I chose a Superstores dataset on Kaggle because it tracks sales, profit, and other key drivers that influence business performance. I was curious because I want to know how companies make data-informed decisions and how strategy and efficiency translate to profits.

I started with data cleansing in excel and then moved to Power BI and double checked that all the data types were correct, columns were normalized, and there were no missing or duplicate values to disrupt the analysis. I then started to visualize answers to my questions (listed below) in PowerBI.

1. What are the top-performing product categories?
2. What shipping method is related to the most sales volume?
3. Which regions or states generate the most profit and sales?
4. Is there a correlation between discounts and overall profit?
5. Is there a correlation between sales and profit?
6. Which customer segments are the most valuable?
7. What are monthly/yearly sales and profit trends?
8. Who are your most valuable customers?
9. Does more quantity of an item lead to more profit?

1.

I wanted to start with an overview so I could figure out what type of products are doing well. I graphed total sales and profit by sub-category on a bar chart. Phones have a lot of sales, which I thought would be true but, I was surprised that tables actually were losing money on average. I think that could mean the tables are underpriced or they have bad suppliers. It's also important to note that high revenues are not always equal to high profits and the tables are a great example of this. They’ve done about $207,000 in sales for tables but are still losing money on them.

A graph of blue squares

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2.  
 Since shipping is a lot of customer experience, I made a pie chart showing the percentage of revenue that each shipping type contributes. The majority of the users use Standard Class, which makes sense it's probably cheapest and most used. Same Day shipping, even though it's faster, doesn't appear to bring in much revenue. I suspect the cost or lack of availability limits it.

A pie chart with numbers and text

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7.  
 I wanted to know if sales were improving year after year, so I graphed average sales in a line graph. There is a small dip at the beginning, and then it recovers, but 2018 drops off steeply. That could be from not having all of 2018 data, or possibly sales were just down that year. Either way, something I'd want to point out before planning for the long-term.

A graph with a line going up

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Something I was wondering about is how much of a positive or negative effect discounts had on profits, so I tested that with a line graph. There's a positive slope at first but it as the discounts get higher you see a clear negative slope. Bigger discounts lower profit on average. There are a few outliers where profits come back up, but overall it's not a good strategy unless its done in moderation.

A graph with a line going up

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I also was curious which segments of customers were the most profitable. I built a pie chart that showed total profit by segment. Normal consumers brought in the largest profit, which surprised me, as I would have thought corporate customers would be worth more. It might show individual shoppers are more consistent or easier to influence with advertising and promotions.

A pie chart with numbers and text

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Then I created a scatterplot to see if selling more units actually does mean making better margins of profit. Most of the time, the greater the number of quantities sold, the greater the profit we make but not always. There are also few quantities where the average profit does fall. It's not fully linear, but I think buying bigger quantities increases the profits for the store.

A graph with blue dots

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To determine where we need to concentrate geographically, I created a bar chart comparing average sales by state. Wyoming  had a way higher average which was super interesting, it might be a couple of huge orders, like from corporate companies, skewing the average or not. Other than that, it appears most of the other states are relatively level, with a couple of major markets worth putting more into.

A graph of a person with a white background

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 Last, I wanted to examine the correlation between profit and sales. From the scatterplot, it appears that it's not always a perfect correlation since some enormous sales amounts correlate with huge profit losses. That shows that all sales are not created equal. Either case, this graph ensures that profit must be the top priority, not revenue overall.

A blue line graph with black text

AI-generated content may be incorrect.

In the end, if a business wants to make more money and wiser, they should sell only those products which are profitable, utilize Standard Class shipping, and exercise care while providing discounts. The ideal customers are buyers, and there are some states that make more sales than others. I have also understood that optimal sales don't always imply maximum profit. This project had me learn how data enables you to see what's really working so you can make more intelligent decisions.