

Restaurant Dynamic Dashboard

by Emily Indrakusuma

A. Background

Due to its quick growth and expansion, the food sector is a tremendously lucrative industry. There will always be a new spectacular cuisine from a different country that captures the public's attention each year. Food has evolved into a source of both physical and emotional revitalization. Going out to grab or consume good food has become something that can temporarily divert people's attention. It is like taking a vacation without leaving the city. This, along with the fact that food is one of the most fundamental human necessities, ensures that the food and beverage business will continue to flourish in the distant future.

According to Statista, the output of quick service and full service restaurants in the United States **has increased by 50% over the past 15 years**. There are therefore a large number of persons who are ready to enter this market. A restaurant's success is influenced by a variety of elements, including its location, customer service, menu selection, and so on. In addition, the revenue of the restaurant might be affected by the weather and the time of year. However, the increasing population of Los Angeles has a major impact on this business's profitability.

The ongoing pandemic Covid-19 has put a strain on businesses across all service industries, but restaurants in particular have felt the effects of this. Restaurants all over the world have experienced significant revenue losses and some have even been forced to close their doors permanently as a direct result of factors such as mandatory closures, the inability to maintain necessary staffing levels, the cost of supplies, which range from food to takeout containers, and shortages of supplies. In addition to these problems, restaurants have been forced to adjust their business strategies to accommodate a greater proportion of their customers by catering to their needs for food delivery and pickup rather than dining in the establishments themselves.

In order to maintain a steady flow of guests and generate revenue, managers of restaurants need to be flexible and inventive. A poll conducted by Datassential found

that restaurant management is adapting to meet customer expectations, as around 76 percent of restaurants now offer pick-up services and approximately 55 percent of eateries offer delivery services.

Currently, restaurants in various countries have begun to adapt to the COVID-19 pandemic. Such as implementing social distancing in restaurants and providing services that make it easier and not in direct contact. The situation has been significantly more manageable, which has made the expansion of enterprises significantly more stable.

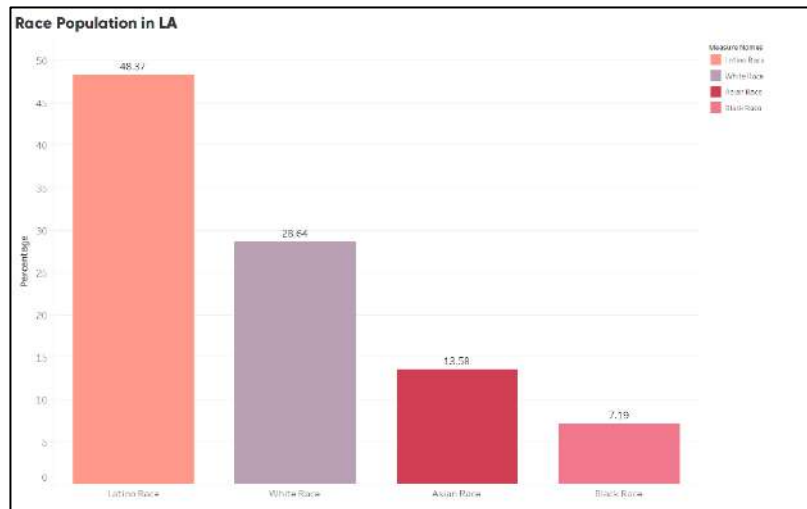
This dashboard is helpful for informing investors about **the future prospects of the industry of food and beverages industry**. It is possible to make use of it as supplementary knowledge and a factor to consider when formulating strategies relating to the associated industry.

B. Explanation of Each Visualizations

- Race Population Distribution

- Bar Chart

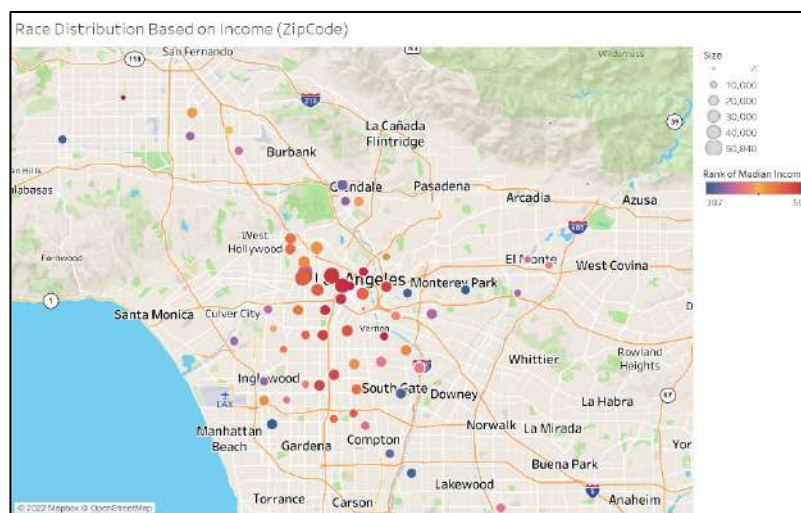
(diberikan juga *screenshot* mengenai data-data atau variable yang digunakan dalam pembuatan visualisasi)



Columns: Measure Names
 Rows: Measure Values

Filters: City
 Marks: Automatic
 Color, Size, Label, Detail, Tooltip
 Measure Values: SUM(Latino Pct), SUM(White Pct), SUM(Asian Pct), SUM(Black Pct)

- Map



Columns: Longitude (generated)
 Rows: Latitude (generated)

Filters: City, MEDIAN(Inco.. Δ)
 Marks: Circle
 Color, Size, Label, Detail, Tooltip
 Measure Values: MEDIAN(In.. Δ), ZIP, AGG(Size)

- Explanation:

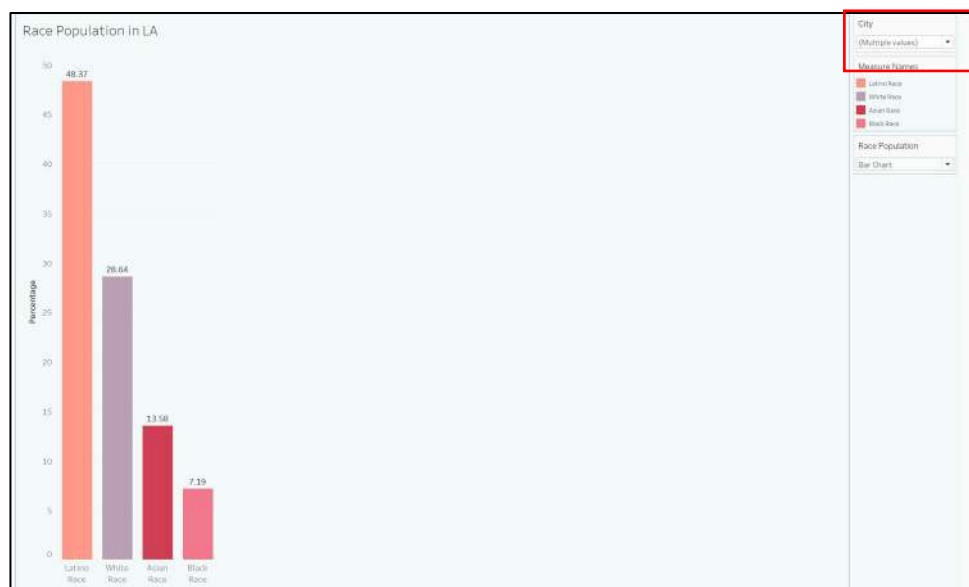
The population of the United States is made up of people from various backgrounds, one of which is a **different race**. It is evident that people of different race **have varied eating habits or dietary preferences**.

As a result, as a restaurant manager or creator, they must understand the **background of the consumer** or the location where the restaurant will be created. As a result, it might be in keeping with the surrounding neighborhood. Although race has little impact in other industries, **it can have a considerable impact in the food and beverage industry**.

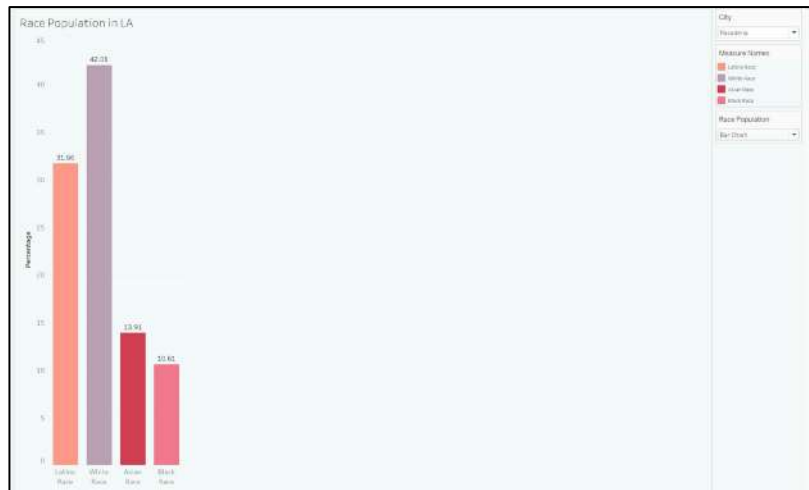
Imagine, if there are many American individuals in that area, and there's a Asian Restaurant there. Of course, this will not lead to significant company earnings.

Filtering is also used in this visualization I made, so if you want to find out how many people live in a certain city or several cities, you can do it by city.

As in the picture below:

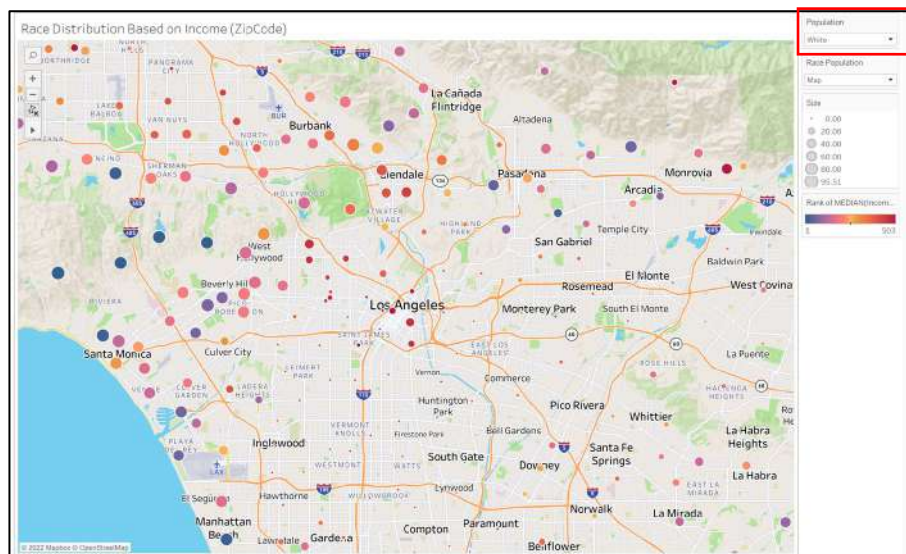


Notes: red box indicates the filter used, namely multiple values. When changed to one of the cities will change to:



When the city filter is changed to Pasadena in the **image above**, the distribution of races in the bar chart changes.

For the **Map Visualization**, we also can filter by the race. When we only want to see one racial group, we can filter it. Like the picture below:



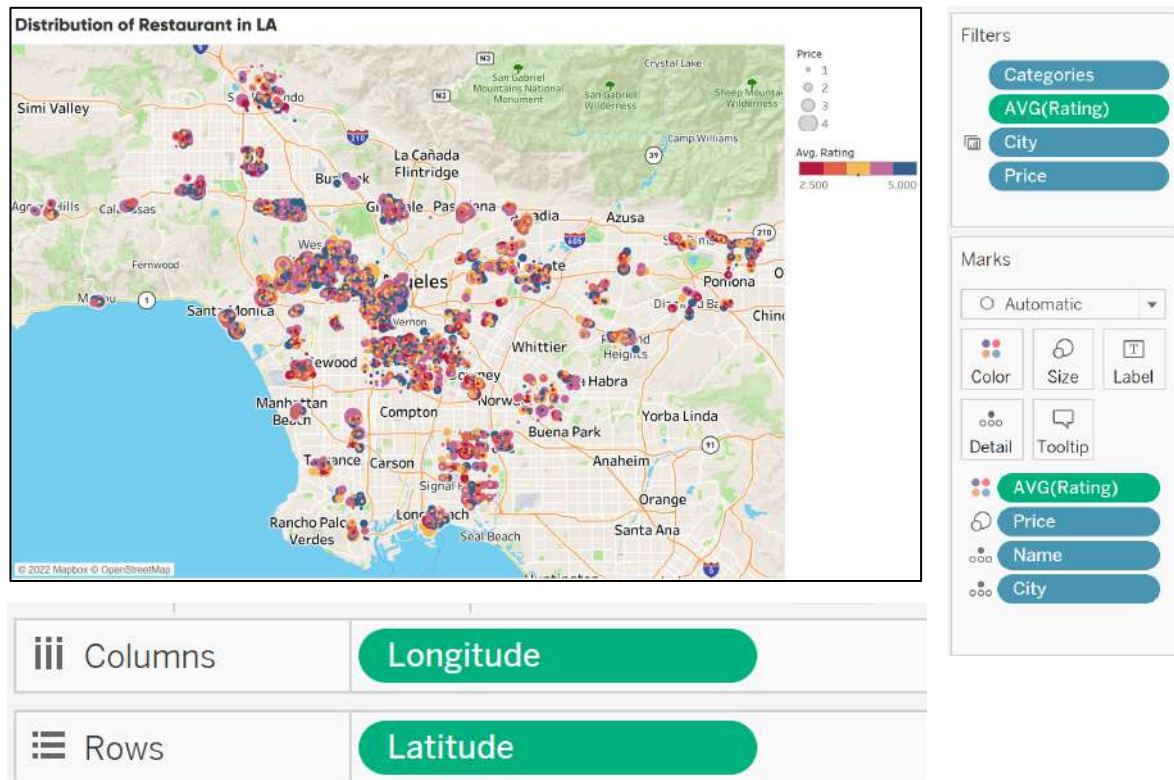
The filtering in this picture is based on the number of **White Americans** in Los Angeles. People are spread out around Los Angeles, but the most people are in the circles with the biggest diameters.

Additional Notes:

Later, these two visualizations will be **swapped** based on parameters, so that the dashboard will show the visualization that the user chose.

Dataset: Median Income (but cleaned with Tableau Prep)

- Distribution of Restaurant in Los Angeles
 - Map Visualization



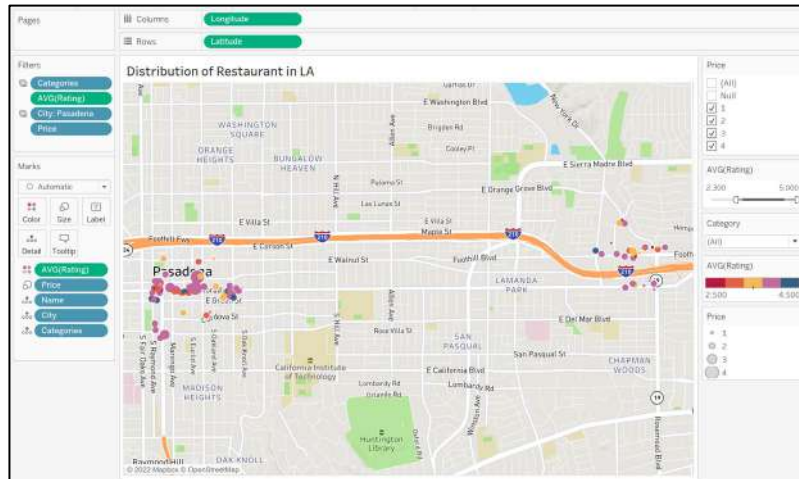
- Explanation:

As someone who wishes to build or expand a restaurant, it is imperative that you are **aware of local competitors in the same industry**. Similarly, in the FnB industry, it is essential to determine **how many restaurants serve similar cuisine categories** and to examine the market's specifics. Therefore, it is necessary to display the distribution of restaurants, restaurant types, and restaurant ratings in the area. Also, as a businessperson, you are aware of the types of restaurants that are prevalent there and whether or not they are in demand.

In this visualization not only show about the distribution of the restaurant, but also provide **rating, category, price** that will help someone who wishes to build or expand a restaurant.

In this visualization, we can also **filter** the visualization based on **City, Price, Category and/or rating**. So that, later on we can conclude which category will be suitable for developing a new restaurant and in which location.

For **city** filtering, it will affect **all the visualization in dashboard** (depend one and another).



Based on this picture, we can see that the distribution of restaurant is filtered by City, **Pasadena** and Price of the Restaurant is from 1 – 4 (all), and the Average Rating. So basically, in this picture we can see that the distribution of restaurant in Pasadena for **all category of restaurant**.

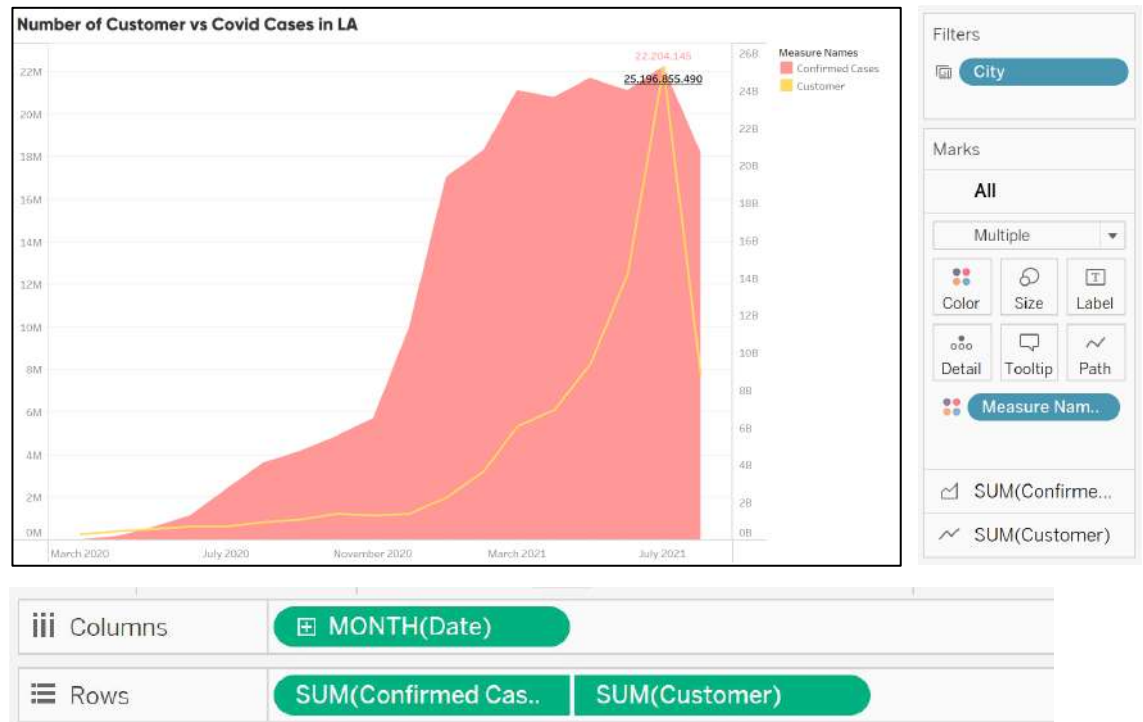
This visualization is being done so that, in the future, it **will be able to compete with other businesses** that are comparable to its competitors and even be able to innovate for restaurants that will be built in the future.

Categories:	cafes
City:	Pasadena
Latitude:	34.14551
Longitude:	-118.13813
Name:	Urth Caffé-Pasadena
Price:	2
Avg. Rating:	3.500
Review Count:	10.116

For details, this visualization will display several attributes as shown above.

Dataset: **Restaurant Detail (cleaned with Tableau)**

- Number of Customer Restaurant vs Covid Cases
 - Dual Combination Chart



Using *dual-axis*

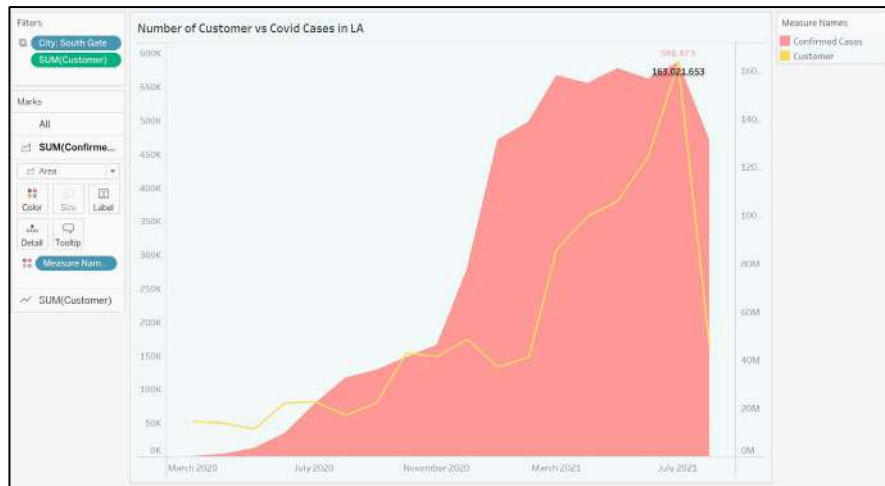
- Explanation:

Along with the Covid-19 pandemic, restaurant owners must be **aware of the effects of the increasing number of Covid-19 cases on customers** who make FnB purchases. So, when we're building a restaurant, we'll know what to plan for a similar situation. We may also examine if the increased number of Covid-19 is related to an increase in restaurant food purchases or vice versa.

So based on this visualization, we **know that if the number of covid-19 increase, the number of customer visits are also increase.**

In this visualization, we also can filter it by **city** that will affect to all other visualizations.

Here's the result if I do the city filtering:



Datasets: **Latimes and Review (with cleaned by Tableau Prep)**

I create 1 **calculated field** to make sure that the date can be read both:

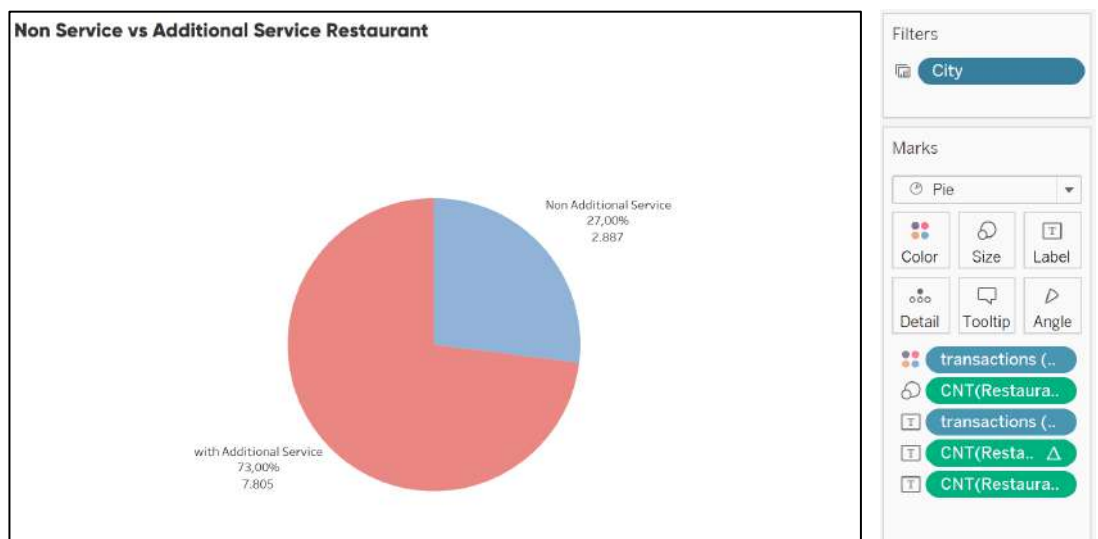
```

Customer
Detail_Restaurant (Restaurant_Detail_Cleaned)

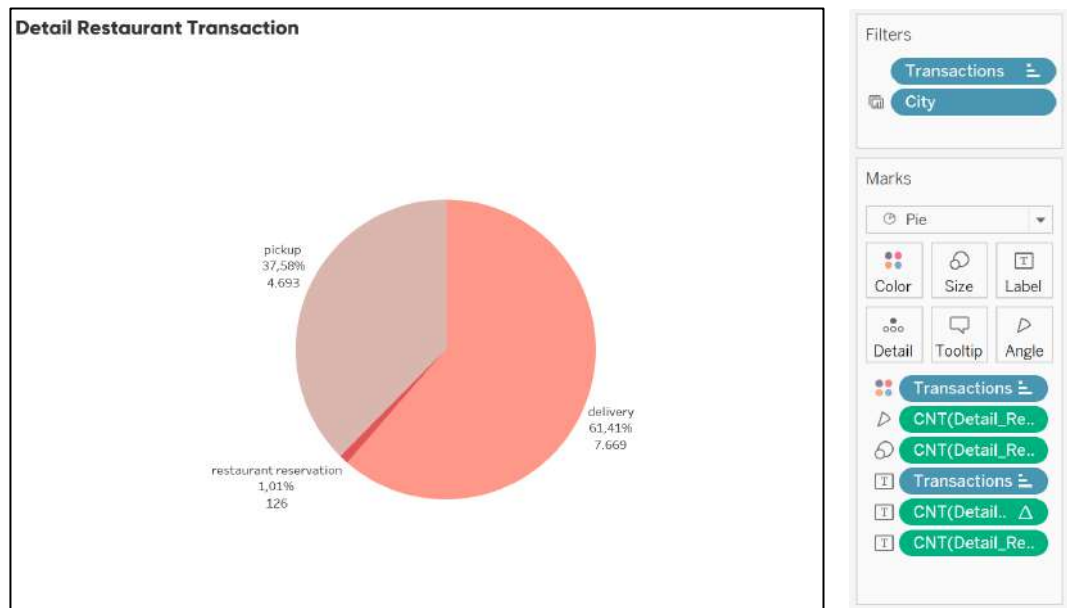
IF DATETRUNC('month', [Date]) = DATETRUNC('month', [review time c
THEN { COUNTD([Review Id])}
END
  
```

The calculation is valid. 2 Dependencies Apply OK

- **Distribution of Restaurant Service**
 - Distribution Restaurant with Additional Service



- Distribution Extra Service (Delivery, Reservation, Pickup)



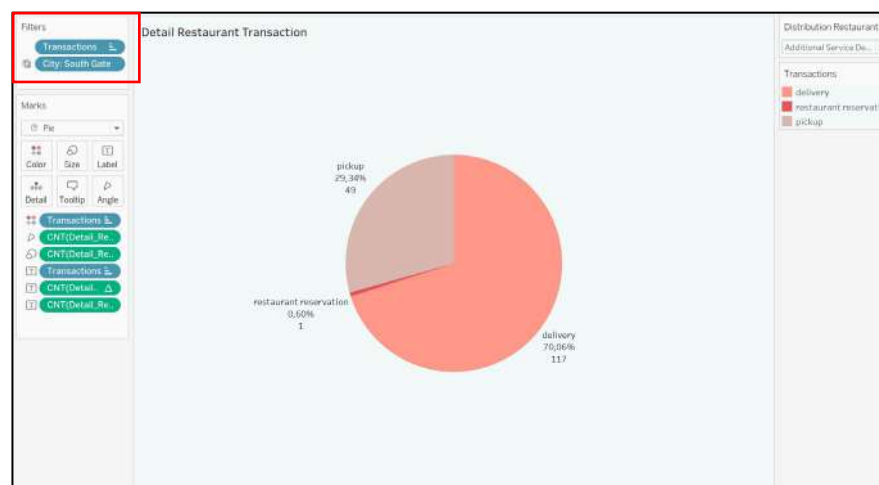
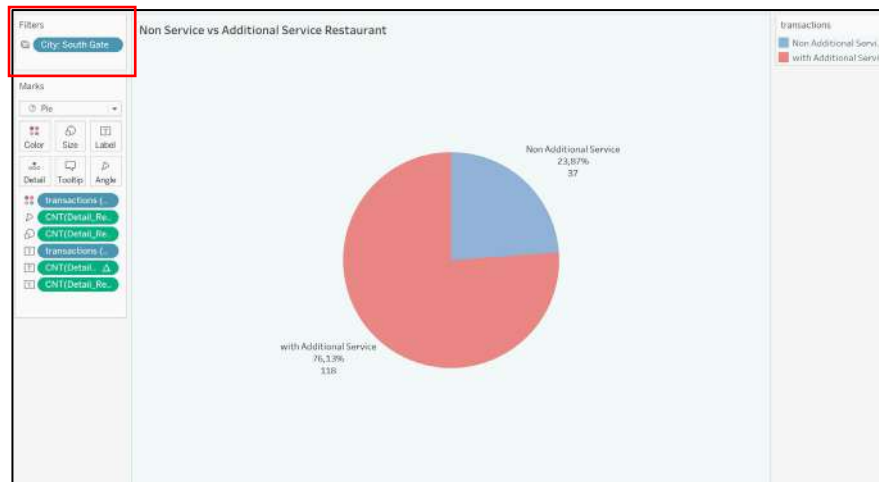
- Explanation:

This visualization will show the distribution of existing restaurants, including (1) **how many restaurants have implemented additional service for their restaurants.** (2) What are the **most common transactions (services) in restaurants** today?

Finding the specifics of which transactions are performed the most frequently allows for the identification of additional transaction opportunities.

Notes: I used **split and pivot table from tableau prep** to separate each transaction (like I split it into two rows if the restaurant have 2 type of transactions).

This visualization also can filtered by City like the other visualization:

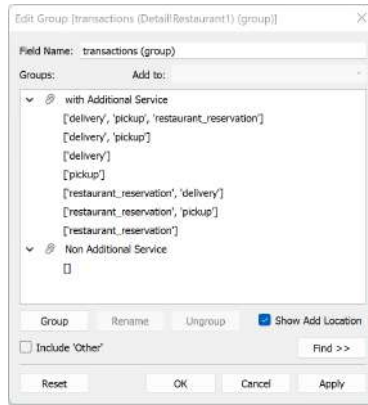


Both pictures are the result of visualizations after filtering the city.

Basically, based on these visualizations we can conclude that many restaurant already implemented additional transaction types, such as delivery, pickup and reservation.

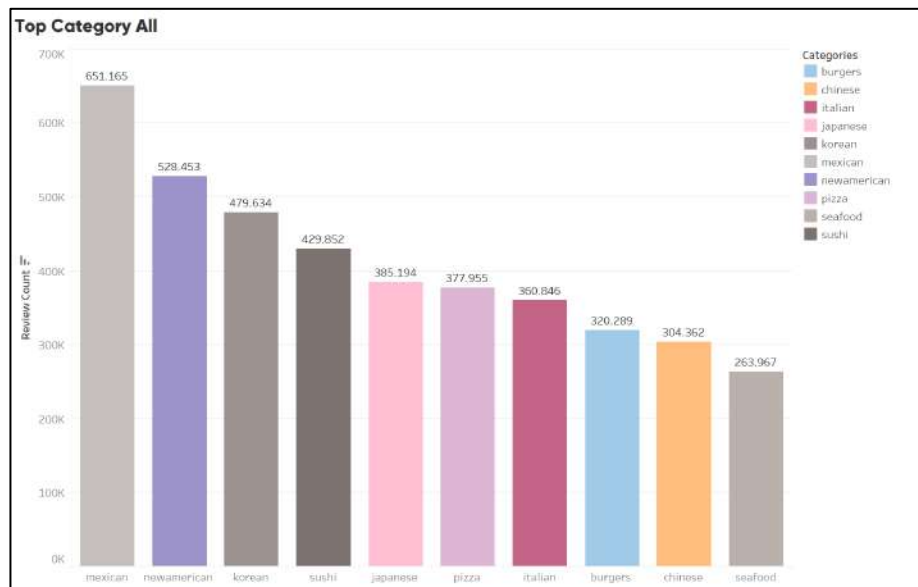
However in this pandemic situation and based on these visualizations, **mostly restaurant implementing pickup and delivery** order to minimize the direct contact between employees and customers.

I also create **group** for the first pie chart, **non-additional and additional**:



Dataset: Restaurant Dataset

- Top Categories of Restaurant
 - Bar Chart



Filters

- City
- Index

Marks

Automatic

Color Size Label

Detail Tooltip

Categories

SUM(Review C..)

Columns Categories

Rows SUM(Review Count)

- Side-by-Side Chart



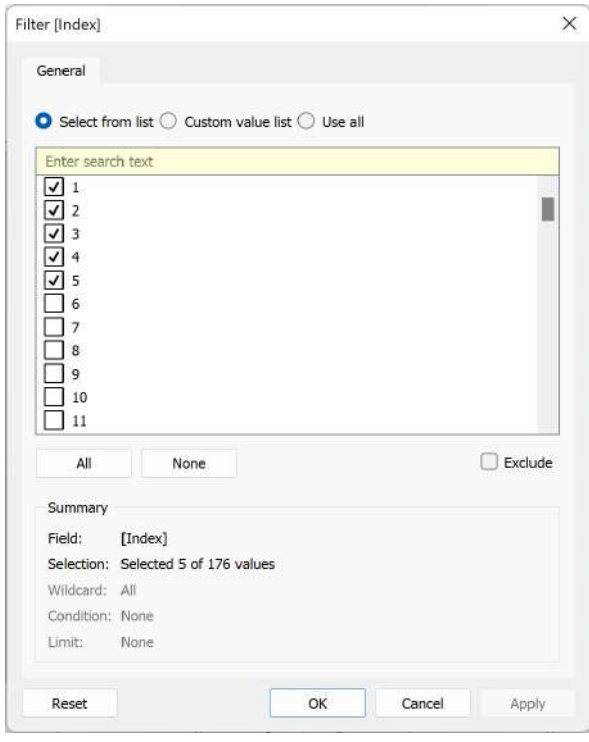
- Explanation:

The two visualizations above will be used to **determine which restaurant categories are in high demand by the general public in Los Angeles**. Knowing the category will later allow restaurant owners to consider it when opening their restaurant.

This visualization, like other visualizations, **can later be filtered based on existing city**. In addition, a maximum of 5 transactions are displayed in the top category by transaction type, and a total of 10 transactions are displayed for consideration.

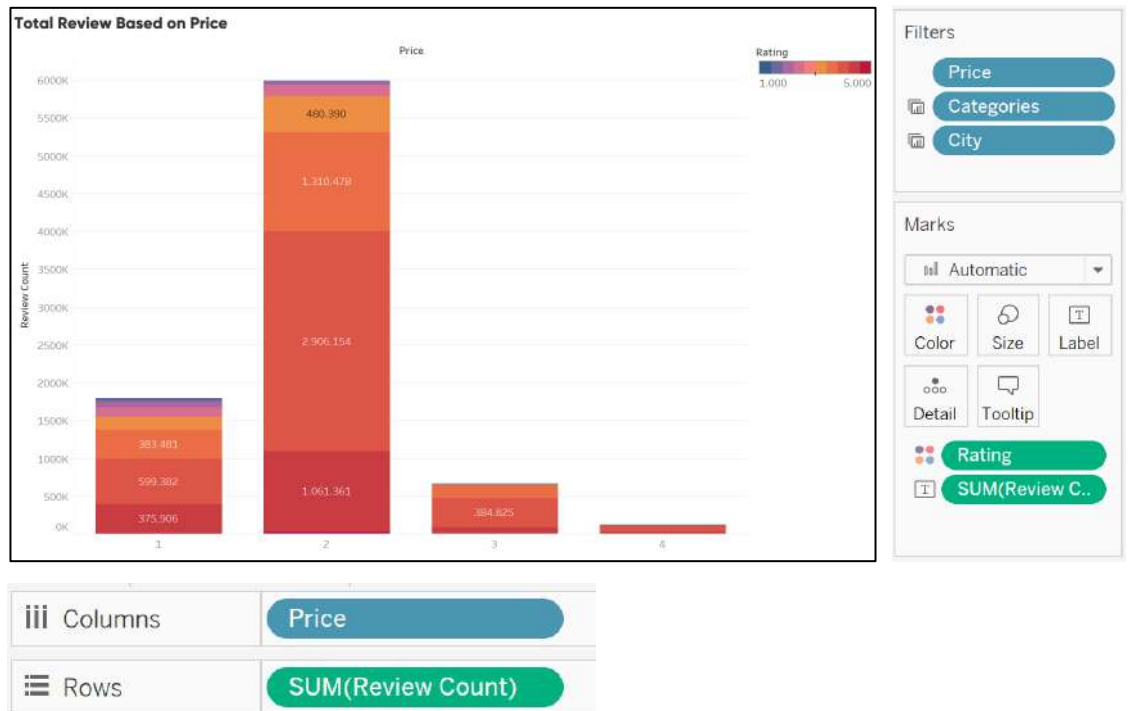
Based on these visualizations, we understand that **Mexican** category is the most favorite in almost all criteria, except restaurant reservation. Based on this visualization, we also can make a strategy also to make **Mexican** restaurant also popular in restaurant reservation service. Also, we can make other strategy for other category to get more number of popularity.

There's 1 Calculated field = index field, to filter it on which top we want to visualize it.



Datasets: **Restaurant Dataset**

- Total Review Based on Price
 - Stacked Bars



- Explanation:

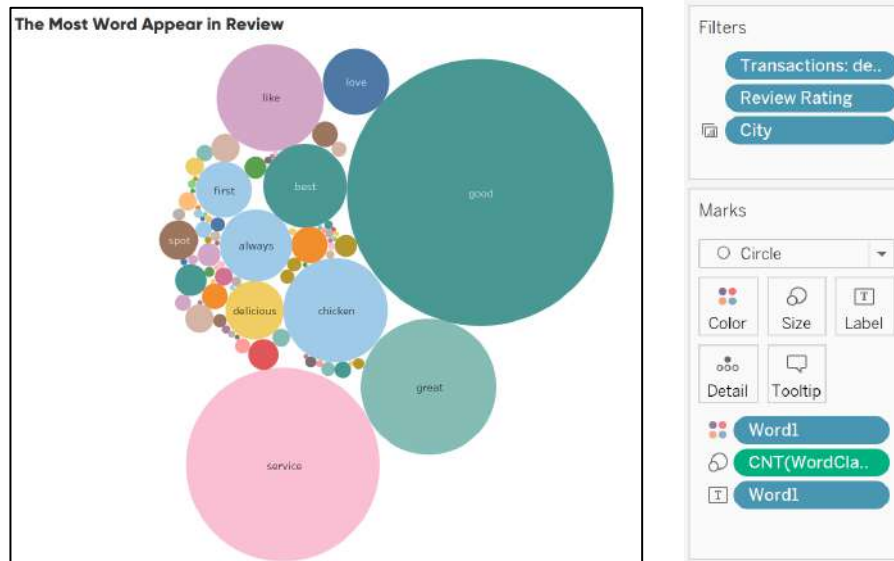
We must visualize the price-based rating. This is necessary in order to **determine whether the most costly restaurant will always be the most packed and in demand with customers.**

Obviously, the outcomes of this visualization will reflect the actual state of the FnB industry. Occasionally, a high grade will also have a significant impact on the way an industry is managed. In fact, there are certain individuals who give greater attention to the outcomes of previous ratings while selecting a restaurant.

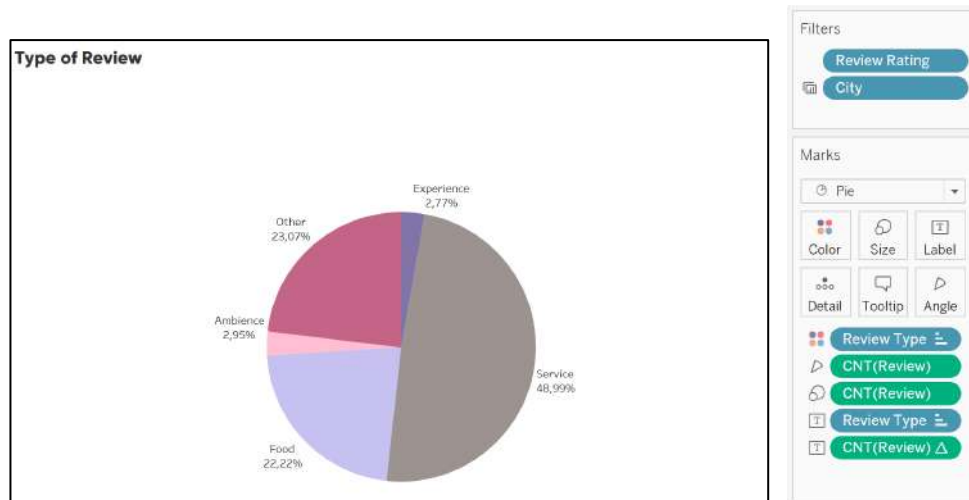
Based on this visualization, we also understand that the highest price range are not the most crowded and most reviewed restaurant. However, it seen that the most crowded and most reviewed restaurant are the restaurant with the medium range of price (2).

Dataset: **Restaurant Dataset**

- Review Summary Visualization
 - Word Cloud



- Pie Chart



- Explanation:

On this Summary Review, we can summarize what's customer most reviewed topic. So, we know that **what customer expect for the restaurant**. On this visualization, I do filtering only the rating more than 3, so we can conclude that this summary is for the good rating only.

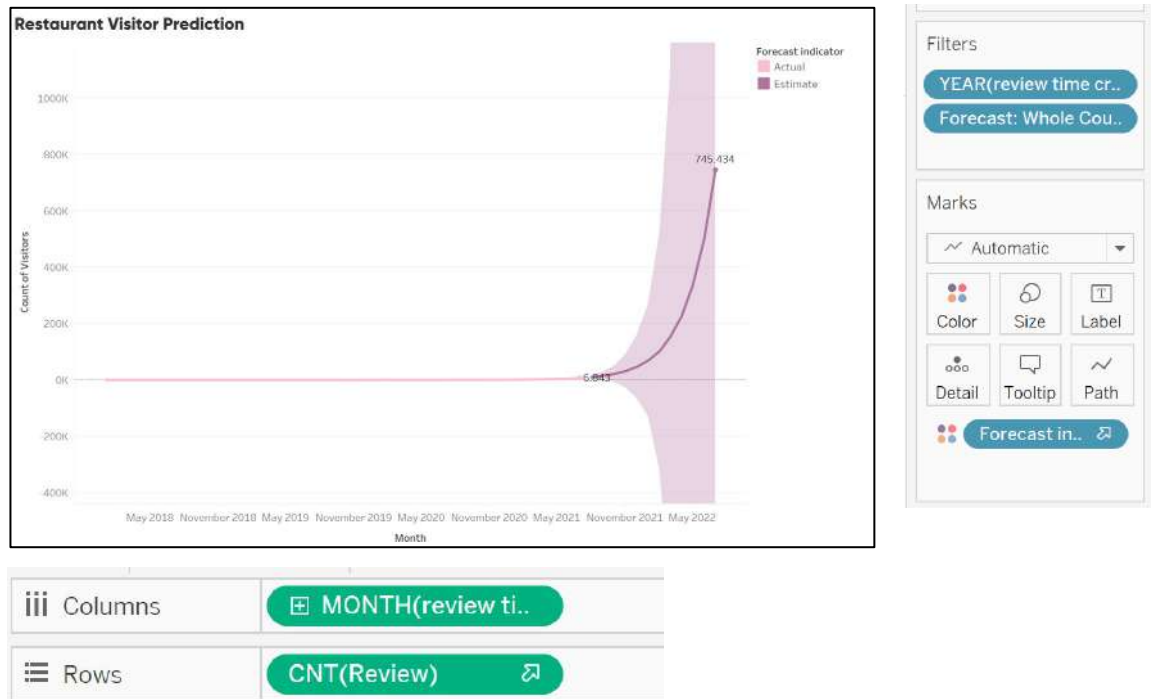
Based on this visualization we know **majority of reviews are about the restaurant service**. So, we understand that most people always looks a restaurant for its services.

Calculated fields to group the category of review:



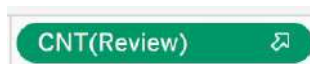
Dataset: **Review Dataset**

- Visitor Restaurant Prediction
 - Line Chart with Forecast



- Explanation:

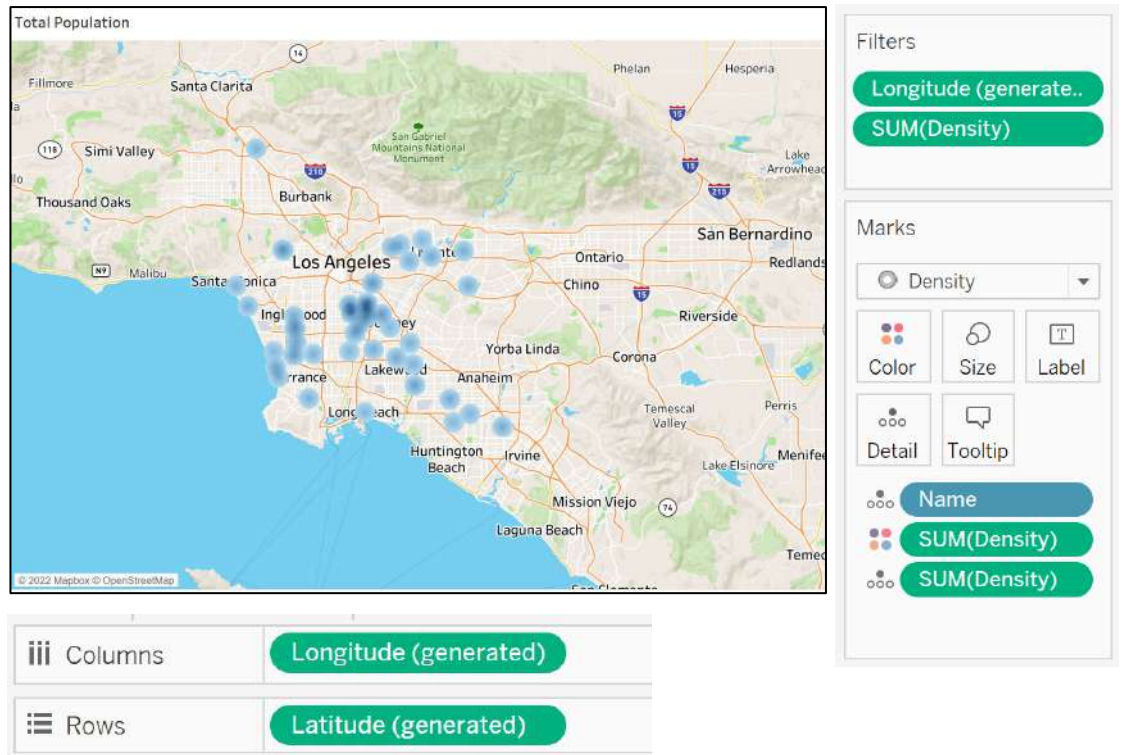
This is a visualization of the total visitors in each month. Where added forecast for **future predictions how the total visitors** that can be obtained. In this case the predictions made have been provided by the tableau through forecasts, but are ignored on the results of the last one month.



This "arrow symbol" means that I use Tableau Forecast.

Dataset: **review dataset**

- Total Population in LA
 - Map



○ Explanation

So, the last visualization I made was the population distribution. Where is this to find out which areas are the most densely populated so that in the future they can predict where to develop new restaurants or develop the performance of existing restaurants.

Dataset: population density

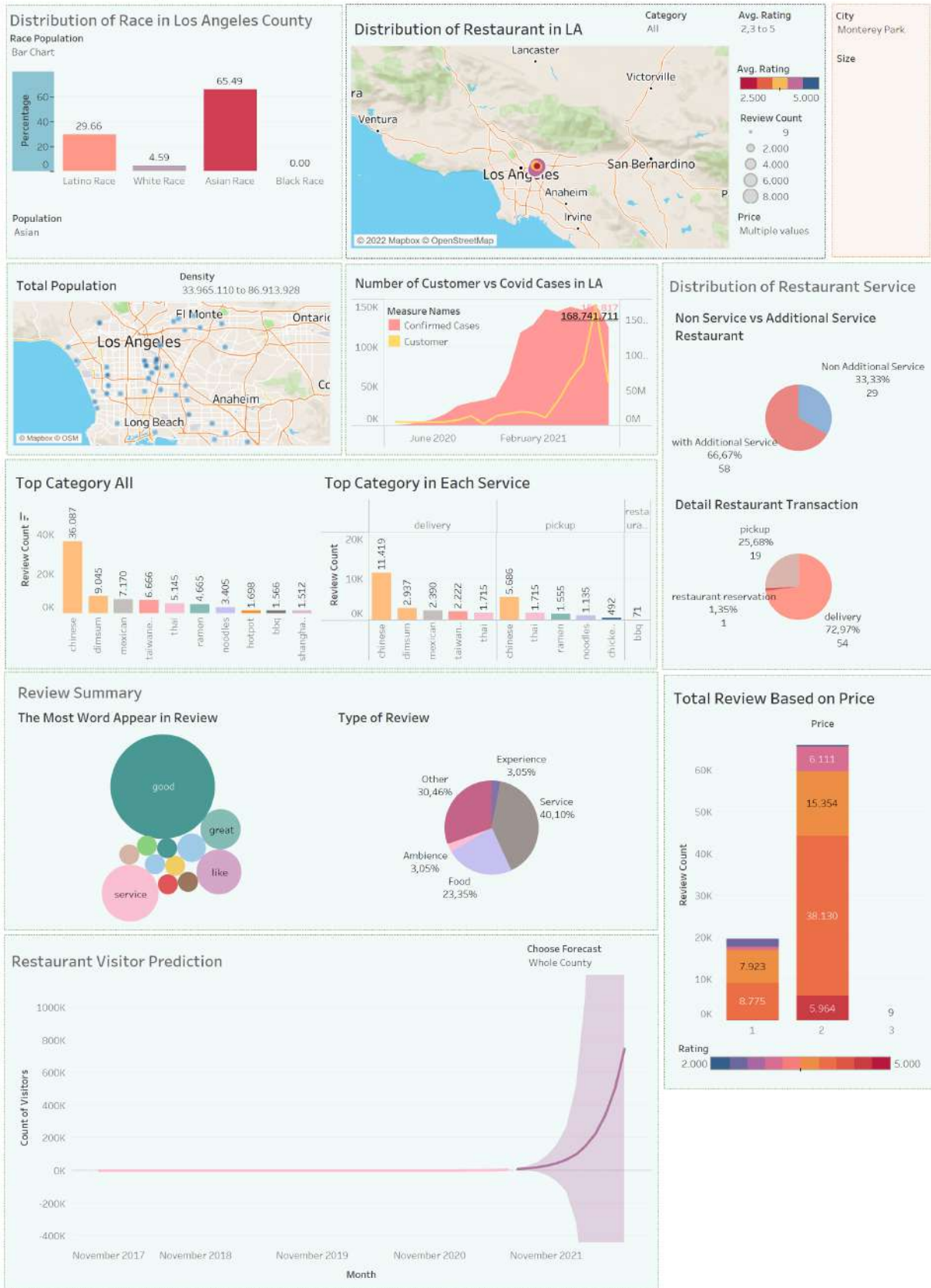
*Notes: The Analytical Dashboard isn on the **next page***

C. Final Dashboard

An analytical dashboard is a type of dashboard that has a lot of data that analysts put together and use to help executives make decisions. They give a business a full picture of its data, and middle management is a key part of how it is used.

(dashboard on next page)

Restaurant Analytical Dashboard by Emily Indrakusuma



Explanation:

This is the final result of the intended analytical dashboard. This dashboard can be utilized in the future by restaurant enterprises in Los Angeles or those just starting out in the restaurant industry.

For **restaurant players** in Los Angeles, it is possible to estimate **what they should do based on the future growth of guests**. Given that there are still some restaurants that do not offer other services, it is also necessary to negotiate the addition of these services. Also examine the food pricing that has been implemented at this time. It can also help to understand customer trends in relation to covid, compare their performance to similar restaurants. Additionally, this will also give a next year trend about number of customers who visit the restaurant.

People who want to **started a restaurant business** will find this dashboard useful for finding locations, setting prices, and figuring out which types of restaurants can grow.

Additional Notes:

For some visualization, please change the parameter to display the visualization.

Link to Tableau public:

- Dashboard: <https://tabsoft.co/3bXEtXw>

Link Dataset (after cleaned with TableauPrep):

https://binusianorg-my.sharepoint.com/personal/emily002_binus_ac_id/_layouts/15/guestaccess.aspx?folderid=070719c226e9c46239f1b586f5deb18f2&authkey=AQyLfggQTrltYeQ44DJjKbE&e=2sA61M