# Sales Performance and Trends Dashboard

**Project Overview**

This project analyzes sales data from an online retail store to derive actionable insights into product demand, customer segmentation, and geographical revenue generation. The goal is to help the company identify high-demand regions, high-value customers, and optimize its sales strategy by understanding trends in its data.

A close-up of a graph

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**Data Analysis steps:**

**Data Cleaning**:

* **Remove negative quantities**: Transactions where the quantity of the product was negative were excluded to ensure accurate demand analysis. These likely represented product returns or errors in data entry.
* **Filter out negative prices**: Similar to negative quantities, any transactions with a negative unit price were removed to avoid skewed revenue calculations.

**Data Preparation**:

* **Date formatting**: The InvoiceDate field was cleaned and formatted to create time series data for revenue trends.
* **Revenue calculation**: A calculated field was created to compute the total revenue for each transaction using Quantity \* Unit Price.
* **Country filtering**: For certain analyses, the United Kingdom was excluded, focusing on other countries where expansion strategies are being considered.

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**Key Insights & Visualizations**

**Global Product Demand**:

* + A **Tree Map** was created to visualize product demand by country, based on the quantity of products sold. Larger boxes represent countries with higher demand.
  + **Key Insight**: The **Netherlands**, **EIRE**, and **Germany** displayed the highest demand, suggesting strong market potential in these regions.

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**Monthly Revenue Trends - 2011**:

* A **line chart** was created to show the revenue trend across 2011. This helped identify seasonal patterns in sales, with a noticeable peak in November.
* **Key Insight**: **November** saw the highest revenue, which might indicate a promotional event or holiday season impact.

A graph with a line

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**Top 10 Countries by Revenue**:

* This **bar chart** ranks the top 10 countries by revenue. Countries with higher revenue were identified to prioritize marketing and sales efforts.
* **Key Insight**: The **Netherlands** and **EIRE** were the top two revenue-generating countries.

A green and white bar chart

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**Bottom 10 Countries by Revenue**:

* A **bar chart** displaying the bottom 10 countries by revenue. This highlights areas where the company may have lower penetration and could either focus on improving or reconsider.
* **Key Insight**: Countries like **Saudi Arabia**, **Bahrain**, and the **Czech Republic** generated the least revenue.

A graph of a number of people

Description automatically generated with medium confidence

**Top 10 Customers by Revenue**:

* A **bar chart** was used to display the top 10 customers by revenue. This allows the company to focus on customer retention and personalized marketing for their high-value customers.
* **Key Insight**: The top customer generated over **$280,000**, making customer retention for these clients critical.

A graph of blue and white bars

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**Dashboard Overview**

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**Insights from Dashboard**

1. **Seasonal Sales Fluctuations**:

Sales tend to peak during the holiday seasons, particularly in **November** and **December**. This suggests strong seasonal demand, which could be due to promotional events or consumer behavior around holidays.

1. **Top-Performing Regions**:

The **Netherlands**, **EIRE**, and **Germany** were identified as the highest revenue-generating regions. These countries consistently showed strong demand across multiple product categories.

1. **Customer Concentration**:

A small percentage of high-value customers contribute to a significant portion of the company’s overall revenue. Focusing on these top 10 customers is key to maximizing revenue and ensuring customer loyalty.

1. **Underperforming Regions**:

Countries such as **Saudi Arabia**, **Bahrain**, and **Brazil** generated minimal revenue, indicating lower penetration or potential market challenges in these regions.

**Recommendations**

1. **Enhance Marketing Around Seasonal Peaks**:

Given the significant revenue spikes in **November**, the company should invest in **seasonal promotions** and **discounts** to capitalize on consumer behavior during these high-demand months.

1. **Customer Retention Strategy**:

Develop a **loyalty program** targeting the top 10 revenue-generating customers. Offering personalized discounts or early access to new products could ensure continued purchases from these high-value customers.

1. **Drive Sales During Off-Peak Seasons**:

Implement strategic promotions and targeted campaigns during historically low-sales periods such as **February** and **March**. Flash sales or product bundles could help boost revenue during these slower months.

1. **Expand Product Range in High-Demand Regions**:

In countries like **EIRE** and **France**, explore the possibility of introducing new product lines that cater to local preferences. Additionally, optimizing shipping times and offering region-specific promotions could encourage repeat purchases.

**Conclusion**

The **Retail Sales Performance Dashboard** provided key insights into regional demand, customer behavior, and sales trends. High-performing regions like the Netherlands and EIRE present strong opportunities for growth, while underperforming areas like Saudi Arabia and Brazil offer potential for market expansion. Seasonal trends show revenue peaks in November and December, highlighting the importance of targeted promotions during these periods.