Sales Analysis

You have been hired as a data analyst for a chain of department stores. Your job is to build a Weekly Sales Dashboard in Power BI that helps the CEO, Sumera, monitor store performance, trends, and make informed decisions.

You'll work with historical weekly sales data and new data received weekly to update the dashboard. The CEO wants to analyse sales growth, manager performance, and department trends over time.

Load Datasets:

1. **Department.csv** — List of departments and their IDs.
2. **Stores.csv** — Details of each store and store manager.
3. **All Data** folder — Contains weekly sales CSV files from Jan 2011 to Oct 2012.
    - Use Get data > Folder > Browse folder "All Data"
    - Combine > Load (or Transform) > OK (Remove Source.Name column in Power Query)
    - Rename it to "Sales".
4. **New Week** folder — Contains sales data for the most recent week (Oct 26, 2012).

(Marks: 2)

Calendar Table using DAX:

1. Create a new table "Calendars" for dates in the Sales table.
2. Add a column "Week of the year" using DAX.

(Marks: 2)

Data Modelling:

1. Perform Data modelling and create a star schema.

(Marks: 10)

Overall Sales Analysis:

1. What are the total sales across all stores?
2. How many departments and stores are there?
3. What is the total sales amount for each store?
4. Which departments are performing best in terms of sales?
5. How have sales changed over time, week by week? Use years as Legends.

(Marks: 12, each carries 4 marks)

Week 20 Sales Analysis (Year-over-Year (YoY) Sales Comparison)

The CEO, **Sumera**, wants to evaluate store and department performance by comparing the same week this year to the same week last year. This will help identify growth or decline in sales.

1. Sumera wants you to evaluate how well Store 3, Dept 1 performed in Week 20 this year in comparison to Week 20 last year.

   Hint:

   - Create a column chart with week number and total sales to show a comparison between last year vs this year for week number = 20, store =3, dept = 1. (Use year as legends)
   - Use slicers/filters from visuals **OR** write dax query for each year's sales with the given filters.

2. As part of your sales analysis for the CEO (Sumera), calculate and display the following Year-over-Year (YoY) metrics in a card visuals. Make sure to keep the same filters as above:
   a. **YoY Index**
      - A ratio-based metric that compares current sales to the same period last year, scaled to 100.
      - YoY Index = (Current Sales / Last Year Sales) * 100
      - Interpretation:

        > 100 → Sales have increased
        < 100 → Sales have decreased
        = 100 → No change in sales

b. YoY % Growth

- A percentage metric that shows the relative increase or decrease in sales compared to the same period last year.
- YoY % Growth = ((Current Sales - Last Year Sales) / Last Year Sales) * 100
- Interpretation:

  Positive % → Growth
  Negative % → Decline
  0% → No change

Hint:

- Current Sales
- Last Year Sales (DAX: SAMEPERIODLASTYEAR())
- YoY Index = (Current Sales / Last Year Sales) * 100
- YoY % Growth = DIVIDE([Total Sales] - [Last Year Sales], [Last Year Sales]) * 100

Note: Create a new page “Week 20 Analysis” and add visuals/cards for the above questions in this page. A separate page because of Slicers for week=20, store=1, department=3.

(Marks: 2)

Bigger Picture – YoY Metrics Across All Data

To help the CEO, Sumera, see the **overall year-over-year trend**, display the following metrics (previously calculated) in card visuals:

1. **YoY Index (Overall)**
   Shows whether overall sales have increased, decreased, or remained the same compared to the same period last year.

2. **YoY % Growth (Overall)**
   Shows the percentage change in overall sales compared to last year.

Note: Add these as Card visuals on the "Overall Sales Analysis" page.
These KPIs will reflect the overall performance (without any filter) and give the CEO a quick, high-level view of whether the business is growing YoY.

(Marks: 2)

Update the Data

1. Assume you are now in the week of 26th Oct 2012, Load the "New Week" file.
    a. Load the data file. (If you haven't already loaded)
    b. Go to Transform tab > Sales Table > Append Queries > Select the new file from the dropdown > ok
    c. Right click on the new file > uncheck the "Enable Load".

Try refreshing the numbers on the dashboard with this new data and see if visuals are updated, and have the record for 26th October.

Deliverables:

- Submit a Power BI file with two pages, "Overall Sales Analysis" and "Week 20 Sales Analysis", containing required visuals, metrics, and YoY comparisons. Ensure the dashboard updates correctly after appending the new week's data.