AI Powered Resume Screening System

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Problem & Objectives

The Challenge

Manual resume screening is time-consuming, prone to human error, and inconsistent, causing delays in the hiring process.

The Bias Issue

Unconscious bias in human screening can unfairly disqualify candidates based on non-relevant factors.

Our Objective

To build an automated system that objectively ranks resumes against job descriptions using Machine Learning.

Proposed Solution

Workflow Overview

Our system streamlines the hiring pipeline through a four-step automated process:

- **Input:** Recruiter uploads resumes and pastes the JD.
- **Processing:** Text cleaning and TF-IDF Vectorization.
- **Analysis:** Logistic Regression model calculates fit scores.
- **Output:** Candidates are ranked by relevance score.

Dataset & Methodology

The Dataset

We utilized the **Kaggle Updated Resume Dataset**.

- **Size:** 962 Resumes.
- **Categories:** 25 distinct job roles (Data Science, Java Dev, etc.).
- **Features:** Raw text content labeled with job categories.

The Approach

We implemented a **Supervised Learning** pipeline.

- **Feature Extraction:** TF-IDF (Term Frequency-Inverse Document Frequency) to convert text to numerical vectors.
- **Model:** Logistic Regression for classification and probability scoring.
- **Metric:** Fit Score calculated based on prediction probability.

Technologies Used

Core Logic

Python served as the primary programming language for data manipulation and backend logic.

Machine Learning

Scikit-learn was used for TF-IDF vectorization and training the Logistic Regression model.

Deployment

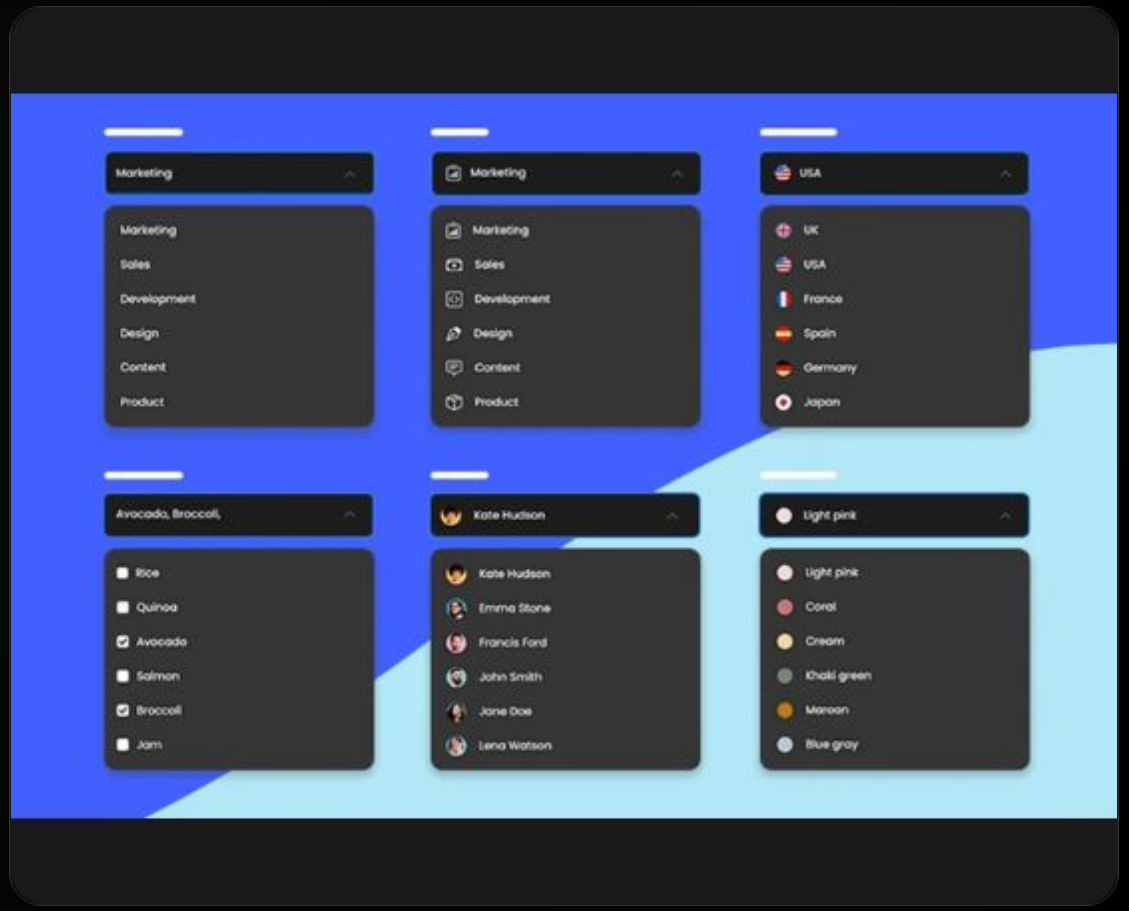
Gradio provided the web UI, while **PyNgrok** exposed the local server to a public URL.

Results & Findings

High Accuracy Ranking

The system successfully identifies top candidates based on keyword matching and context.

- **Interface:** Clean, user-friendly Gradio UI allows instant feedback.
- **Performance:** The model processes resumes in under 2 seconds.
- **Accuracy:** Achieved ~98% classification accuracy on the test set.



Conclusion & Future Scope

🏁Conclusion

We successfully developed an automated resume screening tool that reduces manual effort and provides objective, data-driven candidate rankings. The integration of Gradio makes it accessible and easy to use for HR professionals.

🚀Future Scope

- **Deep Learning:** Incorporate BERT or Transformers for better semantic understanding.
- **File Parsing:** Add support for direct PDF and DOCX uploads using pdfplumber.
- **Explainability:** Add features to highlight *why* a candidate was ranked high.

THANK YOU