).**



**Run more promotions in the last week of March. (Lean Period)**

**Run promo offers on Misc. category in the month of December, as we observe a spike in misc category sales in December.**

**Offer discount coupons on the last day of the month, as less footfall is observed on the last day of the month.**



THANK  
YOU