# PROBLEM STATEMENT

The online sector has been slowly eating up market share over the past two decades.
E-commerce platforms such as Unicorn allow people to buy products online, including books, toys, clothes, shoes, food, furniture, and other household items. The business seek to increase its market share  by identifying  opportunities to boost business growth. The following dataset includes Unicorn sales data from the years 2015-2018.

# DATA DESCRIPTION

The data contains 9995 rows and 20 columns of sales data. The first task was to validate the data and clean if necessary. However for the purpose of this project the data was found clean enough for analysis. The data was then loaded from excel into Tableau workbook to generate charts and visualizations.

A total of nine charts were created, grouped into 2 dashboards.

The first dashboard contains four visualizations with interactivity filter option active for the user. The four charts contained are described below.

I.   Profit map: A mapbox was used to show the states with their profit indicated using colour density.

II.  Profit per product category: A horizontal bar chart showing at a glance the profit across the three-product category.

III. Top/Bottom 5 profitable cities:  A bar chart showing top 5 profitable cities, with colour legend indicating the states. It has a dropdown filter option for selecting either top or bottom five.

IV.  Monthly profit trend: I used a line chart to show the month-on-month profit trend and percentage increase in profit, with a filter for selecting year.

The second dashboard contains five visualizations with interactivity filter option active for the user. The charts are described below.

I. Year on Year sales and profit: A bar chart showing YoY sales and profit.

II. Top customers: A side-by-side bar showing top customers by sales revenue and their corresponding profit.

III. Most popular products: A horizontal bar showing the most popular products grouped by the product category. Filters can be applied to show by year, region, month, or subcategory.

IV. Monthly subcategory sales and profit: A bar chart showing the sales and profit of each subcategory by month.

V. Sales and profit by region: A bar chart displaying the sales and profit by region.

# INSIGHTS

1. The sales trend shows a wave form with monthly sales at its lowest around **January and February**, with slight increase from March to May, while on average performance in later part of Q2. Sales further dip in Q3 and records peak performance in September, November and December.

2. Profit follows similar pattern with the sales trend, with monthly profit peak at **December, September, and May** but there was an exception in 2018 where we have peak profits in March, August, and November but made loss in December despite usual high sales. The highest monthly profit was recorded in December 2016 which is **$22010**.

3. There is a growth in yearly profit for the first three years, but a decline was recorded in 2018, despite growth in sales revenue versus previous year.

4. Further analysis shows that all region excluding the west made losses in December of 2018. 3 out of 6 most sold sub-categories in December made losses across the business, they are **binders, machines, tables, and storage.**

5.  Furniture category had the least overall profit, which is largely caused by losses made from sales of **tables sub-category**, as it was observed that products under table sub-category reported the highest loss for the business.

6. The cities with highest overall profit are *New York city, Los Angeles, Seattle, San Francisco, and Detroit*, which makes our best performing states **California, Washington, New York**, **and Michigan**.

Conversely, states like **Pennsylvania, Texas, Ohio, and Illinois** are the worst performing states in terms of profitability driven by the cities where we recorded highest losses such as *Philadelphia, Houston, San Antonio, Lancaster and Chicago.*

7.  From analysing our customer purchasing pattern, it was observed that the business made loss from the customer with the highest sales revenue 'Sean Miller'. Further breakdown of his purchases shows that most of his purchases (> 90%) were on Machines which has a low profit ratio.

8.  The west region recorded the highest sales revenue and profit followed by east region. Central region recorded higher sales than the south but the profit from south is greater than the central region.

# RECOMMENDATIONS

1. Due to the drop in profit in 2018 and loss recorded in December same year, a further deep dive into the cause of fall in the sales revenue from our profitable products (Phones and copiers) versus Previous month and previous year should be done.

2. There are recurring losses from table sales YoY. The business should review the sales of tables to explore improvement opportunities such as change of pricing strategy or review of supply sources to reduce cost. Similarly, for the other low profit sub-categories with high sales volume such as Storage and Bookcases, the management need to encourage innovations that will reduce costs and grow profit ratio.

3. More resources should be directed towards driving more sales for the most profitable product sub-categories such as Copiers, Phones, Papers, and Binders.                  Employee engagement, sales promotions, adverts etc  should be used to promote initiatives that will drive higher sales volume for these products.

4. Regions, states, and cities with consistent low profit should be supported by the management to identify possible constraints and deal with them.

5. Based on the top customers chart, customer loyalty recognition initiative should be used to recognize, appreciate, and retain loyal customers.