Overview

In this challenge, you'll demonstrate your ability to consolidate data, uncover patterns, derive insights, and propose solutions to business challenges. You'll work with three datasets containing trends and complexities designed to mimic real-world scenarios. Your goal is to process the data, analyze it, and provide actionable recommendations supported by your findings.

Important Note: You must solve this problem independently without the assistance of third-party AI systems (such as OpenAI, Claude, Gemini, or similar tools) in any part of your solution. However, consulting code documentation is permitted. In your submission, include a statement confirming that you did not use AI assistance.

Scenario

Supportiv's leadership team is seeking insights to drive strategic decision-making and operational improvements. They have provided you with three datasets:

1. **User Activity Data**: Captures details about user sessions, including session length, messages sent, feedback ratings, and resources clicked.
2. **Moderator Performance Data**: Tracks metrics like sessions moderated, average response times, and user satisfaction scores.
3. **Recommendation Data**: Includes data on recommendation types, click-through rates, and feedback scores.

The leadership team has not defined specific metrics or questions. It is up to you to identify key trends, anomalies, and insights that are most impactful for the business.

Your Tasks

1. **Download the data from here**
2. **Ingest and Transform**:
    - Load and clean the datasets to prepare them for analysis.
    - Consolidate the data into a unified model that allows cross-dataset exploration (e.g., linking user sessions to recommendations or moderator performance).
3. **Analyze**:
    - Explore the data to identify trends, patterns, and relationships across the datasets.
    - Define and calculate any metrics or KPIs that you think are relevant for measuring user engagement, moderator performance, or recommendation effectiveness.
    - Identify anomalies or areas for improvement.
4. **Answer Broad Questions**:

    - What key insights can you uncover from the data?
    - How would you measure engagement or effectiveness across these datasets?
    - What trends or patterns stand out to you, and why are they important?
    - Are there any areas of concern or anomalies that require attention?
    - Based on your findings, what recommendations would you make to improve platform performance or user experience?
5. **Visualize and Report**:
    - Create visualizations to highlight your findings using freely available tools such as Google Sheets, Excel, or Python libraries (e.g., Matplotlib, etc).
    - Develop a concise report (~1-2 pages) summarizing your findings, insights, and recommendations.

Submission Guidelines

- Share your code or steps used for data processing and analysis (e.g., Python scripts, SQL queries).
- Include screenshots, exported graphs, or files showing your visualizations.
- Provide a write-up summarizing your insights and recommendations.

Evaluation Criteria

- **Critical Thinking**: How well did you interpret the business problem and address it with data?
- **Technical Execution**: Quality of your data transformations and metric definitions.
- **Clarity**: Are your insights and recommendations well-articulated and actionable?
- **Creativity**: Innovative approaches to solving the problem or presenting data.