Gandhar Task - Week 1

Title:

AI Data & Dashboard Engineer

Focus: AI agents, LLM prompt workflows, data pipelines, visual insight generation, backend logic for Gurukul modules (starting with Coding/AI Tier 1).

Strengths Used:

- ML model development (trends, anomaly detection)
- Dashboarding and insight delivery
- Python (Pandas, Sklearn, Plotly/Streamlit)
- Clean code and reporting discipline

Your Task Domains

1. Insight Dashboards for Learners
   Visualize student performance across learning tiers:
    - Engagement time, lesson mastery, quiz performance.
    - Progress bar per subject or tier.
    - Time-based trend predictions: “Will this learner finish Tree Tier in 7 days?”
2. ML Models for Learner Recommendation & Personalization
    - Agent that learns from a user’s behavior and suggests what to do next.
    - AI predicts if a student needs revision or is ready to move ahead.
    - Anomaly flag: sudden performance drop, quiz pattern indicating misunderstanding.
3. Backend Analytics Layer (MVP using Streamlit or Gradio)
    - Build Gurukul Dev Dashboard for Admin:
        - User metrics
        - Popular subjects

        - Quiz/lesson difficulty heatmap
        - Feedback aggregation from prompts

4. Fine-tuning Data Collector & Logger

    - Log prompts/responses for building the specialized Gurukul LLM.
    - Identify common user errors, preferred learning styles, and FAQ clusters.

5. Build Mini-Agent Simulators

    - Create AI teacher/guide personas using LangChain/Ollama:

        - “Coding Rishi” who can answer coding doubts.
        - “Vedic Finance Guru” who helps during finance tier learning.

Week 1 Task Plan

Goal: Build the first MVP of the Gurukul Insight & Learning Dashboard with mock data and prepare base agents for personalization.

Day 1–2: Environment Setup

- Setup working Python repo (Streamlit or Gradio).
- Create folder structure: agents/, data/, models/, dashboard/
- Add dummy user data and structure JSON/CSV formats for analysis.

Day 3–4: Insight Dashboard MVP

- Build dashboard with:

    - Learner progress over time
    - Subject tier-wise completion stats
    - Mock anomaly (e.g., long inactivity)
    - Recommend next lessons based on pattern

Day 5: AI Agent 1 – Performance Trend Forecaster

- Train a simple regression/classifier to predict next week’s mastery level.

- Input: time spent, lessons done, quiz scores.
- Output: Performance prediction (improve/decline/stagnant)

Day 6: AI Agent 2 – Learning Anomaly Detector

- Detect:
  - Sudden drop in quiz scores
  - Large time gap between sessions
- Trigger mock alert message.

Day 7: Report + Integration Call

- Prepare short walkthrough video and PDF.
- Sync with Developer 5 to design API for frontend-to-dashboard connection.