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An interactive job and internship platform for technical education department

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ABSTRACT: This project introduces a An interactive job and internship platform developed using the MERN stack, consisting of modules tailored for Admins, Jobseekers/Students, and Recruiters/Companies. The system aims to revolutionize the recruitment landscape by addressing inefficiencies in traditional hiring processes and providing a seamless, user-centric platform. By integrating key features such as personalized job recommendations, online assessments, and real-time application tracking, the portal ensures enhanced transparency and efficiency for all stakeholders. The Admin module offers robust management capabilities, allowing administrators to oversee user registrations, job postings, and recruiter activities. This ensures data integrity, system security, and smooth platform operations. Jobseekers, through the User module, can create detailed profiles, search for jobs aligned with their skills, and receive recommendations tailored to their qualifications and preferences. Additionally, they can participate in online exams designed by recruiters, monitor application statuses, and gain real-time updates about their progress in the recruitment process. The Recruiter module equips companies with tools to post job openings, create and manage online assessments, and evaluate candidate profiles effectively. Recruiters can make informed hiring decisions based on exam results and candidate qualifications, streamlining the selection process. The development framework used MERN stack which integrates MongoDB alongside Express.js with React.js and Node.js —this system leverages modern web technologies to deliver high performance, scalability, and user-friendly interfaces. It caters to the diverse needs of jobseekers and recruiters, offering features such as skill-based recommendations and live exams that make recruitment faster and more efficient. The project not only addresses the need for an integrated hiring solution but also highlights the importance of adopting innovative technologies in modern recruitment practices.

KEYWORDS: Admin, Jobseeker/Student, Recruiter/Company, MERN Stack, Online Assessments

Introduction

Several challenges prevent job searchers and team recruiters from efficiently managing their hiring efforts during current competitive job selection conditions. To address these challenges, Using the MERN stack the project built an interactive system that simplifies hiring operations between companies and job seekers through the Mongo DB, Express.js, React.js, Node.js ecosystem. The platform incorporates three key modules: The application runs three distinct sections: Admin, Jobseeker/Student and Recruiter/Company to address individual user requirements.

The Admin module allows for the effective management of the system, including oversight of user registrations, job postings, and recruiter activities. Job seekers, using the User module, can create profiles, search for jobs based on their skills, apply for positions, and track the status of their applications. Additionally, the platform offers job recommendations and supports live and virtual exams, enabling candidates to showcase their abilities through structured assessments.

On the recruiter side, companies can post job requirements, create and manage exams for applicants, and review candidate profiles and exam results. Recruiters are empowered to make informed hiring decisions based on candidate performance in exams and other relevant criteria.

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By integrating advanced features like online exams, application status tracking, and personalized job recommendations, this project aims to enhance the job application and recruitment experience, offering a seamless, efficient, and user-friendly platform for all participants.

Related work

A study explored the role of social media platforms in job searching, emphasizing their ability to expand networking opportunities and offer personalized job recommendations. However, concerns about data privacy and the absence of feedback for unsuccessful applicants were highlighted.[1]

Research focused on a big data-driven approach to bridging the gap between graduates and recruiters. By leveraging advanced analytics, the system aimed to match candidates with relevant job opportunities based on their academic backgrounds and preferences. However, challenges such as high computational costs and data security risks were noted.[2]

An enterprise resource planning (ERP) system was proposed to automate the placement process in educational institutions. The system enabled students to upload their details, track applications, and allowed recruiters to post job offers and monitor candidates. Despite its advantages, scaling issues and handling high volumes of data during peak usage posed difficulties.[3]

Implementation:

Admin Module: The Admin module provides the administrator with a centralized interface to manage the job portal effectively. Admins can view the number of registered users, companies, and active job postings. They also have the authority to monitor and maintain data integrity across the system, ensuring smooth and efficient operations.

User Module (Jobseeker/Student): The User module enables job seekers and students to register on the platform, create profiles, and log in to search for jobs that match their skills. The system provides skill-based job recommendations to enhance job search efficiency. Users can also apply for jobs, participate in virtual exams, view the status of their applications, and track their progress in real time.

Recruiter Module (Company): The Recruiter module allows companies to register and log in to the portal. Recruiters can add job requirements, post new job openings, and create online assessments (MCQs) for applicants. They can also view candidate profiles, evaluate exam results, and make informed hiring decisions by selecting or rejecting applicants based on their performance and qualifications.

PROPOSED ALGORITHM

The proposed system is a web-based job portal built using the MERN stack, integrating modules for admins, job seekers, and recruiters. The system provides personalized job recommendations based on users' skills, enables recruiters to create online assessments, and allows job seekers to participate in virtual exams. It offers real-time tracking of job applications, streamlining communication between job seekers and recruiters. The platform aims to enhance efficiency, transparency, and overall user experience in the recruitment process.

Work Flow of Proposed System:

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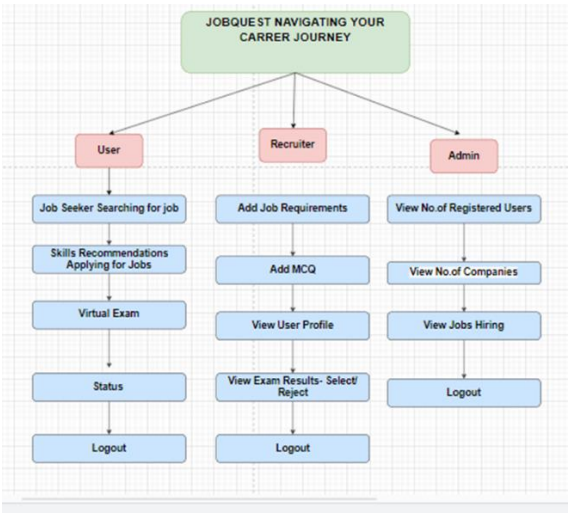

Admin Module:
•Admin can log in securely to the system.
•The administrative page enables viewing and controlling the registered user database.
•Admin has access to view and handles registered company lists.
•Admin can view and monitor active job postings.
•Admin has the ability to remove inappropriate content (job postings or user profiles).
•Admin can monitor the integrity of data across the system (e.g., ensure correct user-job relationships).
•Admin can generate reports on the number of registered users, companies, and jobs.

User Module (Jobseeker/Student):
•Users can register by providing personal and professional details.
•Users can log in with valid credentials.
•Users can create and edit their profiles (including adding qualifications, skills, and experience).
•Users can search for jobs based on their skills, experience, and location preferences.
•Users receive skill-based job recommendations.
•Users can apply for job postings.
•Users can participate in virtual exams (such as MCQs) as part of the recruitment process.
•Users can view the status of their job applications.
•Users can track their progress in real time (application status, interview, and offer status).

Recruiter Module (Company):
•Recruiters can register and log in with a company profile.
•Recruiters can post new job openings and update job details.
•Recruiters can create online assessments, such as MCQs, for applicants.
•Recruiters can view user profiles (candidates who have applied).
•Recruiters can evaluate the results of virtual exams.
•Recruiters can accept or reject candidates based on exam results and profiles.
Recruiters can communicate with applicants regarding interview schedules or offer letters.

I. RESULTS

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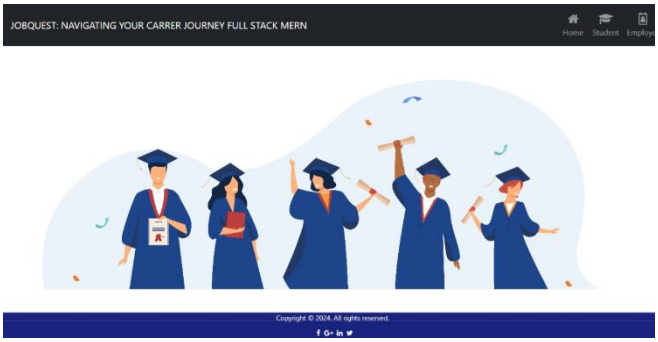

Fig.1

Landing Page: The fig.1 When the Execution started this is the landing page.

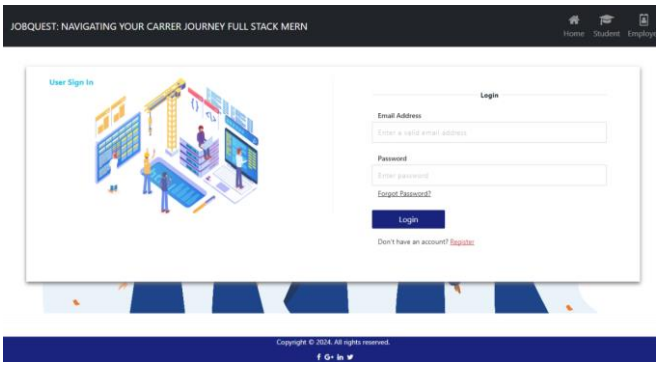

Fig.2

User login page: The fig.2 This is the user login page the registered user can login.

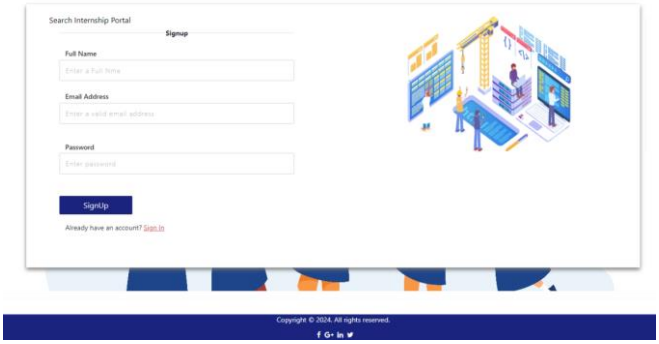

Fig.3

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User Register page: The fig.3 This is the user register page here users can be registered and can login.

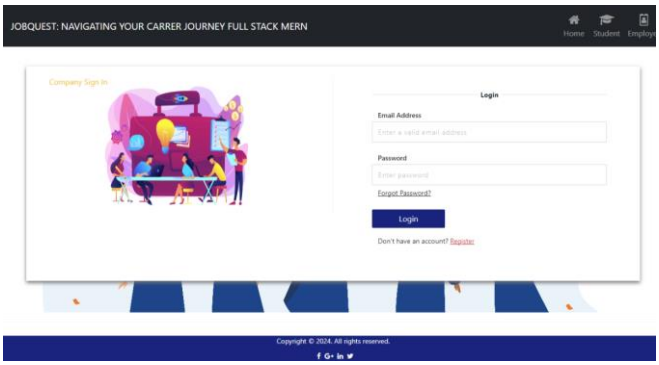

Fig.4

Employer login page : The fig.4 This is the employer login page here the registered employers can login.

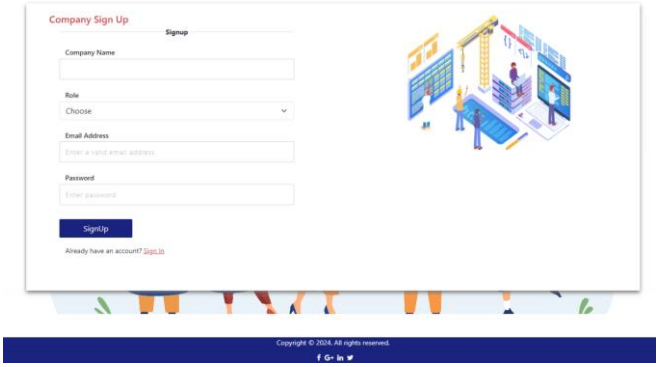

Fig.5

Employer Register page : This is the employer register page here the employers can register.

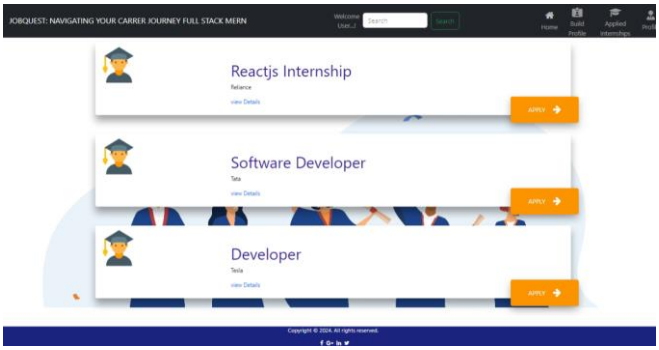

Fig.6

User landing page: The fig.6 this is the user page after successful login.

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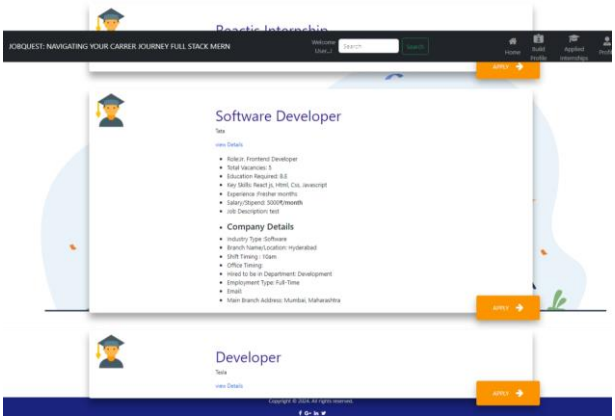

Fig.7

User page: The fig.7 this is the user page after successful login.The internship details will be displayed.

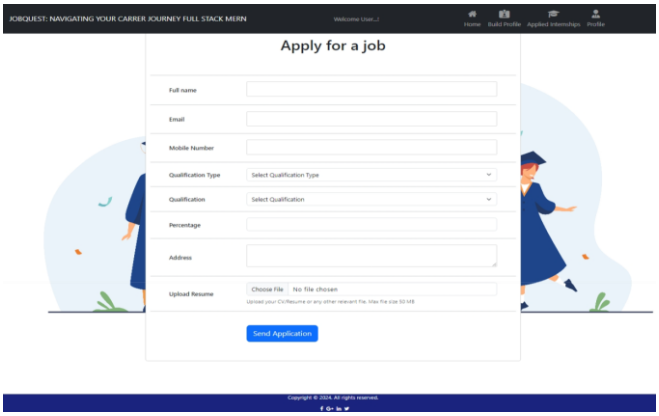

Fig.8

User apply page: The fig.8 In this page the user can apply for a job.

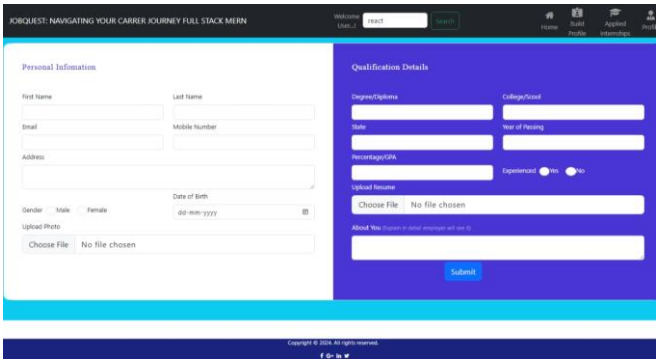

Fig.9

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User personal page: The fig.9 In this the user will add the personal details of name, email and phone numbers, qualification details etc..

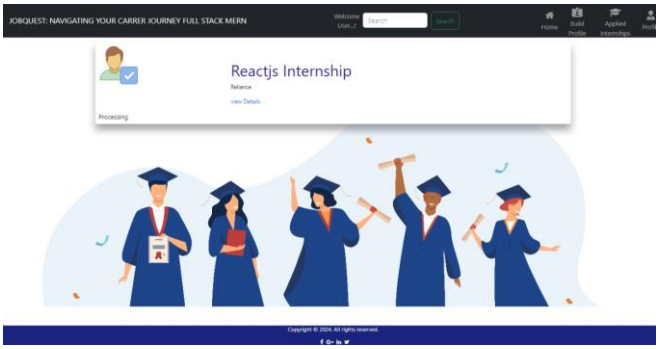

Fig.10

User apply page: The fig.10 In this the applied internship details will be displayed here.

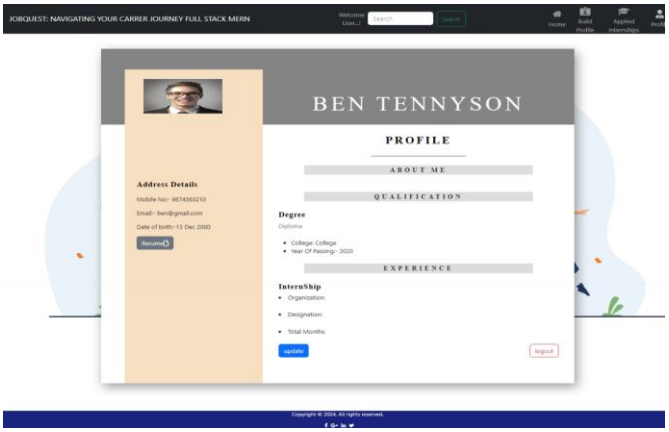

Fig.11

User profile page: The fig.11 In this after adding all the personal details a profile will be created and displayed in profile page.

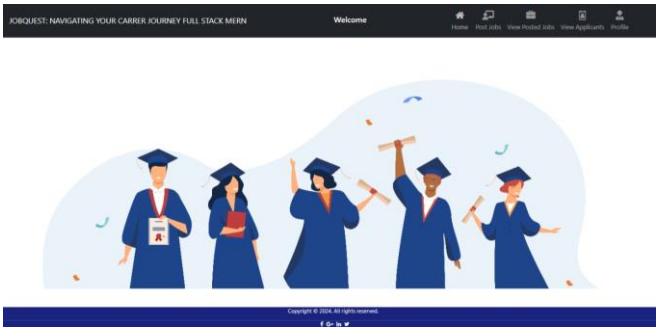

Fig.12

Employer landing page: The fig.12 this is the employer page after successful login.

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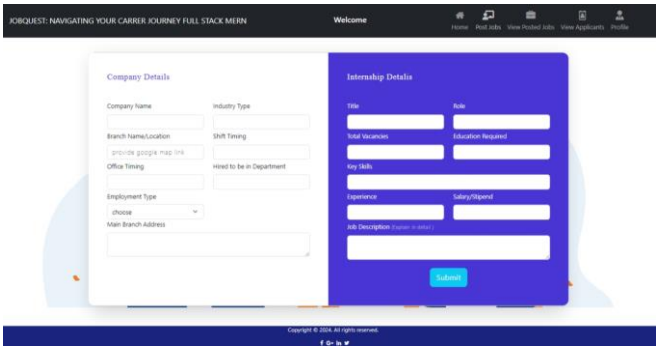

Fig.13

Employer recruitments page: The fig.13 In this is the employer will add the recruitement details of company details and role, location, salary etc.

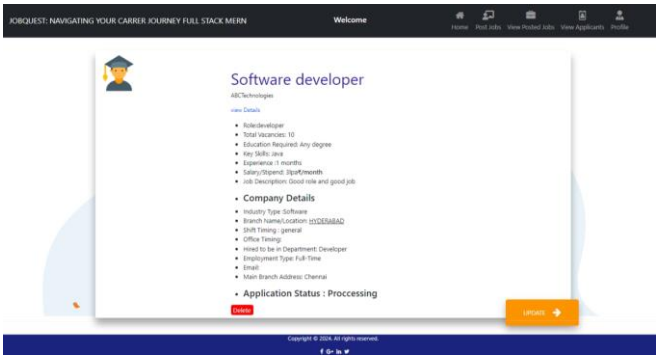

Fig.14

Employer recruitment details page: The fig.14 in this the added hiring details of a company will be displayed.

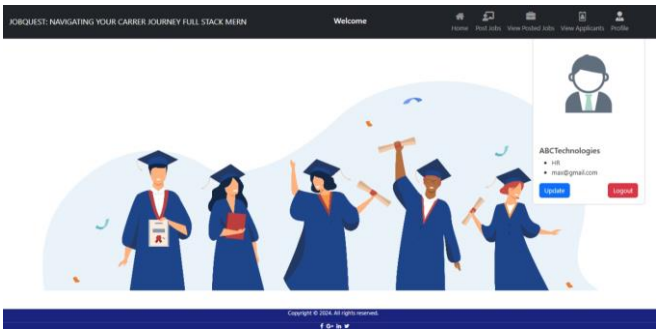

Fig.15

Employer profile page: The fig.15 this is the employer profile page.

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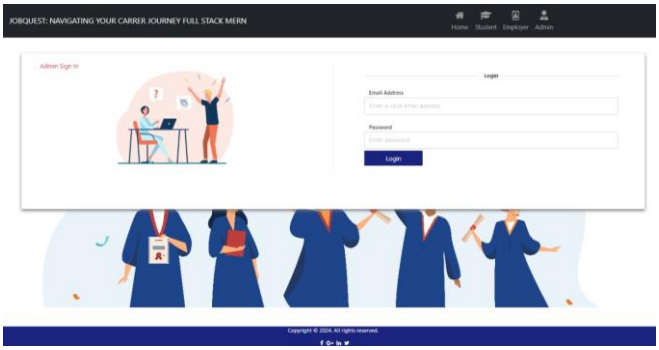

Fig.16

Admin login page : The fig.16 this is the admin login page.

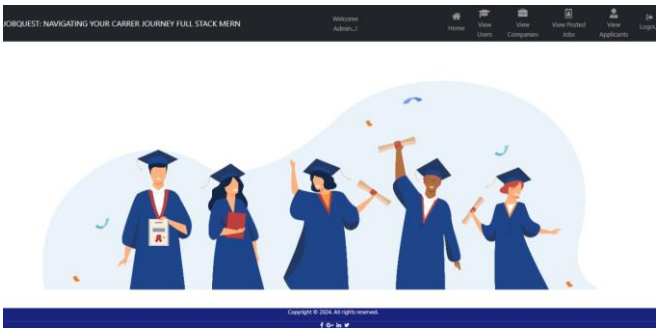

Fig.17

Admin landing page: The fig.17 this is the admin landing page after successful login.

Fig.18

Admin view users page : The fig.18 In this admin can view the registered users .

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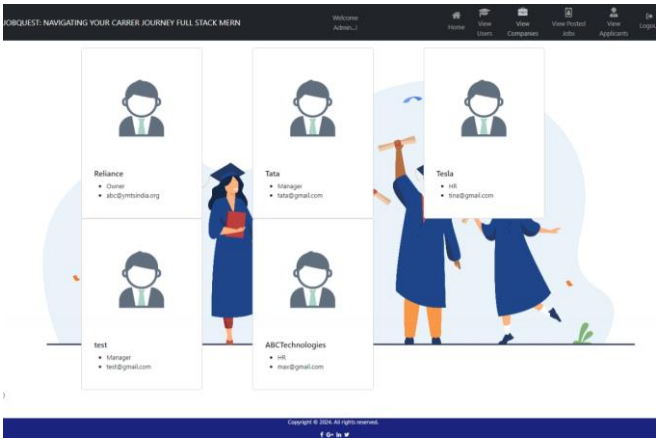

Fig.19

Admin view company page : The fig.19 In this the admin can see the registered companies.

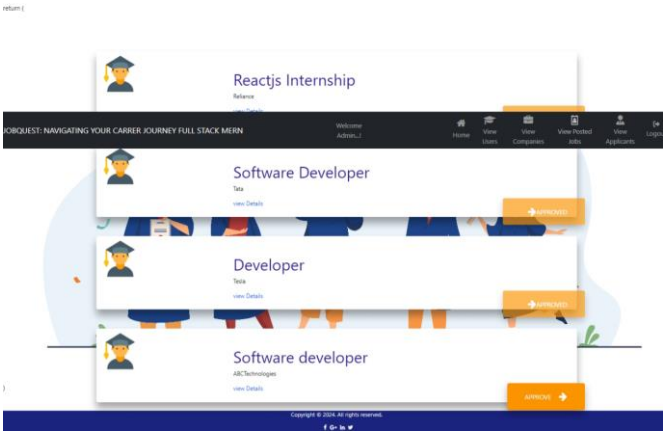

Fig.20

Admin Job posts page : The fig.20 In this the admin can see the posted jobs.

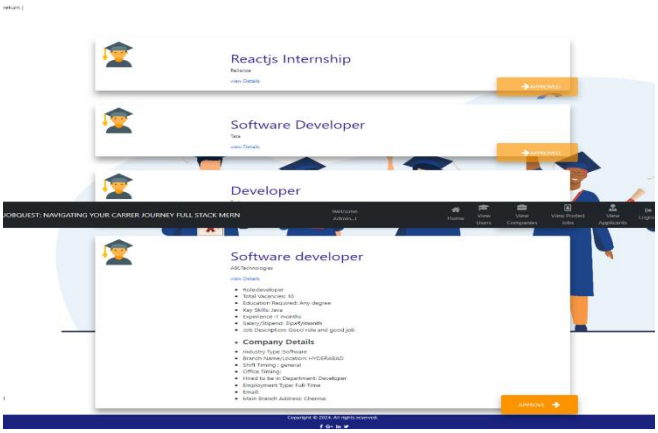

Fig.21

Admin Job posts page : The fig.21 In this the admin can see the posted jobs with company details , roles and responsibilities and can approve.

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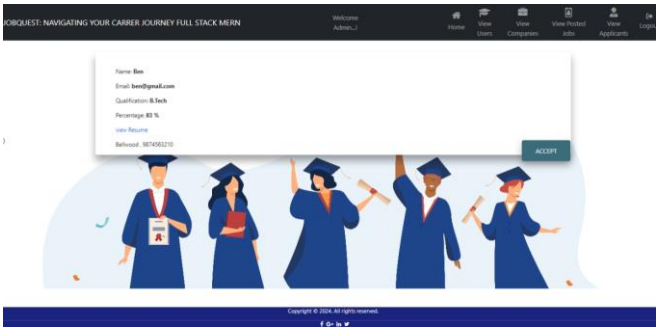

Fig.22

Admin applicants page : The fig.22 In this the admin can see the applicants and can accept them.

II. CONCLUSION AND FUTURE WORK

In conclusion, this An interactive job and internship platform, built using the MERN stack, provides a comprehensive and efficient platform for both job seekers and recruiters. By streamlining essential functionalities such as user registration, job searching, job application tracking, and recruitment management, the system offers a seamless experience for all users. Job seekers can easily search for and apply to positions that match their skills, participate in exams, and track the progress of their applications, while recruiters can efficiently manage job postings, create exams, and evaluate candidates. The Admin module ensures that the system remains well-maintained and organized. With its user-friendly interface and integration of important features like job recommendations, live exams, and application status updates, this job portal simplifies the recruitment process and enhances job-seeking efforts, making it a valuable tool for both companies and individuals seeking employment.

Future enhancements to this An interactive job and internship platform can focus on incorporating advanced features and technologies to further improve the user experience and streamline the recruitment process. One of the key enhancements could be the integration of machine learning algorithms for more accurate job recommendations and candidate matching. By analyzing user profiles, job descriptions, and application history, the system could suggest job opportunities that align better with a candidate's skills and preferences, improving the relevance of recommendations. Additionally, the portal could implement a chatbot powered by AI to assist users with common queries, application guidance, and job search support, providing 24/7 assistance and reducing the need for human intervention.

Another potential enhancement is the addition of video interview functionality, allowing recruiters to conduct remote interviews directly through the platform. This would not only save time but also enable companies to assess candidates from different locations without requiring travel. The system could also offer integrated tools for recruiters to evaluate candidate performance through real-time coding challenges, collaborative whiteboarding sessions, and behavioral assessments, enriching the recruitment process.

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2. Hamdane, A., Belhaj, N., El Hamdaoui, H., El Bekkali, M. (2022): In their work on "Big Data Based Architecture for Connecting Graduates and Recruiters in Morocco," the authors propose a system leveraging advanced analytics to bridge the gap between university graduates and potential employers. While efficient in connecting job seekers and recruiters, they point out the high computational costs and data security concerns as key challenges.

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3. Kendle, A. S., Nagare, M. S., Patre, H. G., Zanwar, R. S. (2022): This research introduces an ERP system for automating the placement process in educational institutes, focusing on streamlining recruitment. While the system facilitates tracking of job applications and recruiter-student interaction, scalability issues and data handling during high-demand periods remain key limitations.

4. Heggo, I. A., Abdelbaki, N. (2018): The study on a Hybrid Information Filtering Engine for Personalized Job Recommender Systems presents a blend of content-based and collaborative filtering techniques to enhance job recommendations. Despite its success in reducing irrelevant job offers, the computational intensity of this hybrid approach is a significant drawback.

5. Kaur, D., Kaur, R. (2023): The paper examines the role of Electronic Word-of-Mouth (eWOM) in influencing the adoption of e-recruitment platforms. It underscores how positive reviews increase platform credibility, although managing fake or biased reviews remains a challenge in maintaining user trust.

6. Hamdane, A., Belhaj, N., El Hamdaoui, H., El Bekkali, M. (2022): This paper titled "Big Data Based Architecture to Bringing Together Graduates and Recruiters: Case of Moroccan University" explores how big data is being utilized to connect graduates with recruiters efficiently. It highlights the challenges of real-time data analysis and data security.

7. Ghanouane, K., & Benkaraache, T. (2024): The study "Big Data Education Landscape for Graduates in Morocco: Insights from 2022 Offerings" analyzes the education programs in Morocco focused on big data. It emphasizes the need to balance technical skills like programming with functional skills like communication and change management.

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