**AI-Powered Resume Ranker: -**

**Internship Project Report**

**Introduction**

In the modern recruitment process, screening resumes manually is time-consuming and prone to human bias. With the increasing number of applications for each job posting, organizations need automated systems to help recruiters shortlist candidates effectively. The **AI-Powered Resume Ranker** is designed to rank resumes based on their relevance to a given job description using natural language processing (NLP) techniques. This project demonstrates how AI can assist human resources in identifying the best-suited candidates efficiently.

**Abstract**

This project focuses on developing an AI system that ranks resumes in order of their similarity to a specific job description. The core objective is to automate the shortlisting process using machine learning and NLP. The system uses text extraction, cleaning, and vectorization techniques to convert both resumes and job descriptions into comparable numerical formats. It calculates cosine similarity scores to rank resumes. The output is a ranked list that helps HR professionals focus on the most relevant profiles. The project has been implemented as an interactive web app using Stream lit, allowing users to input job descriptions and download ranked reports.

**Tools Used**

* **Python 3.x** – Programming language
* **Pandas** – Data manipulation
* **SpaCy** – Text preprocessing and lemmatization
* **Scikit-learn** – TF-IDF vectorization, cosine similarity
* **Stream lit** – Web application interface

**Steps Involved in Building the Project**

1️⃣ **Data Collection:**  
We used the UpdatedResumeDataSet.csv, which contains resumes and their associated categories.

2️⃣ **Text Preprocessing:**  
Each resume was processed using SpaCy. The text was lowercased, stop words were removed, and lemmatization was applied to reduce words to their base forms.

3️⃣ **Job Description Input:**  
A job description is provided by the user through the app interface. This text is also pre-processed similarly to ensure uniformity.

4️⃣ **Feature Extraction (TF-IDF):**  
Both resumes and job description text are vectorized using the TF-IDF technique to convert them into numerical feature vectors that reflect the importance of terms.

5️⃣ **Similarity Calculation:**  
Cosine similarity is computed between the job description vector and each resume vector. This gives a relevance score for every resume.

6️⃣ **Ranking:**  
Resumes are sorted in descending order of similarity scores to produce a ranked list of candidates.

7️⃣ **Web App Interface:**  
A Stream lit-based web app is built where users can input the job description, view top-matching resumes, and download a CSV report of ranked resumes.

**Conclusion**

The AI-Powered Resume Ranker effectively demonstrates how machine learning and NLP can enhance the recruitment process. By automating the resume screening task, the tool saves time and ensures that candidates best matching the job requirements are shortlisted. The system is flexible and can be expanded to handle more advanced features such as skill weighting, custom filters, and integration with applicant tracking systems (ATS).

The project aligns with modern HR needs by combining AI with user-friendly interfaces, making it practical for real-world adoption.