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A MERN Stack–Based Career Readiness and Placement Insights Platform with Skill Assessment, Job Matching, and Analytical Dashboards

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1. Abstract

Today's recruitment environment demands a data-driven methodology that can address the shortcomings of the disconnect between educational training and industrial needs. Traditional placement management systems have been manually operated and do not contain any qualitative evaluation mechanisms. In this paper, we propose a Career Readiness & Placement Insights Platform implemented using the MERN stack (MongoDB, Express.js, React.js, Node.js). Our implementation contains mechanisms for automation of skill evaluation, intelligent job placements, and analytical dashboards. With this framework of interaction among students, employers, and administrators, our prototype experiments show promising results in minimizing administration costs and maximizing student involvement in career opportunities.

Keywords: MERN Stack, Career Readiness, Placement Automation, Data Analytics, Job Matching Algorithm, Web Engineering.

2. Introduction

Campus placements are an integral part of the career trajectory of the students. Yearly, there are campus placements drives conducted by various colleges and universities for hiring suitable candidates from among their student population. However, the approach used by many institutions is quite outmoded, and they use manual techniques such as paper-based forms, notice boards, Excel sheets, and emails for managing the entire process of campus placements.

Therefore, a novel Career Readiness & Placement Insights Platform is introduced in this project. The Career Readiness & Placement Insights Platform will be a digital platform for managing all the aspects of campus placements. The platform will incorporate functions such as skill assessment, job recommendations, profile management, dashboard views, and application tracking features.

3. Existing System

The current systems in place in most colleges have very few features and are quite rudimentary. Colleges rely on simple methods or forms to manage the placement of students. Information about placement is communicated via notices posted on boards, WhatsApp, emails, or the college website. Students who wish to apply can send their CVs either physically or via email.

Student information is stored by the placement officer in an excel sheet, and eligibility is checked manually. Information related to companies and interviews is conveyed using emails or announcements. Resumes are sent to recruiters in one bunch, who then review all the applications manually.

4. Drawbacks of Existing System

The conventional student placement process has certain limitations that make it inefficient:

Manually Filtering the Students: It takes much time and effort when filtering students according to their grades and suitability.

Not Ready to Test: The candidate does not have the knowledge about whether he/she is ready for the tech and aptitude rounds.

Not Personalized: Current placement processes are unable to provide personalized job suggestions to candidates based on their skills.

Notifications Lags: Notification regarding interviews or deadlines may reach the candidate late.

Data Management Issues: Storing data through spreadsheets makes data management complex and non-intuitive.

5. Proposed System

The suggested system is a contemporary web application developed using the MERN Stack for automating and enhancing the placement management process. This system is a one-stop-shop for interaction between students, recruiters, and administrative staff.

5.1 System Modules

Module for Students: Profile management, CV upload, skill test registration, and job application tracking.

Module for Recruiters: Job postings, candidate screening according to multi-faceted score evaluation, and conducting interviews.

Module for Administrators: Authentication of users, placement process tracking, and report generation.

6. Advantages and System Architecture

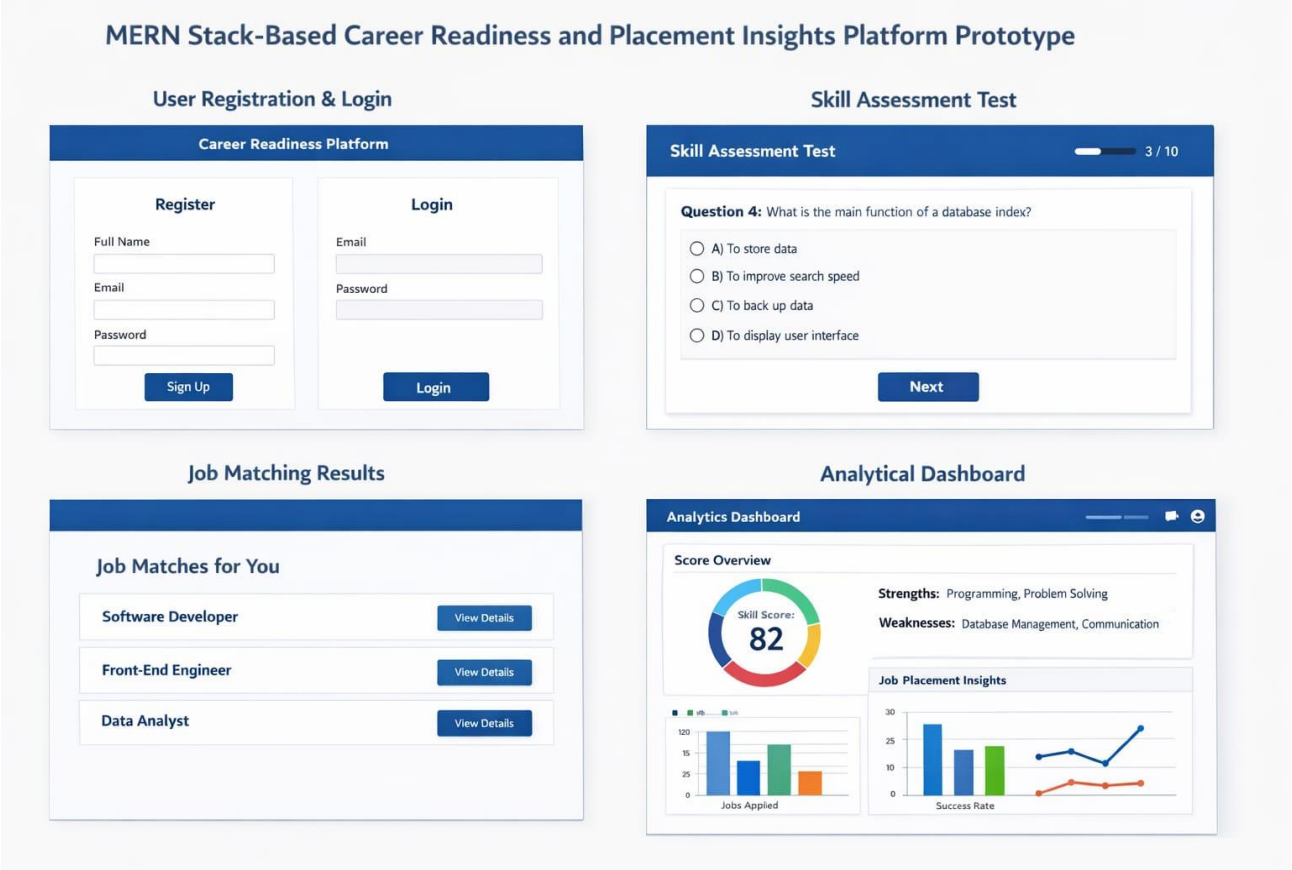
The suggested system aims at automation of tasks along with online test assessments for skill determination of individuals. The recruiters will find it easy to filter out the most appropriate individuals through the use of filters.

System Architecture

The system is designed based on a three-layer architecture:

User Interface: React.js

Backend Logic Layer: Node.js, Express.js



Database: MongoDB for scalable, non-relational data storage.

7. Hardware & Software Used

System Requirements

CPU: Intel Core i3/i5/Ryzen

Memory: At least 4GB (8GB recommended)

Storage: Either 256GB SSD or 500GB HDD

Application Requirements

Frontend & Backend: React.js, Node.js, Express.js

Database: MongoDB Atlas

Other Tools: Visual Studio Code, Postman,

8. Prototype Evaluation

The prototype is the working model of the ultimate project. The dashboard will be designed in an easy-to-use way for the users and recruiters. There will be a responsive design so that it could fit all screens effectively.

Important Layouts:

Dashboard for Students: Shows readiness scores and the application process.

Jobs Portal: A search portal of vacant jobs.

Admin Portal: Placement statistics and recruiters' statistics.

9. Conclusion and Future Scope

The Placement Insights Platform based on MERN Stack is an effective solution that resolves all problems related to traditional management.

Possible Future Improvements:

AI-based improvements: Parsing of resumes and AI-powered interview simulations.

Predictive analysis: Forecasting the possibility of student placement based on historical data.

10. References

Documentation for MongoDB

Documentation for React.js

Kumar, A., et al. "Automated Placement Cell Management Systems." 2022.

Guides for MERN Stack Development and Web Design Research.