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Assignment: Introduction to PowerBI – Feature Engineering and EDA [↗](#)

Objective: [↗](#)

In this assignment, you will work in groups of 3 to 4 to explore a dataset of your choice, perform feature engineering, create calculated columns and measures, and conduct Exploratory Data Analysis (EDA) to uncover insights from the data. You will also use DAX expressions and justify the use of CALCULATE and PREVIOUSMONTH functions in your analysis.

Deliverables: [↗](#)

1. A PowerBI Report containing your analysis and visualizations.
2. A written report detailing the insights and justifications for the use of DAX functions.
3. A reflection on the group collaboration and the learning process.

Assignment Steps: [↗](#)

Step 1: Select a Dataset [↗](#)

Find a dataset of interest to your group. It should have a sufficient number of rows and features to allow for meaningful analysis. Make sure that the dataset is clean, or be prepared to clean it within PowerBI.

Step 2: Feature Engineering [↗](#)

Create new calculated columns from existing columns in the dataset. For instance, you can create a new column by multiplying multiple columns together or if you have a dataset containing dates and sales, you could create a new column for the year or month. Explain the rationale behind the creation of each new column.

Step 3: Create Measures on Demand [↗](#)

Define measures that allow you to aggregate, calculate, or transform your data dynamically. For instance, you could create a measure to calculate the total sales or average sales. Explain the purpose and application of each measure created.

Step 4: Use of CALCULATE Function in DAX Expression [↗](#)

Create at least one DAX expression using the CALCULATE function. CALCULATE evaluates an expression in a context modified by filters. For instance, if you wish to calculate total sales only for a specific category, you would use CALCULATE.

Justify why the CALCULATE function is needed for your specific use case. Discuss how it adds value to your analysis and how it might be different without this function.

Step 5: Use of PREVIOUSMONTH Function in DAX Expression [↗](#)

Create at least one DAX expression using the PREVIOUSMONTH function. PREVIOUSMONTH returns a table that contains a single column of all dates from the previous month, based on the first date in the dates column provided.

Justify why the PREVIOUSMONTH function is needed for your specific use case. Discuss its relevance and application in comparing data across different time periods.

Step 6: Exploratory Data Analysis (EDA) [↗](#)

Conduct an exploratory data analysis to identify patterns, relationships, anomalies, or trends in your dataset. Create visualizations to aid your analysis. Uncover at least 4 insights from the data and discuss their implications.

Step 7: Documentation [↗](#)

Compile your findings, insights, and justifications in a well-organized written report. Include relevant screenshots, code snippets, and visualizations from your PowerBI report. Reflect on the collaboration within your group and discuss what you have learned from this assignment.

Submission: [↗](#)

- Submit your PowerBI report (.pbix file).
- Submit your written report in PDF format.

Evaluation Criteria:

- Quality and relevance of the selected dataset.
- Effectiveness and rationale of feature engineering.
- Correct application and justification of DAX expressions, including CALCULATE and PREVIOUSMONTH functions.
- Depth and clarity of insights uncovered through EDA.
- Quality and organization of the written report.
- Reflection on group collaboration and learning.

Deadline:

Submit your assignments by Tuesday.

Good luck! Enjoy exploring your datasets and uncovering new insights!