ADIDAS DATASET USA – Report Writing

Introduction

A. Brief Overview of the Dataset

Adidas is a global sportswear brand known for athletic shoes, apparel, and its three-stripe logo. Information like the quantity of units sold, total income, sale location, kind of product sold, etc. are present.

Retailer ID, Invoice Date, Region, State, and City are among the details of Foot Locker retail transactions that are recorded in the dataset. It also monitors price, sales volume, and product categories (men's street and men's athletic footwear). For instance, 1200 and 1000 pairs of shoes sold for $50 apiece on two occasions in New York.

B. Objectives of the Analysis and Dashboard Creation

1. Sales Performance Analysis: Examine overall income and sales volume by state, city, area, and product category to spot patterns.

2. Store Performance: Monitor sales across time and geography for each store (such as Foot Locker).

3. Product Insights : Determine which product categories yield better profits and unit sales (e.g., men's street footwear vs men's athletic footwear).

4. Regional Trends: Showcase top-performing locations by visualising and comparing sales performance across various states and regions.

5. Time Series Analysis : Track sales over time (weekly, monthly) to identify trends in growth, abnormalities, or seasonality.

6. Profitability Insights: Compute revenue data such as total sales, average price per unit and total units sold

C. High-Level BI Questions

1. Which product categories make up the largest portion of sales volume and revenue?

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2. How have sales changed over time, and are there any patterns or seasonality that we can see?

3. Which cities, states, and regions perform the best and worst in terms of sales?

4. How do sales change depending on the average price per unit for various product categories?

5. Which regions or time periods are seeing the biggest increases or decreases in sales?

6. Do various areas' sales, pricing, and product categories correlate with one another?

Data Pre-Processing and Cleaning

A. Pre-Processing Techniques Applied

Adidas Sales Database

Retailer	Retailer ID	Invoice Date	Region	State	City	Product	Price per Unit	Units Sold	Total Sales	Operating Profit	Operating Margin	Sales Method
Foot Locker	1185732	01-01-2020	Northeast	New York	New York	Men's Street Foo	$50.00	1,200	$6,00,000	$3,00,000	50%	In-store
Foot Locker	1185732	02-01-2020	Northeast	New York	New York	Men's Athletic Fc	$50.00	1,000	$5,00,000	$1,50,000	30%	In-store
Foot Locker	1185732	03-01-2020	Northeast	New York	New York	Women's Street	$40.00	1,000	$4,00,000	$1,40,000	35%	In-store
Foot Locker	1185732	04-01-2020	Northeast	New York	New York	Women's Athleti	$45.00	850	$3,82,500	$1,33,875	35%	In-store
Foot Locker	1185732	05-01-2020	Northeast	New York	New York	Men's Apparel	$60.00	900	$5,40,000	$1,62,000	30%	In-store
Foot Locker	1185732	06-01-2020	Northeast	New York	New York	Women's Appare	$50.00	1,000	$5,00,000	$1,25,000	25%	In-store
Foot Locker	1185732	07-01-2020	Northeast	New York	New York	Men's Street Foo	$50.00	1,250	$6,25,000	$3,12,500	50%	In-store
Foot Locker	1185732	08-01-2020	Northeast	New York	New York	Men's Athletic Fc	$50.00	900	$4,50,000	$1,35,000	30%	Outlet
Foot Locker	1185732	21-01-2020	Northeast	New York	New York	Women's Street	$40.00	950	$3,80,000	$1,33,000	35%	Outlet
Foot Locker	1185732	22-01-2020	Northeast	New York	New York	Women's Athleti	$45.00	825	$3,71,250	$1,29,938	35%	Outlet
Foot Locker	1185732	23-01-2020	Northeast	New York	New York	Men's Apparel	$60.00	900	$5,40,000	$1,62,000	30%	Outlet
Foot Locker	1185732	24-01-2020	Northeast	New York	New York	Women's Appare	$50.00	1,000	$5,00,000	$1,25,000	25%	Outlet
Foot Locker	1185732	25-01-2020	Northeast	New York	New York	Men's Street Foo	$50.00	1,220	$6,10,000	$3,05,000	50%	Outlet
Foot Locker	1185732	26-01-2020	Northeast	New York	New York	Men's Athletic Fc	$50.00	925	$4,62,500	$1,38,750	30%	Outlet
Foot Locker	1185732	27-01-2020	Northeast	New York	New York	Women's Street	$40.00	950	$3,80,000	$1,33,000	35%	Outlet
Foot Locker	1185732	28-01-2020	Northeast	New York	New York	Women's Athleti	$45.00	800	$3,60,000	$1,26,000	35%	Outlet
Foot Locker	1185732	29-01-2020	Northeast	New York	New York	Men's Apparel	$60.00	850	$5,10,000	$1,53,000	30%	Outlet
Foot Locker	1185732	30-01-2020	Northeast	New York	New York	Women's Appare	$50.00	950	$4,75,000	$1,18,750	25%	Outlet
Foot Locker	1185732	31-01-2020	Northeast	New York	New York	Men's Street Foo	$50.00	1,200	$6,00,000	$3,00,000	50%	Outlet
Foot Locker	1185732	01-02-2020	Northeast	New York	New York	Men's Athletic Fc	$50.00	900	$4,50,000	$1,35,000	30%	Outlet
Foot Locker	1185732	02-02-2020	Northeast	New York	New York	Women's Street	$40.00	900	$3,60,000	$1,26,000	35%	Outlet
Foot Locker	1185732	03-02-2020	Northeast	New York	New York	Women's Athleti	$45.00	825	$3,71,250	$1,29,938	35%	Outlet

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1. Retailer ID converted from number format to text as it's a non-aggregation number and cannot be calculated.
2. First header rows omitted from the dataset as they had null values.
3. Calculation error in Total Sales as every value was multiplied by 10 so, divided the Total sales and Operating profit by 10.

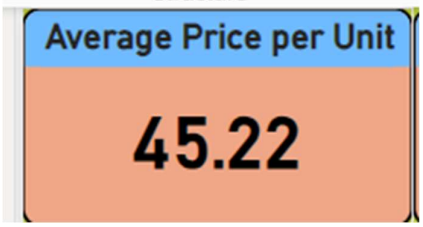
B. Created a COGS Column which was the difference between Total Sales and the Operating Profit.

Region	State	City	Product	Price per Unit	Units Sold	Total Sales	Operating Profit	Operating Margin	Sales Method	COGS
Northeast	Pennsylvania	Philadelphia	Men's Apparel	55	125	6875	2406.25	0.35	Outlet	4468.75
Northeast	Pennsylvania	Philadelphia	Women's Apparel	45	225	10125	3037.5	0.3	Outlet	7087.5
Northeast	Pennsylvania	Philadelphia	Men's Street Footwear	45	475	21375	11756.25	0.55	Outlet	9618.75
Northeast	Pennsylvania	Philadelphia	Men's Athletic Footwear	45	125	5625	1968.75	0.35	Outlet	3656.25
Northeast	Pennsylvania	Philadelphia	Women's Street Footwear	35	175	6125	2450	0.4	Outlet	3675
Northeast	Pennsylvania	Philadelphia	Women's Athletic Footwear	40	50	2000	800	0.4	Outlet	1200
Northeast	Pennsylvania	Philadelphia	Men's Apparel	55	125	6875	2406.25	0.35	Outlet	4468.75
Northeast	Pennsylvania	Philadelphia	Women's Apparel	45	225	10125	3037.5	0.3	Outlet	7087.5
Northeast	Pennsylvania	Philadelphia	Men's Street Footwear	50	445	22250	12237.5	0.55	Outlet	10012.5
Northeast	Pennsylvania	Philadelphia	Men's Athletic Footwear	50	150	7500	2625	0.35	Outlet	4875
Northeast	Pennsylvania	Philadelphia	Women's Street Footwear	40	175	7000	2800	0.4	Outlet	4200
Northeast	Pennsylvania	Philadelphia	Women's Athletic Footwear	45	25	1125	450	0.4	Outlet	675
Northeast	Pennsylvania	Philadelphia	Men's Apparel	60	75	4500	1350	0.3	Outlet	3150
Northeast	Pennsylvania	Philadelphia	Women's Apparel	50	175	8750	2187.5	0.25	Outlet	6562.5
Northeast	Pennsylvania	Philadelphia	Men's Street Footwear	50	450	22500	11250	0.5	Outlet	11250
Northeast	Pennsylvania	Philadelphia	Men's Athletic Footwear	50	150	7500	2250	0.3	Outlet	5250
Northeast	Pennsylvania	Philadelphia	Women's Street Footwear	40	150	6000	2100	0.35	Outlet	3900
Northeast	Pennsylvania	Philadelphia	Women's Athletic Footwear	45	75	3375	1181.25	0.35	Outlet	2193.75
Northeast	Pennsylvania	Philadelphia	Men's Apparel	60	75	4500	1350	0.3	Outlet	3150
Northeast	Pennsylvania	Philadelphia	Women's Apparel	50	200	10000	2500	0.25	Outlet	7500
Northeast	Pennsylvania	Philadelphia	Men's Street Footwear	60	470	28200	14100	0.5	Outlet	14100
Northeast	Pennsylvania	Philadelphia	Men's Athletic Footwear	60	175	10500	3150	0.3	Outlet	7350
Northeast	Pennsylvania	Philadelphia	Women's Street Footwear	55	150	8250	2887.5	0.35	Outlet	5362.5
Northeast	Pennsylvania	Philadelphia	Women's Athletic Footwear	55	100	5500	1925	0.35	Outlet	3575
Northeast	Pennsylvania	Philadelphia	Men's Apparel	65	125	8125	2437.5	0.3	Outlet	5687.5
Northeast	Pennsylvania	Philadelphia	Women's Apparel	70	250	17500	5250	0.3	Outlet	12250

MEASURES

1. Average Price Per Unit

```
1  Avg Price per Unit = AVERAGE('Data Sales Adidas'[Price per Unit])
```



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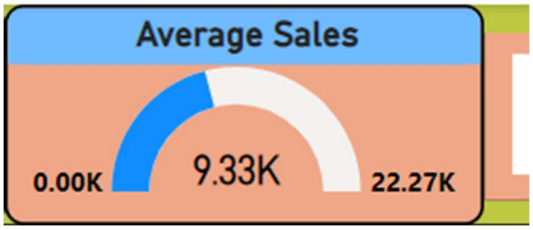
2. Average Sales

```
1 Avg Sales = AVERAGE('Data Sales Adidas'[Total Sales])
```



3. Best Selling Day

```
1 Best selling Day = MAXX(VALUES('Data Sales Adidas'[Invoice Date]),CALCULATE(SUM('Data Sales Adidas'[Total Sales])))
```

4. Operating Profit MoM%

```
1  Operating Profit MoM% =
2  IF(
3      ISFILTERED('Data Sales Adidas'[Invoice Date]),
4      ERROR("Time intelligence quick measures can only be grouped or filtered by the Power BI-provided date hierarchy or primary date column."),
5      VAR __PREV_MONTH =
6          CALCULATE(
7              SUM('Data Sales Adidas'[Operating Profit]),
8              DATEADD('Data Sales Adidas'[Invoice Date].[Date], -1, MONTH)
9          )
10     RETURN
11         DIVIDE(
12             SUM('Data Sales Adidas'[Operating Profit]) - __PREV_MONTH,
13             __PREV_MONTH
14         )
15 )
```

5. Previous Month Profit

```
1 Previous month profit = CALCULATE(SUM('Data Sales Adidas'[Operating Profit]),PARALLELPERIOD('Data Sales Adidas'[Invoice Date],-1,MONTH))
```

6. Total Sales Rolling Average

```
1  Total Sales rolling average =
2  IF(
3      ISFILTERED('Data Sales Adidas'[Invoice Date]),
4      ERROR("Time intelligence quick measures can only be grouped or filtered by the Power BI-provided date hierarchy or primary date column."),
5      VAR __LAST_DATE = ENDOFMONTH('Data Sales Adidas'[Invoice Date].[Date])
6      VAR __DATE_PERIOD =
7          DATESBETWEEN(
8              'Data Sales Adidas'[Invoice Date].[Date],
9              STARTOFMONTH(DATEADD(__LAST_DATE, -1, MONTH)),
10             ENDOFMONTH(DATEADD(__LAST_DATE, 1, MONTH))
11         )
12     RETURN
13         AVERAGEX(
14             CALCULATETABLE(
15                 SUMMARIZE(
16                     VALUES('Data Sales Adidas'),
17                     'Data Sales Adidas'[Invoice Date].[Year],
18                     'Data Sales Adidas'[Invoice Date].[QuarterNo],
19                     'Data Sales Adidas'[Invoice Date].[Quarter],
20                     'Data Sales Adidas'[Invoice Date].[MonthNo],
21                     'Data Sales Adidas'[Invoice Date].[Month]
22                 ),
23                 __DATE_PERIOD
24             ),
25             CALCULATE(
26                 SUM('Data Sales Adidas'[Total Sales]),
27                 ALL('Data Sales Adidas'[Invoice Date].[Day])
28             )
29         )
```

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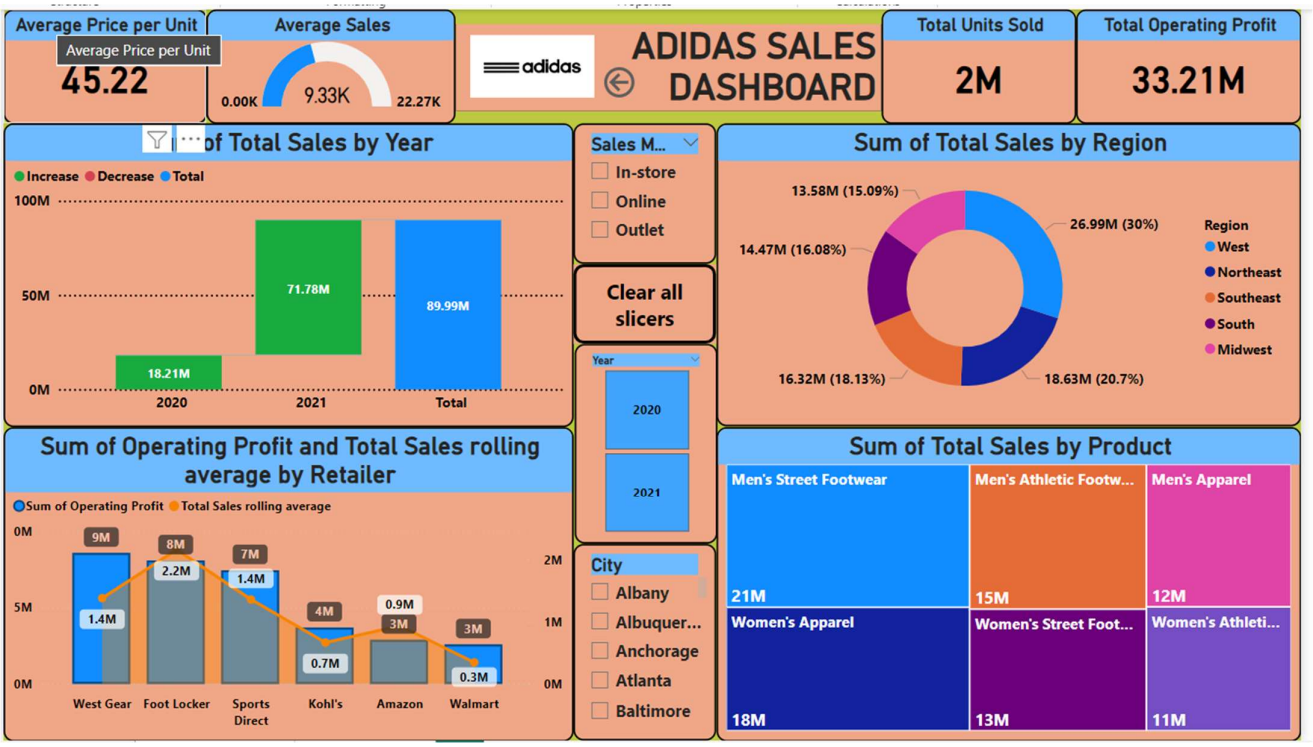
DASHBOARD

Page 1



The analysis reveals key insights into the performance of different regions and product categories. The West region outperformed all others, generating the highest Operating Profit at $8.96 million, which is a staggering 232.28% higher than Walmart, the region with the lowest Operating Profit, amounting to $2.58 million. This stark difference indicates that the West region was a strong profit driver for the company, while Walmart lagged behind in profitability.

Interestingly, there is a positive correlation between the company's Operating Profit and Total Sales rolling average, meaning that as sales increased, so did the company's profitability. However, there was a significant divergence between the two when it came to the West region. In this case, the Operating Profit was $7.19 million higher than the Total Sales rolling average, suggesting that the region was not only selling more but was also managing costs and margins much better than other regions.

When it comes to product categories, Men’s Street Footwear was the top seller, generating $21 million in sales, far outperforming other categories. On the other hand, Women’s Athletic Footwear lagged behind, contributing the least with $11 million in sales. This shows a clear consumer preference for men’s products in this period.

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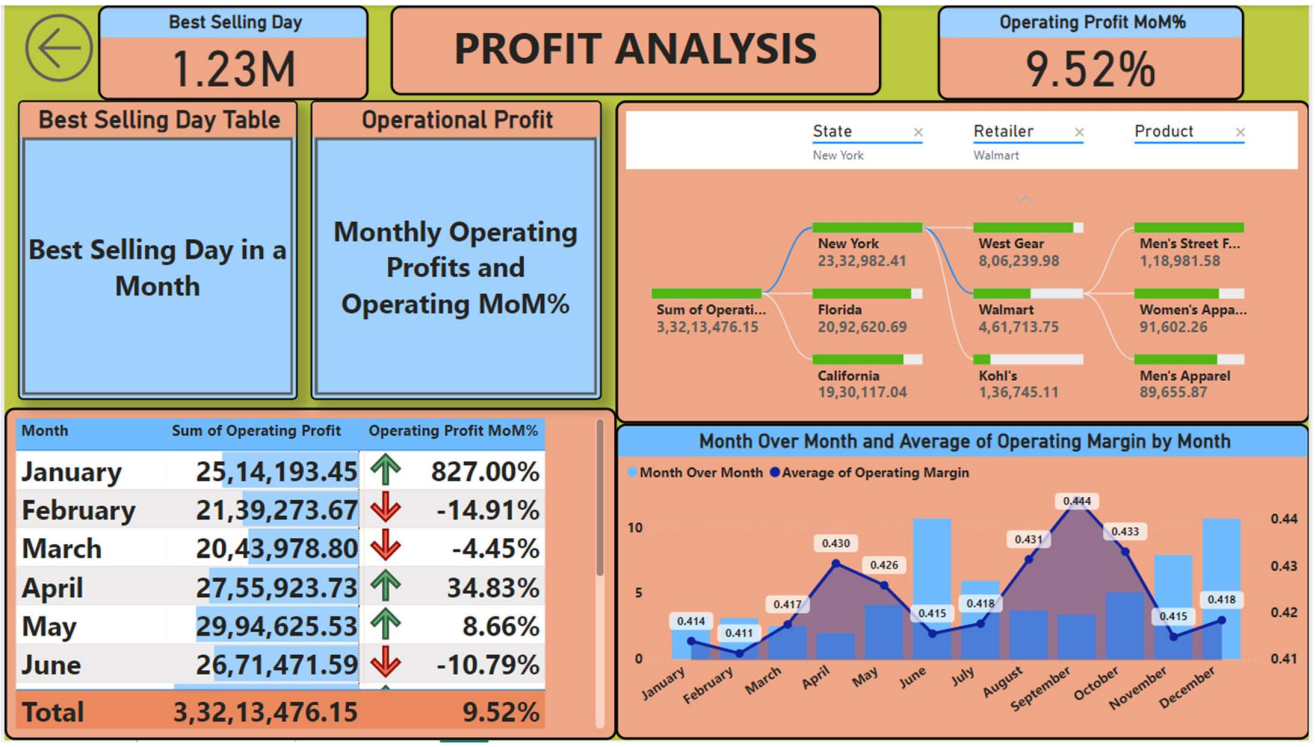

The analysis highlights some interesting trends in the company's performance over a year. June stands out as a remarkable month, with the highest growth rate at 10.65%, a huge leap from April, which had the lowest growth at just 1.96%. In fact, June's growth was over 440% higher than April's, suggesting that something significant happened between these months perhaps a successful marketing campaign, a product launch, or seasonal demand.

However, there's a bit of a disconnect when we look at how this growth compares to the company's operating efficiency. In June, while the company was growing rapidly, the Average Operating Margin, which measures how much profit the company makes on each dollar of revenue after covering costs, didn't keep up. The growth rate in June was 10.24% higher than the Average Operating Margin, hinting that even though sales were up, the company might have been spending more to achieve that growth, which could affect profitability.

Over the course of the year, growth rates varied quite a bit, ranging from 1.96% to 10.65%, while the Operating Margin stayed fairly steady, only fluctuating between 0.41% and 0.44%. This suggests that while the company's growth was sometimes unpredictable, its ability to manage costs and generate profit remained relatively consistent.

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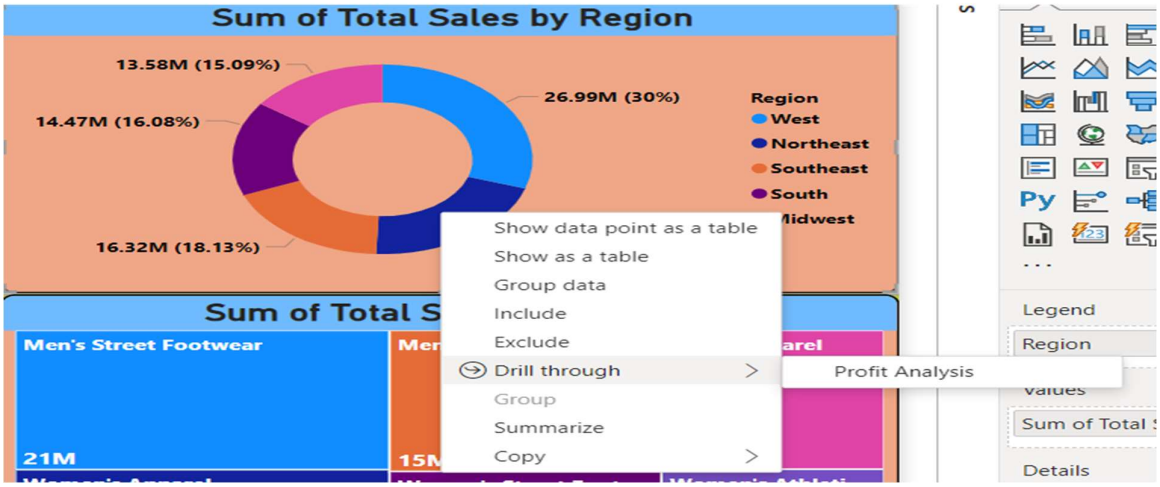
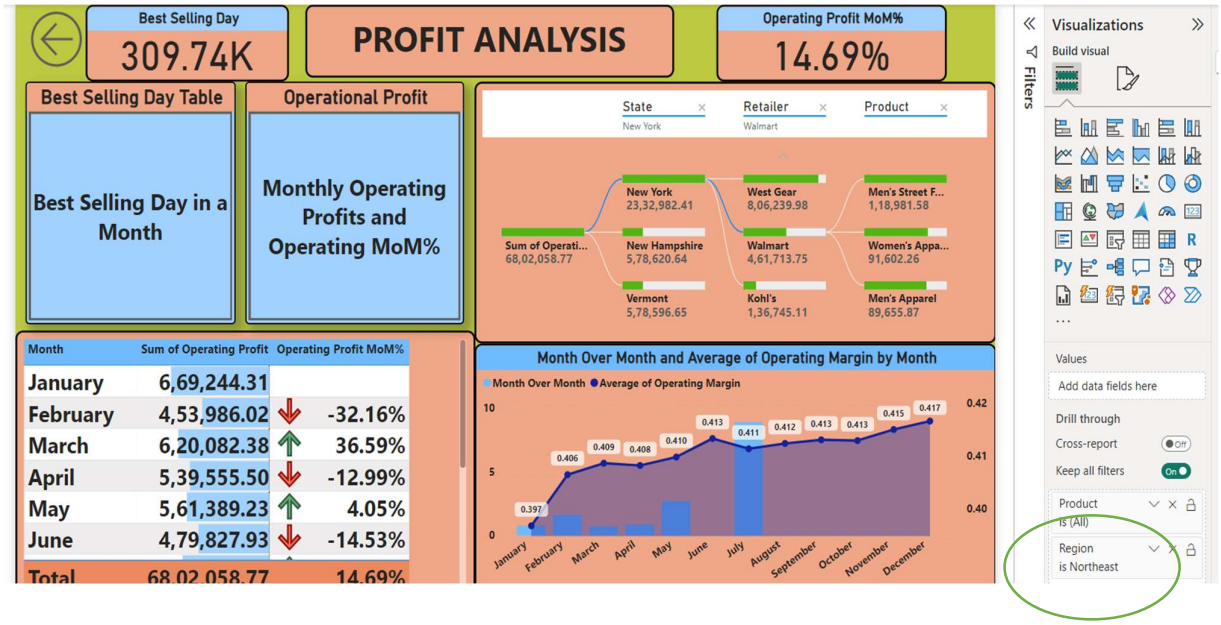
Interactivity features

1. Drill Through

We've integrated this feature into both the Region and Product columns to enhance drill-through capabilities. Now, when you select a specific region or product, you can drill down into more detailed data effortlessly. For instance, clicking on a region will zoom in on all relevant data for that area, providing deeper insights into sales, performance, and other key metrics. Similarly, selecting a product will focus the analysis on that particular item, allowing you to explore detailed performance metrics and trends. This functionality streamlines your analysis by providing targeted information, making it easier to uncover insights without getting bogged down by broader data.





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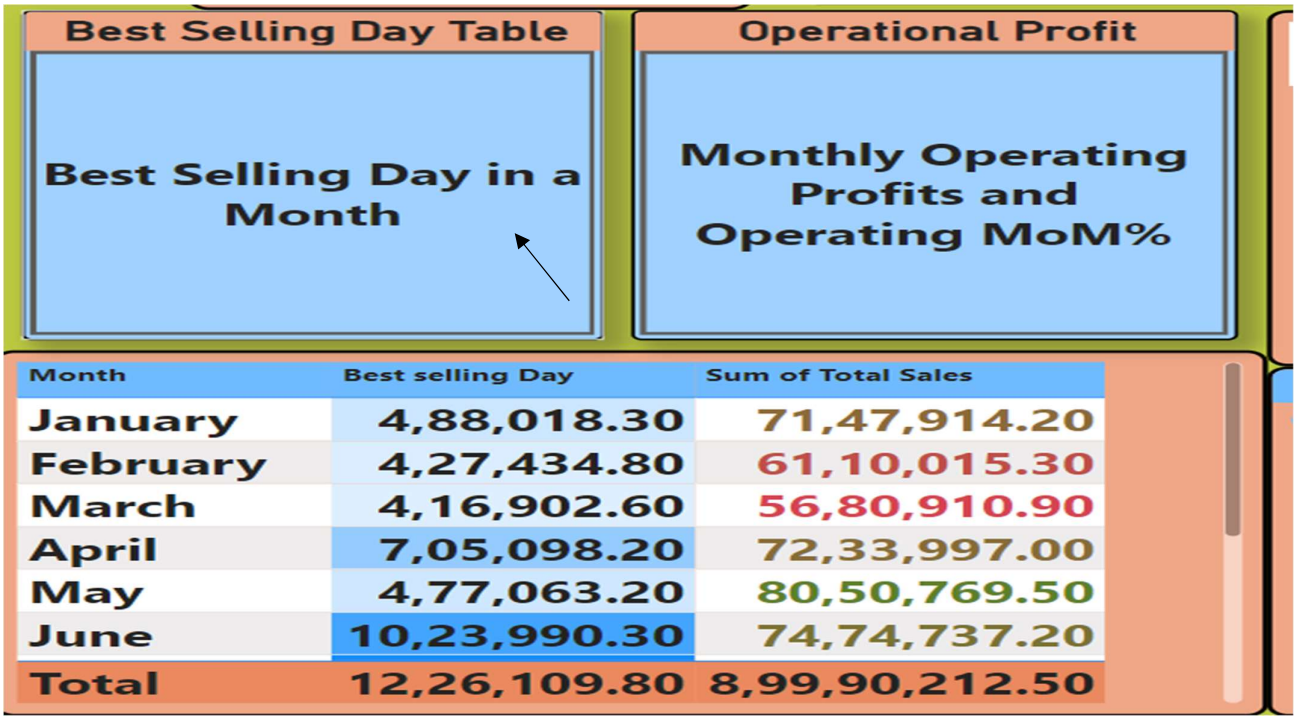
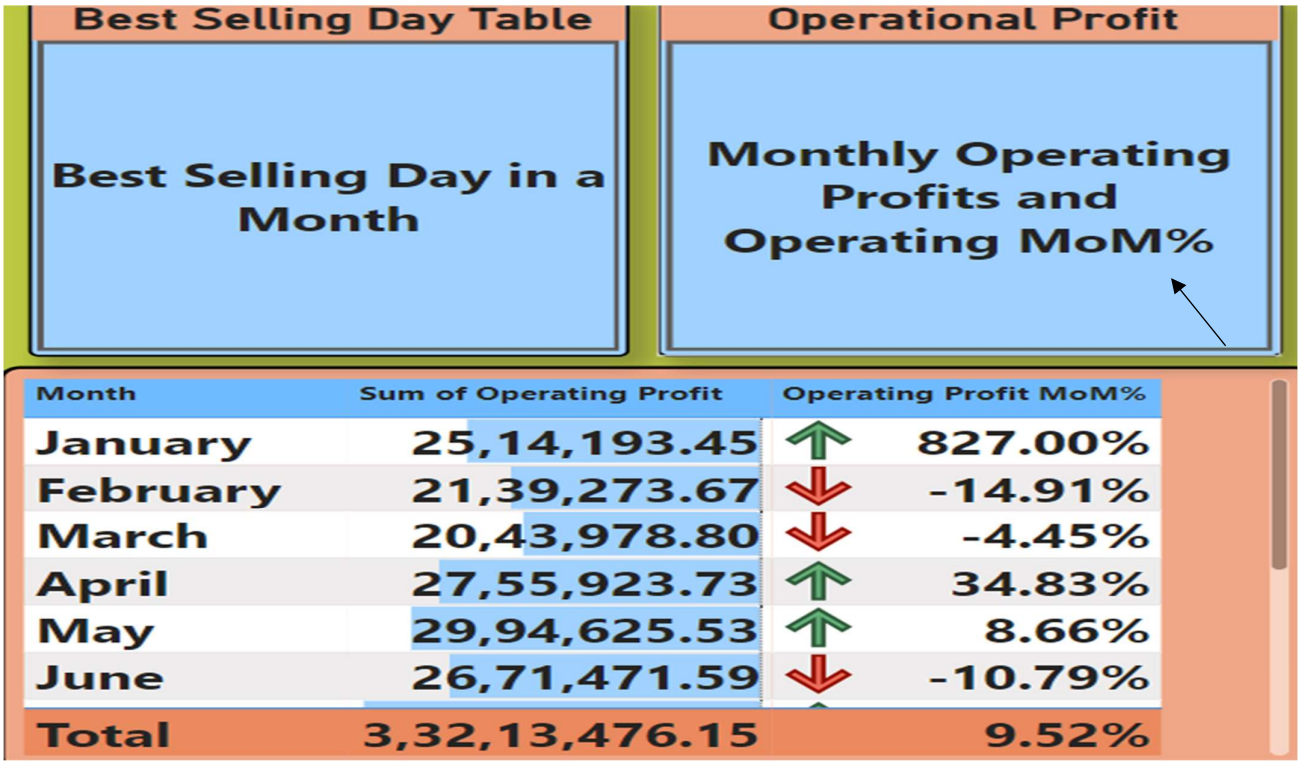
2. Bookmarked buttons with Conditional Formatting in tables



Month	Best selling Day	Sum of Total Sales
January	4,88,018.30	71,47,914.20
February	4,27,434.80	61,10,015.30
March	4,16,902.60	56,80,910.90
April	7,05,098.20	72,33,997.00
May	4,77,063.20	80,50,769.50
June	10,23,990.30	74,74,737.20
Total	12,26,109.80	8,99,90,212.50



Month	Sum of Operating Profit	Operating Profit MoM%
January	25,14,193.45	827.00%
February	21,39,273.67	-14.91%
March	20,43,978.80	-4.45%
April	27,55,923.73	34.83%
May	29,94,625.53	8.66%
June	26,71,471.59	-10.79%
Total	3,32,13,476.15	9.52%

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In Power BI, two buttons have been designed to enhance data exploration and provide users with interactive insights. These buttons leverage bookmark functionality to switch between different data views, each featuring conditional formatting to highlight key trends.

1. Best Selling Day in a Month

This button activates a bookmark that displays a table highlighting the best-selling day within each month. The table uses conditional formatting to visually differentiate days with the highest sales. For instance, the best-selling days is highlighted in bright blue, making it easy for users to identify peak performance days quickly. This view helps users understand daily sales trends and recognize patterns or anomalies within each month.

2. MoM% and Monthly Operating Profits

The second button triggers a bookmark that reveals a table comparing Month-over-Month (MoM) percentage changes and monthly operating profits. Conditional formatting in this table emphasizes significant MoM percentage increases or decreases, using color scales or icons to represent growth or decline. For example, months with a high MoM increase in operating profit is highlighted with green arrow, while months with a decline could be with a red one.

These buttons, through their bookmarks and conditional formatting, offer an interactive and visually compelling way to analyze sales performance and financial metrics.

CONCLUSION

In summary, the analysis provides valuable insights into sales dynamics. It reveals which product categories lead in sales and revenue, highlights trends and seasonality over time, and identifies top-performing and underperforming regions. We see how sales fluctuate with pricing changes and pinpoint regions or periods experiencing significant sales shifts. Additionally, understanding how sales, pricing, and product categories correlate helps refine strategies. These insights collectively offer a clearer picture of performance, allowing for more targeted decision-making and strategic adjustments to enhance overall results and address any emerging challenges.

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The analysis highlights significant performance disparities among regions and product categories. The West region led with an impressive $8.96 million Operating Profit, far surpassing Walmart's $2.58 million, indicating stronger profitability and better cost management. A positive correlation between Operating Profit and Total Sales suggests that increased sales drive higher profits. However, the West region notably outperformed in profitability relative to sales. Product-wise, Men's Street Footwear emerged as the top seller with $21 million in sales, while Women's Athletic Footwear lagged at $11 million. These findings underscore regional strengths and product preferences, guiding strategic decisions.