Assignment Brief

Title: Build a Financial Insights Dashboard and Scoring Model

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1. **Data Analysis**:
    - Analyze the dataset to:
        - Identify family-level and member-level spending patterns.
        - Understand correlations between financial metrics (e.g., income vs. expenses, savings vs. spending habits).
2. **Build a Financial Scoring Model**:
    - Develop a scoring mechanism (range: 0–100) to evaluate each family's financial health.
    - Factors to include:
        - Savings-to-Income Ratio.
        - Monthly Expenses as a percentage of Income.
        - Loan Payments as a percentage of Income.
        - Credit Card Spending trends.
        - Spending category distribution (e.g., higher travel/entertainment spending lowers the score).
        - Financial Goals Met (%).
    - Provide a **justification for the scoring logic and weights** assigned to each factor.
3. **Insights Visualization**:
    - Use **Python** with **Matplotlib**, **Seaborn**, or **Plotly** to visualize:
        - Spending distribution across categories.
        - Family-wise financial scores.
        - Member-wise spending trends.
    - Include at least 3 meaningful visualizations.
4. **Deploy the Model**:
    - Use **Flask** or **FastAPI** to expose the scoring model as an API.
        - Input: Family-level and transaction data for a family.
        - Output: Financial score and key insights (e.g., "Savings are below recommended levels, which affects your score by X points").

Bonus Tasks:

1. Implement a simple **Streamlit or Dash app** to allow interaction with the scoring model and visualizations.
2. Provide **recommendations** for improving financial scores (e.g., "Reduce discretionary spending by 10% to improve your score by X points").

Deliverables:

- **Python Code**:
    - Include a Jupyter Notebook or Python scripts with:
        - Data cleaning and preprocessing logic.
        - Scoring model implementation and evaluation.
        - Visualizations.
- **API**:
    - Deploy a Flask/FastAPI app for testing the model.
- **Documentation**:
    - README with setup instructions and explanation of model logic.