**LLM Powered Resume Data Extraction and Smart ATS System**

**Problem Statement:**

The recruitment process often involves sifting through numerous resumes, making it challenging for hiring managers and recruiters to quickly identify qualified candidates. Manual resume evaluation is time-consuming and prone to human error, leading to potential mismatches between candidates and job descriptions.

**Business Solution:**

The Smart ATS and Resume Data Extraction tool automates the extraction of relevant information from resumes and evaluates them against job descriptions. Utilizing the Gemini Pro LLM model which works based on advanced Transformer-based NLP architecture, which enables it to process and generate human-like text. The system enhances the efficiency of the hiring process by providing structured data extraction and matching capabilities, allowing recruiters to make informed decisions faster.

**Why Prefer LLM Over Traditional Solutions:**

* **Context-Rich Extraction**: LLMs can deeply understand context and infer relationships between resume content, resulting in more accurate and relevant extraction.
* **Fewer Rules and Manual Adjustments**: No need for constant tweaking of regex patterns or retraining machine learning models, as LLMs are versatile and adapt to multiple resume formats and job descriptions effortlessly.
* **Enhanced Accuracy and Flexibility**: LLMs can handle complex sentences, domain-specific jargon, and ambiguous formats that would otherwise confuse traditional NLP techniques.
* **Time and Cost Efficiency**: Automating the entire process with LLMs reduces the need for continuous human intervention and saves time, allowing HR teams to focus on decision-making rather than manual resume parsing.

**Potential Users:**

* Human Resource Managers
* Recruiters and Talent Acquisition Specialists
* Career Coaches
* Job Seekers (for resume improvement)
* Companies employing ATS for candidate evaluation

**Potential Impact & Benefits:**

* **Increased Efficiency**: Reduces time spent on manual resume review and shortlisting.
* **Improved Accuracy**: Enhances the precision of candidate evaluations by using AI-driven analysis.
* **Data-Driven Insights**: Provides structured resume data and matching scores for informed decision-making.
* **Enhanced Candidate Experience**: Assists job seekers by offering feedback on resume strengths and areas for improvement.

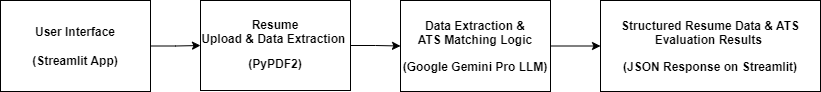
**Technology Used:**

* Google Gemini Pro LLM for natural language processing and data extraction
* Streamlit for building the user interface
* PyPDF2 for extracting text from PDF files
* Python Programming

**Approach:**

1. **Resume Upload**: Users upload PDF resumes through the Streamlit interface.
2. **Text Extraction**: The application extracts text from the uploaded PDF resumes using PyPDF2.
3. **Data Extraction**: The extracted text is fed into the Gemini Pro LLM, which processes the content and returns structured data in JSON format.
4. **ATS Evaluation**: Users can paste job descriptions to evaluate the uploaded resumes against the specified criteria, providing insights into the alignment between candidate profiles and job requirements.

**High-Level Diagram:**

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**Demo:**

* 1. **Run the app.py file in Visual studio in the new terminal**

streamlit run app.py

* 1. **Launch the Application**:

Open your web browser and navigate to the URL where the Streamlit application is hosted (e.g., http://localhost:8501 if running locally).

* 1. **Application Overview**:

Upon launching, you will see the title " LLM Powered Resume Data Extraction and Smart ATS System" along with a brief description of the application's purpose.

* 1. **Navigating the Features**

**Sidebar Navigation**:

There are two features available: **Resume Data Extraction** and **ATS Matching**.

Use the navigation options on the sidebar to choose between these features.

* 1. **Upload Resume**:

Find the section labeled **"Resume Data Extraction."**

Click on the **"Upload Your Resume (PDF only)"** button.

Select a PDF resume file from your computer and upload it.

* 1. **Extract Resume Data**:

After uploading the resume, click the **"Extract Resume Data"** button.

The application will process the uploaded resume, extracting key information such as personal details, professional summary, work experience, and skills.

* 1. **View Extracted Data**:

Once the extraction is complete, the application will display the following structured information:

* + - **Personal Information**: This section will include the candidate’s name, email, and contact number.
    - **Professional Summary**: A brief summary highlighting the candidate’s qualifications and experience.
    - **Professional Experience**: A list of past job roles and responsibilities.
    - **All Skills**: A compilation of skills mentioned in the resume.
  1. **Input Job Description**:

Scroll down to the **"Smart ATS System"** section.

In the **"Paste the Job Description"** text area, enter the job description for the position you are hiring for.

* 1. **Evaluate Resume Against Job Description**:

Click the **"Evaluate Resume Against Job Description"** button to analyze the uploaded resume against the provided job description.

The application will evaluate the resume and provide a matching score and feedback based on the job description.

* 1. **View ATS Evaluation Results**:

After processing, the application will display the **ATS Evaluation Result**, which includes:

**JD Match**: A percentage score indicating how well the resume aligns with the job description.

**Missing Keywords**: A list of essential keywords from the job description that are absent in the resume.

**Resume Improvement Suggestions**: Recommendations on how to enhance the resume for better alignment with the job description.

**Conclusion:**

The LLM Powered Resume Data Extraction and Smart ATS System tool leverages advanced AI capabilities to streamline the recruitment process, making it more efficient, accurate, and user-friendly. By automating data extraction and evaluation, it significantly enhances the overall hiring experience for both recruiters and candidates.