Data Translation Challenge

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Amazon Sales of technology products in 2019

Audience:

Amazon's tech products division managers who want ideas for increasing revenues.

About Dataset:

The data covers the amazon sales of 19 different technology products in urban areas of ten cities from 8 states for the period January 1st, 2019, through January 1st, 2020. However, I am interested in the Sales analysis of 2019 data, hence considering only sales placed throughout 2019.

List of Technology products included in the dataset:

20in Monitor	Bose SoundSport Headphones	Macbook Pro Laptop	LG Dryer
27in 4K Gaming Monitor	Apple Airpods Headphones	ThinkPad Laptop	LG Washing Machine
27in FHD Monitor	Wired Headphones	Iphone	AA Batteries(4pack)
34in Ultrawide Monitor	USB-C Charging Cable	Google Phone	AAA Batteries(4pack)
Flatscreen TV	Lightning Charging Cable	Vareebadd Phone	

List of Urban areas included in the dataset:

San Francisco, CA 94016	Dallas, TX 75001
Los Angeles, CA 90001	Austin, TX 73301
New York City, NY 10001	Portland, OR 97035
Boston, MA 02215	Seattle, WA 98101
Atlanta, GA 30301	Portland, ME 04101

Sales Analysis reveals that December is the best month for the listed tech products sales in 2019

Visualizing the sales performance over time by month to identify the seasonal patterns and trends in sales. This also helps compare sales performance by month to determine which month had the highest sales in 2019.
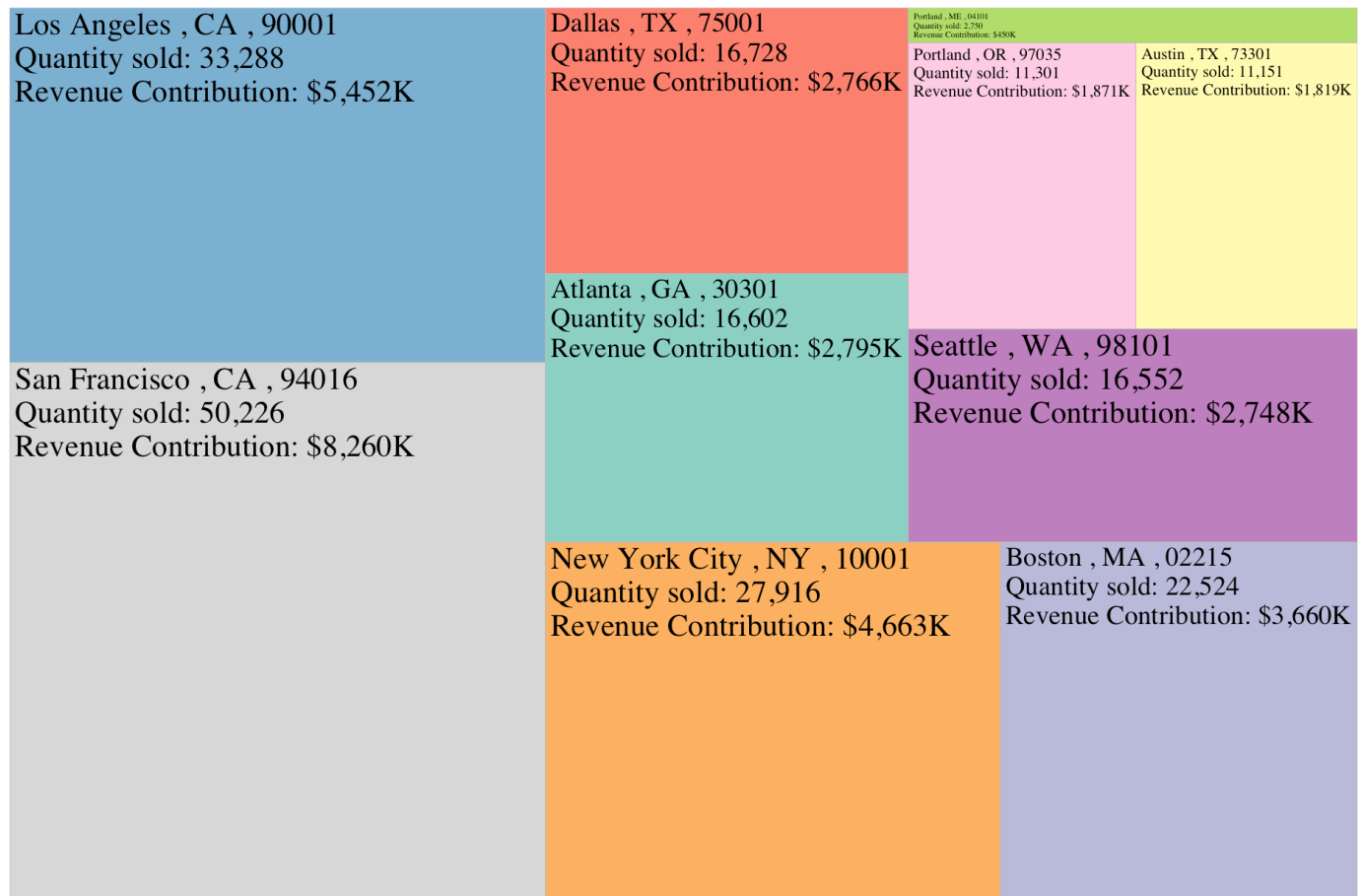
Sales by month, 2019

Sales Performance over time
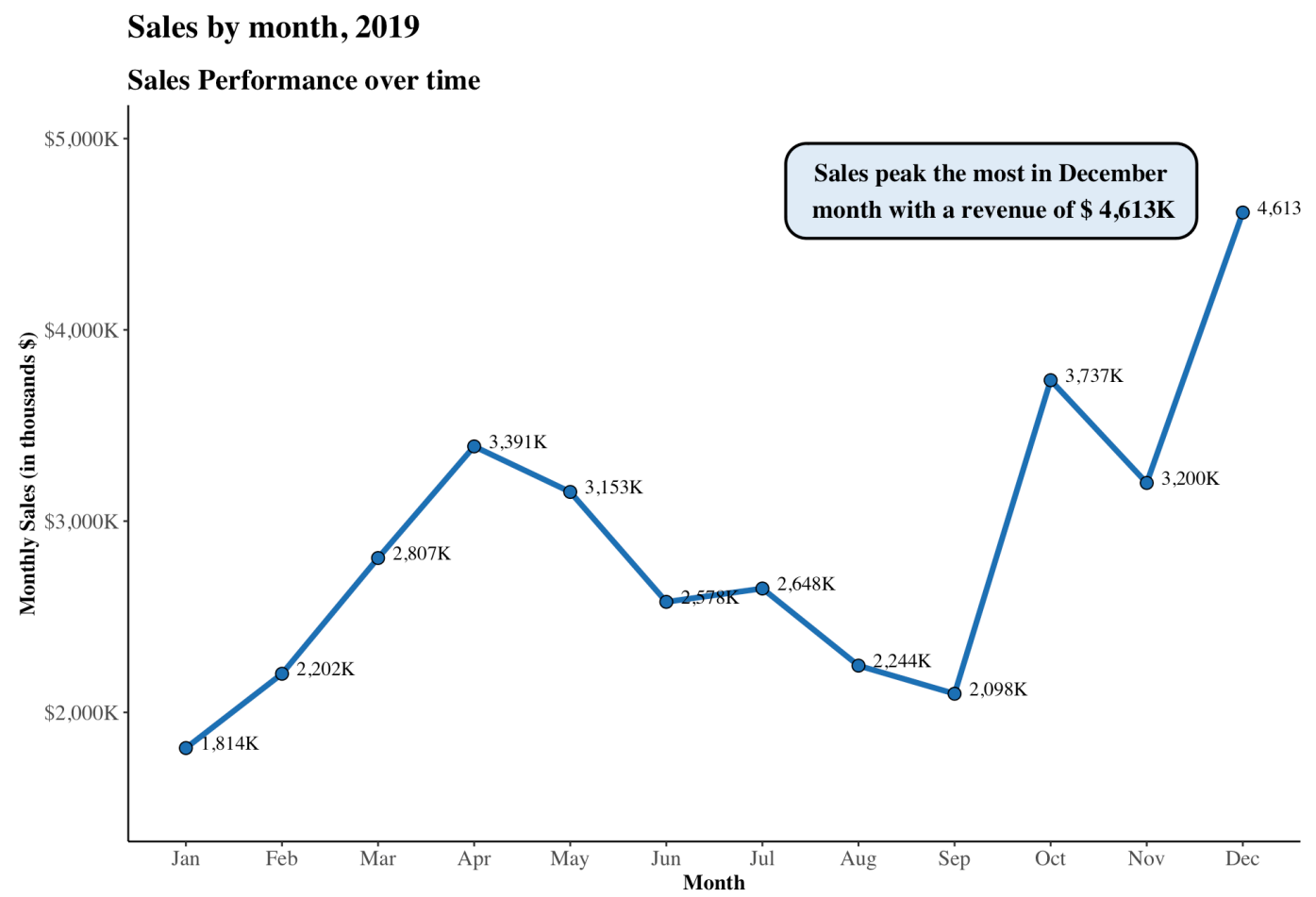
The above visualization shows that the highest tech product sales were recorded in December with a revenue of approx. $4,613K followed by October month with a revenue of approx. $3,737K, indicating that the holiday season is a critical time for the business. Hence, I recommend providing more discounts and offers on tech products during the holiday season, further boosting sales.

Sales Analysis reveals that San Francisco, CA 94016 area had the highest Revenue Contribution in 2019

Visualizing the sales distribution by location (zip code) to identify which products are famous in which urban areas that can be used to inform regional marketing efforts.

Quantity sold and Revenue Contribution by Location (ZIP code)

Los Angeles , CA , 90001
Quantity sold: 33,288
Revenue Contribution: $5,452K

San Francisco , CA , 94016
Quantity sold: 50,226
Revenue Contribution: $8,260K

Dallas , TX , 75001
Quantity sold: 16,728
Revenue Contribution: $2,766K

Atlanta , GA , 30301
Quantity sold: 16,602
Revenue Contribution: $2,795K

New York City , NY , 10001
Quantity sold: 27,916
Revenue Contribution: $4,663K

Portland , ME , 04101
Quantity sold: 2,750
Revenue Contribution: $450K

Portland , OR , 97035
Quantity sold: 11,301
Revenue Contribution: $1,871K

Austin , TX , 73301
Quantity sold: 11,151
Revenue Contribution: $1,819K

Seattle , WA , 98101
Quantity sold: 16,552
Revenue Contribution: $2,748K

Boston , MA , 02215
Quantity sold: 22,524
Revenue Contribution: $3,660K

The above visualization shows that the urban area with zip code 94016 in San Francisco, CA contributed the highest revenue of approx. $8,260K to the company with the highest quantity sold, indicating that it is a significant market for the company. In contrast, the urban area with zip code 04101 in Portland, ME, contributed the most negligible revenue of approx. $450K with the least quantity sold. Hence, I recommend targeting marketing efforts in the Portland, ME 04101 area will increase the sales and its revenue contribution to the company.

Relationship between the Revenue Price of each product in the data shows a strong positive correlation in 2019

Visualizing the relationship between the revenue and price of each product to identify any trends or patterns in how changes in cost per unit affect product sales.

Revenue vs Price of Each Product in 2019

There is strong positive correlation between revenue contribution and the price of each product
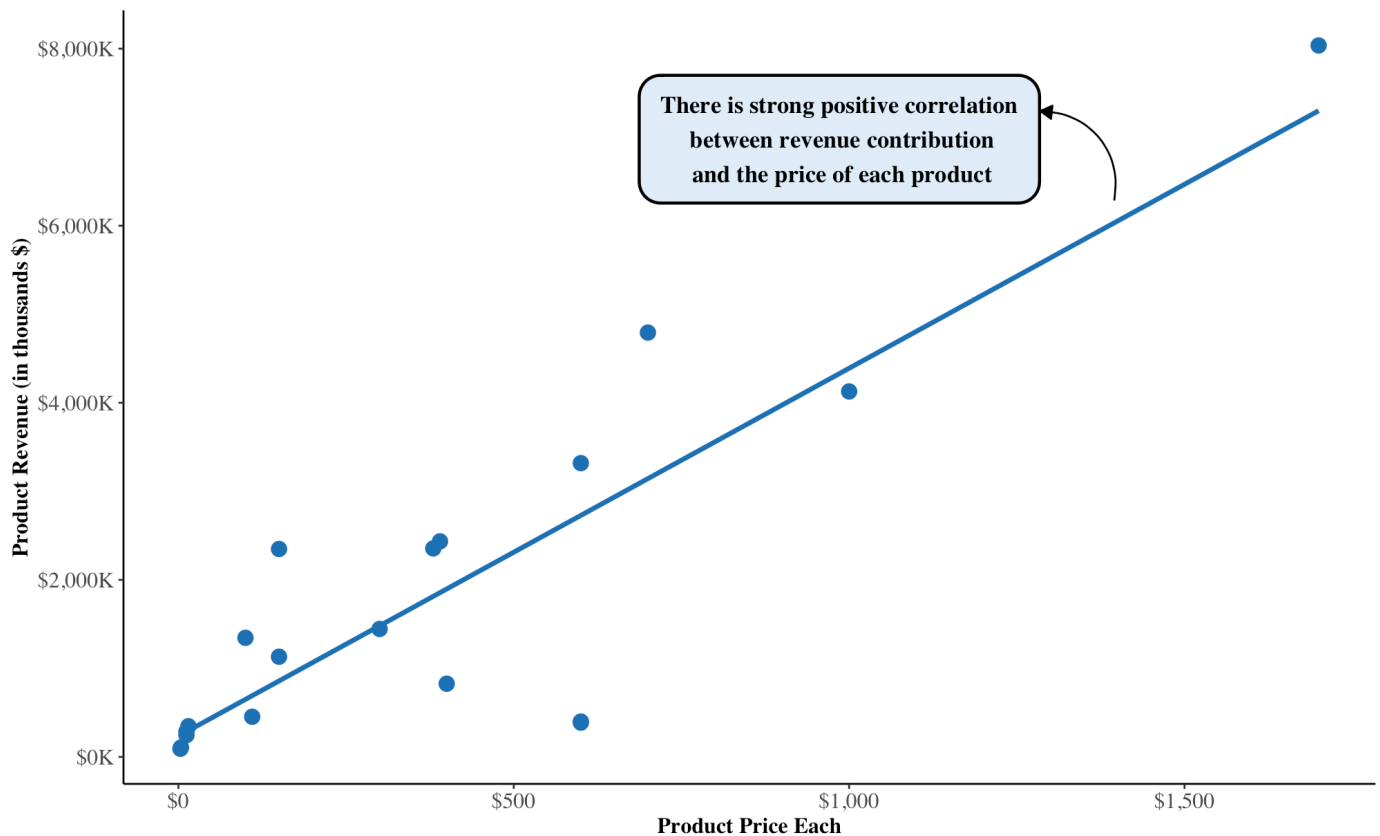
The above visualization shows a strong positive correlation between the price of each product and its revenue contribution. The higher the product price, the higher its revenue contribution to the company.

Sales Order Analysis by the time of the day in 2019 reveals that 7 PM is the best time to display product advertisements

Visualizing the number of orders placed by the time of the day in the hour to identify when most orders were placed in 2019 to display product advertisements. Knowing the best time to advertise can help the company to reach more customers and increase sales.

## Time of the day most orders placed in 2019
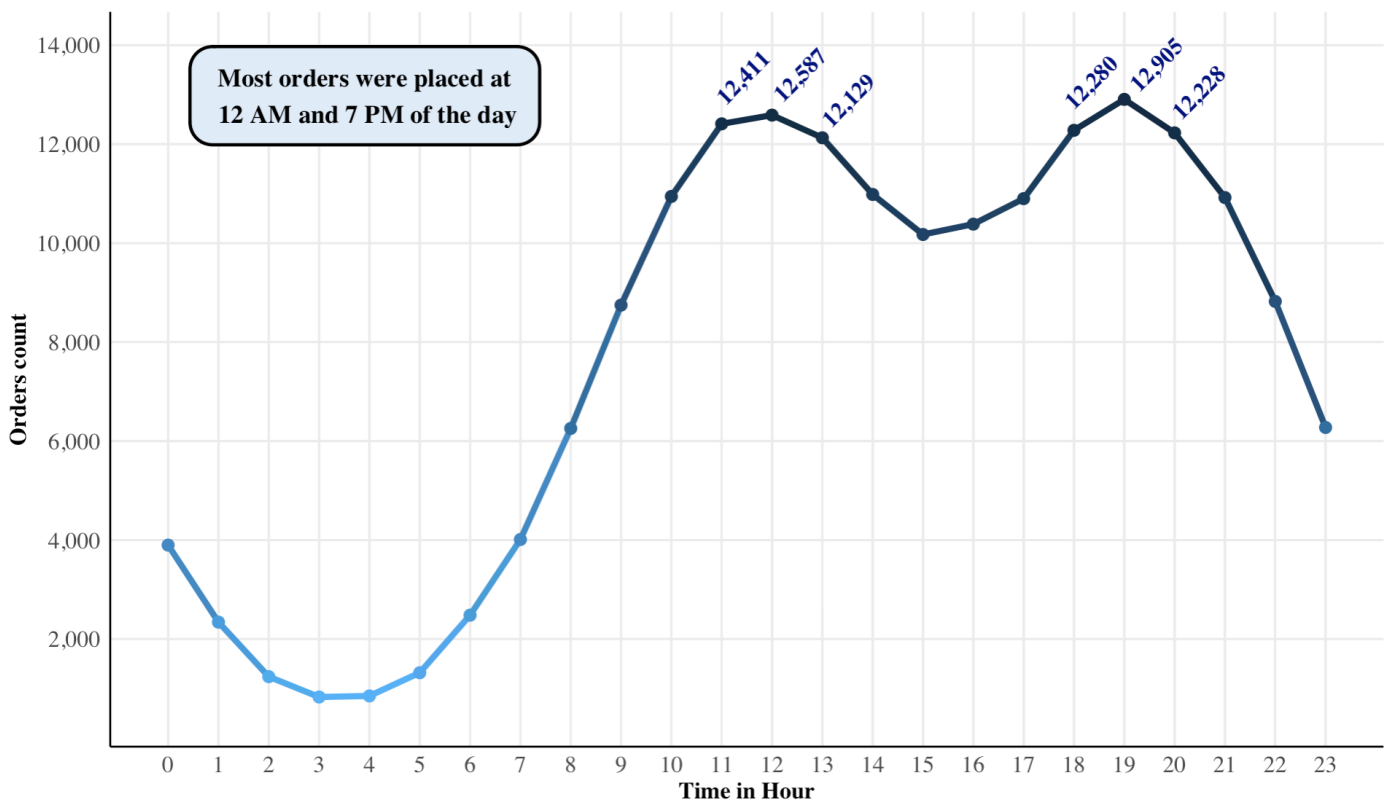
The above visualization shows that most orders were placed at 7 PM of the day, followed by noon of the day. Hence, the best time to roll out the advertisement campaign is between 11 AM and 12 AM, and again between 6 PM to 7 PM of the day to maximize the likelihood of product sales.

Sales Analysis reveals that the best-selling product combination is iPhone and Lightning Charging cable compared to others in 2019

Visualizing the products most commonly bought together to identify the cross-selling opportunities, like promoting them as a bundle or package deal, encourages customers to buy more products than initially intended, increasing the overall order value and revenue. Offering product combinations commonly purchased together can also improve the customer experience, which can help build brand loyalty and drive repeat business.

Combinations of Products most often sold together

Iphone and Lightning Charging Cable is the best selling product combination with 1305 transactions in 2019
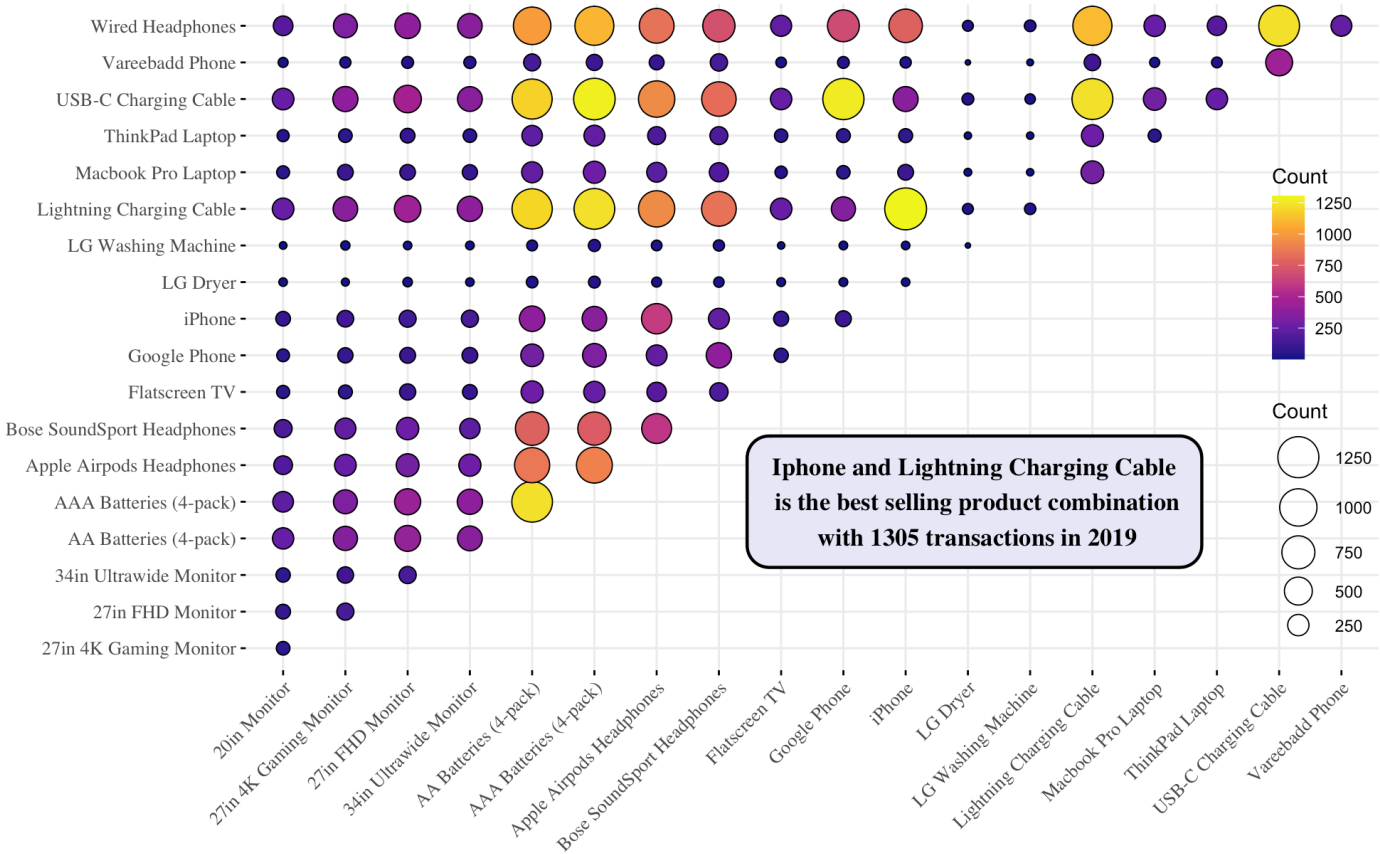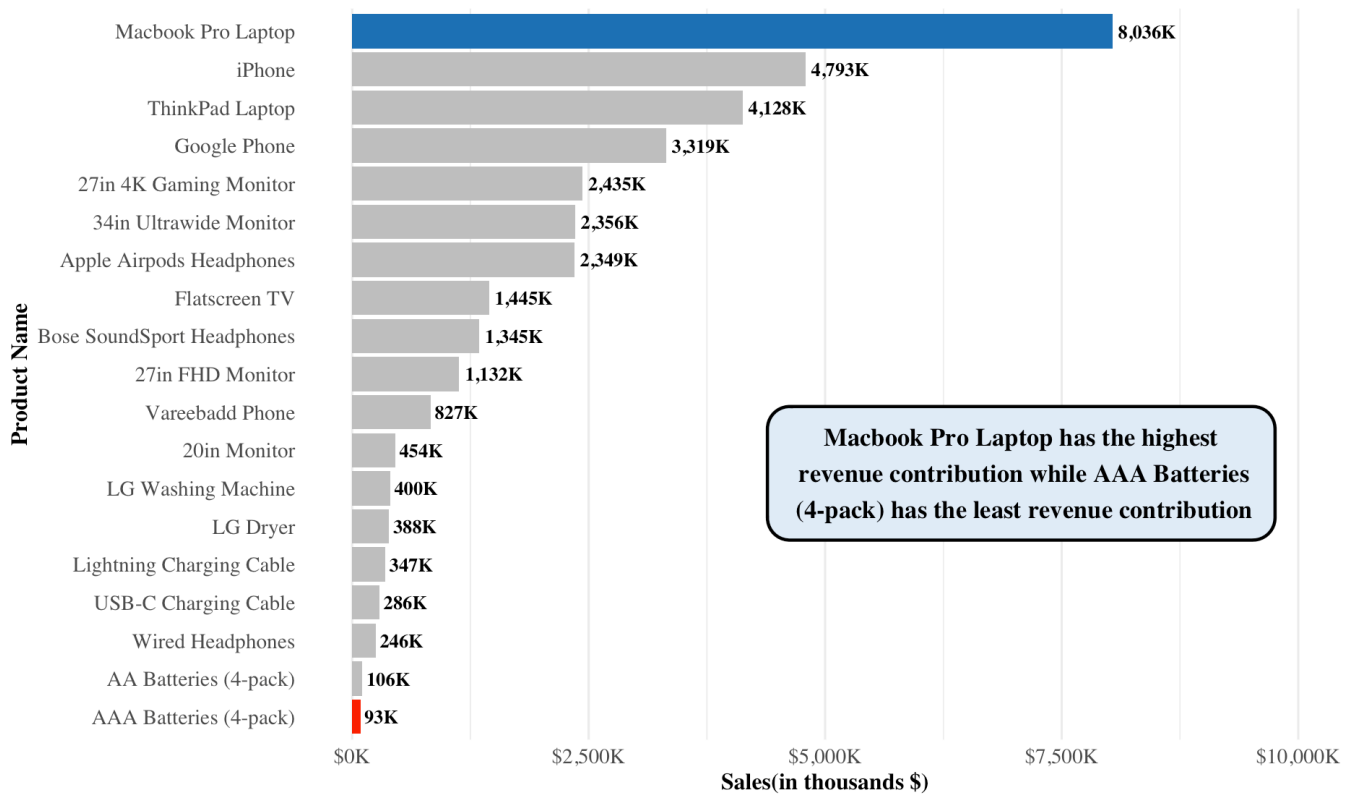
The above visualization shows that iPhone and Lightning charging cables are most commonly bought together with 1305 transactions, followed by Google phone and USB-C Charging cables with 1256 transactions, highlighting the importance of offering products that complement each other. Hence, I recommend promoting these product combinations as a bundle or package deal to attract customers.

Sales Analysis reveals that the Macbook Pro laptop has the highest Revenue Contribution than other listed tech products in 2019

Visualizing the revenue contributed by each product in the dataset to identify the products which contributed the highest and most negligible revenue to the company in 2019, which could inform decisions about pricing, product development and marketing strategies like discontinuing products that are not selling well or expanding the product line to include similar items of products with the highest revenue.

## Revenue Contribution by Product, 2019

The above visualization shows that the Macbook Pro laptops generate the most revenue for the company and AAA Batteries (4-pack) have the lowest revenue contribution.

Relationship between the top-selling products in the data and their price reveals a strong negative correlation in 2019

Visualizing the total quantity sold for each product in the dataset to identify which products are the most popular and profitable and their relationship with price.

Correlation between top selling products and its price
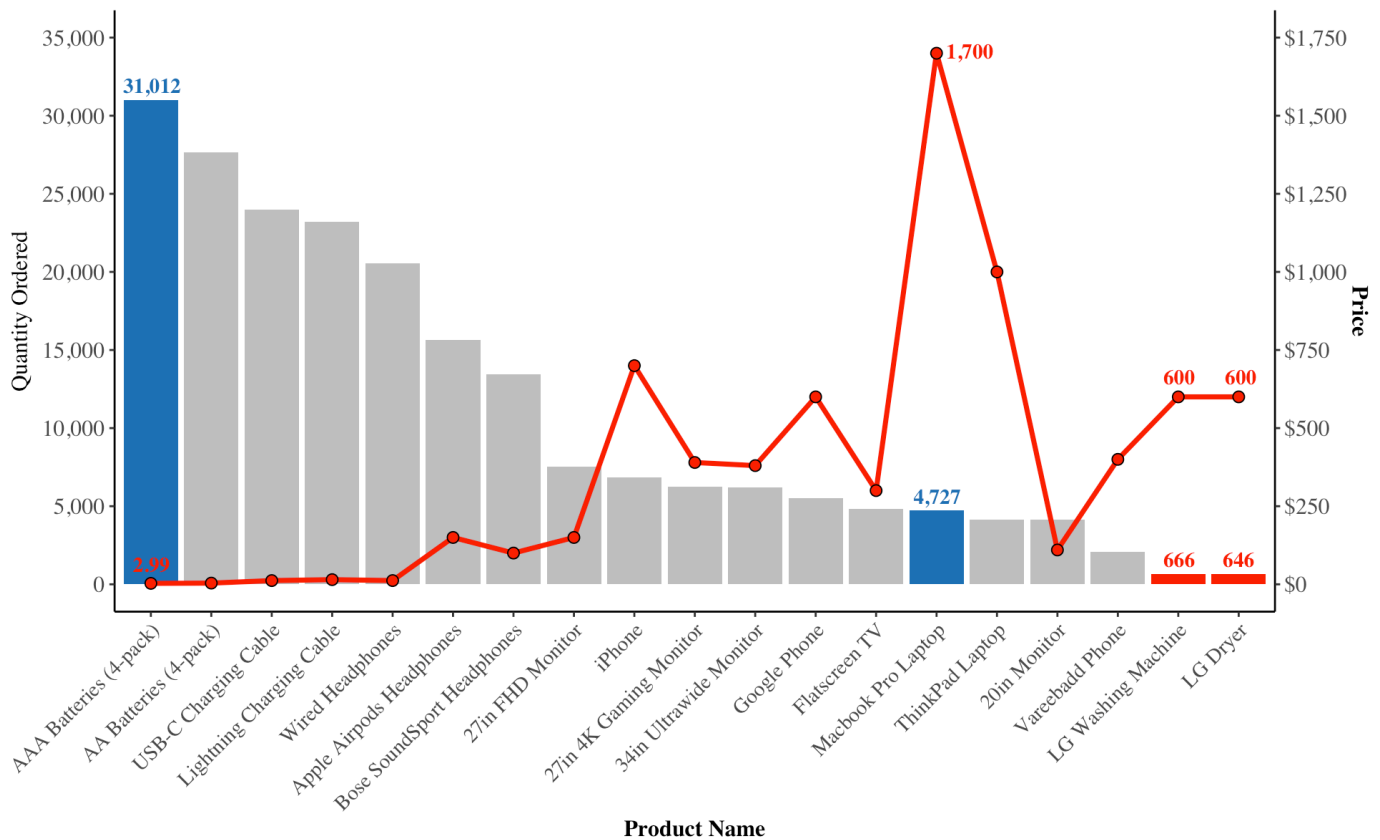

The top-selling products correlate strongly with their product price. The cheaper the product higher the quantity ordered, and vice versa. The above visualization shows that AAA Batteries (4-pack) have the highest quantity ordered with a price of $ 2.99, suggesting that the company could benefit from increasing its production, and LG washing machines & LG dryers have the least quantity ordered with a price of $ 600, indicating that company may need to lower the price to stimulate demand. However, we saw that Macbook pro laptop has the highest revenue with a price of $ 1,700 from the previous visualization.

Sales Analysis by Day and Product in 2019 reveals that Macbook pro laptop is the most popular product with the most sales on Tuesdays

Visualizing the sales by day and product to identify which products are selling well on which days and ensure that popular products are always in stock, reducing the risk of stockouts and lost sales. This also helps to identify the underperforming days, and the company can adjust its pricing or promotions to encourage sales during these periods, which helps to increase revenue.

Sales by Day and Product, 2019
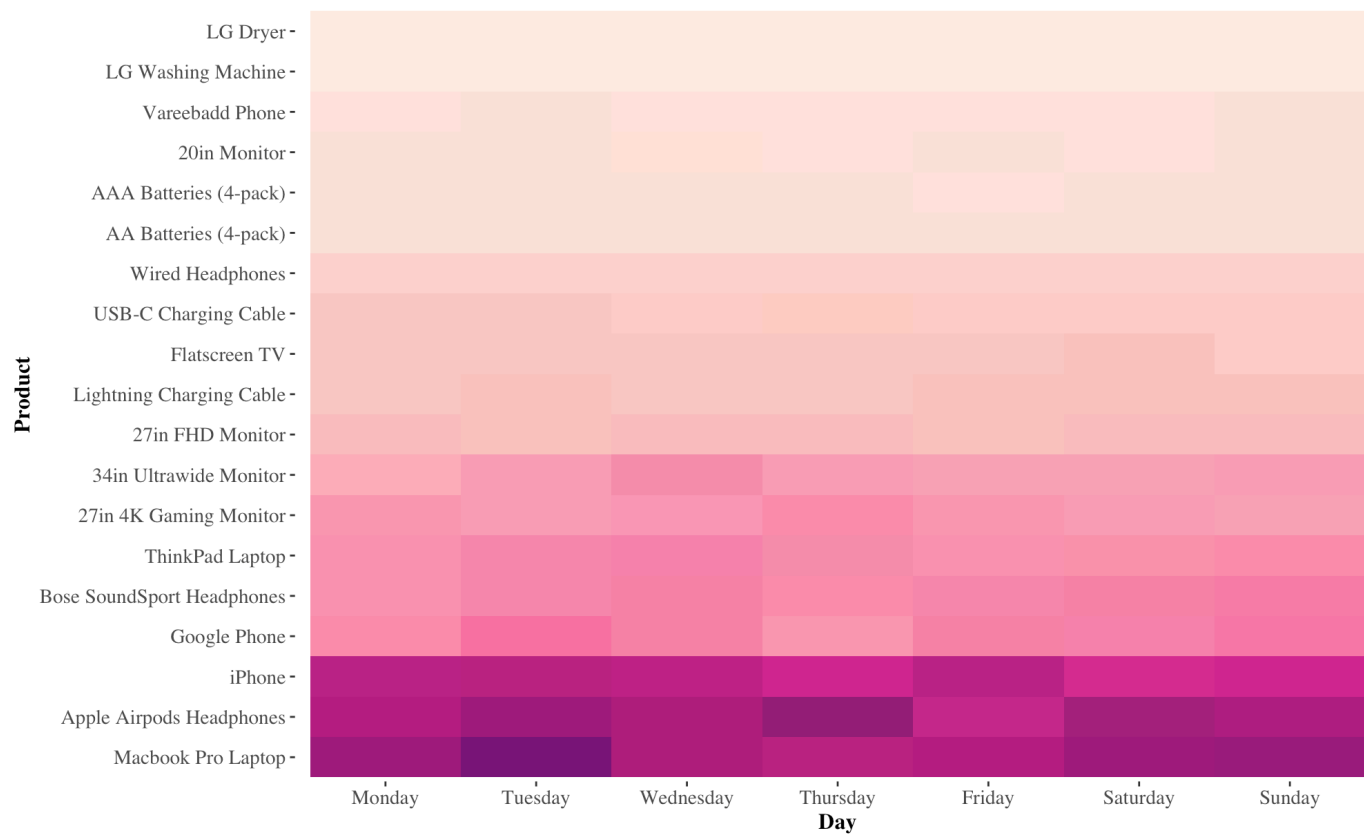
The above visualization shows that Macbook Pro Laptop is the most popular product selling well on Tuesdays and least sold on Thursdays. Hence, I recommend promoting the Macbook Pro laptop on Thursdays by adjusting its price or organizing sales events to attract more customers.

Conclusion:

Overall, the above visualizations provide valuable insights that can help the company to make informed decisions about its product development, marketing strategies, and inventory management, which can ultimately lead to increased revenue and growth.