**Power BI W3 Assignment Solution**

1. **Measures, Columns & Quick Measures**

**Question 1: Total Sales Amount**

**Task:** Create a measure to calculate the **total sales amount** using the Sales table.

**Steps:**

1. Go to the **Sales** table.
2. Go to **Modeling** tab → click **New measure**.
3. Write a DAX formula to sum up Sales Amount.

**Solution:** DAX Total Sales = SUM(Sales[Sales Amount])

**Question 2: Total Profit and Profit Margin Task:** Create a measure to calculate **total profit**, then create a measure to calculate **profit margin %** using the Sales table.

**Steps:**

1. Use Sales Amount and Total Product Cost columns.
2. Profit = Sales Amount – Total Product Cost.
3. Profit Margin % = (Profit / Sales Amount) × 100.

**Solution:**

DAX

Total Profit = [Total Sales] - SUM(Sales[Total Product Cost])

DAX

Profit Margin (%) = DIVIDE([Total Profit], [Total Sales], 0) \* 100

**Question 3: Profit Category Column**

**Task:** Create a **calculated column** in the Sales table to classify each row as **"High"** or **"Low"** profit category.

**Logic:**

1. If Profit > 500 → "High", else "Low".
2. Profit = Sales Amount – Total Product Cost.

**Solution:** DAX Profit Category = IF(Sales[Sales Amount] - Sales[Total Product Cost] > 500, "High", "Low")

**Question 4: Sales % Contribution**

**Task:**Create a measure to calculate each sales row's **% contribution** to total sales (overall). **Table:** Sales **Steps:**

1. Use Total Sales measure created earlier.
2. Use ALL() to remove filters.

**Solution:** DAX Sales % = DIVIDE([Total Sales], CALCULATE([Total Sales], ALL(Sales)), 0) \* 100

1. **Relationship & Information Functions**

**Question 6: Customer Name using RELATED**

**Task:**Create a column in Sales table to fetch the **Customer full name** from the Customer table.

**Steps:**

1. Use RELATED() function.
2. Use column Customer[Full Name].

**Solution:**

DAX

Customer Name = RELATED(Customer[Full Name])

**Question 7: Filter Check using ISFILTERED**

**Task:** Create a measure to display "Filtered" if Customer[Full Name] is filtered, otherwise "Not Filtered".

**Table:** Customer

**Solution:** DAX Filter Check = IF(ISFILTERED(Customer[Full Name]), "Filtered", "Not Filtered")

**Add a Card visual**

1. Go to your report canvas.
2. Insert a **Card** visual.
3. Drag and drop the **Filter Check** measure onto the Card.

At this point, it should display **"Not Filtered"** since nothing is filtered yet.

**Add a Slicer or filter Example: Add slicer on Customer[Customer]**

1. Insert a **Slicer** visual.
2. Drag Customer[Customer] into it.
3. Select any customer.

The Card should now change to **"Filtered"**.

1. Statistical Functions

**Question 9: Basic statistical measuresTask:** Create measures for:

1. Average Sales Amount
2. Median Sales Amount
3. Sales Standard Deviation

**Table: Sales**

**Solution:**

DAX

Average Sales = AVERAGE(Sales[Sales Amount])

DAX

Median Sales = MEDIAN(Sales[Sales Amount])

DAX

Sales STDEV = STDEV.S(Sales[Sales Amount])

IV. Time Intelligence Functions (Set 1)

**Question 11: Sales last year**

**Solution:**

DAX

Sales LY = CALCULATE([Total Sales], SAMEPERIODLASTYEAR(Dim Date[Date])) Create a Dim Date Table Create a Orderdate column in salestable with help of orderdatekey using Column from example and then connect sales and dimdate table Drag a table Add Dim date year .> Add total Sales measure> Add Sales LY Measure

**Question 12: Sales previous month**

**Solution:**

DAX

Sales Prev Month = CALCULATE([Total Sales], PARALLELPERIOD(Dim Date[Date], -1, MONTH)) Add Dim Date(year,month), Total Sales, Sales Prev Month to a table

**Question 13: Rolling 90-day sales**

**Solution:** DAX Rolling 90 Sales = CALCULATE([Total Sales], DATESINPERIOD(Dim Date[Date], MAX(Date[Date]), -90, DAY))

**Question 14: Sales for custom date range**

**Solution:** DAX Sales Custom = CALCULATE([Total Sales], DATESBETWEEN(Dim Date[Date], DATE(2023,1,1), DATE(2023,3,31)))

1. Time Intelligence Functions (Set 2)

**Question 15: YTD, MTD, QTD Sales**

**Solution:** DAX YTD Sales = TOTALYTD([Total Sales], Dim Date[Date]) MTD Sales = TOTALMTD([Total Sales], Dim Date[Date]) QTD Sales = TOTALQTD([Total Sales], Dim Date[Date])

**Question 16: Previous month & previous year sales**

**Solution:**

DAX

Prev Month Sales = CALCULATE([Total Sales],PREVIOUSMONTH(DimDate [Date]))

Prev Year Sales = CALCULATE([Total Sales],PREVIOUSYEAR(DimDate[Date]))

**Question 17: KPI Card**

**Task:**

1. Add Card visual.
2. Place YTD Sales measure.
3. Add target value for comparison. If you don’t have any target value create measure Ex: Target Sales = Total Sales \* 1.2

VI. Visualization Tasks

**Question 18: Create basic visuals**

**Tasks:**

1. Cards: Total Sales, Total Profit, Total Customers.
2. Slicers: Year, Product Category.
3. Charts: Column chart for regional sales, Pie chart for product distribution.

Solution: **Cards:**

Total Sales Card

1. Insert a **Card visual**.
2. Drag **Total Sales** measure onto it.

Total Profit Card Insert another **Card visual**. Drag **Total Profit** measure onto it. total Customers Card

1. Insert a third **Card visual**. Drag Customer[CustomerKey] (or Customer[Customer]) onto it. Set the aggregation to **Count (Distinct)**.

In the Visualizations pane, click dropdown → **Count (Distinct)** if it does not automatically detect.

Slicers: **Step-by-step**

Year Slicer

● Insert a **Slicer visual**.

● Drag DimDate[Year] into it.

**Product Category Slicer**

1. Insert another **Slicer visual**.
2. Drag Product[Product Category] into it.

Charts: **Regional Sales Column Chart**

1. Insert a **Clustered Column Chart**.
2. Axis: Sales Territory[Region]
3. Values: Total Sales measure.

Product Distribution Pie Chart

* Insert a **Pie Chart**.
* Legend: Product[Product Category].
* Values: Total Sales measure (or count if you want # of orders).

**Question 19: Create advanced visuals**

**Tasks:**

1. Line chart for monthly sales trend.
2. Waterfall chart to show profit build-up.
3. Map chart for territory-based sales.
4. Solution: Line chart for monthly sales trend.
5. Insert a **Line Chart**.
6. Axis: DimDate[Month] Tip: Use the hierarchy if you want Year > Quarter > Month drill-down.
7. Values: Total Sales measure.

**Profit build-up Waterfall chart**

1. Insert a **Waterfall Chart**.
2. Axis: You can use Product[Product Category], Sales Territory[Region], or any other breakdown dimension.
3. Values: Total Profit measure.The waterfall will show the contribution of each category/region to overall profit.

**Territory-based Map chart**

1. Insert a **Map visual** (globe or filled map).
2. Location: Sales Territory[Country] or Sales Territory[Region].
3. Size (or Value): Total Sales measure.

Make sure "Country" or "Region" is properly recognized as a geographic data type.