



Superstore Performance 2017

By Ahmad Faishal Akbar

Background & Objective

In early 2017, the Sales and Marketing team from Superstore **had target to increase both Sales and Profit by 10% from previous year**. Now (in the end of 2017), they need our help to do performance analysis of the company in 2017. Therefore, the objective of this project is to **examine the company performance in 2017** and do **exploratory data analysis** to gain insight for next year company's strategy.

About the data

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 9994 entries, 0 to 9993
Data columns (total 16 columns):
#   Column      Non-Null Count  Dtype
---  -
0   Row ID      9994 non-null  int64
1   Order ID    9994 non-null  object
2   Order Date  9994 non-null  datetime64[ns]
3   Ship Date   9994 non-null  datetime64[ns]
4   Ship Mode   9994 non-null  object
5   Customer ID 9994 non-null  object
6   Country     9994 non-null  object
7   City        9994 non-null  object
8   State       9994 non-null  object
9   Postal Code 9994 non-null  object
10  Region      9994 non-null  object
11  Product ID  9994 non-null  object
12  Sales       9994 non-null  float64
13  Quantity    9994 non-null  int64
14  Discount    9994 non-null  float64
15  Profit      9994 non-null  float64
```

```
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RangeIndex: 1894 entries, 0 to 1893
Data columns (total 4 columns):
#   Column      Non-Null Count  Dtype
---  -
0   Product ID  1894 non-null  object
1   Category    1894 non-null  object
2   Sub-Category 1894 non-null  object
3   Product Name 1894 non-null  object
```

```
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Data columns (total 3 columns):
#   Column      Non-Null Count  Dtype
---  -
0   Customer ID  793 non-null  object
1   Customer Name 793 non-null  object
2   Segment      793 non-null  object
```

These are **transaction**, **customer**, and **product** data from fictional online retail company (Superstore). This company sells Technology, Office Supplies, and Furniture product to Consumer, Corporate, and Home Office segment. If you'd like to see the data, feel free to check in the link below:

<https://docs.google.com/spreadsheets/d/1dizTASK0TN8ZoasEWjKxZSt3dklh2k2FCjx2odfxJUE/edit?usp=sharing>

Methodology

Data Cleaning

[See the process here](#)

Exploratory Data
Analysis

Data
Visualization

[See the dashboard here](#)

Insight Generation

Business Questions

- **Did the company achieve the target?**
- How was the overall performance in terms of Sales and Profit?
- Did discount affect sales?
- How much percentage of transactions are profitable?
- What was the best selling and profitable product?
- How was the monthly performance in terms of Sales and Profit?
- When was the day with the most number of transactions?
- How was the performance based on the city where the customers coming from?

Did the company achieve the target?

The target was successfully **achieved** and even **exceeded**

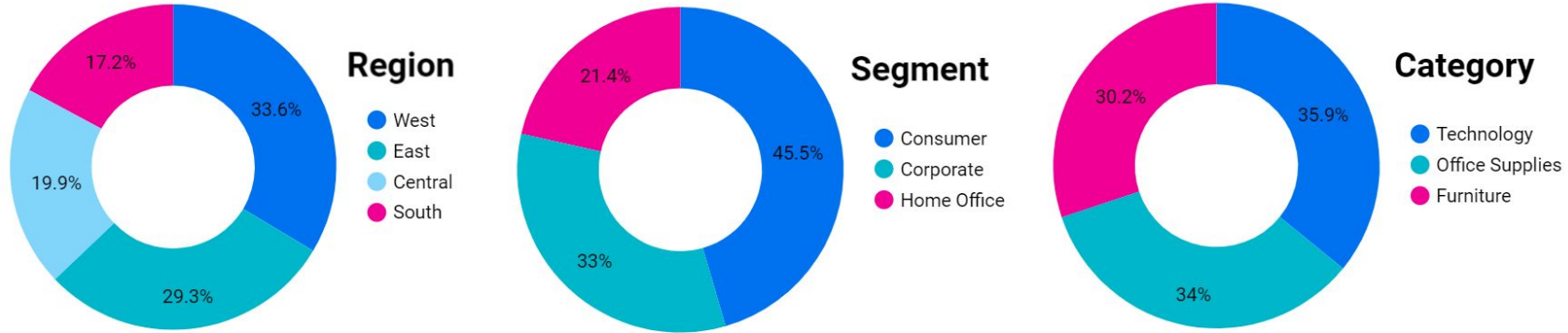
Total Sales \$702,573.82 ↑ 21.0% from previous year	Total Profit \$88,998.46 ↑ 13.8% from previous year	Total Order 1,662 ↑ 28.9% from previous year	Total Customer 689 ↑ 9.0% from previous year
Total Product 1,494 ↑ 11.7% from previous year	Average Sales \$219.90 ↓ -5.6% from previous year	Average Profit \$28 ↓ -11.2% from previous year	Average Quantity 4 ↓ -0.2% from previous year

Although, **Average Sales, Profit, and Quantity** per order **decreased** from previous year, **Total Sales and Profit increased** from previous year. It's even more than what We targeted. The **Number of Order, Customer, and Sold Product increased** from previous year as well.

Business Questions

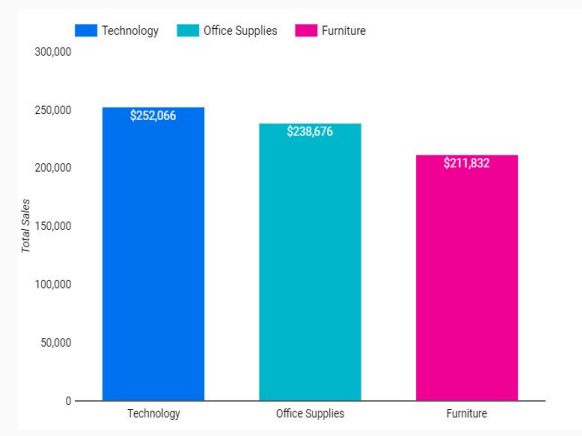
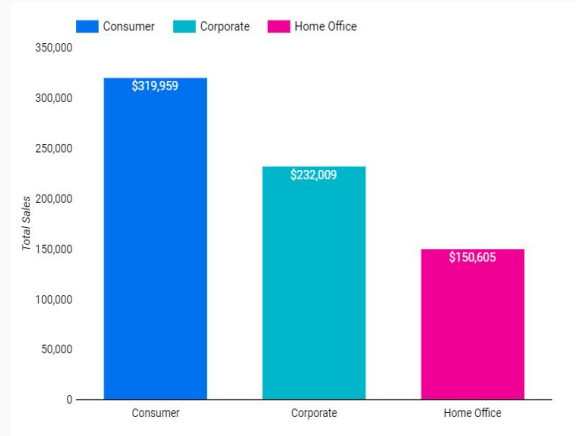
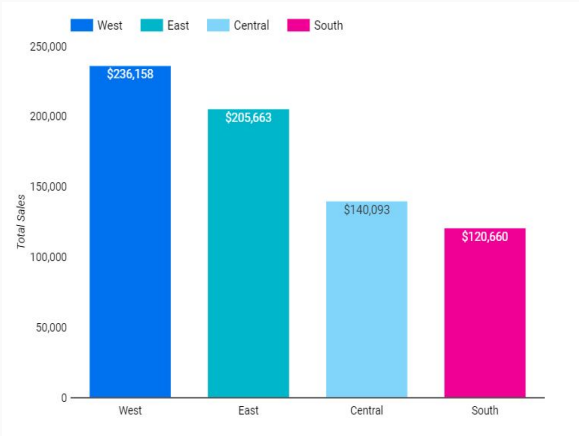
- Did the company achieve the target?
- **How was the overall performance in terms of Sales and Profit?**
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Overall Performance by Sales

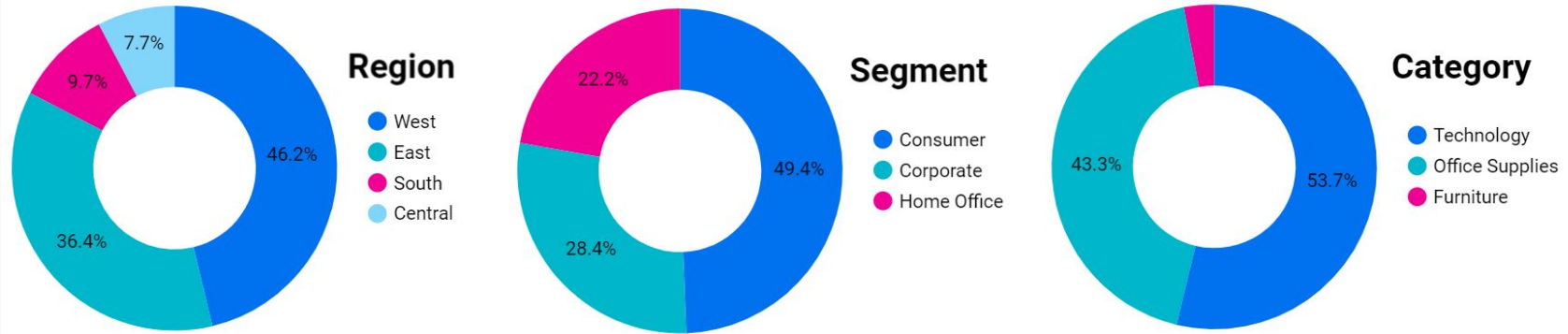


Customers from **West** and **East** Region had around **30%** of **sales** value respectively. They were most valuable customer in term of sales value. **Consumer** segment had **the highest sales** value (**45.5%**). In **Product Category**, they had **roughly the same sales** value (around **30%**).

Overall Performance by Sales

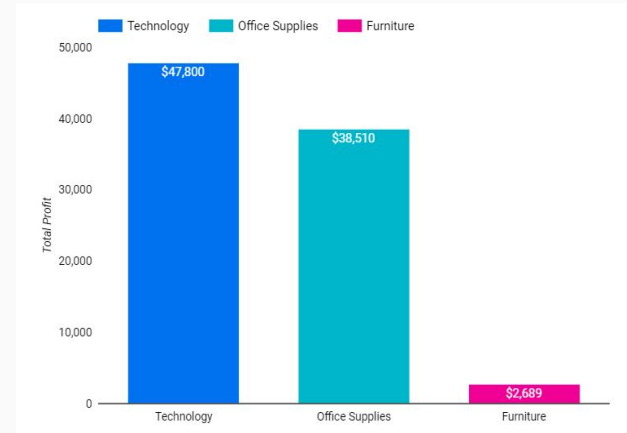
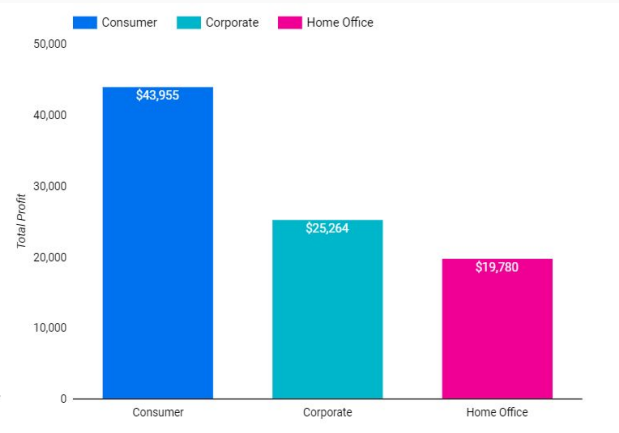
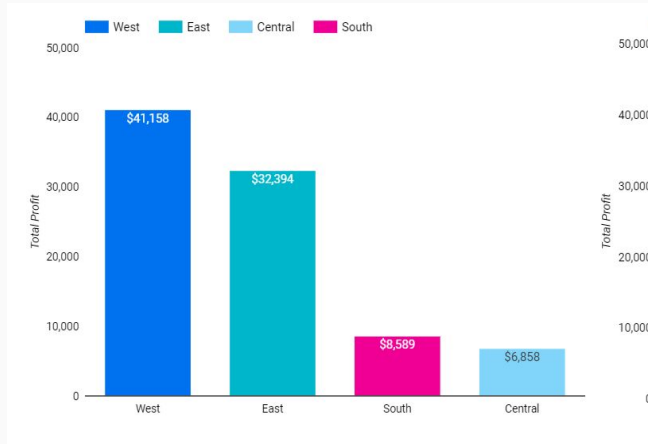


Overall Performance by Profit



Customers from **West** and **East** Region **dominated profit** value by **46.2%** and **36.4%** respectively. **Consumer** segment gave us **almost 50% of profit** value. Meanwhile in product category, eventhough they shared roughly the same sales value, they didn't in profit value. **Technology** products were **the most profitable products (53.7%)**, followed by **Office Supplies (43.3%)**, and **Furniture** only gave us **3%** of profit value.

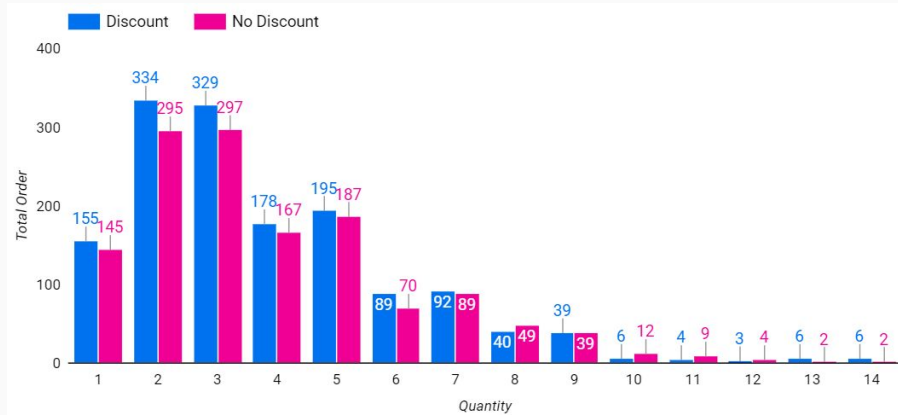
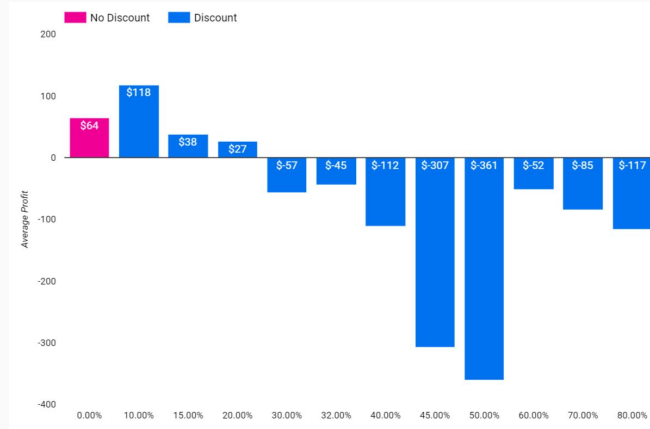
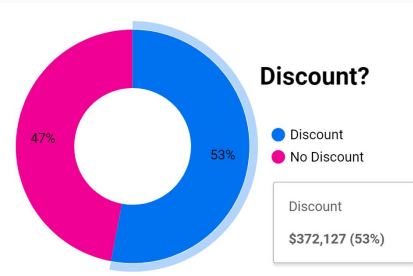
Overall Performance by Profit



Business Questions

- Did the company achieve the target?
- How was the overall performance in terms of Sales and Profit?
- **Did discount affect sales?**
- How much percentage of transactions are profitable?
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Did discount affect sales?



Discounted transaction had slightly higher sales value and number of order than Non-discounted transaction. But, It **didn't increase the quantity** of the bought product . And, **giving a discount is not always good for the company's profit**. Giving a **discount maximum 20%** still has **positive average profit**.

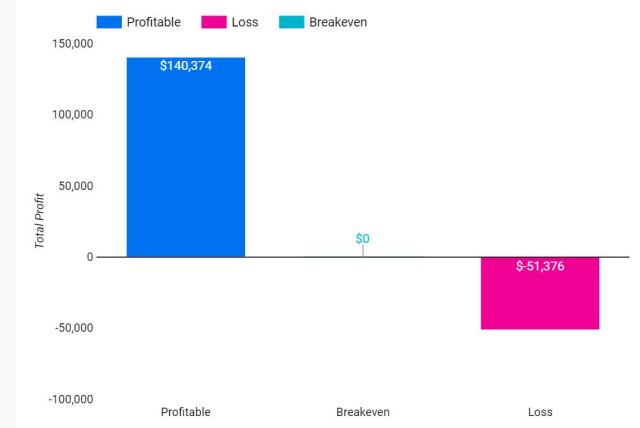
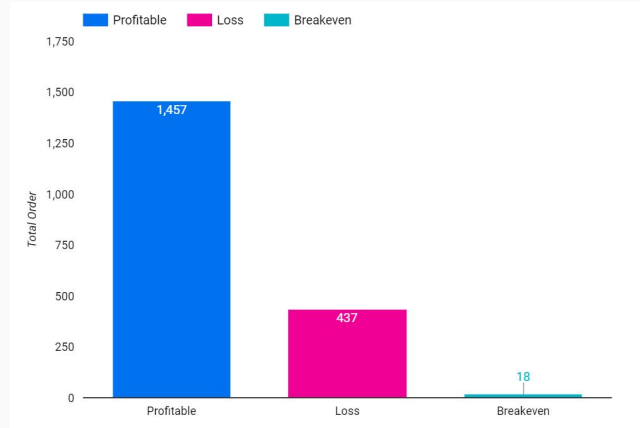
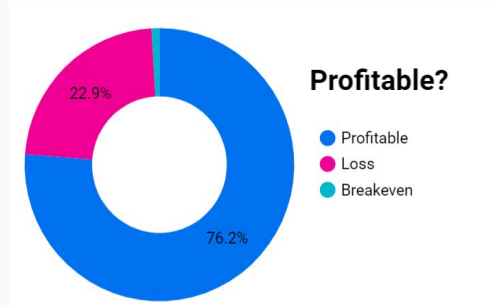
Recommendation:

- **Don't give a discount more than 20%**, to keep the average profit positive.
- **Give a discount with minimum quantity requirement.**

Business Questions

- Did the company achieve the target?
- How was the overall performance in terms of Sales and Profit?
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- **How much percentage of transactions are profitable?**
- What was the best selling and profitable product?
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Profitable Transactions

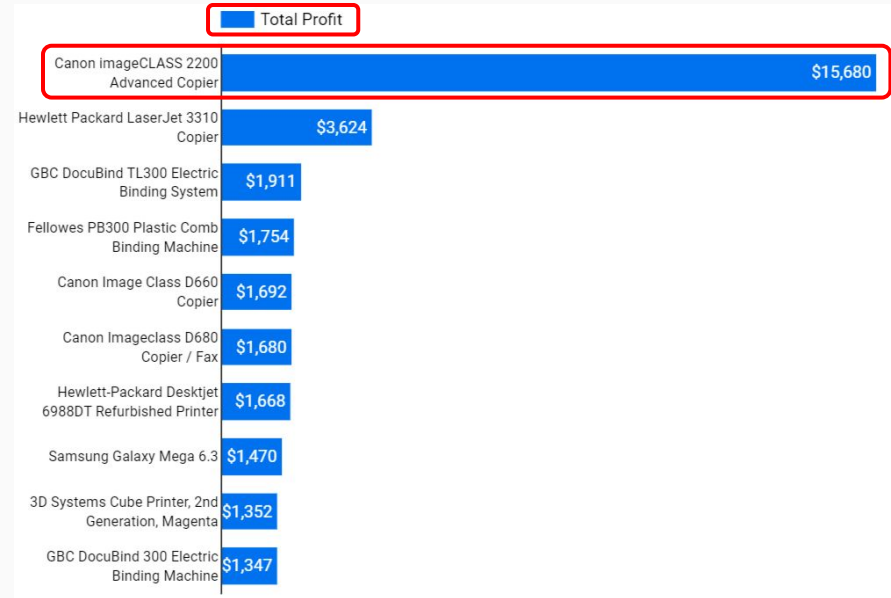
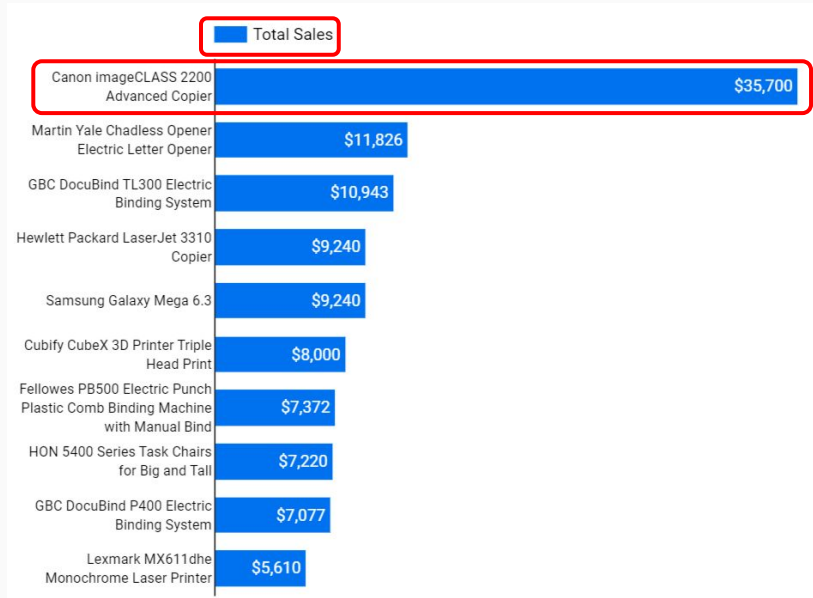


76.2% of transactions were **profitable** and gave us \$140374 profit value. But, 22.9% of transactions were **unprofitable** and made us **loss** \$51376.

Business Questions

- Did the company achieve the target?
- How was the overall performance in terms of Sales and Profit?
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- How much percentage of transactions are profitable?
- **What was the best selling and profitable product?**
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Top 10 the best selling and profitable product



Canon imageCLASS 2200 Advanced Copier was the best selling and profitable product with sales value **\$35700** and profit value **\$15680**.

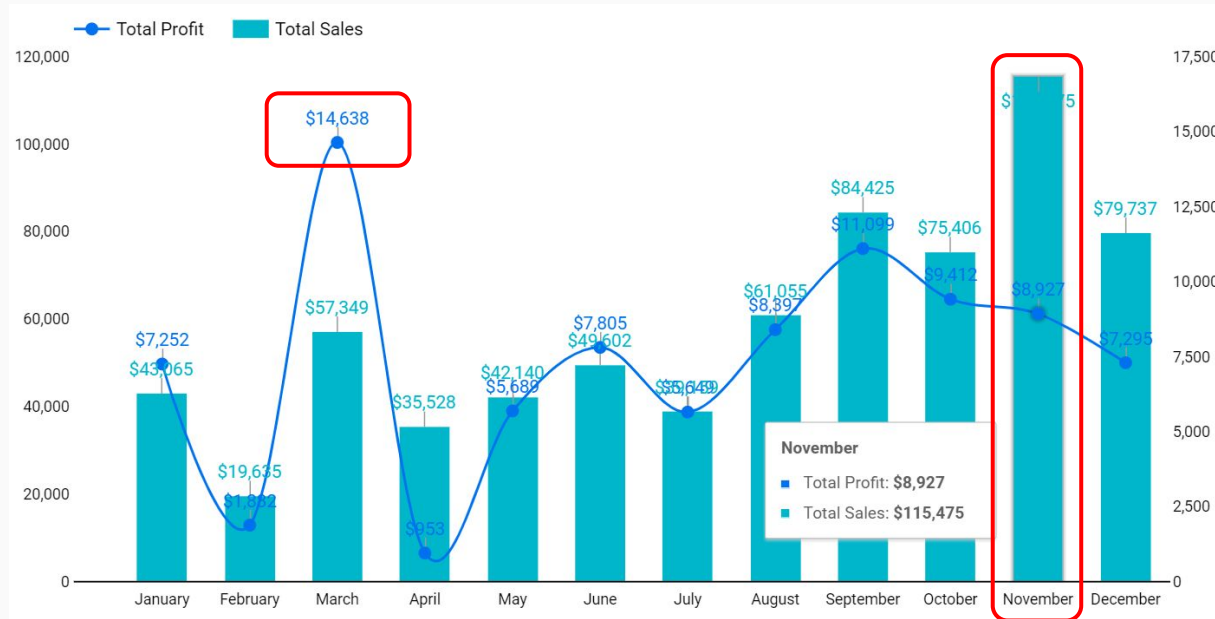
Recommendation:

Make sure **the availability of these products** for next year.

Business Questions

- Did the company achieve the target?
- How was the overall performance in terms of Sales and Profit?
- Did discount affect sales?
- How much percentage of transactions are profitable?
- What was the best selling and profitable product?
- **How was the monthly performance in terms of Sales and Profit?**
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Monthly Performance

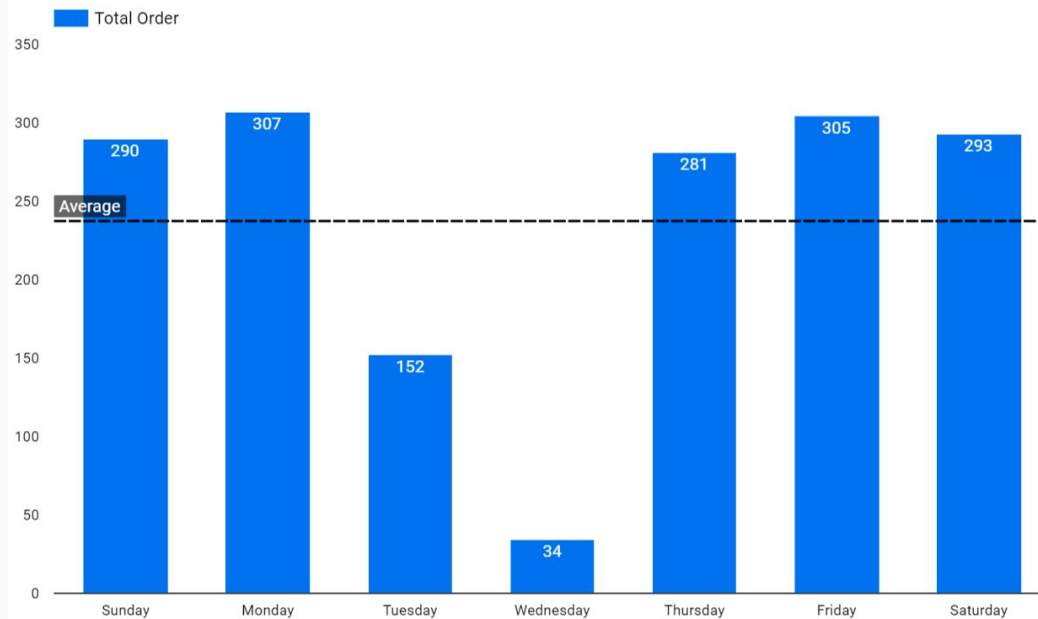


November was the **peak time** in term of **sales** value. But, the **peak time** of **profit** value was in **March**. Because, in that month the company sold one of the most expensive and profitable product (which is copier) much more than in November.

Business Questions

- Did the company achieve the target?
- How was the overall performance in terms of Sales and Profit?
- Did discount affect sales?
- How much percentage of transactions are profitable?
- What was the best selling and profitable product?
- How was the monthly performance in terms of Sales and Profit?
- **When was the day with the most number of transactions?**
- How was the performance based on the city where the customers coming from?

The day with the most number of transactions (orders)



Monday and **Friday** were the days with the **highest number of orders**, with 307 and 305 orders respectively. However, on **Sunday, Thursday, and Saturday**, the number of orders was **higher than the average** orders per day but **slightly lower than** the number of orders on **Monday and Friday**.

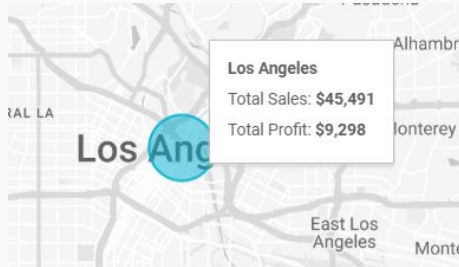
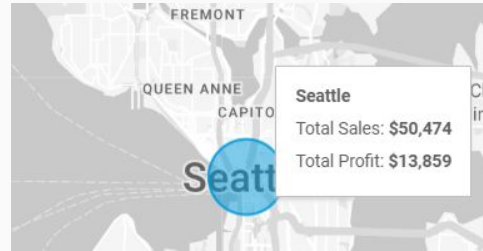
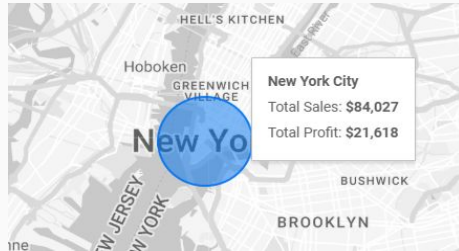
Recommendation:

Do campaign in the **days** when the number of **orders higher than the average** orders per day.

Business Questions

- Did the company achieve the target?
- How was the overall performance in terms of Sales and Profit?
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- **How was the performance based on the city where the customers coming from?**

Performance by City



New York City, Seattle, Los Angeles, and San Francisco were the **Top 4 city** where the customers coming from with **the highest sales and profitable transactions.**

Recommendation:

Hold a promotion event in those **cities** to **increase** the **engagement** with the **customers** and to **increase** the **sales** and **profit** value.

Conclusions

- **The company** successfully **achieved the target** and even **exceeded**.
- Customers from **West** and **East** Region **dominated sales** and **profit** values
- **Consumer** segment had the **highest sales** and **profit** values.
- **Technology** products were **the most profitable products (53.7%)**, followed by **Office Supplies (43.3%)**, and **Furniture** only gave us **3%** of profit value.
- **Discounted transaction** had **slightly higher sales** value and **number of order** than Non-discounted transaction.
- **76.2%** of **transactions** were **profitable** and gave us **\$140374** profit value. But, **22.9%** of **transactions** were **unprofitable** and made us **loss \$51376**.
- **Canon imageCLASS 2200 Advanced Copier** was **the best selling and profitable product** with **sales** value **\$35700** and **profit** value **\$15680**.
- **November** was the **peak time** in term of **sales** value. But, the **peak time** of **profit** value was in **March**.
- **Monday** and **Friday** were the days with the **highest number of orders**, with 307 and 305 orders respectively.
- **New York City, Seattle, Los Angeles**, and **San Francisco** were the **Top 4 city** where the customers coming from with **the highest sales and profitable transactions**.

Recommendations

- **Don't** give a **discount more than 20%**, to keep the average profit positive. **Give** a **discount** with **minimum quantity requirement**.
- Make sure **the availability of the best selling and profitable products** for next year. **Offer** the **customers bundling package** based on **product category or sub-category** by **combining the best-selling and least-selling items** or give them **product recommendation** based on their **purchased history**.
- **Do campaign** in the **days** when the number of **orders higher than the average** orders per day.
- **Hold** a **promotion event** in **New York City, Seattle, Los Angeles, and San Francisco** to **increase** the **engagement** with the **customers** and to **increase** the **sales** and **profit** values.
- **Explore** the **dashboard** [here](#) to get more specific **informations**.

Thank You . . .