

PROJECT REPORT

Project Title: CareerFit AI – The Intelligent Resume Analyst Submitted

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1. Executive Summary

In the modern recruitment landscape, job seekers often face the "Resume Black Hole," where qualified candidates are rejected by Automated Tracking Systems (ATS) due to a lack of specific keywords or formatting issues. **CareerFit AI** is a Generative AI-powered application designed to solve this problem. By leveraging Google's **Gemini 2.5 Flash** model, the system acts as an intelligent career coach, analyzing resumes against target job descriptions to provide a quantitative "Match Score," visual gap analysis, and actionable upskilling recommendations. This project directly supports **SDG 8 (Decent Work and Economic Growth)** by empowering youth to improve their employability.

2. Problem Statement

The gap between job seeker qualifications and employer expectations is often a gap in communication rather than skill.

The ATS Barrier:

75% of resumes are never seen by a human recruiter because they fail automated keyword filters.

Lack of Feedback:

Candidates rarely receive feedback on *why* they were rejected, preventing them from improving.

Unstructured Data:

Resumes (PDFs) and Job Descriptions (Text) are unstructured data sources that are difficult to compare manually at scale.



3. Sustainable Development Goal (SDG) Alignment

This project aligns with **SDG 8: Decent Work and Economic Growth**.



Target 8.6:

Substantially reduce the proportion of youth not in employment, education, or training.



Impact:

By providing free, instant, and AI-driven career guidance, CareerFit AI democratizes access to professional resume review services, helping candidates secure employment more efficiently.

4. Proposed Solution & Methodology

CareerFit AI utilizes "Agentic AI" reasoning to simulate a strict technical recruiter. The workflow is as follows:

01

Input Processing:

- The user uploads a Resume in PDF format.
- The user pastes a Target Job Description (JD).
- The system uses PyPDF2 to extract text from the PDF.

02

AI Analysis (The Brain):

- The extracted text and JD are sent to the **Google Gemini 2.5 Flash** model via the API.
- A custom "System Prompt" instructs the AI to evaluate the candidate on technical skills, experience, and context.

03

Visualization & Feedback:

- The AI returns a structured JSON response containing a percentage score and missing keywords.
- The system visualizes this score using a **Plotly Gauge Chart**.
- Specific improvement tips are generated to help the user bridge the skill gap.

5. Technology Stack

- **Programming Language:** Python 3.12
- **Large Language Model (LLM):** Google Gemini 2.5 Flash (via google-generativeai library)
- **Frontend Interface:** Streamlit
- **Data Visualization:** Plotly Graph Objects
- **Data Processing:** PyPDF2, JSON

6. Results and Analysis

Scenario A: The "Before" State (Baseline)

In the initial test, a generic resume was uploaded against a Data Analyst Job Description requiring SQL and Power BI. The system correctly identified a significant skill gap.

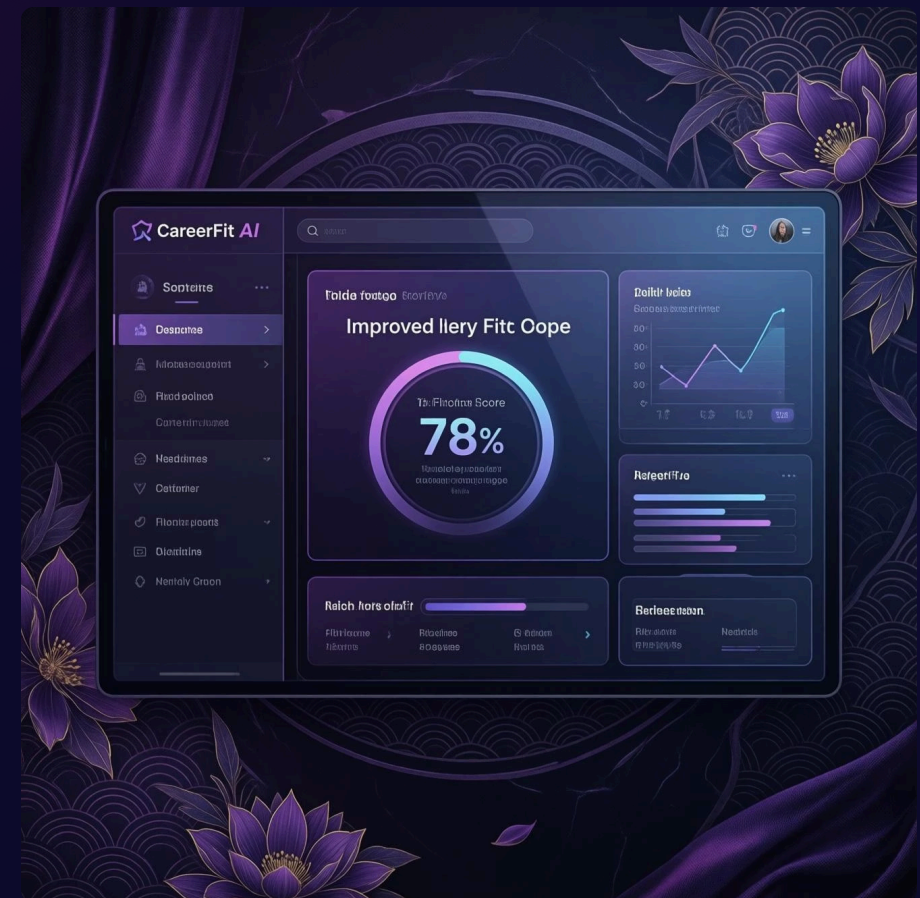
- **Match Score:** 43%
- **Observation:** The AI detected the absence of critical keywords like "Power BI," "Tableau," and "SQL Joins."



Scenario B: The "After" State (Optimization)

Upon implementing the AI's recommendations (adding the missing technical skills to the resume profile), the analysis was re-run.

- **Match Score:** 78%
- **Observation:** The system recognized the updated competencies, validating that the candidate is now a strong fit for the role. This demonstrates the tool's ability to guide users toward success.



7. Future Scope

To further enhance the impact of CareerFit AI, the following features are proposed for future development:

- **Resume Rewriting Agent:**
An AI module that automatically suggests rewritten bullet points to match the JD.
- **Interview Prep:**
A feature that generates likely interview questions based on the specific gaps found in the resume.
- **LinkedIn Integration:**
Analysis of LinkedIn profiles in addition to PDF resumes.



8. Conclusion

CareerFit AI successfully demonstrates the power of Generative AI in solving real-world employment challenges. By converting the subjective process of resume review into an objective, data-driven analysis, the tool provides tangible value to job seekers. It is a functional, scalable, and impactful solution that aligns with the global goal of fostering decent work and economic growth.