**Suggestion and finding**

The analysis of the Online Retails Data Pre-Processing by using Data visualization methods

1. Many of the customers are from the UK Country only which is almost exceeding $400000 indicating robust market.
2. Challenges in Saudi Arabia, Brazil , RSA ,and Bahrain lower purchases in these countries suggest market challenges.
3. Temporal Analysis Reveals data Gap notable variations between 2010 and 2011 highlight a data gap in December 2010.
4. Monthly sales patterns and seasonality fluctuations in monthly sales, a drop in December 2011, and strong performance from September to November suggest seasonality.
5. Insights from High-spending customer ID-14646 from Netherlands with spending exceeding $25000 stands out.

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| **Category** | **Total Sales Across Different Months** | **Top Customers by Total Spending** | **Top 10 Products sold** |
| **Sub category** | Sales for each month | Customer ID  Spending details | Products  Stock codes |
| Findings  from  graphs | December 2011 had a considerable sales drop due to limited data.  Strong sales observed from September to November.  Highest sales in November and December. | Customer ID 14646, representing a wholesaler from the Netherlands, spent the highest amount on 20-12-2010. | Product with stock code 84077 (WORLD WAR 2 GLIDERS ASSTD DESIGNS) had the highest number of purchases, surpassing 50,000 units.Stock code 22197 (SMALL POPCORN HOLDER) also recorded substantial sales, exceeding 50,000 units. |
| **Solution /efficiency** | 1. Develop tailored marketing campaigns based on insights from high-purchasing countries 2. Conduct comprehensive market research to identify and adress countries with low purchasing activity. Implement targeted marketing strategies to increase brand awareness and appeal in these untapped markets 3. Anticipate and prepare for potential drops in sales by strategically planning based on yearly sales analysis. Ensure consistent customer engagement throughout the year. 4. The promotion of top-selling products, such as WORLD WAR 2 GLIDERS (stock code 84077) and SMALL POPCORN HOLDER (stock code 22197), capitalizes on their popularity to attract and retain customers. 5. Increase cross-selling opportunities through the implementation of product recommendation algorithms and bundled offers. Boost average transaction values and drive increased revenue by suggesting complementary items based on a customer's purchase history | | |

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