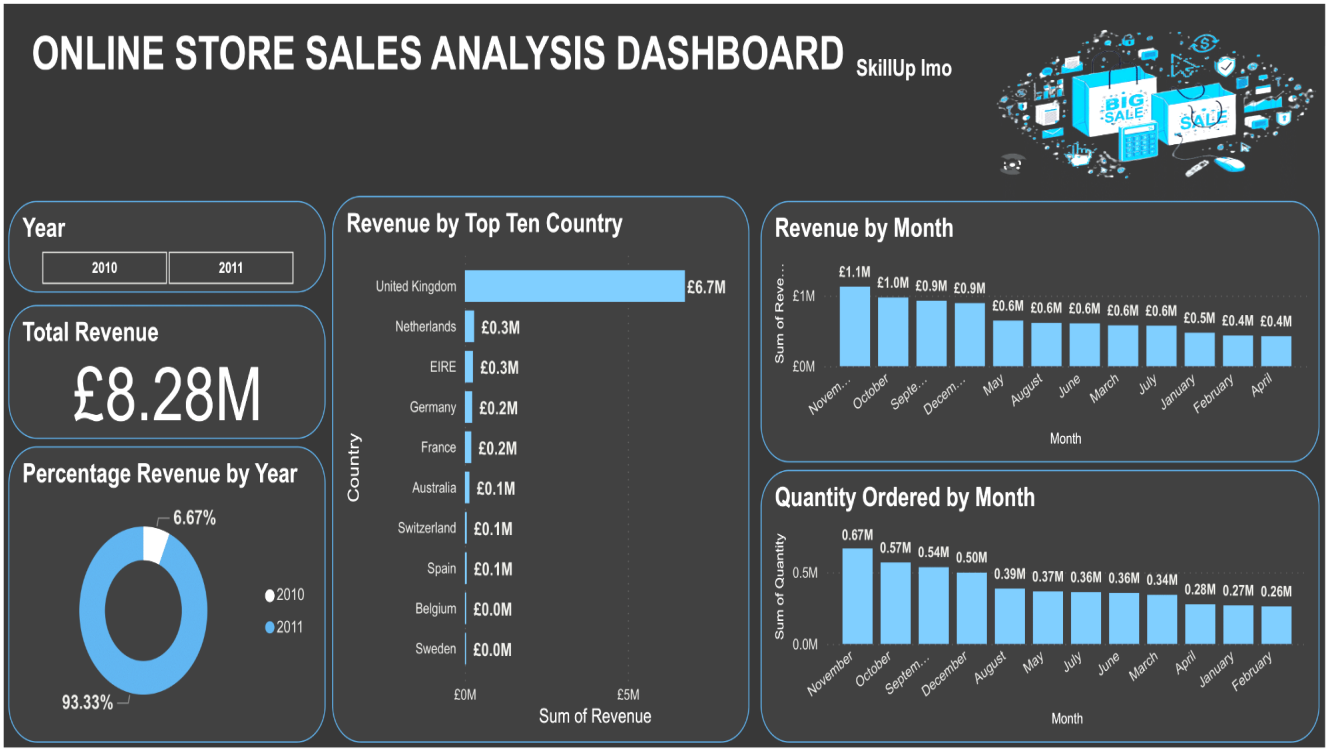
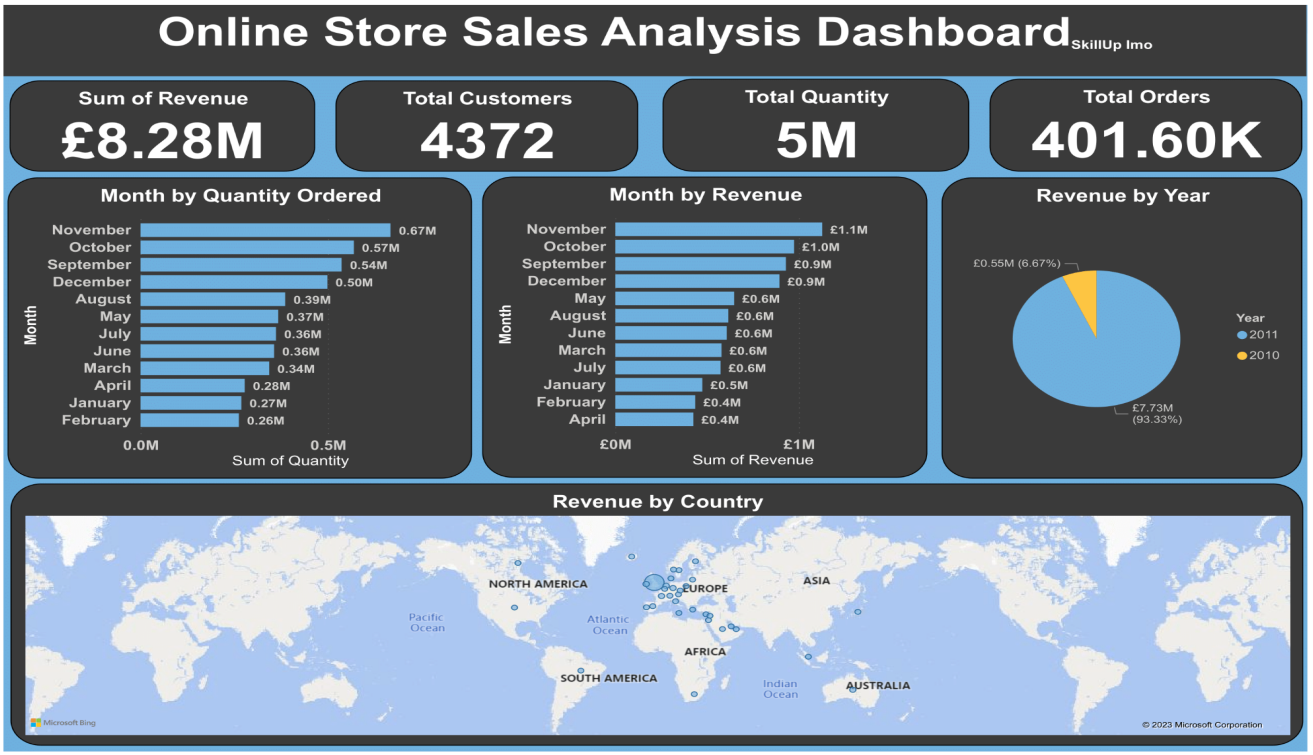


ONLINE STORE SALES ANALYSIS DASHBOARD 1



ONLINE STORE SALES ANALYSIS DASHBOARD 2

SKILLUP IMO POWER BI DATA ANALYTICS

PROJECT

ONLINE STORE SALES ANALYSIS REPORT

PRESENTED BY

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Introduction.

The world of commerce has seen a transformative shift with the advent of online retail stores. These digital marketplaces have revolutionised the way we shop, offering convenience, a vast array of products, and the ability to make purchases from the comfort of our homes. Online retail stores have become a ubiquitous part of the modern consumer experience, bridging the gap between buyers and sellers with the power of the internet.

The emergence of online retail has brought about a profound transformation in the way we shop and conduct business. It has not only revolutionised the retail landscape but has also presented an unprecedented opportunity for in-depth data analysis and insights. In this context, we introduce an online retail store dataset that includes key variables such as revenue, quantity ordered, country, year, month etc offering a wealth of information waiting to be harnessed.

As consumers increasingly turn to online retail stores to fulfil their shopping needs, businesses have harnessed the potential of e-commerce to reach a global audience. With this expansion comes the generation of vast quantities of data, each transaction and interaction offering valuable insights into consumer behaviour, market trends, and business performance.

This dataset, enriched with attributes like revenue and quantity ordered, provides a comprehensive view of the online retail store's operations. It enables us to explore patterns, identify trends, and uncover opportunities for optimization and growth.

To extract meaningful insights from this dataset, we employ the powerful analytical tool, Power BI. Power BI is a business intelligence tool that empowers users to visualise data,

create interactive reports and dashboards, and gain actionable insights. With the capabilities of Power BI, we can transform raw data into compelling visualisations that reveal the story behind the numbers.

Through this analysis, we will delve into the dataset's intricacies, examining the impact of variables such as country, year, and month on revenue and quantity ordered. By harnessing the potential of Power BI, we aim to unlock valuable insights that can inform strategic decisions, refine marketing efforts, optimise inventory management, and enhance the overall performance of the online retail store.

This introduction sets the stage for an exciting journey of data exploration and analysis, where the convergence of online retail, a rich dataset, and the analytical prowess of Power BI promises to uncover valuable knowledge and opportunities within the realm of e-commerce.

Data source

The dataset used for this analysis was sourced from kaggle and the link to the dataset was provided by my facilitator at Skillup Imo project. The dataset contains 401,604 rows and 8 columns (pre-cleaning). The dataset has columns having the following data: invoice number, stock code, description, quantity, invoice date, unit price, customer id, country.

Data cleaning and transformation.

To ensure accuracy in the analysis, there was thorough cleaning and data transformation. This dataset was cleaned and transformed using Power BI. The dataset was imported into power query and the following were done

- Changed wrong data type for easy and correct manipulation of the dataset. More so, for accurate analysis.

- Renamed columns wrongly written
- Removed errors.
- New columns were added. These columns include revenue, month, month name and year. This was done using the DAX expression.

After the data cleaning and transformation process, we had a total of 11 columns and 401,604 rows.

Problem statements.

The following problem statements would guide the analysis.

1. Developing a predictive model that accurately forecasts monthly product quantity orders based on historical data.
2. Develop a model that accurately predicts monthly revenue based on historical data
3. Analysing Sales Trends for the Top ten countries with the highest generated revenue.
4. Optimising Percentage revenue by year.

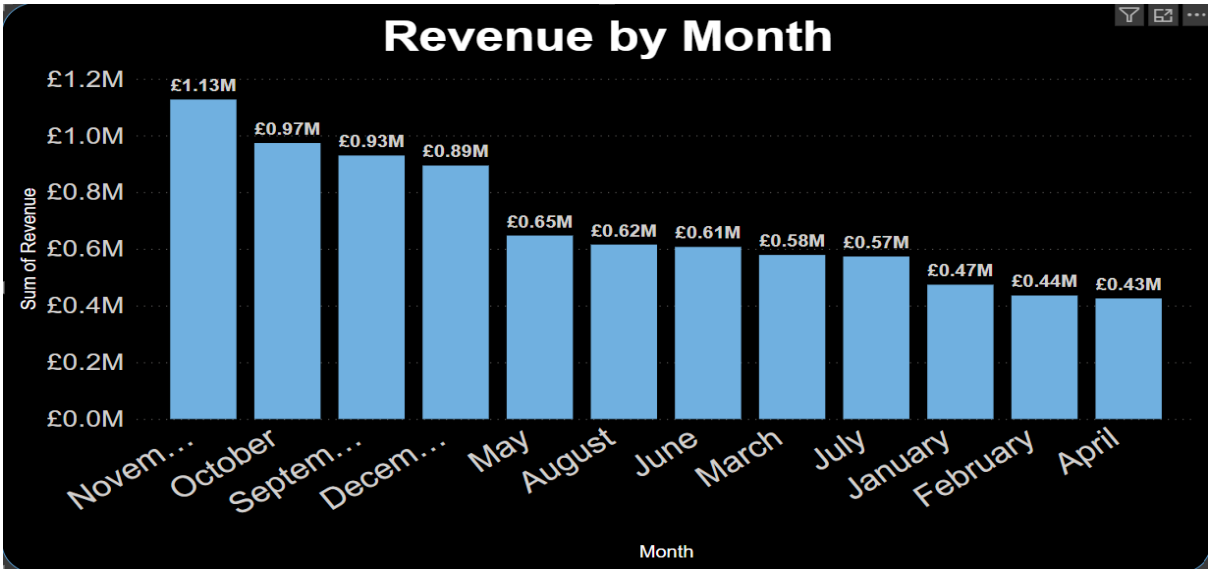
Data analysis and visualisation.

1. Developing a predictive model that accurately forecasts monthly product quantity orders based on historical data.

Model 1: Quantity Ordered by Month

The column chart above gives the quantity of products ordered by month in the online retail store The online retail store experienced noticeable peaks in November, October, and September, which coincide with holiday and pre-holiday shopping. December also shows high demand. February and January have the lowest order quantities, indicating a seasonal dip following the holiday season. Generally, there is a gradual increase in orders from January to November, suggesting consistent growth. May to August sees a slight decrease in orders, likely due to summer activities and vacations

2. **Develop a forecasting model that accurately predicts monthly revenue based on historical data.**

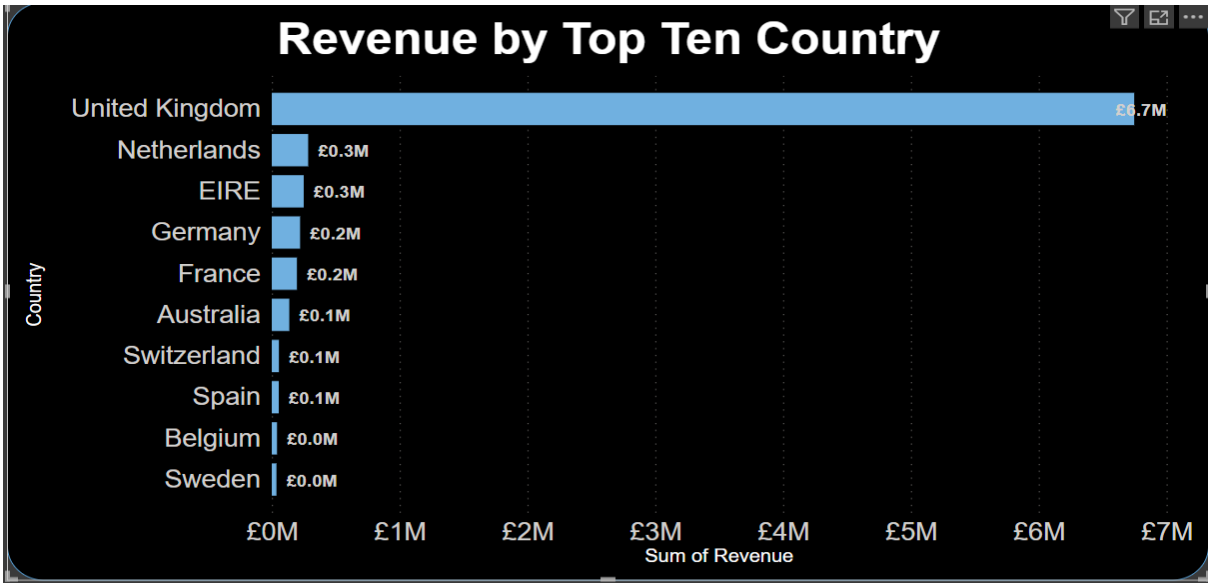


Model 2: Revenue by Month

The column chart above shows the monthly revenue generated. The chart shows that The retail shop's revenue exhibited seasonal fluctuations, with peak months being November, October, and September, while December showed substantial revenue as well. This suggests strong sales during the holiday and pre-holiday shopping season. However, there were revenue dips in the summer months, that is in May, August, June, March and July. Additionally, the data indicates a smaller dip in January, February and April possibly due to post-holiday adjustments.

This insight highlights the significance of adapting inventory and sales strategies to maximise revenue during peak months and the potential for targeted marketing and promotions during slower periods to maintain steady revenue throughout the year.

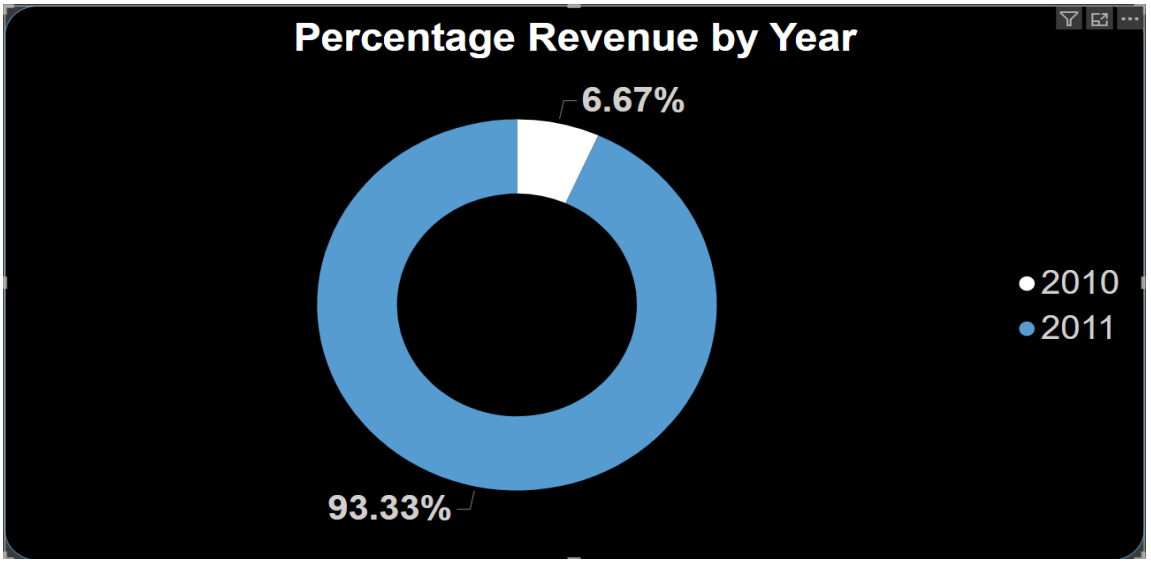
3. **Analysing Sales Trends for the Top ten countries with the highest generated revenue.**



Model 3: Revenue by Top Ten Country

Model 3 above shows the top ten countries with the highest revenue. The bar chart clearly illustrates that the United Kingdom stands out as the top revenue generator, showcasing a substantial margin ahead of the second-ranking country, the Netherlands. The disparity in revenue among the following countries is notably smaller. Following the Netherlands, the subsequent countries, as indicated in descending order on the chart, are EIRE, Germany, France, Australia, Switzerland, Spain, Belgium, and Sweden.

4. **Optimising Percentage revenue by year.**



Model 4: Percentage Revenue by Year

The doughnut pie chart shows that In 2011, the online retail shop generated a significant portion of its revenue, accounting for 93.33% of the total, indicating substantial growth and success during that year. In contrast, in 2010, the shop's contribution to the total revenue was much lower, at 6.67%. This substantial increase from 2010 to 2011 demonstrates a remarkable growth trajectory and a notable shift in market performance.

This insight underscores the substantial progress and development of the online retail shop between 2010 and 2011, suggesting a successful business expansion or strategic improvement during that period.

Recommendation:

Based on the insights generated from the analysis, the following actionable recommendations could increase productivity of the online store.

- **Optimise pre-holiday and holiday Sales Strategy:** Given the substantial increase in quantity ordered during November, October, September and December, the retail shop

should consider investing in targeted holiday and pre-holiday promotions, marketing campaigns, and seasonal product offerings to maximise sales during the festive season.

- **Year-Round Inventory Management:** To reduce carrying costs and ensure better inventory turnover, implement an inventory management strategy that adjusts stock levels during lower-demand months (e.g., January and February) and increases stock in preparation for high-demand periods.
- **Leverage Seasonal Trends:** Explore opportunities to introduce and promote products or services that align with the changing seasons. For instance, focus on summer-related products during May to August, and winter-themed items during November and December.
- **Customer Retention Initiatives:** During slower months (e.g., January and February), consider implementing loyalty programs or special discounts to retain existing customers and stimulate repeat purchases.
- **Market Research and Competitive Analysis:** Conduct market research to understand why certain months exhibit higher demand and whether competitors are exploiting these trends. This information can guide marketing and product development efforts.
- **Supply Chain Efficiency:** Streamline the supply chain process to ensure timely delivery of products during peak seasons and reduce lead times to accommodate changes in demand.
- **Diversify Product Offerings:** Consider expanding product or service offerings to appeal to a wider audience and reduce reliance on specific seasonal trends.

- **Customer Engagement:** Invest in customer engagement activities, such as email marketing, social media, and personalised recommendations, to maintain a consistent level of customer interest and purchases throughout the year.
- **Feedback and Review:** Encourage customer feedback and reviews to gain insights into their preferences and areas for improvement, allowing for adjustments to marketing and product strategies.

Implementing these recommendations can help the online retail shop make more informed decisions, improve sales performance, and maintain a stable revenue stream throughout the year.

Conclusion:

In summary, the online retail store's performance analysis highlights the importance of understanding and adapting to seasonal fluctuations in demand. By optimising inventory, implementing targeted marketing strategies, and reducing lead times, the store can better respond to changing customer needs and maintain a consistent revenue flow year-round. This adaptability is crucial for long-term success and competitiveness in the dynamic online retail market.