CareerCraft: ATS-Optimized Resume Analyzer using Gemini Model

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<u>Problem Statement</u>

- Job seekers often struggle to tailor resumes to job descriptions.
- ATS systems can reject resumes lacking critical keywords or formatting.
- Manual optimization is time-consuming and error-prone.
- There's a need for an intelligent, easy-to-use tool for resume analysis.

Project Objective
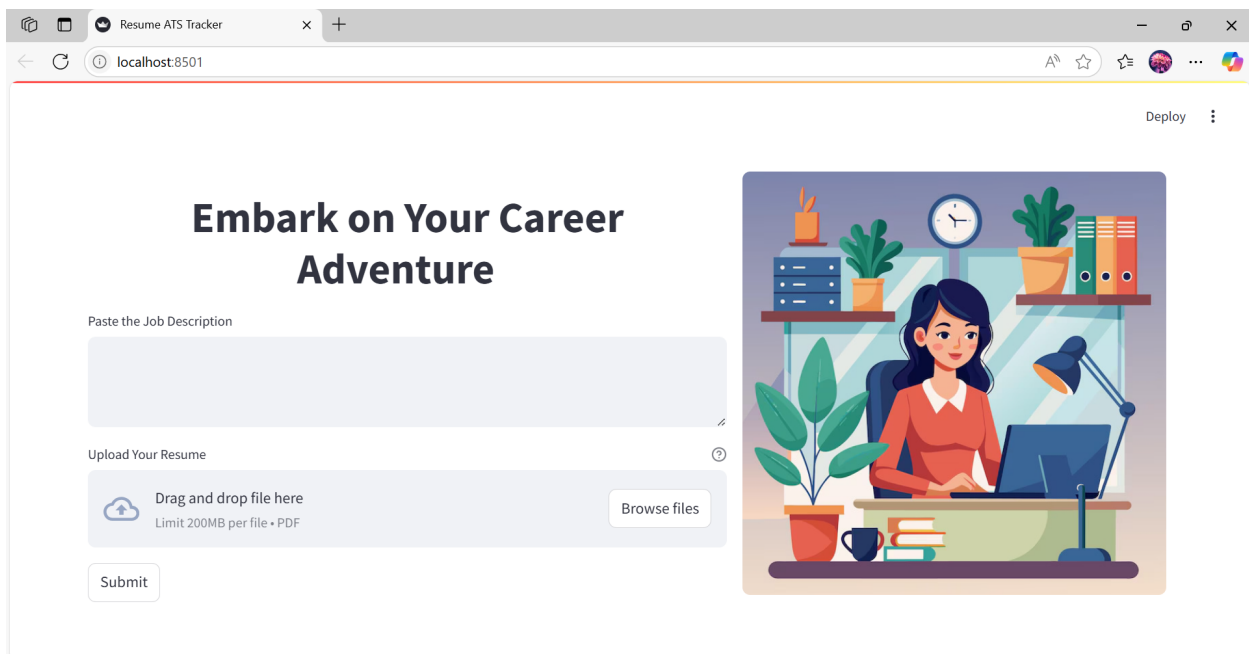
Develop a user-friendly web app that:

- Analyzes resumes against job descriptions using AI.
- Provides percentage match with missing keyword identification.
- Offers personalized profile summaries.
- Supports multiple tech-oriented job domains.

Key Features

- ATS-Optimized Resume Matching
- Keyword Gap Analysis
- Profile Summary Generation
- Support for 20+ Tech Roles
- Clean, Responsive UI with Streamlit
- Powered by Google Gemini (Gemini 2.0 Flash)

<u>System Architecture</u>

1. **User Input**: Upload Resume + Paste JD
2. **Resume Parsing**: Extract text using PyPDF2
3. **Prompt Engineering**: Combine input into structured prompt
4. **AI Analysis**: Gemini model generates content
5. **Output Display**: Results shown in Streamlit UI

<u>Technologies Used</u>

- **Frontend/UI**: Streamlit
- **Backend Logic**: Python
- **AI Engine**: Google Gemini (via *google.generativeai*)
- **Resume Parsing**: PyPDF2
- **Image Handling**: PIL
- **Environment Management**: *dotenv*
- **UI Enhancements**: *streamlit-extras*

Google Gemini Integration

- Configured with API key using *.env*
- Utilizes *gemini-2.0-flash* for fast, reliable text generation
- Prompt design plays a crucial role for consistent output
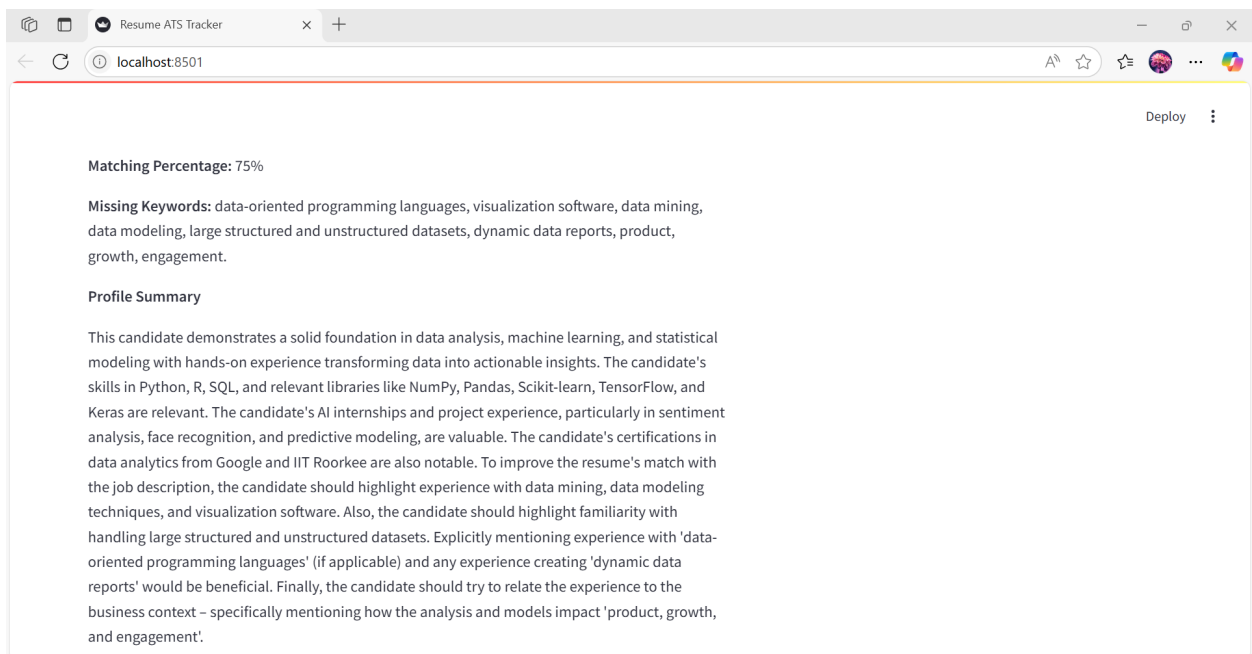- Handles natural language understanding for resume–JD comparison

Streamlit User Interface

UI Components:

- Job Description Input (Text Area)
- Resume Upload (PDF Uploader)
- Submit Button → Triggers AI
- Result:
    - Match %
    - Missing Keywords
    - Profile Summary
- Additional Features: FAQ, Offerings, and Visuals

Sample Output

Below is a sample output generated by CareerCraft after analyzing a resume against a job description, showcasing the match percentage, missing keywords, and a tailored profile summary.

Matching Percentage: 75%

Missing Keywords: data-oriented programming languages, visualization software, data mining, data modeling, large structured and unstructured datasets, dynamic data reports, product, growth, engagement.

Profile Summary

This candidate demonstrates a solid foundation in data analysis, machine learning, and statistical modeling with hands-on experience transforming data into actionable insights. The candidate's skills in Python, R, SQL, and relevant libraries like NumPy, Pandas, Scikit-learn, TensorFlow, and Keras are relevant. The candidate's AI internships and project experience, particularly in sentiment analysis, face recognition, and predictive modeling, are valuable. The candidate's certifications in data analytics from Google and IIT Roorkee are also notable. To improve the resume's match with the job description, the candidate should highlight experience with data mining, data modeling techniques, and visualization software. Also, the candidate should highlight familiarity with handling large structured and unstructured datasets. Explicitly mentioning experience with 'data-oriented programming languages' (if applicable) and any experience creating 'dynamic data reports' would be beneficial. Finally, the candidate should try to relate the experience to the business context – specifically mentioning how the analysis and models impact 'product, growth, and engagement'.

Watch a live demo of CareerCraft in action:
➤ [Click here to watch the video](#)

Benefits & Impact

- Speeds up job readiness
- Increases resume visibility in ATS systems
- Helps job seekers identify and fill skill gaps
- Improves overall job search success rates

Challenges & Future Work

Challenges:

- Context loss in long resumes
- Domain-specific jargon variability
- Dependency on prompt consistency

Future Enhancements:

- Multi-format resume support (DOCX, TXT)
- Real-time keyword suggestions
- Interview preparation assistant
- Job portal integration

Thank You!