AI Engineer Assignment

Congratulations on progressing to this stage of our interview process at Careerflow.ai! We are excited to see how you tackle the challenges of AI engineering, showcasing your ability to work with AI models and build agentic systems around them.

Assignment Overview

Objective

Build a Conversational Resume Optimization System where users can chat with their resume to make improvements. The system should intelligently route conversations to specialized agents and orchestrate multi-step optimization workflows.

Core Requirement

Create a chat interface where users can upload a resume and have natural conversations like:

- "Optimize my resume for Google"
- "Translate this to Spanish for the Mexican market"
- "Update my experience section to better match this job description"
- "Make my skills section more relevant for a data scientist role"

Required Agents (Implement 3 of 4)

1. Company Research & Optimization Agent

- Researches target companies using web APIs
- Optimizes resume content to match company culture and values
- Adjusts language and emphasis based on company hiring patterns

2. Job Description Matching Agent

- Analyzes provided job descriptions
- Restructures resume to highlight relevant experience
- Generates match scores and identifies skill gaps

3. Translation & Localization Agent

- Translates resumes while maintaining professional quality

- Adapts formatting and content for different cultural contexts
  - Researches local hiring conventions

4. Section Enhancement Agent

  - Improves specific resume sections based on user requests
  - Adds quantification, action verbs, and impact statements
  - Maintains consistency across the entire document

Technical Requirements

Chat Orchestration System

  - Conversation Router: Intelligent routing to appropriate agents based on user intent
  - Context Management: Maintain conversation history and resume state across interactions
  - Agent Coordination: Handle complex requests requiring multiple agents
  - State Management: Track resume versions and changes throughout the conversation

Required Technologies

  - Framework: LangChain or CrewAI for agent orchestration
  - Backend: Python (FastAPI) or Node.js with proper chat API design
  - Database: Firebase for conversation history and resume versions
  - LLM: (your choice)
  - Vector DB: (your choice)
  - Other APIs or Services: (your choice)

Chat Interface Requirements

  - Handle file uploads (PDF/DOCX resume parsing)
  - Display resume changes and agent reasoning
  - Support for follow-up questions and clarifications
  - [Bonus] Ability to undo/redo changes or compare versions
  - [Bonus] Real-time conversation with typing indicators

How Long It Should Take

We expect you to complete the task within **24 hours**. If you need additional time or cannot start immediately, please let us know.

Final Deliverables

- The final deliverable would be working code, as well as video recording(s) walking us through your code, your thought process, and showcasing the responsiveness of the system.
- A 5 minute video demo of your project in action
- Add a README file to your project, explaining the various code components and what they do.
- Either in the README file or separately, explain the overall agent architecture you have created and also provide details on your context engineering choices, choice of tools, APIs, etc..
- **Responsible Use of AI Statement:** Please include a detailed "Responsible Use of AI" statement with your submission, mentioning how (if at all) you used AI tools (e.g., ChatGPT, Copilot, etc.) — for example, for debugging, idea generation, or code assistance. This helps us ensure transparency and responsible AI use. Note that if you are also using AI to generate code, then you need to also share with us full chat / prompt traces for transparency about how much code you actually wrote vs an AI system.

The Purpose of This Assignment

We believe that the best way to understand how someone would fit into our AI engineering environment is to give them a task that directly mirrors the conversational AI systems we're building at Careerflow.ai. This assignment reflects the actual challenges our AI engineers face daily when building intelligent agents that can understand user intent, coordinate multiple AI capabilities, and deliver meaningful career optimization results.

This assignment gives us critical insights that are difficult to capture in traditional interviews:

- Agentic AI Architecture Skills
- Conversational AI Design
- LLM Integration Expertise
- Real-World Problem Solving
- Production Readiness

Additionally, this assignment gives you firsthand experience with our technical challenges and the types of AI problems we're solving to help millions of job seekers optimize their careers. The conversational interface aspect is particularly crucial since we're moving toward more intuitive, chat-based interactions across our entire platform.

If nothing else, think of it as a test of your ability to build the kind of intelligent, helpful AI systems that are transforming how people approach their career development.

For any queries, concerns, or clarifications, please reach out to engineering@careerflow.ai