Product Requirements Document (PRD)

Project Title

LLM-Driven Behavioral Segmentation & Product Recommendation Agent for Grupa.io

Objective

Develop an intelligent analytics agent that:

1. Automatically segments users based on behavioral patterns from event logs.

2. Uses an LLM to analyze each cluster and:

   - Identify key pain points

   - Suggest product improvements

3. Presents insights through interactive visualizations.

4. Allows product teams to select a proposed feature to test (via an A/B test planning prompt - no execution

yet).

Target Users

- Grupa.io's internal product managers and UX designers

- Growth and strategy teams

- Stakeholders looking to improve user engagement and deal completion

Core Features

1. Data Ingestion:

- Accepts user logs as .csv: user_id, timestamp, action, metadata

- Example actions: proposal_create, feature_use, drop_off

2. User Clustering:

- Applies unsupervised learning (e.g., UMAP + HDBSCAN) to cluster users

- Feature inputs: session frequency, proposal patterns, feature usage

3. LLM Analysis (Required):

- For each cluster, send representative behavior summary and metrics

- LLM (e.g., GPT-4) responds with pain points and product recommendations

4. Interactive Visualization:

- Scatterplot showing user clusters

- Clickable points show insights per cluster

5. A/B Test Selector:

- Select a recommendation to add to the test roadmap (no execution)

Frontend/UX Requirements

- Streamlit or FastAPI + React

- Cluster visualization plot

- Cluster cards with summaries and insights

- Click-to-expand views per cluster

- A/B test planner panel with selection capability

Success Criteria

Clusters generated: >= 3 meaningful clusters

LLM insight clarity: pain points + recs per cluster

Visualization: Interactive and explanatory

A/B test planner: Accepts and stores user selections

Tech Stack

- pandas, scikit-learn, umap-learn, hdbscan

- openai, anthropic, langchain

- Streamlit for frontend

- Plotly or Altair for charts

- SessionState or local JSON for test roadmap

Prompt for Cursor

Build a Streamlit app for Grupa.io that does the following:

1. Accepts a CSV with user_id, timestamp, action, metadata.

2. Clusters users using UMAP + HDBSCAN.

3. Sends summaries of each cluster to an LLM for:

   - Pain points

   - Product recommendations

4. Visualizes clusters in a scatterplot.

5. Clicking a cluster shows insights and lets users add recs to an A/B roadmap.

6. No backend execution of A/B test - only planning.

7. Store selections locally. Use placeholder OpenAI key.

8. Use Plotly or Altair and build in modular, readable form.