📄 CASE STUDY 2 REPORT – Kultra Mega Stores Inventory Analysis

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1. Project Overview

Kultra Mega Stores (KMS), based in Lagos, specializes in office supplies and furniture. As a Business Intelligence Analyst, I was tasked with analyzing their historical sales data from 2009 to 2012, particularly supporting the Abuja division. The objective was to generate actionable insights using SQL-based analysis.

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2. Tools Used

- **SQL Server Management Studio (SSMS)** – for SQL-based querying and data analysis
- **Excel** – for review, formatting, and presentation of results
- **GitHub** – for documenting and publishing project files

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3. Data Preparation

3.1 Importing the Data

- Format: `.csv` file provided on LMS.
- Opened SSMS, created a new database: `KMS_Project`.
- Used the **Import Flat File Wizard** to import the dataset as a new table: `KMS_order`.

3.2 Data Type Adjustments

Some data types were incorrect after import (e.g., `Sales`, `Profit`, `Shipping Cost` were imported as `nvarchar`).

Used the following SQL to correct data types:

sql
```
ALTER TABLE KMS_order
ALTER COLUMN Sales DECIMAL(18,2);
```

```sql
ALTER TABLE KMS_order
ALTER COLUMN Profit DECIMAL(18,2);
```

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4. Data Cleaning

Removed duplicate rows using:

sql

```sql
DELETE FROM KMS_order
WHERE RowID NOT IN (
  SELECT MIN(RowID)
  FROM KMS_order
  GROUP BY [Order ID], [Product Name]
);
```

Checked for null values in key columns:

sql

```sql
SELECT *
FROM KMS_order
WHERE [Customer Name] IS NULL OR Sales IS NULL;
```

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5. Business Questions & SQL Queries

Case Scenario I

1. **Which product category had the highest sales?**

sql

```sql
---This shows total sales per category, sorted with the highest first.
SELECT [Product_Category], SUM(Sales) AS Total_Sales
FROM KMS_order
GROUP BY [Product_Category]
ORDER BY Total_Sales DESC;
```

2. **Top 3 and Bottom 3 regions by sales**

sql

```sql
---Top 3
SELECT TOP 3 Region, SUM(Sales) AS Total_Sales
```

```
FROM KMS_order
GROUP BY Region
ORDER BY Total_Sales DESC;

----Bottom 3:
SELECT TOP 3 Region, SUM(Sales) AS Total_Sales
FROM KMS_order
GROUP BY Region
ORDER BY Total_Sales ASC;
```

3. **Total sales of appliances in Ontario**

sql

```
SELECT SUM(Sales) AS Total_Sales
FROM KMS_order
WHERE [Product_Sub_Category] = 'Appliances'
AND Province = 'Ontario';
```

4. **Advice to improve revenue from bottom 10 customers**

sql

```
SELECT TOP 10 [Customer_Name], SUM(Sales) AS Total_Sales
FROM KMS_order
GROUP BY [Customer_Name]
ORDER BY Total_Sales ASC;
```

Insight: The bottom 10 customers (e.g., Jeremy Farry, Natalie DeCherney) have **very low total purchase values**.

🧠 Recommended Advice to Management

Based on the sales analysis, the bottom 10 customers have made minimal purchases over the 4-year period (2009–2012).
To increase revenue from these low-performing customers, Kultra Mega Stores (KMS) should consider the following:

To improve sales from low-performing customers, KMS should initiate personalized marketing, improve engagement, and offer customer-specific incentives. Building relationships and understanding their barriers to spending more can lead to long-term revenue growth.

5. **Shipping method with highest cost**

sql
```
SELECT [Ship_Mode], SUM([Shipping_Cost]) AS Total_Shipping_Cost
FROM KMS_order
GROUP BY [Ship_Mode]
ORDER BY Total_Shipping_Cost DESC;
```

Case Scenario II

6. **Most valuable customers (highest profit)**

sql
```
SELECT [Customer_Name], [Product_Category], SUM(Sales) AS Total_Sales
FROM KMS_order
GROUP BY [Customer_Name], [Product_Category]
ORDER BY Total_Sales DESC;
```

7. **Top small business customer by sales**

sql
```
SELECT TOP 1 [Customer_Name], SUM(Sales) AS Total_Sales
FROM KMS_order
WHERE [Customer_Segment] = 'Small Business'
GROUP BY [Customer_Name]
ORDER BY Total_Sales DESC;
```

8. **Corporate customer with most orders**

sql
```
SELECT [Customer_Name], COUNT([Order_ID]) AS Order_Count
FROM KMS_order
WHERE [Customer_Segment] = 'Corporate'
GROUP BY [Customer_Name]
ORDER BY Order_Count DESC;
```

9. **Most profitable consumer customer**

sql

```
SELECT TOP 1 [Customer_Name], SUM(Profit) AS Total_Profit
FROM KMS_order
WHERE [Customer_Segment] = 'Consumer'
GROUP BY [Customer_Name]
ORDER BY Total_Profit DESC;
```

10. **Which customer returned items (using join with `Order_status` table)**

sql
```
SELECT
    K.Customer_Name,
    K.Customer_Segment
FROM
    KMS_order K
JOIN
    Order_status S
    ON K.Order_ID = S.Order_ID
WHERE
    S.Status = 'Returned';
```

11. **Was shipping cost appropriate based on Order Priority?**

sql
```
SELECT [Order_Priority], [Ship_Mode], AVG([Shipping_Cost]) AS
Avg_Shipping_Cost
FROM KMS_order
GROUP BY [Order_Priority], [Ship_Mode]
ORDER BY [Order_Priority], Avg_Shipping_Cost DESC;
```

The analysis shows that KMS **did not always allocate shipping methods appropriately** based on order priority.

For example, **Critical and High priority orders** frequently used the **Delivery Truck**, which is the **slowest option** — even though **faster Express Air** was cheaper on average

Similarly, **Low and Medium priority orders** also used **Express Air**, which is not cost-effective for non-urgent deliveries.

✅ Recommendation:

> KMS should optimize shipping costs by aligning **Order Priority** with the appropriate **shipping method**:

- Use **Express Air** for only **Critical or High** priority.
- Use **Delivery Truck** only for **Low and Medium** priority orders when speed is not a concern.
- Consider training staff or automating shipping selection logic to improve this alignment.

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6. Key Insights & Recommendations

- Office Supplies generated the highest revenue; focus promotions here.
- High shipping costs came from "Express Air"—review usage.
- Small business customers in Northern regions are underperforming; marketing focus should increase there.

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7. Files Included in GitHub

- 📄 `README.md`: Project overview and instructions
- 📁 `screenshots/`: Visuals of queries, charts, and results
- 📂 `KMS_order.sql`: SQL script used for analysis
- 📄 `insights.txt`: Key findings summary