Title
ML BASED RESUME CLASSIFIER

Field of Invention

The popular resume websites today either give users lots of resumes or loads of scores, and it's hard to make them work together smoothly. This is tough for people, especially those who are new to job hunting. Trying to figure out your resume score while going through many resumes at the same time can be confusing, especially for beginners.

Background
In the constantly changing world of hiring, organizations often receive a large number of resumes, making the process overwhelming. The conventional methods of manually shifting through resumes to identify suitable candidates for specific roles are time consuming and prone to human bias. To address these challenges, we present a cutting edge solution – the Machine Learning (ML) based Resume Classifier System.

This project harnesses the power of advanced machine learning algorithms to automate the resume screening process, streamlining recruitment efforts and enhancing the efficiency of talent acquisition teams. By leveraging natural language processing (NLP)and pattern recognition, our system aims to categorize and prioritize resumes based on their relevance to specific job requirements.

The ML-based Resume Classifier System not only accelerates the recruitment process but also significantly reduces the risk of overlooking qualified candidates. This project represents a significant leap forward in the realm of HR technology, offering a scalable and adaptable solution to the ever-growing challenges associated with talent acquisition in today's dynamic job market. As we delve into the details of this system, we will explore its architecture, functionality, and the potential impact it can have on revolutionizing the way organizations identify and engage with top-tier talent

Differentiate with other works

- **Integrated Resume Creation and Classification:**
  Unlike conventional platforms that either focus on resume generation or scoring separately, our system seamlessly integrates both. Users can create their resumes within the platform, and the system simultaneously evaluates and classifies them, ensuring a cohesive experience.

- **Automated and Bias-Free Recruitment Process:**
  Many existing hiring platforms still require **manual intervention** in resume filtering, leading to human bias and inefficiencies. Our solution **fully automates the initial screening phase**, ensuring fairness and eliminating unconscious biases in candidate selection.

- **Domain-Specific Resume Scoring:**

  Our ML-Based Resume Classifier ensures **tailored, industry-relevant assessments** instead of a generic, one-size-fits-all approach. It intelligently evaluates resumes based on **specific job domain requirements**, providing **precise and meaningful scores** for both job seekers and recruiters.

Objectives of the Invention

1. To provide UI/UX to create a resume of a candidate.

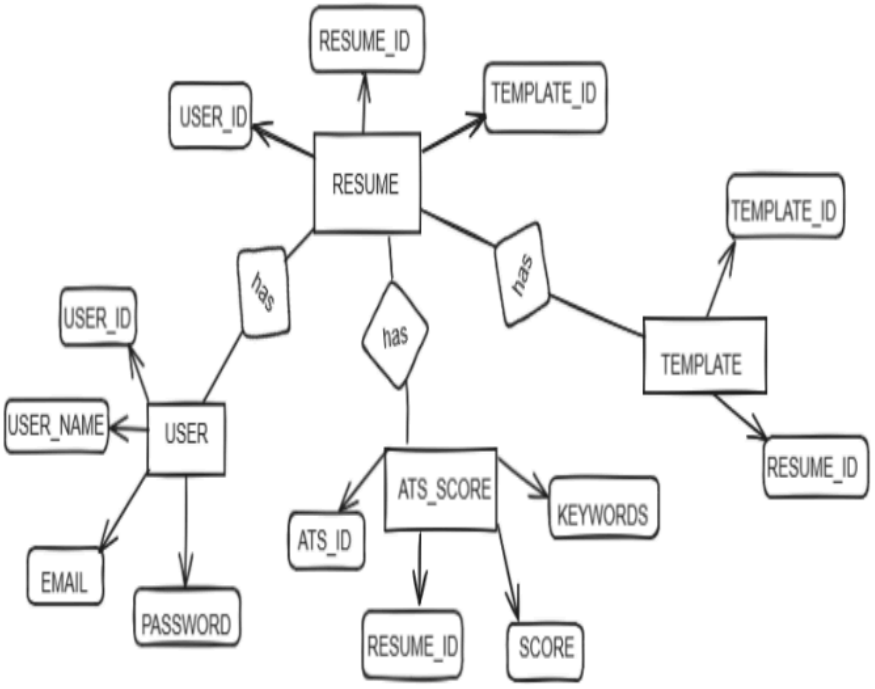
2. To develop a system that automates the initial screening of resumes, reducing the time and resources spent on manual review processes.

3. To develop algorithms that can understand the context of job requirements and applicant qualifications, improving the precision of the classification process.

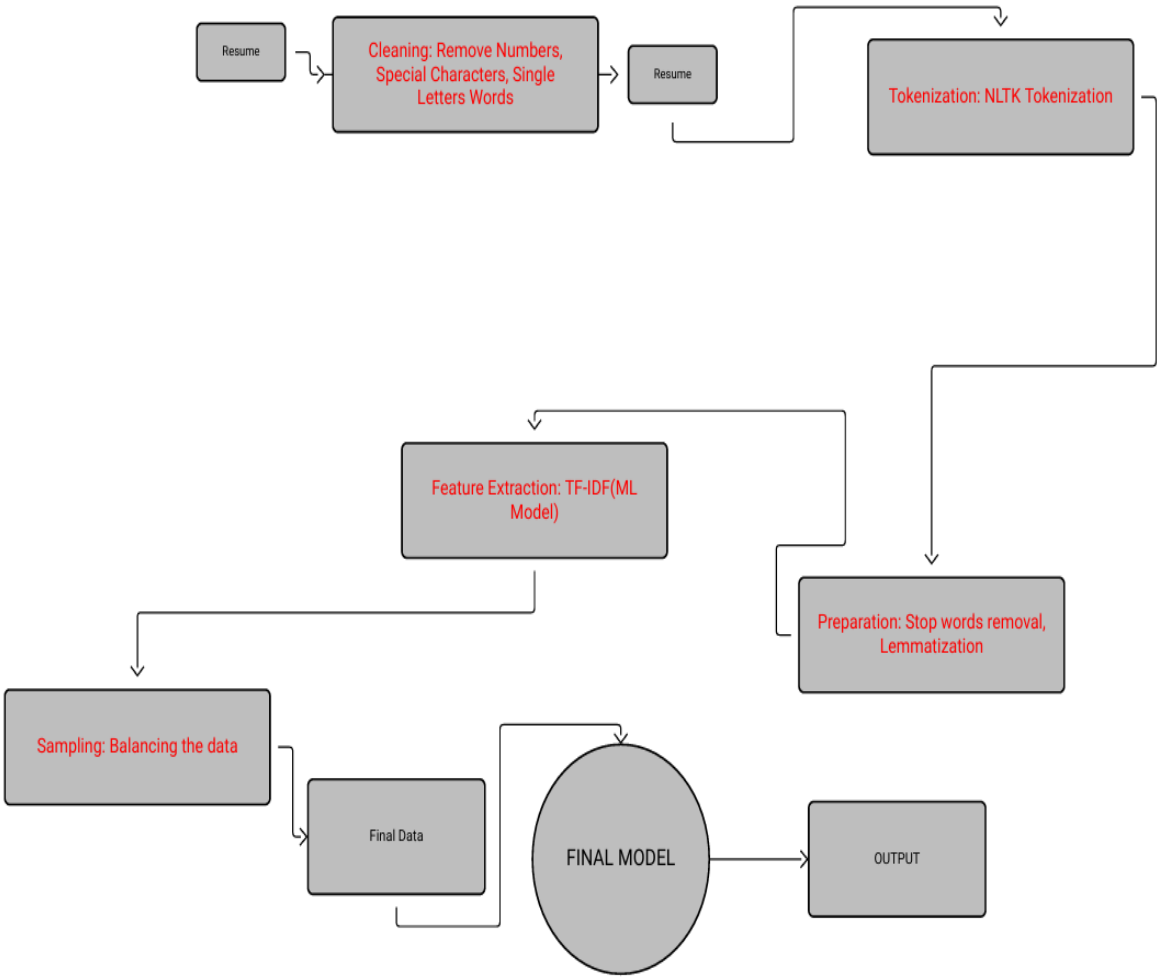
4. The proposed system will utilize Natural Language Processing (NLP) techniques, the system seeks to comprehend the semantic meaning of resumes, ensuring a more accurate assessment of candidates' qualifications and suitability for specific roles.

5. The work aims to enhance decision-making during the early stages of recruitment by providing data insights, ultimately improving the selection process and identifying top-tier talent.

ER Diagram



Flowchart


Resume
Cleaning: Remove Numbers, Special Characters, Single Letters Words
Resume
Tokenization: NLTK Tokenization
Feature Extraction: TF-IDF(ML Model)
Preparation: Stop words removal, Lemmatization
Sampling: Balancing the data
Final Data
FINAL MODEL
OUTPUT

Claims

Our team says that the ML-based Resume Classifier System speeds up hiring and helps avoid missing good candidates. This project is a big step forward in HR technology,offering a flexible solution to the challenges of finding the right people for jobs today. As We look into how this system works, we'll explain its structure, what it does, and how it could change the way companies find and hire talented people.

Technology Used

Software Requirements

1. **React** – A JavaScript library for building dynamic and interactive user interfaces, used for developing the frontend of the resume classifier.
2. **Vite** – A fast and optimized build tool that enhances the development experience for React applications by providing instant hot module replacement and faster builds.
3. **Tailwind CSS** – A utility-first CSS framework that simplifies styling by providing predefined classes, ensuring a responsive and visually appealing UI.
4. **Natural Language Processing (NLP)** – Used to analyze and process resume text, enabling the system to extract and understand key skills, qualifications, and job-related information.
5. **Random Forest** – A machine learning algorithm employed for resume classification, enhancing accuracy through ensemble learning by combining multiple decision trees.
6. **Naïve Bayes** – A probabilistic classifier based on Bayes' theorem, used to categorize resumes based on the likelihood of specific words and phrases matching job descriptions.

Hardware Requirements

- **Laptop** – A computing device with sufficient processing power and memory to handle the machine learning models, NLP tasks, and web application development.

Abstract

In the era of rapid online job applications, our resume website aims to streamline the process by offering users the ability to create personalized resumes effortlessly. The platform incorporates an innovative feature for classifying resumes into specific domains, enhancing the efficiency of job matching.
Leveraging Machine Learning techniques such as Decision Trees, Random Forests, KNN, and Support Vector Machines, the system accurately categorizes resumes, allowing users to tailor their applications to the most suitable positions. Furthermore, our website introduces a scoring mechanism that assesses the relevance of each resumeto its designated domain. This comprehensive approach not only simplifies the resume creation process but also empowers users with insights into their resumes' effectiveness within targeted job domains. By providing a user-friendly interface and leveraging advanced technology, our resume website aims to revolutionize the job application experience, offering a time-saving, cost-effective, and data-driven solution for both jobseekers and hiring companies.

Keywords— Machine Learning, Domain Classification, Resume Scoring.

End-User Devices

- Students & Fresh Graduates
- Job Seekers & Professional Skill Seekers
- Recruiters & Hiring Managers
- Educational Institutions & Career Services
- Corporate Training & Internal HR Departments

Advantages:

1. **Domain-Specific Resume Scoring**: ResuPro offers personalized resume scores based on the domain, helping users tailor their resumes to meet industry-specific standards and increasing their chances of getting noticed by recruiters.

2. **User-Friendly Interface**: With its intuitive design, ResuPro simplifies the resume-building process, allowing users to easily input and update their information without technical expertise.

3. **AI-Powered Insights**: Leveraging machine learning, ResuPro provides intelligent suggestions and feedback on how users can improve their resumes, ensuring their content is optimized for job applications.

4. **Customizable Templates**: ResuPro offers a variety of customizable templates, enabling users to create visually appealing and professional resumes that align with their personal brand and industry requirements.

5. **Real-Time Live Preview**: Users can see a live preview of their resume as they edit, ensuring they can make adjustments instantly and visualize the final result before downloading or submitting it.

Conclusion

In summary, the ML-Based Resume Classifier System offers a significant advancement in recruitment processes. By automating resume screening, it streamlines hiring, ensuring a fair and an efficient approach. The incorporation of Natural Language Processing enhances its ability to understand qualifications, making it a valuable asset for organizations seeking a modern and effective solution.

In conclusion, this project represents a notable step forward in HR technology. With Its Emphasis on efficiency and fairness, the ML-Based Resume Classifier System addresses critical aspects of talent acquisition, making it a valuable tool for organizations aiming to enhance their recruitment practices.