Here is a complete step-by-step guideline to help you complete the Excel project using Power Query, Power Pivot, and DAX, based on your tasks:

✅ Task 1: Load and Transform Data, Create Dimension Tables, Data Modeling

Step 1: Load the Files in Excel using Power Query

Go to Data → Get Data → From File → From Workbook/Text/CSV

Load both sales.csv and return\_table.csv into Power Query.

Click Close & Load To → Only Create Connection for both.

Step 2: Create Dimension Tables from sales

➤ 1. Location Table

In Power Query:

Duplicate the sales query → rename to Location

Keep only these columns: City, State, Country, Continent

Remove duplicates

Add an index column (if needed) as LocationID

Load as Connection Only or Table (for modeling).

➤ 2. Product Table

Duplicate the sales query → rename to Product

Keep: Product ID, Product Name, Category, Sub-Category

Remove duplicates

Load to model.

➤ 3. Date Table

Duplicate sales → rename to Date

Keep only Order Date column

Remove duplicates

Add new columns using:

Start of Month: = Date.StartOfMonth([Order Date])

Month Name: = Text.Proper(Date.MonthName([Order Date]))

Start of Week: = Date.StartOfWeek([Order Date])

Day Name: = Text.Proper(Date.DayOfWeekName([Order Date]))

Year: = Date.Year([Order Date])

Rename Order Date to Date and Load

Step 3: Load to Data Model via Power Pivot

Go to Power Pivot → Manage

Add all loaded tables to the model

Define relationships:

Sales[City] → Location[City]

Sales[Product ID] → Product[Product ID]

Sales[Order Date] → Date[Date]

Sales[Order ID] → return\_table[Order ID]

Step 4: Create 4 Pivot Table Sheets (Product Analysis, Regional Sales, etc.)

Go to Insert → Pivot Table → Use Data Model

Create 4 new sheets and name as required.

✅ Task 2: Product Analysis

Rename the sheet to Product Analysis

Create DAX Measures (Power Pivot → Calculations → New Measure):

➤ a. Total Order Quantity:

dax

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Total Order Quantity := SUM(Sales[Quantity])

➤ b. Total Returned Order Quantities:

dax

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Total Returned Order Quantities := SUM(return\_table[Return Quantity])

Insert a Pivot Table:

Rows: Product[Sub-Category]

Values: Both above measures

Insert Stacked Column Chart from this pivot.

✅ Task 3: Regional Sales

a. Rename sheet to Regional Sales

b. Create DAX Measures:

dax

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Total Costs := SUM(Sales[Cost])

Total Revenues := SUMX(Sales, Sales[Quantity] \* Sales[Unit Price USD] \* (1 - Sales[Discount]))

Total Profits := [Total Revenues] - [Total Costs]

Profit Margin % := DIVIDE([Total Profits], [Total Revenues])

Average Order Value := AVERAGEX(Sales, Sales[Quantity] \* Sales[Unit Price USD])

c. KPI Cards:

Use Pivot Table with slicer or create Pivot Cards using Pivot Charts or Conditional Formatting.

d. Map Visual:

Use 3D Map (Insert → 3D Map → Open 3D Maps)

Plot Total Orders by Location[Country]

e. Continent Slicer:

Insert slicer using Location[Continent]

Connect to all visuals via Slicer Connections

✅ Task 4: Logistics Insights

a. Rename sheet to Logistics Insights

b. Average Shipping Days:

Assume a column Shipping Date exists.

dax

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Average Shipping Days := AVERAGEX(Sales, DATEDIFF(Sales[Order Date], Sales[Shipping Date], DAY))

Create Pivot Table:

Rows: Shipping Mode, Product[Category]

Values: Average Shipping Days, Profit Margin %

Apply Conditional Formatting on values.

c. Correlation (Revenue vs. Shipping Days):

Add a new measure:

dax

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Corr Numerator := SUMX(Sales, ([Revenue] - AVERAGE(Sales[Revenue])) \* ([Shipping Days] - AVERAGE(Sales[Shipping Days])))

Corr Denominator := SQRT(SUMX(Sales, POWER([Revenue] - AVERAGE(Sales[Revenue]), 2)) \* SUMX(Sales, POWER([Shipping Days] - AVERAGE(Sales[Shipping Days]), 2)))

Correlation := DIVIDE([Corr Numerator], [Corr Denominator])

You may need to precalculate Revenue and Shipping Days as calculated columns or measures.

d. Visualize in Pivot Table:

Rows: Country → State → City

Values: Correlation

Use Conditional Formatting (Green: >0, Red: <0, Yellow: =0)

e. Continent Slicer:

Use Location[Continent], connect to both tables

✅ Task 5: Time-Series Analysis

a. Rename sheet to Time-series Analysis

b. Measures:

dax

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Cumulative Profit := CALCULATE([Total Profits], FILTER(ALL(Date), Date[Date] <= MAX(Date[Date])))

Weekly Order Growth % :=

VAR CurrentWeek = SUM(Sales[Quantity])

VAR PrevWeek = CALCULATE(SUM(Sales[Quantity]), DATEADD(Date[Date], -7, DAY))

RETURN DIVIDE(CurrentWeek - PrevWeek, PrevWeek)

Monthly Rolling Revenue :=

CALCULATE([Total Revenues], DATESINPERIOD(Date[Date], MAX(Date[Date]), -1, MONTH))

c. Area Chart:

Axis: Start of Week

Values: Cumulative Profit

d. Waterfall Chart:

Axis: Start of Month

Values: Weekly Order Growth %

e. Treemap:

Group by: Quarter

Values: Monthly Rolling Revenue

Use only value label, hide others.

f. Slicer on Year-Quarter:

Create a calculated column:

dax

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Year-Quarter := FORMAT(Date[Date], "YYYY") & "-Q" & FORMAT(Date[Date], "Q")

Add slicer → Connect to Area and Waterfall charts only.

g. Year Slicer:

Use Date[Year]

Connect to Treemap only.