Final Project: Advanced Data Analysis with Power BI

Course: Introduction to Power BI
Institution: Miami Dade College

Objective

To challenge students to apply comprehensive data analysis skills in Power BI. This includes performing advanced exploratory data analysis, combining multiple data sources, creating complex DAX formulas, and developing sophisticated visualizations.

Instructions

- Dataset Selection: Choose a dataset that interests you, ensuring it has at least 500 rows and 5 columns.
- Data Import and Cleaning: Import your dataset into Excel or Power BI and perform necessary data cleaning.
- Exploratory Data Analysis (EDA): Thoroughly explore the dataset to understand its structure and variables.
- Insight Generation: Identify at least three insights from the dataset, explaining their real-world significance.
- Visualization with Power BI: Create at least three visualizations, one for each insight.
- Report Compilation: Compile a Power BI report presenting your EDA, insights, and visualizations.
- Submission: Export your Power BI report as a PDF and submit it with supplementary files.

Integrate Multiple Data Sources

- Combine data from diverse sources to enhance the depth of your analysis.
- Ensure data consistency and relevance across all integrated sources.

Incorporate a Date Hierarchy

- Implement and utilize a date hierarchy in your model to provide temporal insights.
- Leverage the hierarchy to add depth to your visualizations.

Complex DAX Formula

- Develop and use at least one complex DAX formula to derive sophisticated insights.
- The formula should significantly enhance the analytical capabilities of your model.

Decomposition Tree Visualization

- Incorporate a Decomposition Tree to break down and analyze key metrics.
- Use this to explore various dimensions of your data dynamically.

Utilize Key Influencers

- Employ the Key Influencers visual to identify and display the main drivers of selected outcomes.
- This should help in understanding the factors influencing your key metrics.

Advanced Visualizations

- Create sophisticated visualizations that illustrate complex data relationships.
- These should go beyond basic charts, adding depth and clarity to your insights.

Interactive Navigation

- Design an interactive Table of Contents and navigation buttons in your report.
- This should enhance the user experience and ease of navigating through your report.

Grading Criteria

- Dataset Selection and Quality (10%): Relevance, interest, and sufficient size.
- Data Cleaning (15%): Effective data quality management and cleaning techniques.
- Exploratory Data Analysis (20%): Comprehensive and appropriate exploration techniques.
- Insight Generation (20%): Relevance, interest, and clear explanation of insights.
- Visualization Quality (25%): Clarity, relevance, and effective communication of insights.
- Report Presentation (10%): Organization, completeness, and error-free.