

PROJECT NAME: AI Resume Screening Agent

1. OVERVIEW OF THE AGENT The AI Resume Screening Agent is an automated HR tool designed to streamline the initial candidate evaluation process. In high-volume hiring environments, recruiters spend excessive time manually reviewing resumes. This agent acts as an intelligent assistant that parses PDF resumes, analyzes them against a specific Job Description (JD), and provides an instant, unbiased evaluation using Google's Gemini 2.5 Flash model.

2. FEATURES & LIMITATIONS

Features:

- **PDF Parsing:** Extracts text from standard PDF resumes using PyPDF2.
- **Contextual Analysis:** Uses LLMs to understand the semantic meaning of skills, rather than just simple keyword matching.
- **Match Scoring:** Generates a percentage score indicating how well the candidate fits the role.
- **Gap Analysis:** Explicitly lists missing keywords and skills.
- **Markdown Reporting:** Outputs a clean, formatted report with headers and bullet points.

Limitations:

- **File Format:** Currently supports PDF files only (no DOCX support yet).
- **Text Extraction:** Resume parsing may struggle with complex layouts, highly graphical resumes, or columns.
- **API Limits:** Depends on the free tier of Google Gemini API, which has rate limits per minute.

3. TECH STACK & APIS USED

- **Language:** Python 3.10
- **Frontend Interface:** Gradio (User-friendly Web UI)
- **AI Model (LLM):** Google Gemini 2.5 Flash (via google-generativeai SDK)
- **PDF Processing:** PyPDF2 library
- **Hosting:** Hugging Face Spaces

4. SETUP & RUN INSTRUCTIONS

To run this agent on a local machine:

- **Step 1:** Clone the Repository git clone
`https://github.com/YOUR_USERNAME/resume-screening-agent.git`
- **Step 2:** Install Dependencies `pip install -r requirements.txt`
- **Step 3:** Set Up API Key `export GOOGLE_API_KEY="your_actual_api_key_here"`
- **Step 4:** Run the App `python app.py`

The app will open in the browser at <http://127.0.0.1:7860>.

5. POTENTIAL IMPROVEMENTS

- **Multiple File Upload:** Allow HR to upload a folder of resumes and rank them automatically.
- **Chat Interface:** Allow the user to ask follow-up questions (e.g., "Where did this candidate work previously?").
- **Database Integration:** Save candidate profiles and scores to a database for future reference.
- **Email Automation:** Automatically send a rejection or interview invite email based on the score.