**Problem Statement -**

As a rapidly growing e-commerce business, we are dealing with increasing volumes of sales data generated daily. With a diverse range of products spread across multiple categories, understanding sales patterns, customer behavior, and the impact of various factors on sales becomes critical. The challenge is to extract meaningful insights from this complex and vast data to drive strategic business decisions.

Key questions include understanding which products or categories are top-performing, how sales vary by geography and season, and what times of day see peak sales. We also need to identify our top customers, understand sales growth year-over-year, and determine the average order value. Moreover, it's important to understand the sales distribution by region, the rate of new customer acquisition, and customer retention rate.

In addition, the impact of various factors on sales, such as product return rates and the effect of discounts on sales, needs to be assessed. Sales forecasting for the upcoming quarter is also crucial for inventory management and marketing planning. The correlation between website traffic and sales will provide insights into online customer behavior, and an understanding of the distribution of customer lifetime value will inform customer segmentation strategies.

**Objective -**

The task is to leverage the power of data visualization tools like Tableau to create a comprehensive dashboard that provides an overview of all these aspects, allowing stakeholders to interact with the data, delve deeper into each area, and make informed decisions. The ultimate goal is to increase sales, improve customer retention, and optimize operations for profitability."

**Table description –**

1. order\_id: An integer value representing the unique identifier for each order.
2. product\_id: An integer value representing the unique identifier for each product. Values range from 1000 to 5000.
3. product\_category: A string value representing the category of each product. Possible values include 'Electronics', 'Clothing', 'Grocery', 'Books', 'Home & Kitchen'.
4. quantity: An integer value representing the quantity of the product in each order. Values range from 1 to 10.
5. price\_dollars: An integer value representing the price of the product in US dollars. Values range from 10 to 200.
6. customer\_id: An integer value representing the unique identifier for each customer. Values range from 10000 to 30000.
7. order\_date: A timestamp value representing the date and time of each order. The dates range from January 1, 2022, to a date approximately 7 months later, with an order placed every hour.
8. country: A string value representing the country where each order is placed.
9. state: A string value representing the state where each order is placed.
10. sales\_hour: An integer value extracted from the order\_date, representing the hour of the day when each order is placed. Values range from 0 to 23.
11. discount\_percent: An integer value representing the discount on each order, expressed as a percentage. Values range from 0 to 20.
12. return\_status: A string value representing whether each product is returned. Possible values are 'Returned' and 'Not Returned'.
13. sales\_value: A float value representing the total value of each order. It is calculated as the product of quantity and price in dollars, adjusted for any discount.
14. website\_traffic: An integer value representing the number of visits to the website when each order is placed. Values range from 100 to 1000.
15. order\_number: An integer value representing the sequence of orders for each customer. The first order for each customer is marked as 1, the second order as 2, and so on.
16. lifetime\_value: A float value representing the total sales value for each customer across all their orders. This is calculated as the sum of the sales\_value for all orders placed by each customer.

**Questions and solutions–**

1. What is the total revenue for the last quarter in dollars? (Bar Graph)
2. What are the top 10 selling products? (Bar Graph)
3. Which category of products has the highest sales? (Pie Chart)
4. Which state/country generates the most sales? (Map)
5. What is the monthly trend in sales revenue in dollars? (Line Graph)
6. How does the sales revenue in dollars vary by season? (Box Plot)
7. How does the sales value vary across different product categories in each season? (Heatmap)
8. Who are our top 10 customers based on revenue in dollars? (Bar Graph)
9. How does the sales value of March compare to February? (Dual-Axis Line Graph)
10. What is the average order value in dollars for each product category? (Histogram)
11. What is the sales distribution per country in dollars? (Treemap)
12. How does the sales value vary across product categories each month? (Stacked Bar Graph)
13. How does the total sales value change over time for each product category? (Line Graph)
14. What is the correlation between quantity of product sold and sales value for each product category? (Scatter Plot)
15. How does the total sales value for each product category vary by day of the week? (Area Chart)
16. How can we create a dashboard to present an overview of sales performance and customer behavior, using the charts we have created for

* Q1. Total revenue per quarter
* Q2. Top selling products (Product ID)
* Q3. Sales per product category
* Q5. Sales trend Month-wise

1. How can we create a storyboard that presents a narrative of our sales performance and customer behavior using the dashboard we have created? Create 6 story board showing the below mentioned data-
   1. Sales Performance and Customer Behavior Overview
   2. Sales performance for the product category – Books
   3. Sales performance for the product category – Clothing
   4. Sales performance for the product category – Electronics
   5. Sales performance for the product category – Grocery
   6. Sales performance for the product category – Home & Kitchen