

ANALYZING AMAZON SALES DATA

Detailed Project Report

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PROJECT DETAIL

Project Title	Analyzing Amazon Sales Data
Technology	Business intelligence
Domain name	E-Commerce
Project Difficulties Level	Advanced
Tools	Jupyter notebook, Power Bi, Ms Excel, Ms PowerPoint

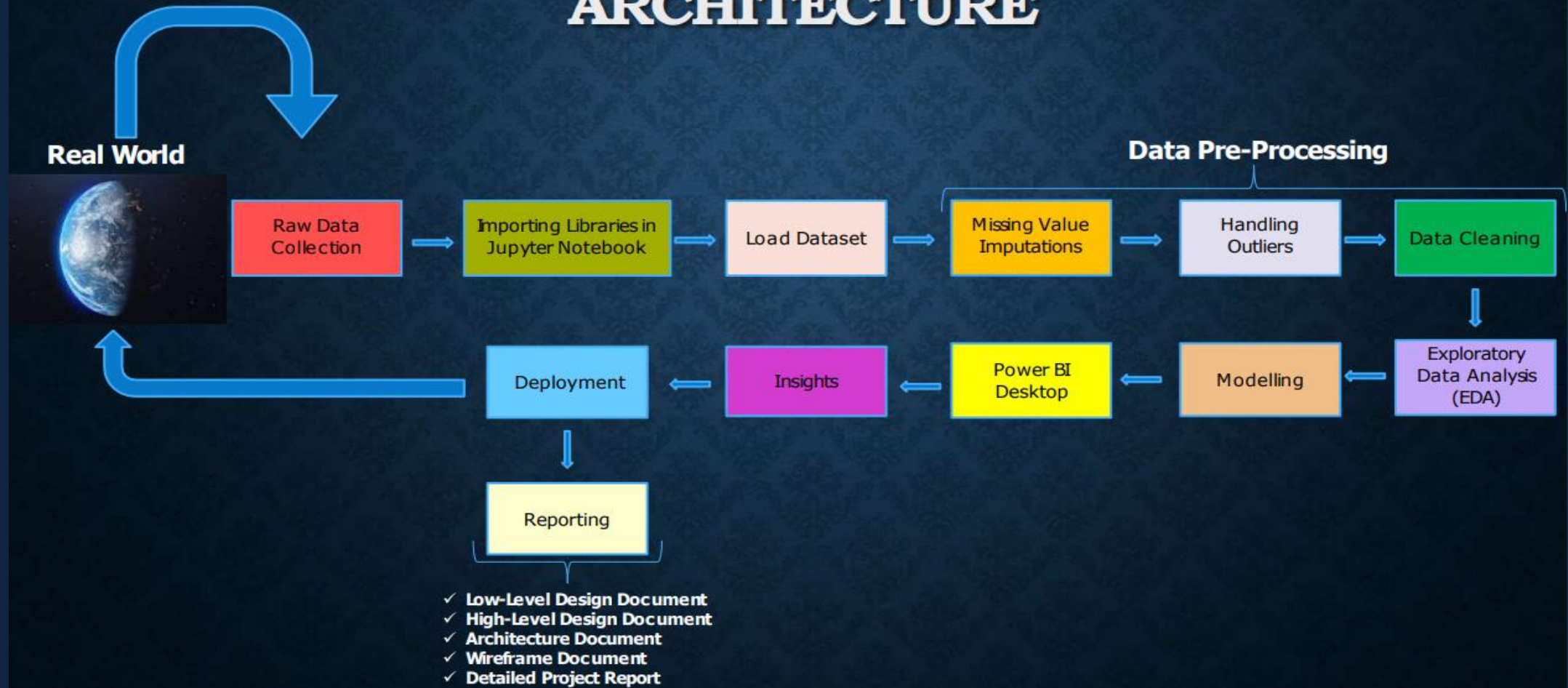
OBJECTIVE

Finding Sales & Profit Trend month wise , year wise ,
yearly month wise

PROBLEM STATEMENT

- Sales management has gained importance to meet increasing competition and the need for improved methods of distribution to reduce cost and to increase profits. Sales management today is the most important function in a commercial and business enterprise.
- Do ETL : Extract-Transform-Load some Amazon dataset and find for me Sales-trend -> monthwise , year wise , yearly-month wise
- Find key metrics and factors and show the meaningful relationships between attributes.

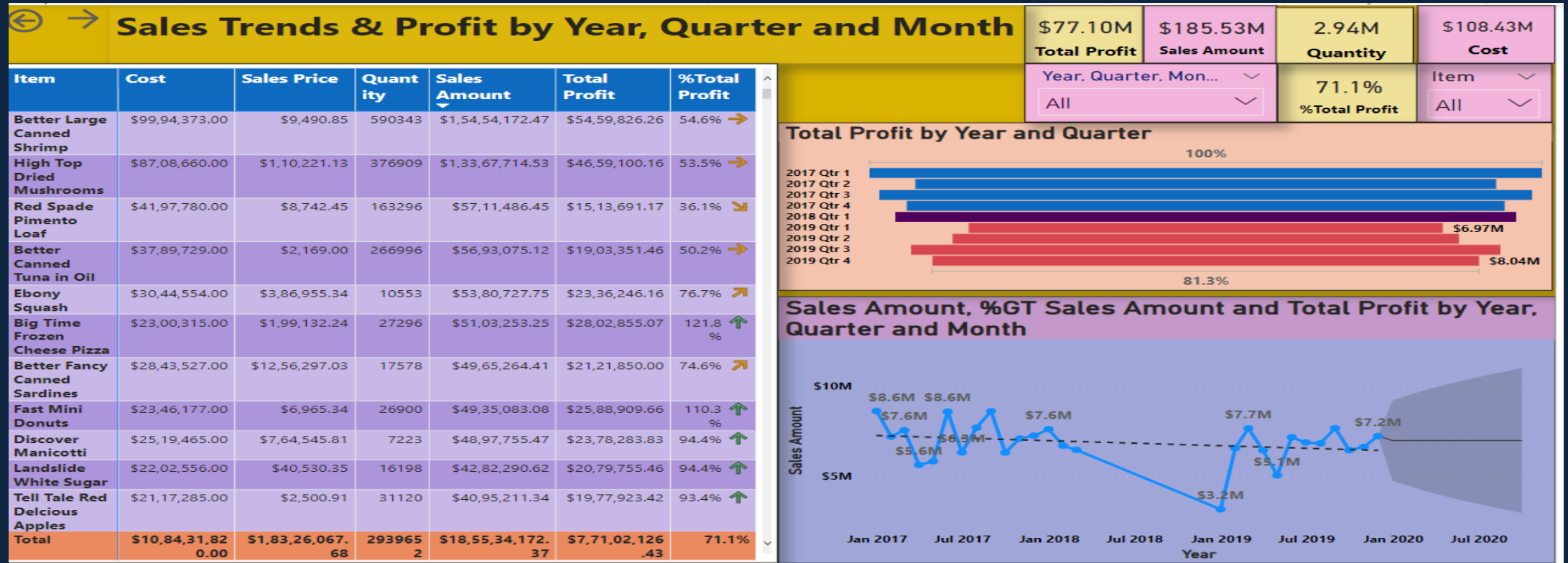
ARCHITECTURE



DATASET INFORMATION

This is a Sales related dataset that contains Information like Sales Amount, Cost Amount, Sales Prices, List Prices, Sales Margins, Sales Quantities, etc.

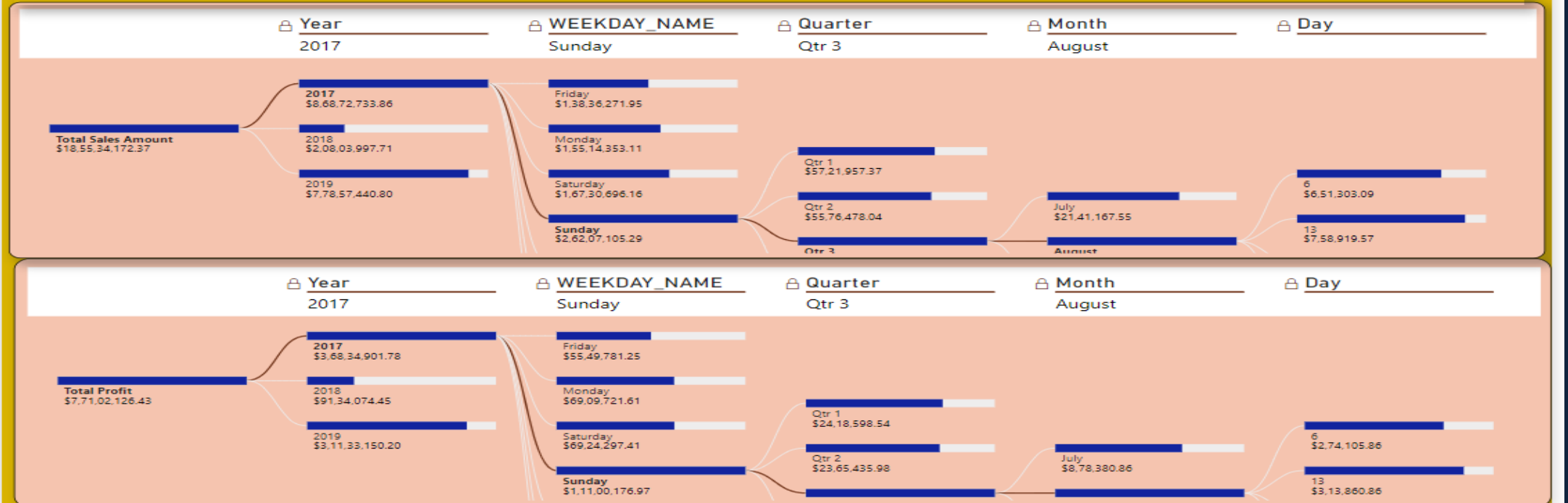
Sales and Profit Analysis



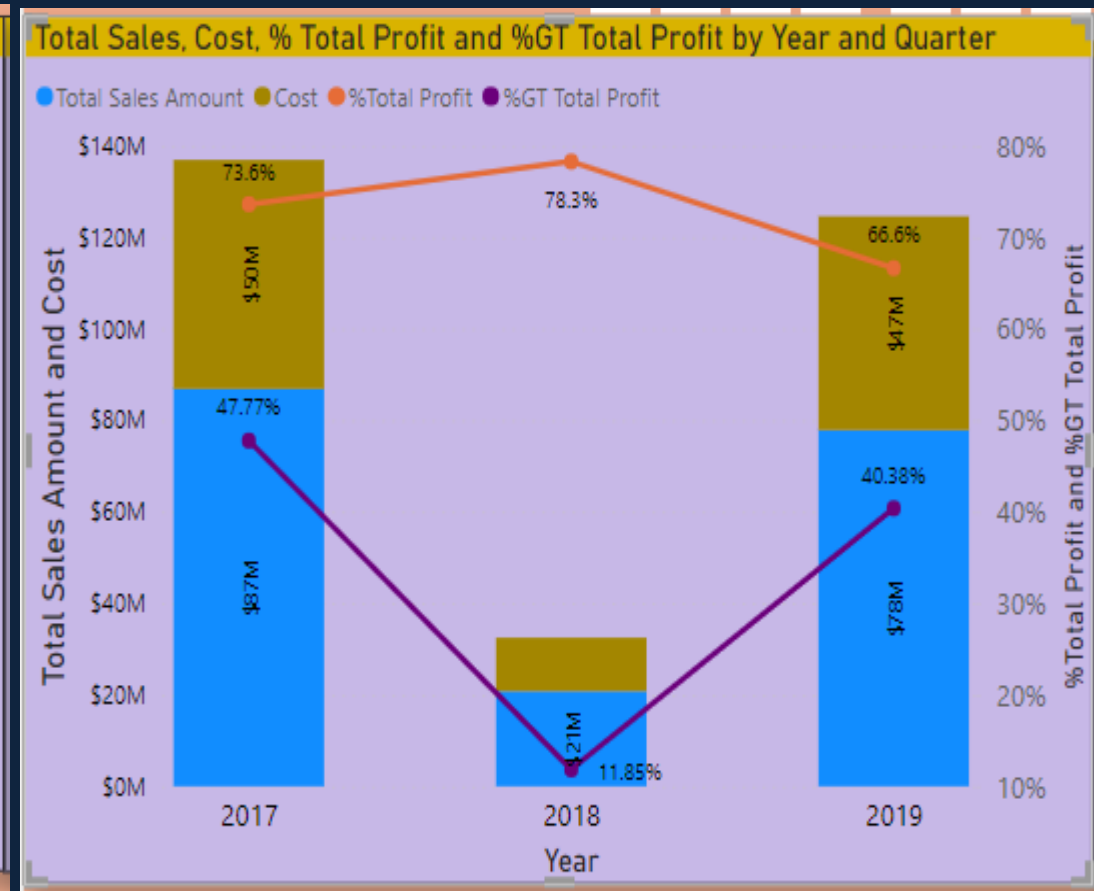
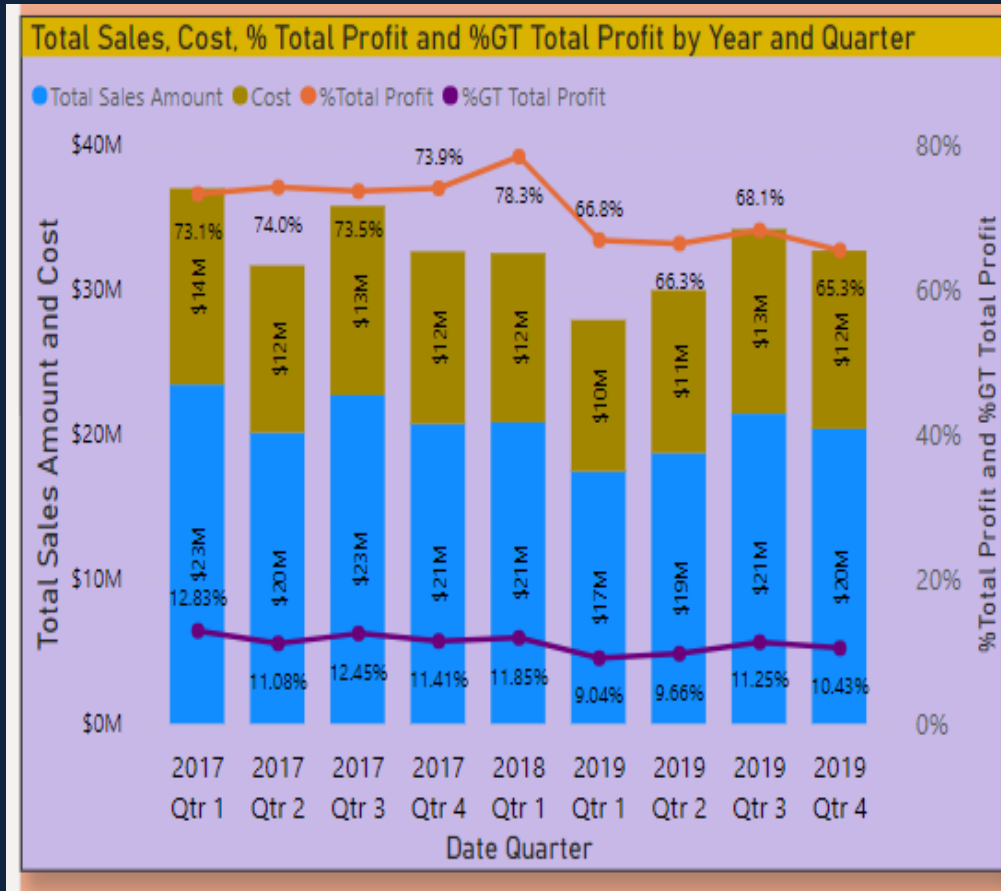
At \$1,54,54,172.47, Better Large Canned Shrimp had the highest Sales and was 7,549,200.21% higher than Kiwi Lox, which had the lowest Sales at \$204.71. Better Large Canned Shrimp accounted for 8.51% of Sales. Profits trended down, resulting in a 16.16% decrease between 2017 and 2019. It trended down, resulting in a 21.15% decrease and dropped from \$9,598,696.65 to \$7,568,565.85 during its steepest decline between January 2017 and October 2019.



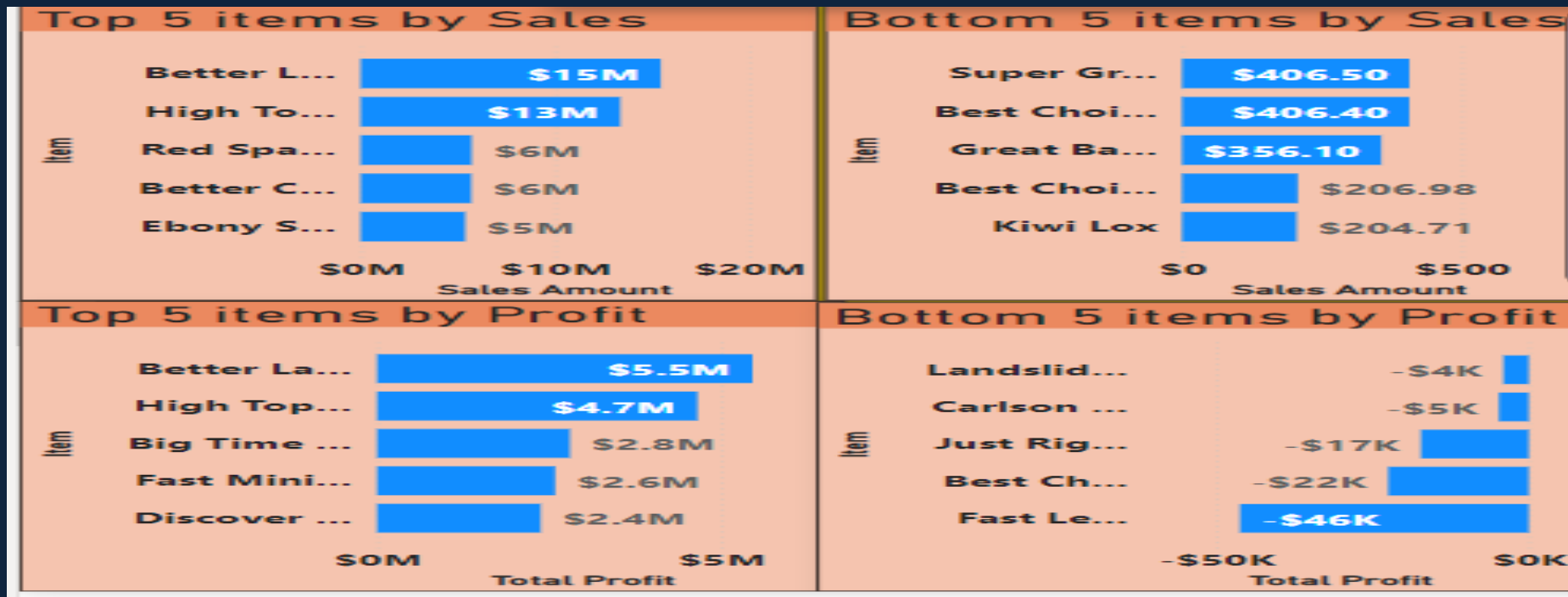
Detailed Profit & Sales Analysis by Year, Weekday, Quarter , Month and Day



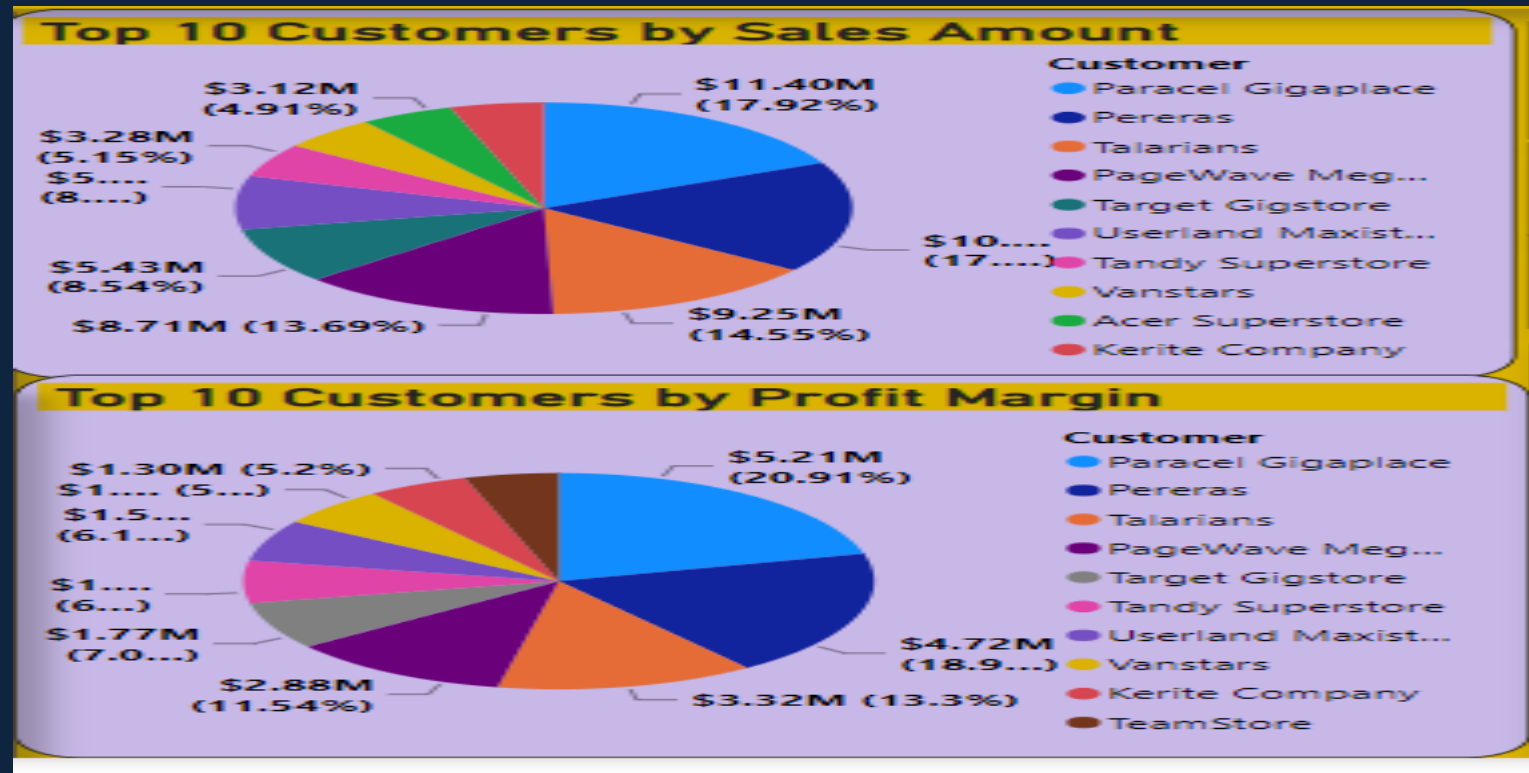
- In this Decomposition Tree visual, we can Analyze how much Sales & Profits were made from 2017 to 2019. Comparing 3 Years, 2017 was the year in which highest Sales & Profits were made, which was \$8,68,72,733.86 and \$3,68,34,901.78 respectively. Sales and Profit was maximum on Sunday, which was \$2,62,07,105.29 and, \$1,11,00,176.97 respectively. Sales & Profits were very balanced in all 4 Quarters but it was highest in Q3 (Sales= \$79,13,401.49, Profit= \$33,40,301.23). August was the month in which the highest Sales & Profits were recorded, which was \$30,74,481.93, \$13,08,995.72 respectively. In that Month Sales & Profits were generated on the 6th, 13th, 20th, 27th day.



- In 2017 Revenue was \$8,68,72,733.86 and Profit was \$3,68,34,901.78 which was 73.68% of Cost Amt. and it was 47.7% of Grand Total Profit. In 2018 Revenue was \$2,08,03,997.71 and Profit was \$91,34,074.45 which was 78.34% of Cost Amt. and it was 11.85% of Grand Total Profit. In 2019 Revenue was \$7,78,57,440.80 and Profit was \$3,11,33,150.20 which was 66.62% of Cost Amt. and it was 40.38% of Grand Total Profit.



- At \$1,54,54,172.47, Better Large Canned Shrimp had the highest Sales and was 187.21% higher than Ebony Squash, which had the 5th highest Sales at \$53,80,727.75. Better Large Canned Shrimp accounted for 33.89% of Sales. Across all 5 Items, Sales ranged from \$53,80,727.75 to \$1,54,54,172.47.
- At \$54,59,826.26, Better Large Canned Shrimp had the highest Profits and was 127.24% higher than Discover Manicotti, which had the 5th highest Profits at \$23,78,283.83. Better Large Canned Shrimp accounted for 30.52% of Profits. Across all 5 Items, Profits ranged from \$23,78,283.83 to \$54,59,826.26.
- At \$406.50, Super Grape Preserves had the 5th lowest Sales and was 63.47% higher than Kiwi Lox, which had the lowest Sales at \$204.71. Super Grape Preserves accounted for 25.12% of Sales. Across all 5 Item, Sales ranged from \$204.71 to \$4.6.50.
- At \$4,026.61, Landslide Low Fat Apple Butter had the 5th highest Loss and was 91.27% higher than Fast Lemon Cookies, which had the Highest Loss at \$46,106.59. Fast Lemon Cookies accounted for 31.9 % of Loss. Across all 5 Item, Loss ranged from (\$46,106.59) to (\$4,026.61).

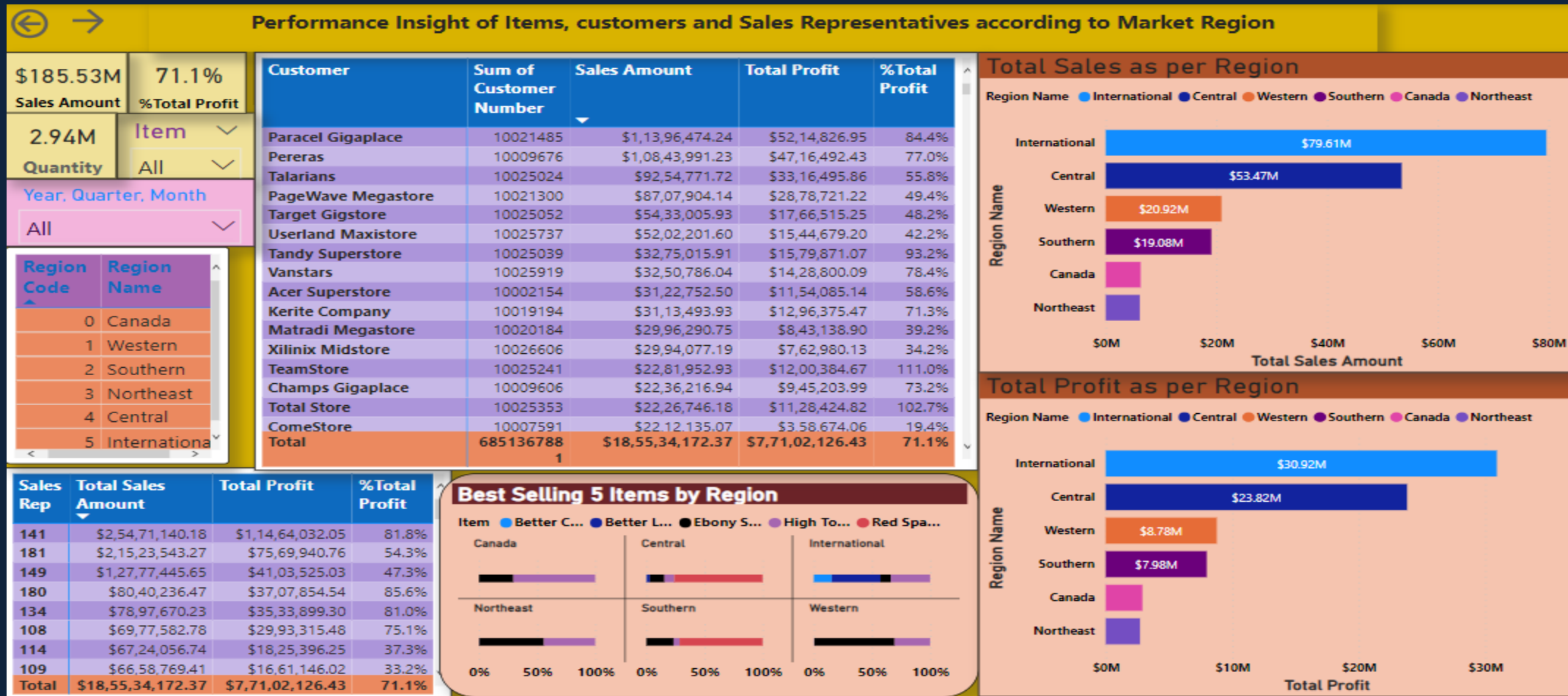


- At \$1,13,97,206.36, Parcel Gigaplace (Custkey10021485) had generated highest sales and was 383.63% higher than Target Gigastore (Custkey 10025052, which had the 5th highest sales at \$54,33,005.93. 10021485 accounted for 17.92% of total sales. Across all top 10 Customers, sales ranged from \$31,13,493.93 to \$1,13,97,206.36.
- At \$52,15,559.07, Parcel Gigaplace (Custkey 10021485) had generated highest profits and was 312.11% higher than Target Gigastore (Custkey10025052), which had the 5th highest profits at \$12,00,384.67. Across all top 10 Customers profits ranged from \$12,00,384.67 to \$5215559.07.

Distinct Customers	
614	
Repeated Customers	
578	

New Customers	
CustKey	Count of Order Number
+ 1000110	1
+ 1000211	1
+ 1000213	1
+ 1000214	1
+ 1000215	1
+ 1000586	1
Total	36

There were total 614 distinct customers. Out of which 578 were the repeat customers and 36 were the new customers.



Sales Rep

Total Sales Amount

Total Profit

%Total Profit

141	\$2,54,71,140.18	\$1,14,64,032.05	81.8%
181	\$2,15,23,543.27	\$75,69,940.76	54.3%
149	\$1,27,77,445.65	\$41,03,525.03	47.3%
180	\$80,40,236.47	\$37,07,854.54	85.6%
134	\$78,97,670.23	\$35,33,899.30	81.0%
108	\$69,77,582.78	\$29,93,315.48	75.1%
114	\$67,24,056.74	\$18,25,396.25	37.3%
109	\$66,58,769.41	\$16,61,146.02	33.2%
Total	\$18,55,34,172.37	\$7,71,02,126.43	71.1%

Best Selling 5 Items by Region

Item

Better C...

Better L...

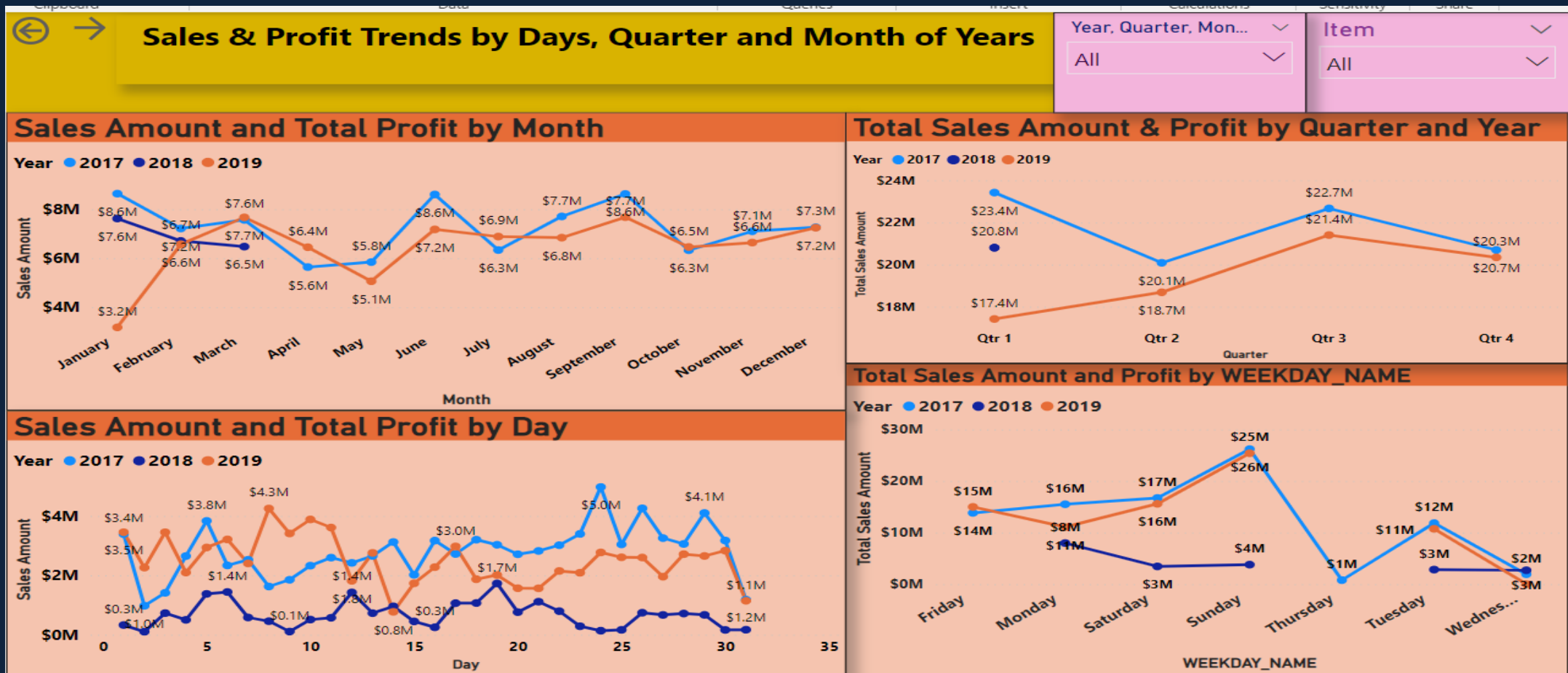
Ebony S...

High To...

Red Spa...

- Top 5 best performing sales Representatives as per Sales are 141, 181, 149, 180 and 134.
- Best Sales and Profit generating Region is the International Region (Region Code 5) with total sales of \$79,613,827.90 which is 42.91 % of total sales and Profit of \$3,09,17,564.52 which is 40.10% of total profit generated.
- Northeast (Region Code 3) is the least sales and profit generating market region with sales of \$61,52,827.67 which was 3.32% of total sales and Profit was \$27,08,223.15 which was 3.51 % of total profit generated.

- In Canada (Region Code 0), High top dried Mushroom is the best selling Item.
- In Western Region (Region Code 1), Ebomy Squash is the best selling Item.
- In Southern Region (Region Code 2), Red Spade Pimanto Loaf is the best selling Item.
- In Northeast Region (Region Code 3), Ebomy Squash is the best selling Item.
- In Central Region (Region Code 4), Red Spade Pimanto Loaf is the best selling Item.
- In International Region (Region Code 5), Better Large Canned Shrimp is the best selling Item.



- If we Compare Sales for 2017 and Sales for 2018 we found that on 24, 26 and 28 there was largest decline among Days. The relative contributions made by 24, 19, 8 days changed the most.
- If we Compare Sales for 2017 and Sales for 2019 we found that in June, August and September, there was largest increase among the months. The relative contributions made by Jan, Feb, Mar changed the most.
- Sales trended down, resulting in a 13.34% decrease between January 2017 and January 2018. Sales started trending down in January 2017, falling by 11.15% (\$27,25,398.48) in 4 quarters. Sales dropped from \$2,34,21,043.50 to \$2,06,95,398.02 between January 2017 and December 2017. During its steepest decline between January 2018 and January 2019, Sales

dropped from \$76,22,864.17 to \$31,16,722.21. Sales trended down, resulting in a 5.06% decrease between January 2018 and March 2019. Sales started trending up on April 2019, rising by 6.22% (\$11,94,751.71) in 2 quarters. Sales jumped from \$1,86,86,855.92 to \$2,14,05,142.50 during its steepest incline between Quarter 2, 2019 and Quarter 3, 2019.

- Profits trended down, resulting in a 6.82% decrease between January 2017 and January 2018. Profits started trending down in January 2017, falling by 6.82% (\$6,52,731.37) in all 4 quarters. Profits dropped from \$35,970,027.18 to \$12,79,430.66 during their steepest decline between January 2017 and January 2018. Profits trended down, resulting in a 15.16% decrease between January 2018 and October 2019.
- At \$87,73,249.43, Better Large Canned Shrimp had the highest Sales and was 42,85,596.56% higher than Kiwi Lox, which had the lowest Sales at \$204.71. Sales and total Profits are negatively correlated with each other. Better Large Canned Shrimp accounted for 9.10% of Sales. Sales and Profits diverged the most when the Item was Better Large Canned Shrimp when Sales were \$57,32,729.64 higher than Profits.



%Total Profit margin, Items Comparison, and Change in Sales in Previous Month and Year



Year	Quarter	Month	Last year Sales Amount	Total Sales Amount	%Change in Sales in last 1 yr	Total Profit	%Total Profit
2018	Qtr 1	February	\$72,15,993.03	\$67,07,086.25	-7.59%	\$30,07,107.21	↑ 81.3%
2018	Qtr 1	March	\$75,66,181.47	\$64,74,847.29	-16.85%	\$28,80,675.22	↑ 80.1%
2017	Qtr 4	December		\$72,65,817.17	100.00%	\$31,35,340.32	↑ 75.9%
2017	Qtr 1	March		\$75,66,181.47	100.00%	\$32,36,959.63	↑ 74.8%
2017	Qtr 2	June		\$86,03,864.08	100.00%	\$36,65,374.17	↑ 74.2%
2018	Qtr 1	January	\$86,38,869.00	\$76,22,064.17	-13.34%	\$32,46,292.02	↑ 74.2%
2017	Qtr 2	April		\$56,39,427.23	100.00%	\$24,00,792.42	↑ 74.1%
2017	Qtr 3	August		\$77,07,817.59	100.00%	\$32,73,612.14	↑ 73.8%
2017	Qtr 2	May		\$58,43,684.92	100.00%	\$24,78,467.77	↑ 73.7%
2017	Qtr 1	February		\$72,15,993.03	100.00%	\$30,58,093.79	↑ 73.5%
2017	Qtr 4	November		\$71,02,580.82	100.00%	\$30,09,725.11	↑ 73.5%
2017	Qtr 3	September		\$86,26,930.99	100.00%	\$36,50,810.88	↑ 73.4%
2017	Qtr 3	July		\$63,34,320.53	100.00%	\$26,78,643.91	↑ 73.3%
2017	Qtr 4	October		\$63,27,247.03	100.00%	\$26,50,054.46	↑ 72.1%
2017	Qtr 1	January		\$86,38,869.00	100.00%	\$35,97,027.18	↑ 71.3%
2019	Qtr 3	July		\$68,84,798.75	100.00%	\$28,48,800.99	↑ 70.6%
2019	Qtr 3	September		\$76,79,109.89	100.00%	\$31,30,637.17	↑ 68.8%
2019	Qtr 2	April		\$64,49,709.46	100.00%	\$26,09,363.73	↑ 67.9%
2019	Qtr 1	March	\$64,74,847.29	\$76,69,599.00	15.58%	\$31,00,537.95	↑ 67.9%
2019	Qtr 1	January	\$76,22,064.17	\$31,76,722.21	-139.93%	\$12,79,430.66	↑ 67.4%
2019	Qtr 2	June		\$71,77,499.91	100.00%	\$28,77,113.31	↑ 66.9%
2019	Qtr 4	December		\$72,47,231.48	100.00%	\$28,81,166.23	↑ 66.0%
2019	Qtr 4	October		\$64,59,210.16	100.00%	\$25,57,368.69	↑ 65.5%
2019	Qtr 1	February	\$67,07,086.25	\$65,73,591.35	-2.03%	\$25,93,855.73	→ 65.2%
2019	Qtr 3	August		\$68,41,233.86	100.00%	\$26,91,686.37	↘ 64.9%
Total			\$10,76,76,731.57	\$18,55,34,172.37	41.96%	\$7,71,02,126.43	71.1%

Year, Quarter, Month

All

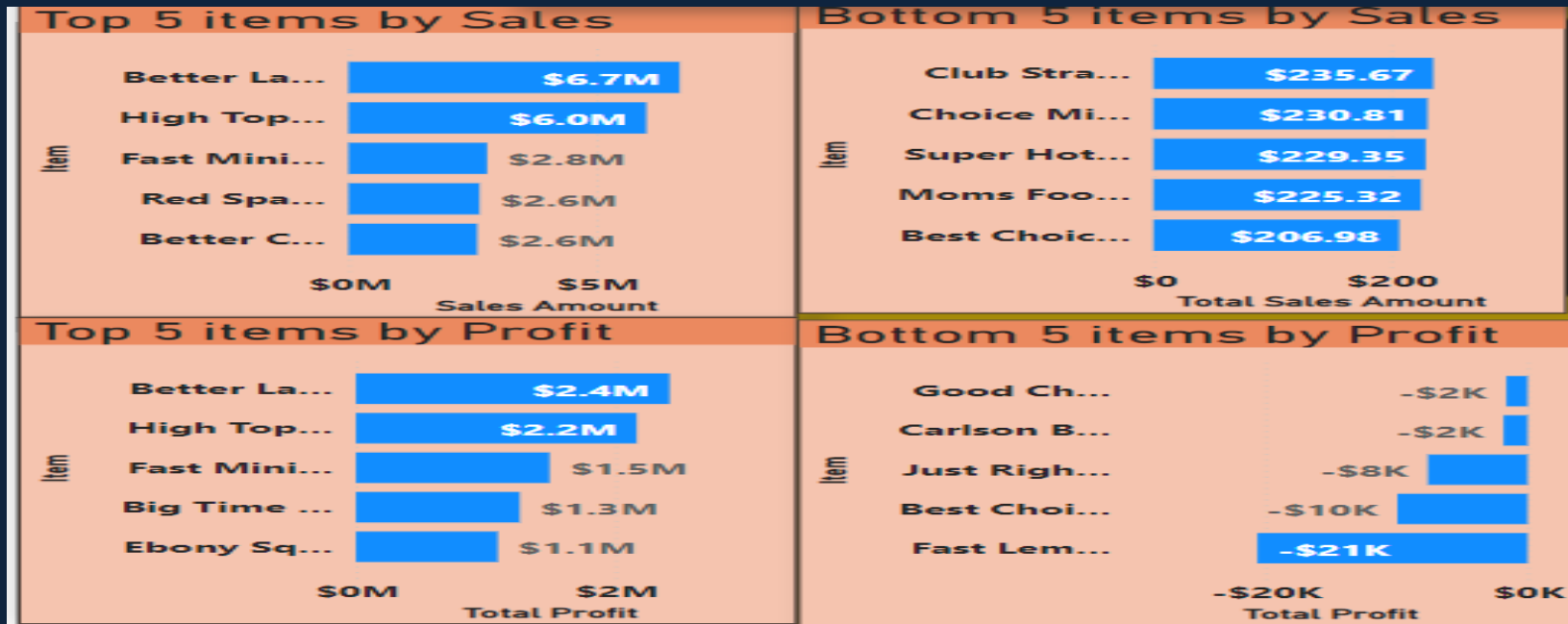
Item	Last year Sales Amount	Quantity	Total Sales Amount	%Change in Sales in last 1 yr	Total Profit	%Total Profit
Better Large Canned Shrimp	\$90,42,212.67	590343	\$1,54,54,172.47	41.49%	\$54,59,826.26	→ 54.6%
High Top Dried Mushrooms	\$76,49,847.34	376909	\$1,33,67,714.53	42.77%	\$46,59,100.16	→ 53.5%
Red Spade Pimento Loaf	\$33,04,522.78	163296	\$57,11,486.45	42.14%	\$15,13,691.17	↘ 36.1%
Better Canned Tuna in Oil	\$33,93,030.66	266996	\$56,93,075.12	40.40%	\$19,03,351.46	→ 50.2%
Ebony Squash	\$31,14,245.13	10553	\$53,80,727.75	42.12%	\$23,36,246.16	↗ 76.7%
Big Time Frozen Cheese Pizza	\$30,04,509.46	27296	\$51,03,253.25	41.13%	\$28,02,855.07	↑ 121.8%
Better Fancy Canned Sardines	\$28,52,693.48	17578	\$49,65,264.41	42.55%	\$21,21,850.00	↗ 74.6%
Fast Mini Donuts	\$28,54,411.72	26900	\$49,35,083.08	42.16%	\$25,88,909.66	↑ 110.3%
Discover Manicotti	\$28,57,735.92	7223	\$48,97,755.47	41.65%	\$23,78,283.83	↑ 94.4%
Landslide White Sugar	\$24,69,918.17	16198	\$42,82,290.62	42.32%	\$20,79,755.46	↑ 94.4%
Total	\$10,76,76,731.57	2939652	\$18,55,34,172.37	41.96%	\$7,71,02,126.43	71.1%

2017

At \$66,80,923.04, Better Large Canned Shrimp had the highest Sales and was 157.27% higher than Better Canned Tuna in Oil, which had the 5th highest Sales at \$25,96,886.19. Better Large Canned Shrimp accounted for 32.11% of Sales. Across all 5 Item, Sales ranged from \$25,96,886.19 to \$66,80,923.04.

At 24,19,306.47, Better Large Canned Shrimp had the highest Profits and was 121.20% higher than Ebony Squash, which had the 5th lowest Profit at 10,93,739.23. Across all 5 Items, Profits ranged from 10,93,739.23 to 24,19,306.47.

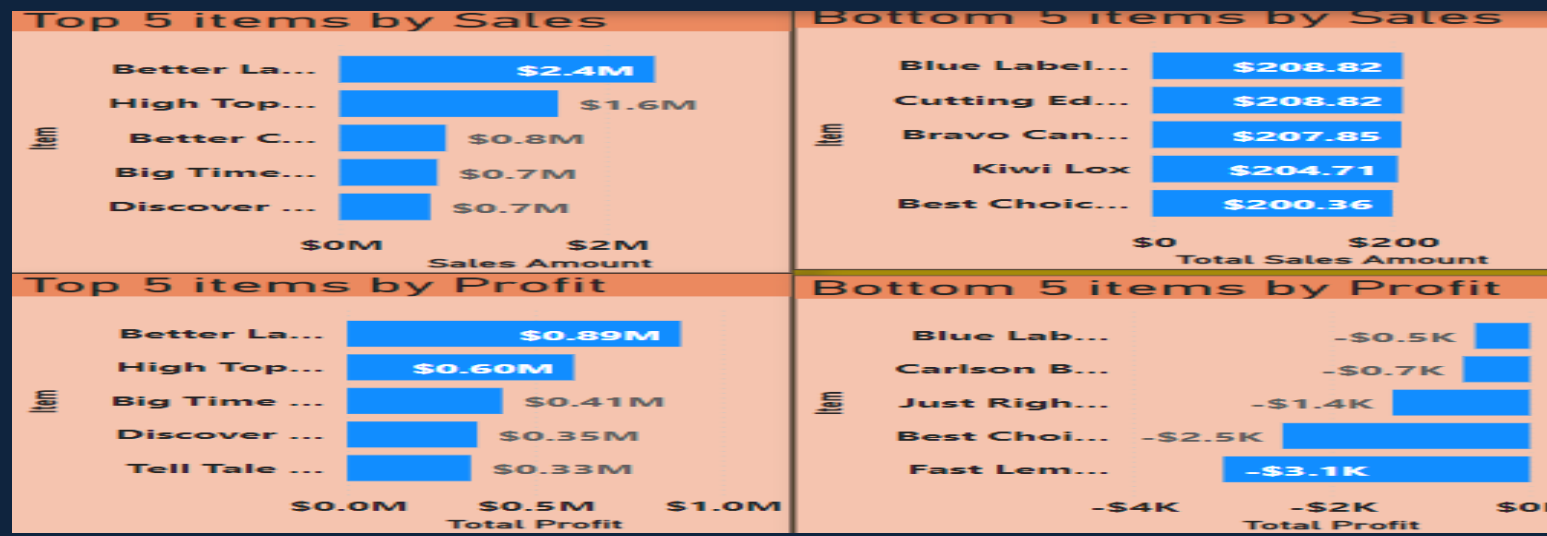
At \$235.67, Club Strawberry Yoghurt had the 5th lowest Sales and was 14.51% higher than Best Choice Sesame Crackers, which had the lowest Sales at \$206.98. Club Strawberry Yoghurt accounted for 21.62% of Sales. Across all 5 bottom Items, Sales ranged from \$206.98 to \$235.67. At -\$1,610.97, Good Chablis Wine had the 5th lowest Profits and was 94.67% higher than Fast Lemon Cookies, which had the lowest Profits at -\$20,585.56. Across all top 5 Items, Profits ranged from -\$20,585.56 to -\$1,610.97.



2018

At \$23,61,289.63, Better Large Canned Shrimp had the highest Sales and was 11,78,423.47% higher than Best Choice Low Fat Popcorn, which had the lowest Sales at \$200.36. Better Large Canned Shrimp accounted for 11.60% of Sales. Sales and Profits diverged the most when the Item was Better Large Canned Shrimp when Sales were \$14,71,795.33 higher than Profits. Better Large Canned Shrimp had the highest Sales and was 247.42% higher than Discover Manicotti, which had the 5th Highest Sales at \$6,79,668.01. Better Large Canned Shrimp accounted for 38.04% of Sales. Across all 5 Item, Sales ranged from \$6,79,668.01 to \$23,61,289.63.

At \$ 8,89,494.30, Better Large Canned Shrimp had the highest Profits and was 169.82% higher than Tell Tale Red Delicious Apples, which had the lowest Profits at \$ 3,29,663.79. Across all 5 Item, Profits ranged from \$3,29,663.79 to \$8,89,494.30. At \$ 86,608, Better Large Canned Shrimp had the highest Quantity sold and was 8,931.07% higher than Discover Manicotti Quantity sold 959, which had the 5th highest sales. Better Large Canned Shrimp accounted for 61.60% of Quantity. Across all top 5 Items, Quantity ranged from 959 to 86,608. Blue Label Fancy Canned Clams and Cutting Edge Sliced Turkey tied for 4th lowest Sales at \$208.82, followed by Ebony Brocoli at 5th place with sales of \$ 210.8 Bravo Canned Tuna in Water. Best Choice Low Fat Popcorn had the lowest Sales at \$200.36. Across all 5 Items, Sales ranged from \$200.36 to \$210.8. At -\$ 548.87, Blue Label Rice Soup had the 5th lowest Profits and was 82.21% higher than Fast Lemon Cookies, which had the lowest Profits at - \$3,085.25. Across all 5 Items, Profits ranged from -\$3,085.25 to -\$548.87.



2019

At \$64,11,959.80, Better Large Canned Shrimp had the highest Sales and was 31,16,132.41% higher than Special Oatmeal, which had the lowest Sales at \$205.76. Better Large Canned Shrimp accounted for 8.43% of Sales, Better Large Canned Shrimp had the highest Sales and was 182.90% higher than Ebony Squash, which had the 5th lowest Sales at \$22,66,482.62. Better Large Canned Shrimp accounted for 33.56% of Sales. At \$ 21,51,025.49, Better Large Canned Shrimp had the highest Profits and was 123.87% higher than Discover Manicotti, which had the 5th highest Profits at \$ 9,60,848.73. Across all 5 Item, Profits ranged from \$ 9,60,848.73 to \$ 21,51,025.49.

At \$233.33, Monarch Manicott had the 5th lowest Sales and was 19.67% higher than Special Oatmeal, which had the lowest Sales at \$205.76. Monarch Manicott accounted for 21.18% of Sales. Across all 5 Items, Sales ranged from \$205.76 to \$233.33.

At - \$ 2,150.52, Good Chablis Wine had the 5th lowest Profits and was 90.41% higher than Fast Lemon Cookies, which had the lowest Profits at -\$ 22,435.78. Across all 5 Items, Profits ranged from -\$ 22,435.78 to -\$ 2,150.52.

Top 5 items by Sales



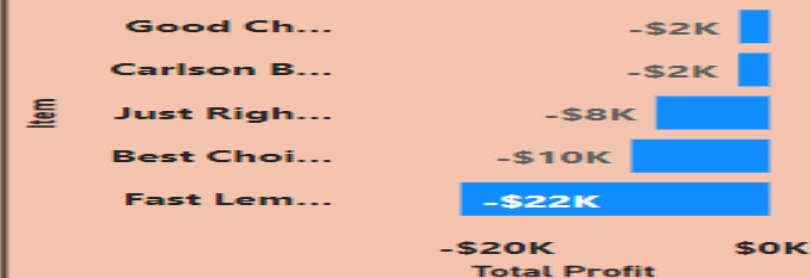
Bottom 5 items by Sales



Top 5 items by Profit



Bottom 5 items by Profit



QUESTIONS AND ANSWERS

Q1) What's the source of data?

Ans) The Dataset was taken from iNeuron's Provided Project Description Document.

<https://drive.google.com/drive/folders/1FkmFVL8wlJmQWP1z52TD8PlhOJhitTyl?usp=sharing>

Q2) What was the type of data?

Ans) The data was a combination of numerical and Categorical values.

Q 3) What was the complete flow you followed in this Project?

Ans) Refer slide 5th for better Understanding

Q4) What techniques were you using for data?

Ans) -Removing unwanted attributes.

-Visualizing relation of independent variables with each other and output variables.

-Checking and changing distribution of continuous values.

-Removing outliers

-Cleaning data and imputing if null values are present.

-Transforming data to yield the desired result.

THANK YOU