In our project, we focused on the goods and grocery industry in seven main states in North America including California, Arizona, Texas, Florida, Georgia, New Jersey and Michigan. However, in 2017, we had just got the data from October to December which made it difficult to look at whether the sales grew in 2018 or not. Therefore, in this dashboard, we considered the data from January 2018 to November 2020. Based on these above business questions, our group began to consider each factor. Regarding the customers, over three years, most of the customers who had the highest sales amount belonged to Arizona. Additionally, Texas was the second-highest region in the top sales performers with $23,044 from 2018 to 2020. Besides that, the average order per customer increased slightly from 7 orders in 2018 to 8 orders in 2020, while the number of total customers dropped steadily from 440 customers in 2018 to 396 customers in 2020. This data illustrated that retailer in North America was losing customers, so they need to have more new marketing strategies in order to improve customer retention rate in the next years. The second metric is that products, we would divide into 2 types including top sales performers by items based on revenue and quantity. According to the top sales performers by items based on quantity, in 2018, the number of Perrier Pink Grapefruit was 112, outnumbering the other items. After 1 year, the number of selling order quantities of C.Gold Cucumber Salad Dre rose rapidly was 132. Particularly, in 2020, the number of raspberry red was 1,126, which item had the total quantity highest over 4 years. Besides that, we will additionally analyze the top sales performers by items based on the revenue,although two products including Dawn Pro Line Dish Detergent and Onion White Jumbo did not have a high number of orders quantity, the number of sales amount of them accounted for the first top and second top sales performers with $ 25,279 and $22,722, and Raspberries Red was in the third-ranking with $21,688. By contrast, there were nearly 1,100 items which had no revenue. The third metric is top sales performers by vendors, over three years, top sales performers by vendors belong to Meridian Manufacturing Group and Agi Grain Guard with the highest sales amount of $36,026 and $25,279, respectively. Besides vendors, warehouses play a vital role in the retail industry, It can be seen from our dashboard; Texas Food Warehouse had the highest number of orders with 2,620. By contrast, Texas Chemical Warehouse had the lowest number of orders with only 3 orders. Additionally, over 3 years, the total sales of Brands Global Co were always responsible for 2/3 of most of the states of the retail industry in North America namely California, Arizona, Texas, Georgia, and Michigan. By contrast, the Grocery Group accounted for the remaining market share in Florida and New Jersey.

**Regarding the overall trend of orders**,

From now, we will analyze the overall picture of sales, the number of orders, the number of customers and the average orders per customer from 2018 to 2020. As we can see from the dashboard, the total orders varied over 3 years; for example, there was a slight fall of 62 orders in the total orders from 2018 to 2019. However, in 2020, the total number of orders rose significantly to 3,252 orders, which is higher than the total number of orders in 2018. However, there was a significant downturn of 79% in the total sales amount from these orders in 2020. **Especially, since the COVID-19 pandemic appeared in 2020, people focused mainly on necessities such as food and disinfecting items such as raspberries and red, Parkey soft margarine or c.gld plate paper 8-75 in lunch and the price of that items is not too high. And that is one of the reasons why the number of orders increased but the total sales amount decreased.** Additionally, **t**he Order Quantity increased by 27.4% from $5,426 in 2018 to $6,914 in 2020, while the returned order quantity decreased by nearly 70% from $560 in 2018 to $160 in 2020. The return may be due to repair, cancellation, complaint or wrong delivery. **During 3 years, the retailer in North America improved their service by encouraging customers to leave a review of their products which could decrease the number of returned products.**

As far as the shipping status is concerned, while the total order quantity of retailers in North America rose significantly from 5,426 in 2018 to 6,914 in 2020, the lacking good increased twice times from 676 in 2018 to 1,589 in 2020. **As I mentioned above since the COVID-19 pandemic appeared in 2020, there was a spike in product demand and a drop in labour supply because of containment measures and confinement restrictions everywhere in America. For instance, *8210PPB6-B-NA PRTCLT RESPRTR 10/PK, which is the 3M Facial Mask had the highest discrepancies in 2020, and some foods like C.GOLD WHOLE WHEAT FLOUR also accounted for high discrepancies.***

**We are moving on to the next key metric is the year-over-year growth** (How was the year-over-year growth from 2017 to 2020?), similar to the first key metric, we just concentrated on the data from 2018 to 2020. Compared to the total sales in quarters 1 and 2 in 2018, the sales amount in quarters 1 and 2 in 2019 went up steadily; however, in the remaining half-year of 2019 and 2020, the sales amount began to decrease significantly. **The global COVID-19 pandemic has had an impact on consumer behaviour. Social distancing during the COVID-19 pandemic forced many people to turn to digital media. Consumers tend to use digital information to find product information before buying. According to my research about online retail sales data in several countries such as the United States, United Kingdom, Germany, France and North America, online retail sales are very small when compared to offline retail sales. Due to the consumer’s need to touch goods directly in order to increase satisfaction in shopping. This is the reason consumers continue to shop at physical stores even during social distancing. Although the sales amount in online retail increased, it was quite small. As we can see from our dashboard, the highest increase in online retail sales during the pandemic occurred in March and April 2020, nearly 45.67% and decreased in the remaining months of 2020.**

We will continue the last metrics about **top sales performers related to the region, items, customers, vendors, companies and orders.** Firstly, we will talk about top sales performers by **region.** Arizona had the highest number of sale amount over 4 years from 2017 to 2020 $242,942 as well as each year when compared to other states. By contrast, New Jersey had the lowest overall sales over 4 years with $4,816, which is lower than 50 times in Arizona.Likewise, when considering each year, Arizona had still the lowest sales amount, although the population in New Jersey had higher than Arizona by nearly 2 million people based on the population statistics in 2022. The second metric is top sales performers by **companies**. It can be seen from the graph that from 2017 to 2020, the total sales of Brands Global Co were always responsible for 2/3 of the retail industry in the NorthAmerica in most of the states (California, Arizona, Texas, Georgia, Michigan).

Finally, considering the overall picture of the total sales from 2018 to 2020? It can be seen from the graph that the number of sales was the highest in March or April or May on a yearly basis (2018: March - $37,795, 2019: April - $36,266, 2020: May - $32,989). Therefore, vendors should have new plans to concentrate on production and supply output fully in these months for the next year.