📊 Amazon Sales Analysis – Detailed Documentation (Tasks 1 to 6)

Task 1: Sales Overview

🎯 Objective

To provide a high-level overview of overall sales performance.

🔄 Steps in Power BI

1. Import the cleaned dataset (Amazon Sale Report) into Power BI.
2. In **Model view**, verify data types:
    - Date → Date/Time
    - Amount → Decimal
    - Order ID → Text
3. Create new measures:
    - **Total Sales**
    - **Total Orders**
    - **Average Order Value (AOV)**
4. Insert **KPI Cards** for each measure.
5. Build visuals:
    - **Line Chart** → Monthly Sales Trend (Date on Axis, Total Sales on Values).

🧮 DAX Formulas

```
Total Sales = SUM('PowerBI_Ready_Amazon_Sales'[Amount])

Total Orders = DISTINCTCOUNT('PowerBI_Ready_Amazon_Sales'[Order ID])

AOV = DIVIDE([Total Sales], [Total Orders])
```

📈 Insights

- Sales show **seasonal spikes**, likely due to festive periods.
- **Delivered orders dominate**, but cancellations and returns are notable.
- Some **categories contribute more heavily** to revenue, highlighting where marketing efforts should focus.

Task 2: Product Analysis

🎯 Objective

To evaluate product performance and identify top-selling products.

🔄 Steps in Power BI

1. Create measures for **Total Sales** and **Total Quantity**.
2. Create visuals:
    - **Bar Chart** → Top Product Categories by Sales (Axis → Category and Value → Total Sales)
    - **Bar Chart** →Top Product Categories by Units Sold (Axis → Category and Value → Total Quantity)
    - **Bar Chart** → Top Sizes Sold (Axis → Size and Value → Total Quantity
    - **Pie Chart** → Sales Distribution by Product Category (Values → Total Sales and Legend → Category)
3. Add **slicers** for Date, Category, and Fulfilment for filtering.

🧮 DAX Formulas

Total Sales = SUM('PowerBI_Ready_Amazon_Sales'[Amount])

Total Quantity = SUM('PowerBI_Ready_Amazon_Sales'[Qty])

📈 Insights

- Certain **categories dominate sales** and contribute disproportionately to revenue.
- **B2B sales have higher AOV** compared to B2C.
- Fulfilment type impacts product performance (e.g., Amazon).

Task 3: Order Status Analysis

🎯 Objective

To analyze order outcomes – delivered, cancelled, and returned.

🔄 Steps in Power BI

1. Create a calculated column Final Status combining Status and Courier Status.
2. Create measures:
    - Delivered Orders
    - Cancelled Orders
    - Returned Orders
3. Create KPI Cards for **Delivery Rate, Cancellation Rate, and Return Rate**.

4. Visuals:
    - **Column Chart** →Orders by Fulfilment (X-axis: Fulfilment and Y-axis (Values): Total Orders
    - **Column Chart** → Sales by Fulfilment(X-axis: Fulfilment and Y-axis (Values): Total Sales
    - **Stacked column chart** → Order Outcome % by Fulfilment (X-axis: Fulfilment , Legend: Final Status and Values: Total Orders
    - **Line Chart** → Orders over Time by Fulfilment (X-axis: Date , Y-axis: Total Orders and Legend: Fulfilment
    - **Matrix** → Rows: Fulfilment , Columns: Final Status and Values: Total Orders, Total Sales, Total Quantity

DAX Formulas

```
Delivered Orders =
CALCULATE(
    DISTINCTCOUNT('PowerBI_Ready_Amazon_Sales'[Order ID]),
    FILTER(
        'PowerBI_Ready_Amazon_Sales',
        'PowerBI_Ready_Amazon_Sales'[Courier Status] = "Delivered"
            || CONTAINSSTRING('PowerBI_Ready_Amazon_Sales'[Status], "Deliver")
    )
)
Cancelled Orders =
CALCULATE(
    DISTINCTCOUNT('PowerBI_Ready_Amazon_Sales'[Order ID]),
    FILTER(
        'PowerBI_Ready_Amazon_Sales',
        CONTAINSSTRING('PowerBI_Ready_Amazon_Sales'[Status], "Cancel")
    )
)


Returned Orders =
CALCULATE(
    DISTINCTCOUNT('PowerBI_Ready_Amazon_Sales'[Order ID]),
```

```
    FILTER(
        'PowerBI_Ready_Amazon_Sales',
        CONTAINSSTRING('PowerBI_Ready_Amazon_Sales'[Status], "Return")
            || CONTAINSSTRING('PowerBI_Ready_Amazon_Sales'[Courier Status], "RTO")
    )
)
```

```
Delivery Rate = DIVIDE([Delivered Orders], [Total Orders])
Cancellation Rate = DIVIDE([Cancelled Orders], [Total Orders])
Return Rate = DIVIDE([Returned Orders], [Total Orders])
```

📈 **Insights**

- Majority of orders are delivered successfully.
- **Return rates** suggest issues in customer satisfaction or product quality.
- **Cancellation rates** vary across categories and channels, indicating operational inefficiencies.

Task 4: Customer Segmentation

🎯 **Objective**

To profile customers based on purchase frequency and monetary value.

🔁 **Steps in Power BI**

1. Create a **Customer Key** column using Buyer Name/City/State.
2. Create a **Customer Summary Table** with:
    - First Purchase
    - Last Purchase
    - Orders
    - Sales
    - Average Order Value
3. Create measures:
    - Customers
    - Repeat Customers
    - Repeat Customer Rate

- Orders per Customer
- Sales from Repeat Customers

4. Build KPI Cards for each segmentation metric.
5. Visuals:
   - **Column Chart** → Total Sales by B2B
   - **Column Chart** →Customers by Monetary Band
   - **Column Chart** → Customers by Frequency Band
   - **Line Chart** → Total Sales by Quarter and B2B
   - **Matrix**→ Rows = B2B, Columns = Category, Values = Total Sales, Total Orders

DAX Formulas

```
Customer Summary =
SUMMARIZE(
   'PowerBI_Ready_Amazon_Sales',
   'PowerBI_Ready_Amazon_Sales'[Customer Key],
   "First Purchase", CALCULATE( MIN('PowerBI_Ready_Amazon_Sales'[Date]) ),
   "Last Purchase",  CALCULATE( MAX('PowerBI_Ready_Amazon_Sales'[Date]) ),
   "Orders",        CALCULATE(
DISTINCTCOUNT('PowerBI_Ready_Amazon_Sales'[Order ID]) ),
   "Sales",         CALCULATE( SUM('PowerBI_Ready_Amazon_Sales'[Amount]) )
)


Customers = DISTINCTCOUNT('PowerBI_Ready_Amazon_Sales'[Customer Key])


Repeat Customers = SUMX(VALUES('PowerBI_Ready_Amazon_Sales'[Customer Key]),
     IF(CALCULATE(DISTINCTCOUNT('PowerBI_Ready_Amazon_Sales'[Order ID])) > 1,
1, 0))


Repeat Customer Rate = DIVIDE([Repeat Customers], [Customers])

Orders per Customer = DIVIDE([Total Orders], [Customers])

Sales from Repeat = CALCULATE([Total Sales],
            FILTER(VALUES('PowerBI_Ready_Amazon_Sales'[Customer Key]),

CALCULATE(DISTINCTCOUNT('PowerBI_Ready_Amazon_Sales'[Order ID])) > 1))
```

```
Sales from New  = [Total Sales] - [Sales from Repeat]

AOV = DIVIDE([Sales], [Orders])

Snapshot Date =
CALCULATE(
MAX('PowerBI_Ready_Amazon_Sales'[Date]),ALL('PowerBI_Ready_Amazon_Sales') )


Frequency Band =
SWITCH(TRUE(),
   [Orders] >= 3, "Frequent (3+)",
   [Orders] = 2,  "Occasional (2)",
   "One-time (1)"
)


Monetary Band =
SWITCH(TRUE(),
   [Sales] >= 5000, "High",
   [Sales] >= 2000, "Medium",
   "Low"
)
```

📈 **Insights**

- **Repeat customers generate more revenue**, even though fewer in number.
- **B2B customers** have fewer but higher-value orders.
- Most **B2C customers are one-time buyers**, falling in low-spend categories.

Task 5: Geographical Analysis

🎯 **Objective**

To analyze sales by geography – country, state, and city.

🔁 **Steps in Power BI**

1. Assign **Data Categories**:
   - Country → Country/Region
   - State → State or Province
   - City → City
2. Create measures:
   - Total Sales
   - Total Orders
   - AOV
   - YoY Sales Growth
3. Visuals:
   - **Filled Map** → Sales by State.
   - **Bubble Map** → Orders by City.
   - **Bar Chart** → Top 10 States by Sales.
   - **Table** → City Sales metrics.

- **Line Chart** → Trend by Region by top 5 states.

4. Add slicers for Date, Country, State, Category, and Fulfilment.

DAX Formulas

```
Calendar =
CALENDAR(
   MIN('PowerBI_Ready_Amazon_Sales'[Date]),
   MAX('PowerBI_Ready_Amazon_Sales'[Date])
)

Sales LY = CALCULATE([Total Sales], DATEADD('Calendar'[Date], -1, YEAR))

Sales YoY% = DIVIDE([Total Sales] - [Sales LY], [Sales LY])
```

Insights

- Sales are concentrated in metro states and cities.
- Urban cities dominate orders, while rural regions lag in **AOV**.
- Some states show strong **YoY growth**, while others underperform.

Task 6: Sales Channel Analysis

Objective

To evaluate performance of different sales channels.

Steps in Power BI

1. Create measures:
   - Total Sales
   - Total Orders
   - AOV
   - Delivered, Cancelled, and Returned Orders per channel
2. Build KPI Cards for each measure.
3. Visuals:
   - **Column Chart** → Sales by Channel.
   - **Column Chart** → Orders by Channel.
   - **Bar Chart** → AOV by Channel.
   - **Stacked Column → Order Outcome % by Channel**
   - **Line Chart** → Sales Trend by Channel.
   - **Matrix** → Channel × Category.

DAX Formulas

```
Delivered Orders =
CALCULATE(
   DISTINCTCOUNT('PowerBI_Ready_Amazon_Sales'[Order ID]),
   'PowerBI_Ready_Amazon_Sales'[Final Status] = "Delivered"
)

Cancelled Orders =
CALCULATE(
   DISTINCTCOUNT('PowerBI_Ready_Amazon_Sales'[Order ID]),
   'PowerBI_Ready_Amazon_Sales'[Final Status] = "Cancelled"
```

```
)

Returned Orders =
CALCULATE(
    DISTINCTCOUNT('PowerBI_Ready_Amazon_Sales'[Order ID]),
    'PowerBI_Ready_Amazon_Sales'[Final Status] = "Returned"
)

Completed Orders =
[Delivered Orders] + [Cancelled Orders] + [Returned Orders]


Channel Sales Share % =
DIVIDE([Total Sales], CALCULATE([Total Sales],
ALL('PowerBI_Ready_Amazon_Sales'[Sales Channel])))


Delivery Rate = DIVIDE([Delivered Orders], [Total Orders])

Cancellation Rate = DIVIDE([Cancelled Orders], [Total Orders])

Return Rate = DIVIDE([Returned Orders], [Total Orders])

Delivery Rate (Completed)     = DIVIDE([Delivered Orders],  [Completed Orders])

Cancellation Rate (Completed) = DIVIDE([Cancelled Orders],  [Completed Orders])

Return Rate (Completed)       = DIVIDE([Returned Orders],   [Completed Orders])
```

📈 **Insights**

- Some channels contribute significantly more revenue than others.
- **AOV differs across channels**, indicating varied customer behaviors.
- Certain channels show higher cancellations → likely due to fulfilment or stock issues.