

Project Proposal

AI Interview Coach: An Interactive LLM-Based Interview and Feedback System

Team members:

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1. Project Overview

We propose to build an AI Interview Coach, a FastAPI-based interactive system that simulates professional interviews using large language models (LLMs) and provides structured, rubric-based feedback to users. Unlike generic chatbots, our system dynamically adapts to users' job roles, resumes, and skill profiles, generating relevant interview questions and actionable feedback that measure improvement over time. The project focuses on applying Generative AI, RAG (Retrieval-Augmented Generation), and automated scoring to support employability and skill development.

2. Motivation and Problem

Job seekers frequently practice with LLM chatbots that provide superficial feedback and lack domain specificity.

Our system aims to address three main limitations: 1) Lack of contextual awareness (most bots ignore user background and target role); 2) Unstructured and subjective feedback (no consistent rubric); 3) No longitudinal tracking (no measure of improvement). By introducing structured evaluation and domain retrieval, we create a more personalized, educational, and measurable interview practice experience.

3. Dataset and Data Sources

We will use the "Data Science Interview Questions" dataset from Kaggle (Sandy1811, 2021), which contains hundreds of curated interview questions and topics related to statistics, machine learning, SQL, and business case analysis.

This dataset will be embedded into a FAISS vector store and used as the retrieval base for generating and validating model responses. Additionally, we plan to curate a small behavioral-question corpus to support STAR (Situation – Task – Action – Result) style evaluation.

4. Expected Impact

The AI Interview Coach enhances job-readiness training by transforming interview preparation into a personalized, data-driven learning experience. It also demonstrates how generative AI and structured evaluation can be combined for educational and professional skill assessment — an approach that extends beyond interviews into general performance coaching.

Dataset Source:

Data Science Interview Questions by Sandy1811, Kaggle (2021). Available at:
<https://www.kaggle.com/datasets/sandy1811/data-science-interview-questions>