**Documentation**

**Project Overview:**

Objective: The goal is to analyze customer, shipping, and order data to generate insights into spending patterns, product preferences, and shipping statuses to inform business decisions.

Scope: This project covers data validation, analysis, and reporting for customer orders and product sales across the USA, UK, and UAE.

Stakeholders: Business Managers, Marketing Team and Operations Team.

**Data Source Overview:**

The Source consisted of three tables – Customer, Order and Shipping. Below is detailed information regarding the tables and their columns:

|  |  |  |
| --- | --- | --- |
| Table Name | Column Name | Data Quality Checks |
| Customer | Customer\_ID | Unique identifier and Non null |
| Customer | First | Text and Non null. The column consisted of alphabets, numbers and special characters. |
| Customer | Last | Text and Non null |
| Customer | Country | Text and Non null(either of the values – USA, UK, UAE) |
| Customer | Age | Numeric and Positive (Ranging between 18 to 80) |
| Order | Customer\_ID | Aligns with Customer\_ID from Customer Table |
| Order | Order\_ID | Unique identifier and Non null values |
| Order | Item | Text and Non Null( either of the 8 values- Mousepad, Keyboard, DDR RAM, Webcam, Monitor, Headset, harddisk, Mouse). The same item were assigned the exact same value across the Orders. |
| Order | Amount | Numeric and Positive value |
| Shipping | Customer\_ID | Aligns with Customer\_ID from Customer Table |
| Shipping | Shipping\_ID | Unique identifier and Non null |
| Shipping | Status | Text and Non null(either of the two values – Pending, delivered) |

**Issues Identified:**

1. The transaction data was missing.
2. No relationship exists between Shipping and Order table, making it difficult to identify the status of a particular order. Relationship can be established between Customer and Shipping table however, that would result into multiple data inconsistencies, such as one order various shipping statuses, no order but shipment information, multiple order and multiple shipping statuses making it difficult to understand which of these shipments were for which orders.

**Data Cleaning Steps:**

1. The available data was complete with no missing information. No Cleaning of Data was required.

**Business Specifications:**

1. Determine the total amount spent for pending delivery status by country.
2. Analyze customer transactions and product details.
3. Identify the maximum product purchased for each country.
4. Analyze product purchases by age category.
5. Identify the country with minimum transactions and sales amount.

**Data Model:**

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**Calculated fields/Measure/Table:**

Below are the details of Calculated field, Measure and Table created

1. Calculated Field

|  |  |  |  |
| --- | --- | --- | --- |
| Table | Calculated Field | DAX /Power Query | Usage |
| Customer | Under or Above 30 | Under or Above 30 = if(Customer[Age]<=30,"<=30",">30") | To categorize the Age under or above 30 |
| Customer | Name | Used Merge Operation in Power Query |  |

1. Measure

|  |  |  |  |
| --- | --- | --- | --- |
| Table | Measure | DAX | Usage |
| Customer | Amount Spend | Amount Spend = if(sum('Order'[Amount])=BLANK(),0,sum('Order'[Amount])) | Calculating the amount spend |
| Customer | Country With Min Amount | Country With Min Amount =  CALCULATE (      SELECTEDVALUE ( Customer[Country] ),      TOPN (          1,              ALLSELECTED (                  Customer[Country]  )              ,              CALCULATE ( Sum('Order'[Amount]) ),              ASC          )      ) | Calculating country which has minimum transaction amount incurred. |
| Customer | Country with Min Orders | Country with Min Orders =  CALCULATE (      SELECTEDVALUE ( Customer[Country] ),      TOPN (          1,                ALLSELECTED (                  Customer[Country]  )              ,              CALCULATE ( Count ( 'Order'[Order ID] ) ),              ASC          )      ) | Calculating country which has minimum orders. |
| Customer | Product Amount | Product Amount =  VAR TopProduct =[Top Product]  RETURN CALCULATE(SUM('Order'[Amount]), 'Order'[Item] = TopProduct) | Calculating the amount incurred for top product by Quantity sold or Amount. |
| Customer | Product Count | Product Count =  var TopProduct=[Top Product]  RETURN CALCULATE(COUNT('Order'[Item]), 'Order'[Item] = TopProduct) | Calculating the quantity sold for top product by Quantity sold or Amount. |
| Customer | Top Product | Top Product =  var topproductchoice=SELECTEDVALUE('Top Product'[Options])  RETURN switch(topproductchoice,"Quantity",  CALCULATE (      SELECTEDVALUE ( 'Order'[Item] ),      TOPN (          1,              ALLSELECTED (                  'Order'[Item]  )              ,              CALCULATE ( Count ( 'Order'[Order ID] ) ),              DESC          )      ),"Amount",CALCULATE (      SELECTEDVALUE ( 'Order'[Item] ),      TOPN (          1,              ALLSELECTED (                  'Order'[Item]  )              ,              CALCULATE ( Sum ( 'Order'[Amount] ) ),              DESC          ) ),BLANK(),"") | Calculating the Top product by Quantity sold or amount incurred. |
| Order | Products | Products = CONCATENATEX(      SUMMARIZE(          'Order',          'Order'[Item],          "ItemCount", COUNTROWS('Order')      ),      [Item] & "-" & [ItemCount],      ", "  ) | Calculating items and their respective quantities sold. |

1. Table

|  |  |  |
| --- | --- | --- |
| Table | Column | Usage |
| Top Product | Options | The table provides choice which is then used to calculate top product |

**Report Documentation:**

1. Slicers:
   1. Country and Item Slicers:

Description: Interactive slicers were developed to filter the reports by Country and Item, allowing users to drill down into specific segments of the data.

Usage: Users can select specific countries and items to dynamically update the visualizations and metrics displayed in the report.

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* 1. Top Product by:

Description: For Top Product/Country and Top Product/Age Group with respect to Quantity/Amount users can use this slicer to toggle between the values.



1. Cards
   1. Total Amount Spent: Displays the overall amount spent by customers.

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* 1. Total Quantity Sold: Shows the total quantity of items sold.

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* 1. Country with Minimum Orders: Identifies the country with the fewest orders.

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* 1. Country with Minimum Amount: Indicates the country with the lowest total amount spent.

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* 1. Total Customers: Provides the total count of unique customers.

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* 1. Total Shipments: Shows the total number of shipments processed.

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1. Table Visuals
   1. Customer Details Table:

Description: This table provides a detailed view of customer transactions, including the country, products purchased, total items, and amount spent by each customer.

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* 1. Top Product/Country:

Description: These tables highlight the top products purchased in each country based on either the quantity sold or the total amount spent.

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* 1. Top Product/Age Group

Description: These tables highlight the top products purchased in each country and by different age groups, based on either the quantity sold, or the total amount spent.

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1. Pie Charts
   1. Order Segregation by Country:

Description: Depicts the percentage distribution of orders among different countries. Displays the actual count of orders along with their percentage share.

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* 1. Amount by Country:

Description: Illustrates the percentage distribution of the total amount spent among different countries. Displays the total amount spent in each country along with their percentage contribution.

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**Summary:**

This report provides a comprehensive analysis of customer details, and product sales. Interactive slicers, summary cards, detailed tables, and pie charts enable users to explore the data from various perspectives, facilitating

informed decision-aking based on real-time insights.

**To be Completed:**

1. Due to unavailability of proper relation between shipping and orders, visual to depict the total amount spent for pending delivery status by country wasn’t accomplished.
2. Since no data for transaction was provided, total transaction wasn’t captured. However, if we were to consider distinct Customer ID in Order table as total transaction then this would be the output.

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**Communication Plan:**

**Audience:** Business Managers, Marketing Team and Operations Team.

**Medium:** Monthly Reports, Dashboards

**Frequency:** Monthly Updates, Ad-hoc Reports as Needed