Career Circle

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Abstract—**Career Circle is a realistic online job portal developed using the Django web framework, designed to bridge the gap between job seekers and employers. The platform facilitates user registration, job searching, application submission, and application management, while offering employers tools to post jobs and review candidates. A standout feature is its machine learning integration, utilizing TF-IDF and cosine similarity to compute resume-job match scores, enhancing the precision of job recommendations. The system ensures secure user authentication, data protection, and a responsive design accessible across devices like desktops and smartphones. Built on Python, Career Circle leverages Django's robust capabilities to deliver a scalable and maintainable solution. The front-end employs modern web technologies such as Bootstrap and jQuery, ensuring an intuitive user interface. This paper examines the system's architecture, design models, testing strategies, and evaluates its contributions to the job market. By combining traditional web functionalities with advanced matching techniques, Career Circle offers a seamless and efficient recruitment experience.**

1. INTRODUCTION

The modern job market presents significant challenges, including inefficient job search processes and difficulties in matching candidates with suitable roles. Career Circle addresses these issues by providing an online job portal that streamlines recruitment for both job seekers and employers. Developed using Django, a high-level Python framework, the platform ensures rapid development and a clean design. Its primary goal is to enhance the job search experience through features like user registration, job applications, and an intelligent matching system powered by machine learning. This system analyzes resumes and job descriptions to recommend opportunities, improving placement success rates. The front-end, built with HTML, CSS, Bootstrap, and JavaScript, offers a user-friendly interface, while the back-end handles complex operations like OTP-based password resets and job application processing. The motivation behind Career Circle stems from the need to modernize traditional recruitment, reducing time and effort for all stakeholders. By integrating advanced technologies, it tackles issues like irrelevant job suggestions and cumbersome application processes, positioning itself as a valuable tool in the digital employment landscape.

2. SYSTEM ARCHEICTURE

The "Career Circle" system is built using the Django web framework, which provides a robust foundation for developing scalable and maintainable web applications. The frontend is crafted with HTML, CSS (utilizing Bootstrap for responsive design), and JavaScript, ensuring a user-friendly interface across various devices. The backend leverages Python, with Django's ORM facilitating interaction with the relational database.

a) Home Page
The home page acts as the portal's landing page, featuring highlighted jobs, success stories, and navigation links. Designed with a visually appealing layout using Bootstrap and custom CSS, it encourages user engagement and exploration.

b) Registration Page

This page enables new users to create accounts by submitting details like name, email, and mobile number. Form validation ensures data accuracy, and an OTP is sent to the user's email for verification, preventing unauthorized registrations and enhancing security.

c) Admin Page

The admin page provides a control panel for system administrators to manage users, job postings, and applications. It allows account activation/deactivation and content moderation, ensuring the platform's integrity and smooth operation.

d) Login Page

The login page serves as the entry point for authenticated users, verifying credentials against the database. It supports distinct access for job seekers and employers, redirecting them to their respective dashboards. Security features include OTP verification for password recovery, ensuring robust user authentication.

e) Job Search Page

This page allows users to search for jobs using keywords and filters like location or skills. It retrieves and displays relevant job postings from the database, enabling users to view details and apply directly, enhancing search efficiency.
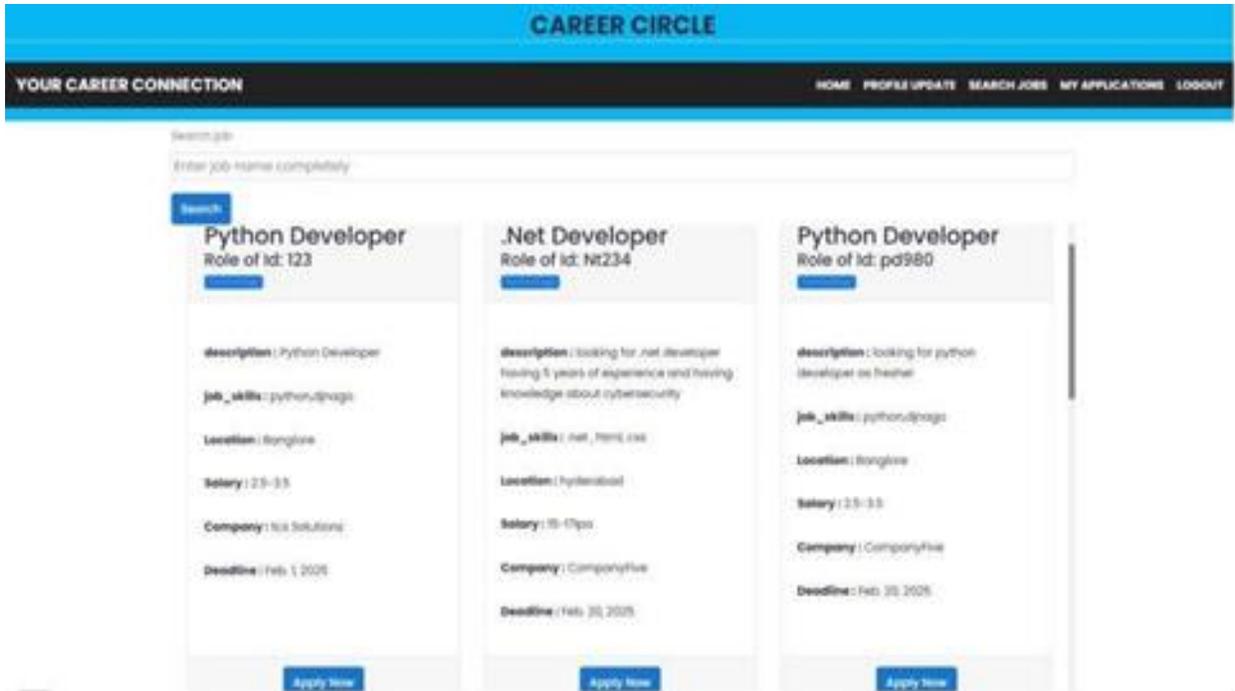
f) My Applications Page
This page displays the status of users' job applications, such as pending, accepted, or rejected. It allows users to track and manage their applications, providing transparency and control over their job search.


3. SOFTWARE MODELLING

Software modelling for Career Circle employs UML diagrams to design and visualize its structure and behavior, ensuring a robust implementation.

a) Use Case Diagram
The use case diagram outlines user interactions with the system, including job seekers registering, searching, and applying for jobs, employers posting jobs, and admins managing the platform. It captures the functional scope and user roles effectively.
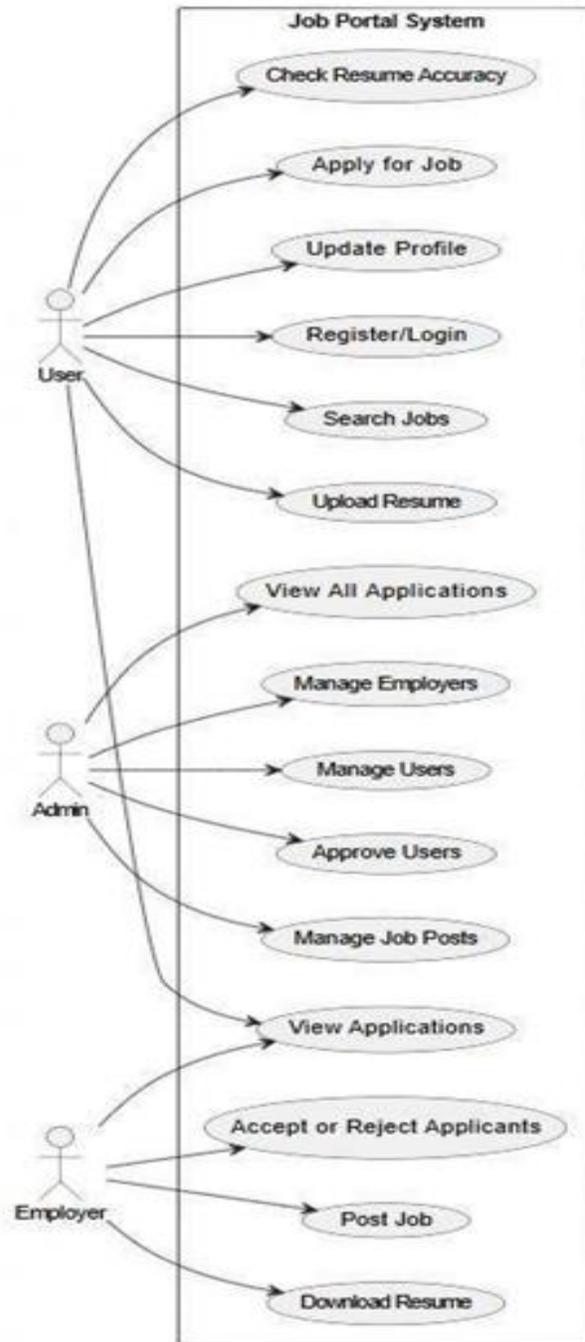
b) Component Diagram
This diagram illustrates the system's modular structure, featuring components like user authentication, job management, application processing, and the recommendation engine. It highlights their interconnections, ensuring a cohesive design.
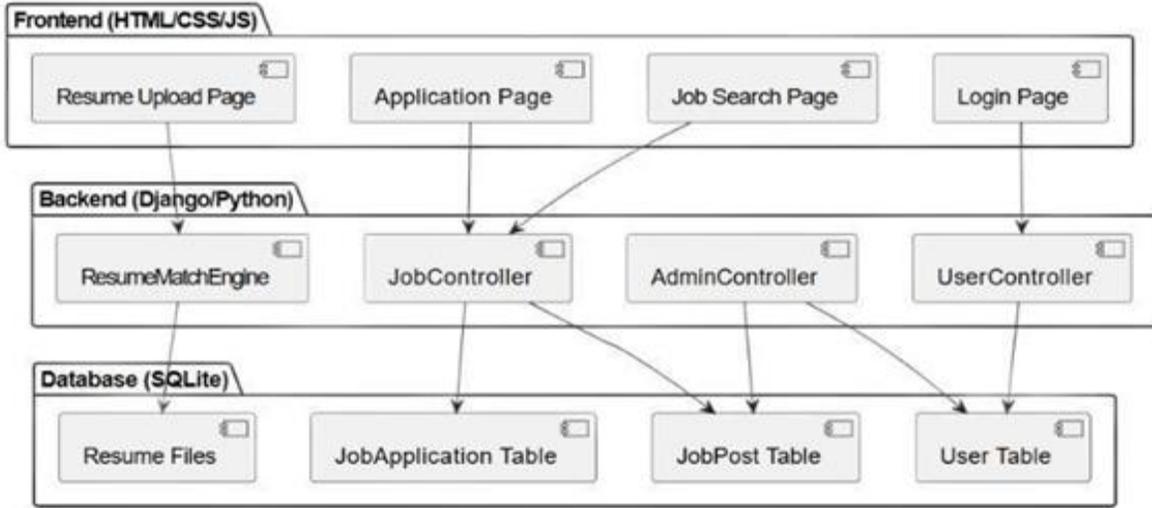
c) Class Diagram

The class diagram details the system's static structure, including classes such as UserRegistrationModel, JobPost, and JobApplication. It defines attributes, methods, and relationships, serving as a blueprint for implementation.
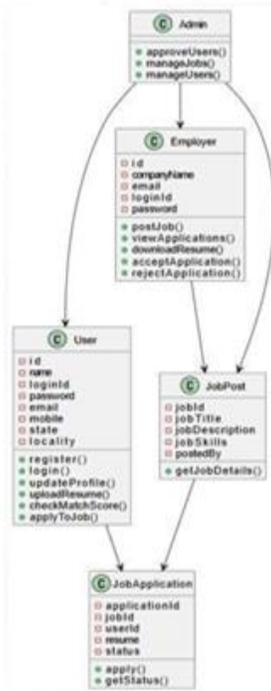
4. SOFTWARE TESTING

Career Circle was subjected to extensive testing to ensure reliability and performance. Unit tests validated individual components like authentication and job posting using Django's testing framework. Integration tests confirmed seamless module interactions, such as job search and application workflows. User acceptance testing with beta users provided feedback on usability, leading to

refinements, while security testing, including penetration tests, mitigated vulnerabilities, ensuring a robust platform.

5. CONCLUSION

Career Circle revolutionizes online recruitment by integrating machine learning with a Djangobased platform, offering precise job matching and a seamless user experience. Its architecture supports scalability and security, while the front-end ensures accessibility across devices. The machine learning feature, leveraging TF-IDF and cosine similarity, distinguishes it by enhancing job recommendation accuracy. This addresses key job market challenges, such as mismatched candidates and inefficient searches. Future enhancements could include mobile apps, employer analytics, or third-party integrations like LinkedIn. The platform's modular design and robust testing ensure maintainability and reliability. By incorporating user feedback, Career Circle can evolve to meet emerging needs, maintaining its relevance in the recruitment industry. Ultimately, it exemplifies how technology can transform employment processes, benefiting both job seekers and employers.

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