Here is a revised project proposal. It retains the core mission of your original idea but redefines the technical scope to specifically address the instructor's feedback regarding timeline constraints and required features (CRUD, Analytics, LLM).

Project Proposal: National Park Travel Planner (Revised)

1. Introduction & Goal

Our team is developing a travel planning application tailored for U.S. National Park enthusiasts. The primary goal is to **streamline the process of planning national park trips** by consolidating flight details, lodging recommendations, and park data into one unified platform.

By analyzing factors such as **flight punctuality, price trends, and lodging proximity**, our application empowers travelers to make **well-informed, cost-effective decisions**.

2. Scope Optimization (Addressing Timeline Constraints)

To ensure feasibility within the course timeline, we are refining the scope from using real-time, volatile APIs to using **comprehensive static datasets** (sourced from the DOT, FAA, and NPS). This ensures stable data for implementing the required advanced features (Analytics and LLM) without the overhead of managing live API rate limits and authentication during development.

3. Functional Requirements & Implementation

A. CRUD Operations (2 Distinct Sets)

The application will implement two distinct sets of Create, Read, Update, and Delete operations to manage user data effectively:

- **Set 1: Trip Management**
  - **Create:** Users can build a trip by selecting a specific **National Park**, linking a preferred **flight**, and selecting **lodging**.
  - **Read:** Users can view a dashboard of their upcoming and past saved trips.
  - **Update:** Users can edit trip dates or change accommodation details.
  - **Delete:** Users can remove cancelled trips from their account.
- **Set 2: User Notes & Wishlists**
  - **Create:** Users can save specific parks to a "Wishlist" or add personal notes/journal entries regarding a trip (e.g., "Review: Bring extra hiking gear").
  - **Read:** Display saved notes and wishlists within the user profile.
  - **Update:** Edit the content of notes or priority of wishlist items.
  - **Delete:** Remove outdated notes or satisfied wishlist items.

B. Analytics & Visualization

We will implement an analytics dashboard to help users visualize travel data:

- **Visualizations:** The app will display **flight punctuality** statistics and **price trends** for flights to airports near selected parks.
- **Benefit:** This allows users to identify the most reliable airlines and the most cost-effective times to visit specific parks.

C. LLM Integration

We will deploy a Large Language Model (LLM) using Retrieval-Augmented Generation (RAG).

- **Functionality:** A chat assistant will allow users to ask natural language questions, such as asking for recommendations based on family needs (e.g., "I am a single mom with 2 kids... Which U.S. National Park would be the most fun?").
- **Implementation:** The system will retrieve relevant park data (amenities, location, difficulty) to augment the LLM's response, providing accurate, data-backed travel advice.

4. Target Audience & Benefits

- **Primary Users:** Travelers planning trips to U.S. National Parks.
- **Benefits:** The app **centralizes all major trip factors** (flight, lodging, park info) into one platform , allowing users to **easily compare options** and **track trends**.