

## Data Storycraft- Team Code Duo

### 1. Dataset details

#### 1.1 Unique counts:

- BillNo: 21,663 bill counts indicating the number of total transactions.
- Itemname: 4,185 products sold during the period..
- CustomerID: 4,297 -size of customer base.
- Country: 30 countries (reach of transactions globally).

#### 1.2 Addressing missing values:

- Itemname: 1,455 missing values (~35% of unique products).
- CustomerID: 134,041 missing values. This could mean a large number of anonymous purchases(neglected because of low reliability of the data).
- Other columns (BillNo, Quantity, Date, Price, and Country) have no missing values.

### 2. Numerical analysis

#### 2.1 Total Revenue

The dataset shows a total revenue of \$8,564,526.39, which briefs about the **scale of business**.

#### 2.2 Monthly Revenue Trends

Month	Revenue	Performance	Insights
November 2011	\$1,124,598.50	Highest Revenue	Peak revenue month; strong Q4 seasonality.
October 2011	\$1,003,374.32	High Revenue	Consistently strong performance in Q4.
December 2011	\$509,613.81	Low Performance	Sharp decline compared to other Q4 months; may indicate post-holiday slowdown.
April 2011	\$459,456.54	Low Performance	Indicates a potential off-peak season.
February 2011	\$429,738.24	Lowest Revenue	Reflects the weakest month, opportunity for targeted marketing campaigns.

#### 2.3 Top 2 products based on Revenue and Quantity:

Rank	Product Name	Revenue	Quantity Sold	Insight
#1	PAPER CRAFT, LITTLE BIRDIE	\$168,469.60	80,995 units	High revenue and very high sales volume, indicating a popular, affordable product.
#2	REGENCY CAKE STAND 3 TIER	\$134,253.10	11,679 units	High revenue but much lower sales volume, suggesting it is a premium-priced product.

## 2.4 Top 3 Countries by Revenue and Average Order Value (AOV)

Rank	Country	Total Revenue	Total Orders	Average Order Value (AOV)	Insight
#1	United Kingdom	\$7,308,391.55	16,649	\$438.97	Primary market with high transaction volume driving revenue; moderate AOV indicates diverse product pricing.
#2	Netherlands	\$285,446.34	95	\$3,004.70	Fewer but significantly larger orders.
#3	Germany	\$228,867.14	457	\$500.80	Moderate order volume with relatively high AOV, reflecting a preference for premium items.

## 2.5 Customer behaviour across top 3 countries

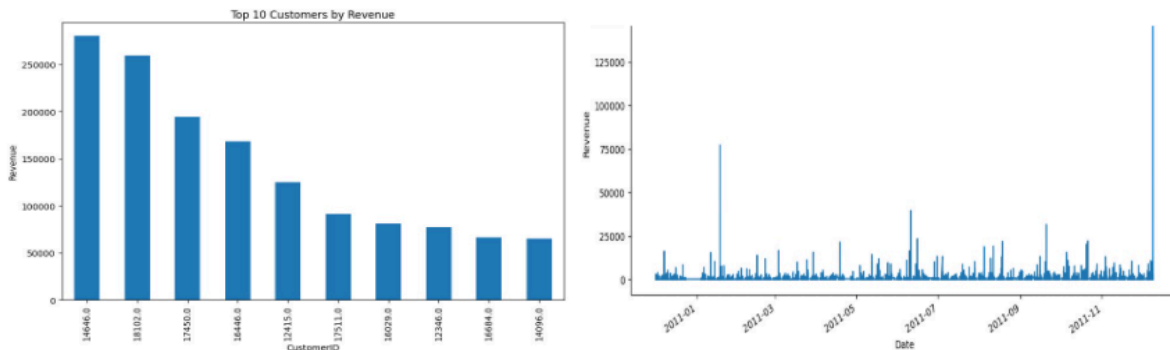
Country	Average Revenue	Average Orders	Average Order Value (AOV)	Insights
Netherlands	\$31,716.26	10.56 orders	\$655.87	Significant revenue per customer with moderate order frequency; preference for higher-value purchases.
Singapore	\$21,279.29	7 orders	\$3,039.90	Highest AOV; selective but large-value purchases, suggesting premium customer behavior.
Australia	\$15,391.26	6.33 orders	\$998.22	Moderate revenue and AOV; indicates preference for higher-ticket items or value-added products.

## 2.6 Average Order Value (AOV) by Country Based on Product Categories

Category	Countries	Average Order Value (AOV)	Insights
Top AOV	Australia, Netherlands, Japan	Australia: \$116.89, Netherlands: \$101.81	Premium products or bulk buying driving higher-value purchases.
Mid-Range AOV	Lithuania, Lebanon	Lithuania: \$47.80, Lebanon: \$37.64	Transitioning markets, with moderate AOV and occasional high-value purchases.
Lowest AOV	Poland, Malta	Poland: \$20.64, Malta: \$20.53	Low-ticket sales or high-volume sales model; further investigation needed.

### 3. Trends:

- >> **PAPER CRAFT, LITTLE BIRDIE** stays as the top profitable item with profit equivalent to the total of 3rd and the 4th largest profitable items.
- >> **UNITED KINGDOM** being the country with the maximum sales , has sales equivalent to 7 times the sum of sales in all other countries.
- >> A drastic **increase** has been seen in the sales during the **beginning of the last quarter** , but this sale drastically **decreases** with the arrival of the **last month** of the year.
- >> The revenue by our top customer(with customer id **14646**), is equivalent to 4 times the average customer revenue.
- >> Average order value in countries like the **United Kingdom, Singapore, Japan and France** is comparatively much greater than other countries.



### 4. Insights and Strategic Recommendations:

- Country markets: Netherlands and United Kingdom have a good hold on order frequency, but these countries have a moderate AOV. It depicts the need to add discount schemes that provide offers after reaching a particular cart value. Also, we need to run promotional campaigns to increase order frequencies in countries with low average orders.
- Time-series trends: We infer that product sales significantly increase during October and November due to the festive season. The product sales drop in December, possibly due to the post-festive season. This depicts the need for stock fulfillment in September.
- Global Expansion: The disparity in AOV across countries highlights potential for strategic localization. Customizing pricing models and marketing for each market will optimize engagement, especially in regions like Singapore, where higher-value transactions dominate.
- Geographic Trends: Asia-Pacific (Singapore, Japan, Australia) and Europe (Netherlands, France, Spain) show differences in how AOV is distributed across product categories. Asian markets appear to have fewer but more expensive orders (e.g., Singapore's Manual), whereas European markets seem to have more diverse orders across different price ranges.
- Premium vs. Value Segments: Countries like the United Kingdom and Netherlands are seeing significant revenue from premium product categories like PAPER CRAFT, LITTLE BIRDIE and RABBIT NIGHT LIGHT. In contrast, countries like Australia show more consistent revenue from a diverse array of mid-range products.

Google Colab file used for Data Analytics:

