**KULTRA MEGA STORES (KMS) INVENTORY ANALYSIS REPORT**

**Introduction**

Kultra Mega Stores (KMS) is a leading supplier of office furniture and equipment across Canada. This project focuses on analysing transactional sales data from 2009–2012 for its Abuja division. The purpose of this analysis is to uncover patterns in product sales, regional performance, customer behaviour, and shipping efficiency. Insights drawn from this project aim to support KMS in making data-driven decisions for revenue growth and operational efficiency.

**Data Preparation**

The dataset provided consisted of historical sales transactions from 2009 to 2012 in .csv format. Initial data cleaning and transformation were carried out in **Microsoft Excel** before importing the cleaned data into **SQL Server Management Studio (SSMS)** for analysis.

Key data preparation steps included:

* Removing blank rows and columns
* Ensuring consistent formatting for Order\_Date and Ship\_Date columns
* Formatting numerical columns (e.g., Sales, Profit, Shipping\_Cost) as currency
* Replacing null values in the Product\_Base\_Margin column with zeroes
* Ensuring appropriate data types (e.g., INT for Order\_Quantity, DECIMAL for financial fields, DATE for date fields)
* Selecting a **primary key** (Row\_ID) and disallowing nulls where necessary

Once cleaned, the data was imported into SSMS, where SQL queries were used to answer business questions related to sales, profitability, customer behaviour, and shipping performance.

**Exploratory Analysis (EDA)**

* **Scenario 1 – Sales, Region, and Shipping Insights**

This scenario focused on understanding sales performance across categories, regions, and shipping modes.

**Key Queries Executed:**

1. **Highest Sales by Product Category**
   * *Technology* emerged as the top-performing category in total sales.
2. **Top 3 and Bottom 3 Regions by Sales**
   * **Top Regions**: West, Ontario, and Prairie
   * **Bottom Regions**: Nunavut, Northwest Territories, and Yukon
3. **Total Appliance Sales in Ontario**
   * Appliances recorded total sales of **$202,346.84** in Ontario.
4. **Bottom 10 Customers by Sales**
   * Identified customers with the least revenue contribution to inform targeted marketing or review strategies.
5. **Shipping Mode with Highest Cost**
   * *Delivery Truck* incurred the highest cumulative shipping cost, followed by *Regular Air* and *Express Air*.

* **Scenario 2 – Customer Segments and Order Trends**

This scenario explored customer value, behaviour by segment, and ordering patterns.

**Key Queries Executed:**

1. **Most Valuable Customers**
   * *Emily Phan*, *Deborah Brumfield*, and *Dennis Kane* led in cumulative sales, predominantly within the Technology category.
2. **Top Small Business Customer by Sales**
   * *Dennis Kane* was the top customer under the *Small Business* segment with over **$75,000** in sales.
3. **Corporate Customer with Most Orders (2009–2012)**
   * *Adam Hart* placed the most orders (18) among corporate clients.
4. **Most Profitable Consumer Customer**
   * *Emily Phan* generated the highest profit under the *Consumer* segment (**$34,005.44**).
5. **Shipping Mode vs Order Priority Appropriateness**

* A breakdown showed *Regular Air* was used most frequently, even for lower-priority orders—raising questions about shipping cost optimization.

**Visual Insights**

A suite of clear, purposeful visuals was created in **Microsoft Excel** to support the findings from both general exploration and case scenario analyses. These visuals helped translate raw SQL outputs into compelling stories for business stakeholders.

* **General Visuals**

1. **Total Sales & Profit by Region** – *Clustered Column*
2. **Profitability by Customer Segment** – *Clustered Column*
3. **Sales Distribution by Product Category** – *Pie Chart*
4. **Top 10 Customers by Sales** – *Clustered Bar*
5. **Top 10 Customers by Profit** – *Clustered Bar*
6. **Annual Sales Trend** – *Line Chart*

* **Case Scenarios I & II Visuals**

**Scenario I: Sales, Region, Shipping**

1. **Product Category with the Highest Sales** – *Pie Chart*
2. **Top 3 Regions by Sales** – *Clustered Column*
3. **Bottom 3 Regions by Sales** – *Clustered Column*
4. **Total Sales of Appliances in Ontario** – *KPI Card*
5. **Bottom 10 Customers by Sales** – *Clustered Bar*
6. **Shipping Method with the Most Shipping Cost** – *Pie Chart*

**Scenario II: Customer & Order Behaviour**  
7. **Top 10 Most Valuable Customers by Sales & Typical Products** – *Clustered Bar*  
8. **Top 10 Small Business Customers with the Highest Sales** – *Clustered Bar*  
9. **Top 10 Corporate Customers with the Most Orders (2009–2012)** – *Clustered Bar*  
10. **Top 10 Most Profitable Consumer Customers** – *Clustered Bar*  
11. **Shipping Method Based on Order Priority** – *Stacked Column*

These visuals helped transform raw data into business-friendly insights and supported KMS management in identifying growth opportunities and inefficiencies.

**Key Findings**

This section summarizes the major insights drawn from both scenarios and general exploratory analysis of Kultra Mega Stores’ data:

* **Sales Performance**
* **Technology** emerged as the **highest revenue-generating product category** across all years.
* The **West, Ontario, and Prairie** regions consistently drove top sales, while **Nunavut, Northwest Territories, and Yukon** underperformed significantly.
* **Appliances in Ontario** alone generated over **$202,000**, suggesting strong regional-product alignment worth scaling.
* **Customer Insights**
* Top customers such as **Emily Phan** and **Deborah Brumfield** accounted for **six-figure sales volumes**, mostly within the **Technology** category.
* **Small Business** and **Corporate** customers showed varying behaviours:
  + *Dennis Kane* was the top spender in the **Small Business** segment.
  + *Adam Hart* placed the **most orders (18)** among corporate customers.
  + *Emily Phan* led **Consumer segment profitability** with over **$34,000** in profit.
* **Shipping & Cost Optimization**
* **Delivery Truck** was the **costliest shipping method**, raising questions about its efficiency.
* An analysis of **Shipping Mode vs Order Priority** showed a misalignment—*Express Air*, the most expensive option, was sometimes used for low-priority orders.
* **Profitability and Trends**
* Year-over-year trends suggest **stable growth in sales**, with **Customer Segment profitability** showing *Consumer* and *Small Business* leading over *Home Office*.
* Some customers had **consistently negative profit margins**, potentially due to discounts, returns, or high shipping costs—warranting review.
* Although no column explicitly tracked **returns or refunds**, the presence of **negative profit values** likely indicates returned items or heavily discounted transactions. These were treated as proxy indicators for returned orders.
* **Response to Q11 – Is the company appropriately spent shipping costs based on the Order Priority?**The analysis shows that some **Critical orders** used slow **Delivery Trucks** (228 deliveries) while some **Low-priority orders** used costly **Express Air** (190 deliveries). This Shows inefficiencies and policy misalignment. It also shows that there is possibly no clear policy guiding the match between urgency and shipping mode. The recommendation is that, shipping method should be appropriately matched to order priority and reduce unnecessary costs. Also, a policy audit process should be added to reduce waste on logistics.

**Recommendations**

Based on the insights gathered, the following actions are recommended for Kultra Mega Stores:

* **Sales & Product Strategy**
* **Expand Technology offerings** in high-performing regions such as **West and Ontario**, where demand is strongest.
* Investigate the **low-performing regions** (e.g., **Yukon, Nunavut**) to assess feasibility for marketing push, promotions, or distribution adjustments.
* Replicate success of product-category–region alignment (e.g., *Appliances in Ontario*) in other regions.
* **Customer Engagement**
* Implement **targeted loyalty programs** for high-value customers such as *Emily Phan* and *Deborah Brumfield* to retain and upsell.
* Review and re-engage **bottom 10 customers** with incentives or feedback surveys to understand the low sales.
* Create **personalized marketing campaigns** for each customer segment, especially focusing on *Small Business*, which showed strong profit margins.
* **Shipping Cost Optimization**
* Reduce reliance on **Delivery Truck** method by analysing delivery zones and exploring cost-efficient alternatives.
* Re-align **shipping modes with order priority** to ensure costlier methods like *Express Air* are reserved strictly for high-priority orders.
* **Profitability Monitoring**
* Regularly monitor customers with **negative profit margins** to detect recurring loss patterns.
* Introduce **order-level profitability analysis** to help the business better understand the impact of discounts, returns, and shipping on margins.
* Validate suspected returns by cross-referencing **negative profit transactions** with fulfilment or refund records. It is recommended that the database include a **dedicated column for returns** going forward, to allow more accurate performance tracking and customer behaviour analysis.

**Conclusion**

This analysis of Kultra Mega Stores’ order data provided valuable insights into the company’s sales performance, customer behaviour, shipping cost distribution, and product profitability across multiple segments and regions.

The findings revealed clear patterns: **Technology** emerged as the top-performing category, **West and Ontario** led in sales, and **Delivery Truck** accounted for the highest shipping costs. Key customers and segments were identified, while potentially problematic areas — such as low-performing customers and inferred product returns — were flagged for strategic attention.

Through SQL analysis and complementary data visualization, this report offers a data-driven foundation for **optimizing sales strategy**, **improving shipping efficiency**, and **enhancing customer targeting**. Further data improvements — like tracking returns explicitly — will enable even deeper insights and operational efficiency.