AI-ENABLED CAREER PROGRESSION PREDICTION SYSTEM – CAIP PROJECT

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1. Problem Statement

This project aims to develop an AI-enabled system for predicting future career appointments of government employees based on their past career trajectories, training history, qualifications, and organizational structure. The system will support evidence-based HR planning, succession management, and policy evaluation. The dataset includes real-world employee service histories, appointments, promotions, and training records.

2. Project Type and Scope

This is an applied AI project involving data-driven modeling and the development of an AI-enabled decision-support system. The project covers at least two CAIP modules:
- Machine Learning (career prediction models)
- Natural Language Processing (processing historical career texts)
- Governance Applications (policy and HR planning relevance)

3. Dataset

The dataset consists of structured officer profiles including rank, branch, pool, training history, appointment history, average performance evaluation, and promotion records. The dataset is synthetic and created based on a fictional star-trek style organization.

4. Proposed Methodology

The project will explore multiple broad AI approaches, without committing to a specific algorithm at this proposal stage:
- Classical Machine Learning (e.g., gradient boosting, random forests)
- Deep Learning models for sequence understanding
- Representation learning (embeddings for text-based records)
- Optional RAG (Retrieval-Augmented Generation) integration using NLP models

5. Evaluation Metrics

Model performance will be evaluated using:
- Top-k accuracy for next-appointment prediction
- Precision/Recall for career path transitions
- Qualitative assessment through expert HR validation

6. Industry and Governance Relevance

Government departments, defense organizations, and large institutions require strategic workforce planning. This system will provide decision-makers with insights on likely future appointments, enabling better resource allocation, succession planning, and policy assessment. The project mirrors real needs in civil service and public-sector HR governance.