# THE CHEMIST

## A PROJECT REPORT

*Submitted by*

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### 7A

*in partial fulfillment for the award of the degree of*

## BACHELOR OF COMPUTER APPLICATIONS

### IN

UNIVERSITY INSTITUTE OF COMPUTING

**Chandigarh University**

APRIL 2025

# TABLE OF CONTENTS

# INTRODUCTION

## THE CHEMIST

THE CHEMIST, In the rapidly evolving pharmaceutical retail sector, data-driven decision-making plays a pivotal role in optimizing inventory management, sales strategy, and overall business performance. This case study focuses on a comprehensive analysis of seasonal sales data for ten commonly sold pharmaceutical products at a fictional retail outlet, "The Chemist." The dataset includes essential product information such as Product ID, Name, Unit Price, Discount Percentage, and the quantity of units sold in two distinct seasonal periods—summer and winter. Additionally, it provides aggregated sales figures for the current and previous years, allowing for a detailed comparative analysis over time.

The primary objective of this study is to extract meaningful insights from the sales data to identify performance patterns, seasonal dependencies, discount influences, and revenue contributions across the product range. By examining metrics such as seasonal sales (summer vs. winter), total yearly sales, sales drops, and average discounts, we aim to understand consumer behavior and determine which products contribute most to the business's financial health.

Moreover, this study categorizes products based on sales volume thresholds and evaluates the effectiveness of discount strategies. Products are analyzed not only for their raw sales numbers but also for their potential to sustain growth or contribute to revenue losses. For instance, the data highlights that while certain products perform consistently across both seasons, others are heavily impacted by seasonal fluctuations.

Book Specification in Table:

# 1. Lisinopril:

*Lisinopril* is an ACE inhibitor used to treat high blood pressure and heart failure. It helps prevent strokes, heart attacks, and kidney problems by relaxing blood vessels.

# 2. Levothyroxine:

**Levothyroxine** is a synthetic thyroid hormone prescribed for hypothyroidism. It restores normal thyroid levels, improving energy, metabolism, and mood

# 3. Atorvastatin:

The **Atorvastatin** is a statin medication that lowers bad cholesterol (LDL) and triglycerides. It also raises good cholesterol (HDL), reducing the risk of heart attacks and strokes.

## 4. Metaformin:

 Metformin is a first-line medication for type 2 diabetes. It improves insulin sensitivity and reduces glucose production in the liver to help control blood sugar.

## 5. Simvastatin:

 Simvastatin is used to lower cholesterol and triglyceride levels. It helps reduce the risk of cardiovascular diseases, especially in high-risk patients.
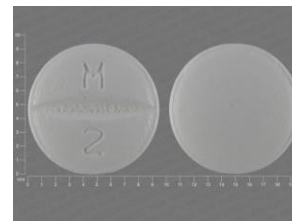
## 6. Omeprazole:

 Omeprazole is a proton pump inhibitor (PPI) that treats acid reflux, GERD, and stomach ulcers. It works by reducing stomach acid production..

## 7. Amlodipine:

Amlodipine is a calcium channel blocker used to treat high blood pressure and angina. It relaxes blood vessels, improving blood flow and reducing chest pain.



## 8. Metoprolol:

Metoprolol is a beta-blocker used for managing hypertension, angina, and heart rhythm disorders. It slows the heart rate and reduces the heart's workload.



## 9.  Acetaminophen with Hydrocodone:

This combination medication is used for moderate to severe pain relief. Acetaminophen reduces fever and pain, while hydrocodone is an opioid that blocks pain signals in the brain.

# 10. Albuterol:

Albuterol is a bronchodilator used to treat asthma and chronic obstructive pulmonary disease (COPD). It relaxes airway muscles to ease breathing during attacks.

# IMPLEMENTATION

| | | | | | | | | | | | |
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| | File | Home | Insert | Page Layout | Formulas | Data | Review | View | Help | | |

**THE CHEMIST**

| Product ID | Product Name | Unit Price | Discount(%) | Qty.(in Summer) | Qty.(in Winter) | Product Sales in Summer | Product Sales in Winter | Product Sales in Current Year | Product Sales in Previous Year | Sales Growth(%) |
|---|---|---|---|---|---|---|---|---|---|---|
| 10023 | Lisinopril | 100 | 1 | 239 | 239 | 23661 | 23661 | 47322 | 12569 | 276.4977325 |
| 10024 | Levothyroxine | 135 | 4 | 1200 | 190 | 155520 | 24624 | 180144 | 34500.9 | 422.1429006 |
| 10025 | Atorvastatin | 69.8 | 3 | 1234 | 1190 | 83549.204 | 80570.14 | 164119.344 | 100500.34 | 63.30227739 |
| 10026 | Metformin | 340 | 9 | 903 | 940 | 279388.2 | 290836 | 570224.2 | 30000 | 1800.747333 |
| 10027 | Simvastatin | 125 | 6 | 178 | 349 | 20915 | 41007.5 | 61922.5 | 131200.8 | -52.80326035 |
| 10028 | Omeprazole | 115 | 8 | 340 | 430 | 35972 | 45494 | 81466 | 80000 | 1.8325 |
| 10029 | Metoprolol | 255 | 5 | 249 | 124 | 60320.25 | 30039 | 90359.25 | 25040 | 260.8596246 |
| 10030 | Amlodipine | 190 | 1 | 987 | 1000 | 185654.7 | 188100 | 373754.7 | 73800 | 406.4426829 |
| 10031 | Albuterol | 450 | 2 | 675 | 670 | 297675 | 295470 | 593145 | 593145 | 0 |
| 10032 | Acetaminophen | 230 | 0 | 450 | 230 | 103500 | 52900 | 156400 | 87897 | 77.93553819 |

| | | | |
|---|---|---|---|
| Most Sold in Summer | 297675 | Albuterol | |
| Most Sold in Winter | 295470 | Albuterol | |

| | | |
|---|---|---|
| Total Sales in Current Year | Total Sales in Previous Year |
| 2318856.994 | 1168653.04 |

| | | |
|---|---|---|
| Least Sold in Summer | 20915 | Simvastatin |
| Least Sold in Winter | 23661 | Lisinopril |

| | |
|---|---|
| Total Sales in Winter | Total Sales in Summer |
| 1072701.64 | 1246155.354 |

| | |
|---|---|
| Product with total sales >10000 | 10 |
| Product with sales between 45000 & 80000 | 2 |
| Product with Sales <10000 | 0 |

| | |
|---|---|
| Largest Sales Growth | Product Name |
| 1800.747333 | Metformin |

## SALES TABLE OF THE FLOWER SHOP:

Description (What it consists):
- Product ID
- Product Name
- Unit Price
- Discount(%)
- Qty. (In Summer)
- Qty. (In Winter)
- Product Sales in Summer
- Product Sales in Winter
- Product Sales in Current Year
- Product Sales in Previous Year

# CASE STUDY:

## 1. Calculate the Product sales of each product in Summer.

Solution: Query which will be used is:
=C4*E4*(1-D4/100)

| Product Sales in Summer |
|---|
| 23661 |
| 155520 |
| 83549.204 |
| 279388.2 |
| 20915 |
| 35972 |
| 60320.25 |
| 185654.7 |
| 297675 |
| 103500 |

## 2. Calculate the Product sales of each product in Winter.

Solution: Query which will be used is:
=C4*F4*(1-D4/100)

| Product Sales in Winter |
|---|
| 23661 |
| 24624 |
| 80570.14 |
| 290836 |
| 41007.5 |
| 45494 |
| 30039 |
| 188100 |
| 295470 |
| 52900 |

## 3. Calculate the Total Product Sales of each product in Current Year:

Solution:
=G4+H4

| Product Sales in Current Year |
|---|
| 47322 |
| 180144 |
| 164119.344 |
| 570224.2 |
| 61922.5 |
| 81466 |
| 90359.25 |
| 373754.7 |
| 593145 |
| 156400 |

4. Find the most sold product in:
i. In Summer:

Solution:
For Total Sales:
=MAX(G4:G13)
For Product Name:
=INDEX(B4:B13,MATCH(MAX(G4:G13),G4:G13,0))

ii. In Winter:

Solution:
For Total Sales:
=MAX(H4:H13)
For Product Name:
=INDEX(B4:B13,MATCH(MAX(H4:H13),H4:H13,0))

| Most Sold in Summer | 297675 | Albuterol |
| Most Sold in Winter | 295470 | Albuterol |

5. Find the least sold product in:
i. In Summer:

Solution:
For Total Sales:
=MIN(G4:G13)
For Product Name:
=INDEX(B4:B13,MATCH(MIN(G4:G13),G4:G13,0))

ii. In Winter:

Solution:
For Total Sales:
    =MIN(H4:H13)
For Product Name:
    =INDEX(B4:B13,MATCH(MIN(H4:H13),H4:H13,0))

| Least Sold in Summer | 20915 | Simvastatin |
| Least Sold in Winter | 23661 | Lisinopril |

6. Calculate the following:
i. Product with total sales>10000

Solution:
=COUNTIF(I4:I13,">10000")

ii. Product with sales between 45000&80000

Solution:
=COUNTIFS(I4:I13,">2500",I4:I13,"<4000")

iii. Product with sales<10000

Solution:
=COUNTIF(I4:I13,"<10000")

| Product with total sales >10000 | 10 |
| Product with sales between 45000 & 80000 | 2 |
| Product with Sales <10000 | 0 |

7. Find the total sales in:
i. In Current year:

Solution:
=SUM(I4:I13)

**Total Sales in Current Year**
2318856.994

ii. In Previous year:

Solution:
=SUM(J4:J13)

**Total Sales in Previous Year**
1168653.04

8. Calculate the following:

i. Total Sales in Summer:

Solution:
=SUM(G4:G13)

**Total Sales in Summer**
1246155.354

ii. Total Sales in Winter:

Solution:
=SUM(H4:H13)

**Total Sales in Winter**
1072701.64

9. Find the Sales Growth from Previous year to Current year.

 Solution:
=(I4 - J4) / J4 * 100

| Sales Growth(%) |
| --- |
| 276.4977325 |
| 422.1429006 |
| 63.30227739 |
| 1800.747333 |
| -52.80326035 |
| 1.8325 |
| 260.8596246 |
| 406.4426829 |
| 0 |
| 77.93553819 |

10. Find the Largest Sales Growth with its Product Name.

Solution:
For Largest Drop:
    =MAX(K4:K13)

For Product Name:
    =INDEX(B4:B13,MATCH(MAX(K4:K13),K4:K13,0))

| Largest Sales Growth | Product Name |
| --- | --- |
| 1800.747333 | Metformin |

# CONCLUSION

Through in-depth analysis of the sales dataset from "The Chemist," several critical insights emerge that can inform both strategic planning and day-to-day operational decisions. Among the ten pharmaceutical products reviewed, *Albuterol* surfaced as the most sold item in both summer and winter seasons, indicating strong year-round demand and brand reliability. On the other hand, *Simvastatin* and *Lisinopril* showed significantly lower sales, with Simvastatin notably experiencing the *largest negative drop in year-over-year sales*, raising concerns about its declining market relevance or seasonal inefficacy.

From a financial perspective, the chemist's overall sales have shown a positive trajectory, with *total current year sales amounting to ₹2,318,856.99, a substantial increase compared to **₹1,168,653.04* from the previous year. This growth demonstrates strong market presence and effective seasonal performance, especially during summer months, where total sales reached *₹1,246,155.35, surpassing winter sales of **₹1,072,701.64*. Such seasonally driven data suggests that certain products may benefit from targeted promotions during specific times of the year.

Additionally, product categorization based on total sales helped identify which products are high performers and which fall into mid or low-tier segments. This type of segmentation is valuable for inventory prioritization, budgeting, and supplier negotiations.

In conclusion, this case study highlights the power of structured data analysis in uncovering valuable insights. It emphasizes the importance of combining quantitative analysis with business acumen to make informed decisions. Moving forward, integrating deeper analytics such as customer preferences, competitor pricing, and regional demand can further enhance the effectiveness of such studies in a real-world business.