IT Project Initial Draft

"Job-Portal in MySQL, Express, React & Node Technology"

By

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Abstract

This project aims to overcome the limitations of job solutions, which despite being widely used still fail to provide a comprehensive and seamless experience, for both job seekers and employers. Our goal is to create a Full Stack web-based job portal that showcases the development of a system. This system utilizes the technologies and embraces user centered design principles to redefine the process of searching for jobs and recruiting candidates.

The significance of this project lies in its potential to revolutionize the way job searches are conducted and candidates are hired. Existing job portals often lack features that facilitate communication between job seekers and employers resulting in missed opportunities and lengthy hiring processes. Our project focuses on building a platform that prioritizes user needs offering search capabilities and a transparent application process. This will ultimately enhance the experience for everyone involved in the job search process. By reducing recruitment timelines for employers and increasing visibility for job seekers our proposed platform promises to improve job search rates and market efficiency. In essence this project addresses the need for an integrated job portal that can have a positive impact on individual's lives as well, as the broader employment market.

Keywords: User Centred Design, Transparent Application Process MERN Stack web App, job portal.

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1 Introduction

In today's job market there are challenges, in connecting job seekers with employers. The process is often inefficient and fragmented. We lack a user-friendly platform that bridges this gap, which hampers the effectiveness of job search and recruitment efforts. Existing job portals have limitations when it comes to integrating technologies and prioritizing user centric design. Both job searchers and companies may benefit immensely from these elements.

This project aims to address the limitations of existing job solutions contributing substantially to the body of literature. While there are job portals we notice a significant absence of a comprehensive search based platform that delivers a seamless experience for employers as well as job seekers. Our goal is to develop and deploy a Full Stack web-based job portal that provides insights into building an efficient system. This system will leverage cutting edge technologies while adhering to principles of user-centered design.

Our study will delve into the benefits of incorporating AI based job matching, personalized user profiles and real time communication features to elevate the experience of job search and recruitment. Additionally, we will rigorously assess how these innovations impact aspects such as user satisfaction, recruitment rates and overall efficiency, in the recruitment process.

The significance of this project stems from its potential to revolutionize the landscape of job search and recruitment. Existing job portals often fall short in facilitating effective communication between job seekers and employers, leading to missed opportunities and protracted recruitment cycles. This project, in contrast, is dedicated to the creation of a user-centric platform that boasts advanced search capabilities, AI-driven job recommendations, and a transparent application process. By diminishing recruitment timelines for employers and enhancing job visibility for seekers, the proposed platform aspires to raise job search rates and market efficiency to unprecedented levels. Ultimately, this project seeks to address a critical

need for a modern, fully integrated job portal, one poised to yield positive impacts for individuals and the broader job market.

With these objectives in mind, this research embarks on a comprehensive exploration of the development and implementation of a cutting-edge job portal. It endeavours to shed light on the transformative potential of technology, design, and user-focused strategies in redefining the job search and recruitment experience, offering a promising path forward in this vital domain.

1.1 Problem statement

In Current job market, the procedure for finding and hiring employees is often inefficient and disconnected. The lack of a comprehensive and user-friendly platform to cover the gap between employees and employers has hindered the effectiveness of the job search and recruitment process. Existing job portals lack the integration of advanced technologies and user-centric design that can improve the overall experience of job seekers and employers.

1.2 How the study contributes to current literature review

The proposed project aims to contribute to the body of knowledgee by addressing the limitations of existing job portal solutions. While there are job portals they still lack a comprehensive search based platform that offers a seamless experience for both job seekers and employers. Through the development and implementation of a Full Stack web-based job portal this project will provide insights into creating an efficient system that utilizes cutting edge technologies and user centric design principles. This study will explore how integrating AI powered job matching, personalized user profiles and real time communication features can enhance the process of job search and recruitment. Furthermore, it will assess the impact of

such a platform on user satisfaction, recruitment rates and overall efficiency, in recruitment processes.

1.3 Why it is important.

The significance of this project lies in its potential to completely transform the way people search for jobs and how employers recruit talent. Many existing job portals lack features that facilitate communication, between job seekers and employers resulting in missed opportunities and lengthy hiring processes. The focus of this project is to create a user platform with search capabilities AI powered job recommendations and a transparent application process that will greatly enhance the overall job search experience. By reducing the time, it takes for employers to find candidates and increasing the visibility of job opportunities for seekers this innovative platform has the potential to significantly improve job search success rates and overall market efficiency. In short, this project addresses a need for a modernized job portal that can have a positive impact, on individuals looking for employment.

1.4 Research Questions

- How does the utilization of React impact and improve the user experience and performance of a job board web application compared to front end technologies?
- What are the advantages and disadvantages of using MySQL for developing a JOB Portal and how does it compare to database systems?
- What are the main challenges and issues in implementing the Job Portal web app using MySQL, NodeJs and React and how can these challenges be addressed during development?
- How do the long-term maintenance requirements and considerations, for a job board web app built with React, Node and MySQL compared to technology stacks?

2 Literature Review

2.1 Analyzing the Effectiveness of Online Recruitment: A Case Study on Recruiters of Bangladesh

The research paper titled "Analyzing the Effectiveness of Online Recruitment; A Case Study, on Recruiters of Bangladesh" (Nafia Sultana, 2017) by Nafia Sultana and Nahida Sultana explores the landscape of human resource management by shedding light on the growing reliance on online recruitment methods. In today's era characterized by globalization and technological advancements organizations are increasingly embracing recruitment platforms to find and hire the best individuals from a broad pool of available applicants.

Recruitment holds significance in human resource management as it is important in bringing valuable talent into organizations. This paper aims to assess the effectiveness of recruitment for recruiters in Bangladesh. The research delves into understanding preferences for recruitment media exploring perceived advantages evaluating improvements at stages of recruitment and addressing challenges while offering potential solutions.

One key aspect examined in the study by (Nafia Sultana, 2017) is recruiter's media preference for recruitment purposes. The findings indicate that a substantial majority of recruiters in Bangladesh favour recruitment media over methods. They like using email, social networking sites, corporate websites, job portals, and these as their mediums. This shift highlights the effectiveness and efficiency that online platforms provide when it comes to reaching a pool of candidates at a cost. On the hand people tend to consider media, word of mouth and referrals as not, as impactful, or influential.

The study by (Nafia Sultana, 2017) delves deeper into the perceived benefits of recruitment. Survey participants have identified factors that contribute to the effectiveness of online recruitment. These factors include speed, cost effectiveness, time efficiency, accessibility,

workload reduction capabilities the ability to target requirements attracting job seekers and potentially improving organizational performance. Notably cost savings emerged as the advantage closely followed by improved accessibility and reaching a wider pool of candidates. This highlights how online recruitment significantly reduces costs and enhances efficiency.

Furthermore, the study investigates enhancements, in stages of recruitment resulting from methods. The analysis indicates that the screening stage has experienced improvements followed by assessment and interviewing stages. These findings emphasize how online recruitment streamlines initial candidate selection stages for efficiency and effectiveness.

However, challenges associated with recruitment are not disregarded. Respondents expressed concerns regarding information authenticity and handling several applications in a time-consuming manner. To address these challenges the study recommends implementing automated filtration tools to expedite candidate screening. Suggests incorporating video interviews, like Skype to enhance all stages of the recruitment process. (Hemalatha, Kumari, Nawaz, & Gajenderan, Impact of Artificial Intelligence on Recruitment, 2021)

In conclusion, the study offers insightful information regarding the shifting landscape of recruitment practices in Bangladesh. It underscores the preference for online recruitment media among recruiters, highlighting their perceived advantages and improvements in recruitment stages. While acknowledging challenges, the study also offers practical solutions to enhance the effectiveness of online recruitment. Overall, this research contributes to a deeper understanding of the evolving recruitment strategies in the scenario of a developing nation, shedding light on the benefits and areas for improvement in online recruitment practices. (Nafia Sultana, 2017)

2.2 Online Job Portal Detailed Analysis

This insightful research paper, titled "Online JOB PORTAL" (Mustafa Pinjari1, 2019) delves into how the internet has transformed the way people seek employment. In a world driven by progress and digital advancements entwined in every aspect of our lives it's no surprise that job hunting has undergone a revolution. Traditional methods such as perusing job listings in newspapers or relying on connections have been overshadowed by technology driven approaches online job portals.

In today's era the quest for employment often commences with a keystroke and a reliable internet connection. Job seekers armed with their credentials and qualifications explore an array of opportunities through job portals. This shift from resumes and applications to the realm underscores the pervasive influence of the internet.

Online recruitment stands as a milestone in this job search revolution. Both employers and job seekers have embraced this approach as the method to achieve their goals. Gone are the days when individuals had to compile resumes to send via services. Instead in this age individuals seeking employment have gained an advantage by creating their profiles using word processing software and conveniently submitting their applications through web browsers. They excitedly await email notifications, for job opportunities.

Importantly this (Mustafa Pinjari1, 2019) research provides insights, into the impact of online job portals on the job market. These platforms have become the go to for job seekers. Hold a position in the online labor market. However, employers face a drawback as they often must pay fees to post job openings on these portals. Consequently, many companies choose to limit their job listings to platforms resulting in a dis-connect where potential candidates miss out on employment opportunities. In a labor market employers struggle with managing several applications. This highlights the importance of automating candidate preselection processes.

The limitations of job systems are evident in their ability to facilitate communication between job seekers and employers. While these platforms offer job opportunities, they often fall short when it comes to matching candidates with positions that align with their skills and aspirations. This mismatch creates frustration, as job seekers either struggle to find employment or reluctantly accept roles that do not meet their expectations. (Killewale1, 2017)

In response, to these challenges this paper presents the "JOB PORTAL" (Mustafa Pinjari1, 2019) project, which aims to bridge the gap between job seekers and recruiters in the online employment ecosystem. This project adopts the WISDM methodology, which blends hypermedia development technique, web development technologies, and system development approaches. WISDM focuses on involving developers. End users to ensure that the resulting system is not technically robust but also user centric.

The paper (Mustafa Pinjari1, 2019) describes the system architecture, which consists of three modules: Job Seeker, Recruiter and Admin. The Job Seeker module allows applicants to post their details and explore job vacancies. They can also receive real time alerts when potential employers show interest, in their profiles. On the hand the Recruiter module enables employers to post vacancy details conduct searches through applicant resumes and communicate directly with job seekers. Acting as the command centre of the system the admin module oversees all aspects of the application including adding companies issuing user credentials and managing user accounts. (Dorn, 2007)

Additionally, the paper (Dorn, 2007) discusses the goals of the project while emphasizing the approach taken to overcome limitations typically found in job systems.

These objectives involve the development of a platform that connects job opportunities, with the skills and qualifications of job seekers enhancing recruiter's capacity to identify employees

possessing the skill sets and incorporating filters to comprehend the requirements of both employers and job seekers.

The paper titled "JOB PORTAL" (Mustafa Pinjari1, 2019) provides a thought-provoking analysis of how online job portal changing the employment landscape of today. It emphasizes the importance of finding solutions to bridge the communication gap, between job seekers and employers in this era. Additionally, it sheds light on the actions taken by the "ONLINE JOB PORTAL" project to tackle these challenges. As technology continues to shape work dynamics initiatives like this become incredibly valuable in ensuring that both job seekers and employers can navigate this evolving landscape, with effectiveness and efficiency. (Mustafa Pinjari1, 2019)

2.3 Development of a Job Web Portal to Improve Education Quality

In todays paced world finding employment is a challenge that people all, over the world face. The internet has greatly changed how we search for jobs with job web portals playing a role in this transformation. This review focuses on job web portals and their importance in revolutionizing the process of securing employment.

Unemployment is an issue that affects both developed countries. The dissemination of employment information is one of the causes of this issue. Traditional methods of job hunting like relying on connections, print media and job agencies often proved to be slow and ineffective. However, with the introduction of the internet job web portals have made the process more efficient. (Marjan Mansourvar, 2010)

These web portals have become the go to method, regarding employers and job seekers when it comes to recruitment. They serve as marketplaces where employers can advertise positions review resumes from applicants and interact with potential hires. Job seekers can explore a

database of job listings submit applications online and communicate with employers through these portals. (Galanaki, 2002)

The shift, from traditional, to internet-based methods of recruitment has brought about increased effectiveness. Has expanded the range of job prospects.

Job portals have become extremely important in the job search landscape. In today's technology driven era the internet has emerged as the source, for job related information. Educational institutions, large organizations and companies often include career related information on their websites. Provide links to these job portals. This beneficial relationship between institutions and job portals offers job seekers a vast collection of career information and available opportunities.

One of the features of job portals is their ability to facilitate knowledge sharing among users. Job seekers can thoroughly search for positions that align with their qualifications and skills making the application process more efficient. At the time these portals enable employers to list job vacancies manage applications and seamlessly communicate with potential candidates saving both time and resources. (Bsiri, 2008)

The user-friendly interface and efficiency of job portals are contributors to their adoption. Job seekers can easily explore employment opportunities upload resumes conveniently and establish connections with employers. Similarly, employers can effectively manage job postings review applicant profiles effortlessly and maintain communication throughout the hiring process.

In conclusion the introduction of job portals has brought about a transformation in the field of job searching. These platforms offer an approach that's user friendly, for individuals seeking employment while enabling them to connect with potential employers more efficiently. Nor have they made the process of finding a job easier. They have also had a significant impact, on

how the job market develops. As the world of employment keeps changing job websites are set to play a role, in shaping job prospects. (Yasin, 2014)

2.4 E-Recruitment through Job Portals and Social Media Network: Challenges & Opportunities

In the article titled "Challenges & Opportunities, in E Recruitment through Job Portals and Social Media Network" (A, 2018) authored by Ramkumar A the author explores how modern Information and Communications Technology (ICT) had impact on recruitment practices. With the advancement of the age more and more individuals seeking employment are utilizing the internet as their primary source of job-related information. Consequently, this has resulted in the development of electronic recruitment methods, commonly known as e recruitment or online recruitment which plays a role in human resource management (E HRM).

E HRM involves implementing HRM strategies, policies and practices through web-based platforms within organizations. The internet has proven to be a tool for HR functions particularly in recruitment where geographical barriers often come into play. The paper highlights how businesses have been profoundly influenced by technology driven changes brought about by the internet. It also emphasizes the growing significance of technology and internet integration, in HR management. (Lee, 2011)

The objective of this study is to accomplish goals:

1. Gain an understanding of the trends and practices, in e recruitment.

2. Compare recruitment methods to e recruitment including discussing their pros and cons.

3. Analyze the advantages of e-recruitment and difficulties it encounters.

4. Explore developments in recruitment practices.

5. Evaluate the advantages and disadvantages of utilizing HR portals and social media networks for candidate recruitment.

The research paper highlights trends in e recruitment such as utilizing the internet and the World Wide Web to find and evaluate applicants. More organizations are turning to e recruitment to enhance their image reduce recruitment costs streamline tasks and provide better tools for their recruitment teams.

Furthermore (Dhamija, 2012) suggest that the future of e recruitment will involve an approach where candidates are closely connected to centralized systems with line managers playing an active role in the hiring process.

The challenges associated with e recruitment are discussed from both employer and candidate perspectives. For employers it can be difficult to identify and attract talent who may already be employed elsewhere. The reliability of hiring processes, like reference checks is also mentioned as an area of concern. Additionally timing mismatches between job vacancies and candidate availability can pose problems. (Dhamija, 2012)

When it comes to job seekers, they face challenges such, as the need for negotiation skills finding the right company to work for. The lack of transparency in the hiring process. Moreover, understanding a company's culture prior, to joining can be tricky while salary information is often not easily accessible.

The paper (A, 2018) also explores how social media networks play a role, in recruitment. It emphasizes the effectiveness of platforms like LinkedIn, Facebook, and Twitter in attracting and identifying individuals. Social media recruitment is seen as a cost-effective method that can reach an audience. It has also changed how recruiters interact with candidates.

Using media for recruitment offers benefits, including quicker job placements, lower costs, and the ability to draw fresh talent for entry-level jobs. It helps improve employer branding and

expands the visibility of job openings. However there are challenges such as privacy settings, the reliability of information and the potential, for discrimination.

In conclusion the paper underscores how e recruitment has transformed recruitment practices and highlights the increasing significance of social media networks. It acknowledges both the advantages and challenges associated with these approaches while suggesting that they are shaping HR management and future recruitment processes. (A, 2018)

3 Research Methodology

The methodology approach involves examining the system modules and architecture. We then put these into action using development tools. Finally, we will integrate everything together and conduct testing. The subsequent sections will provide details, on each of these aspects.

3.1 System Modules

3.1.1 Job seeker module

This module allows individuals looking for jobs to share their professional details well as submit a resume that recruiters can access for recruitment purposes. Moreover, job seekers have the option to explore job openings and receive email alerts whenever an Employer selects their profile. The modules offer features, to job seekers, such as the ability to search for job opportunities upload their resume view information about a company or a list of companies get in touch directly with companies and ask recruiters questions, about jobs and the recruitment process.

3.1.2 Company module

In this module a Recruiter can Share job information and make updates when necessary, Search through resumes using criteria, Identify job seekers with specific skill sets, Upload job posts

and documents that can be viewed by the Job Seeker and, Use the information provided by any Job Seeker to get in touch with them directly, Respond to all the Job Seekers inquiries, about the listed jobs.

3.1.3   Admin Module

This module consists of all the functions pertaining to the administrator. The administrator oversees the application. Keeps track of both Recruiters and Job Seekers' profiles. The privileges available to the administrator include:

- Verifying Companies

- Assigning User IDs and Passwords to different system users

- Removing existing accounts

- Viewing or making changes, to existing accounts

3.2   Architecture

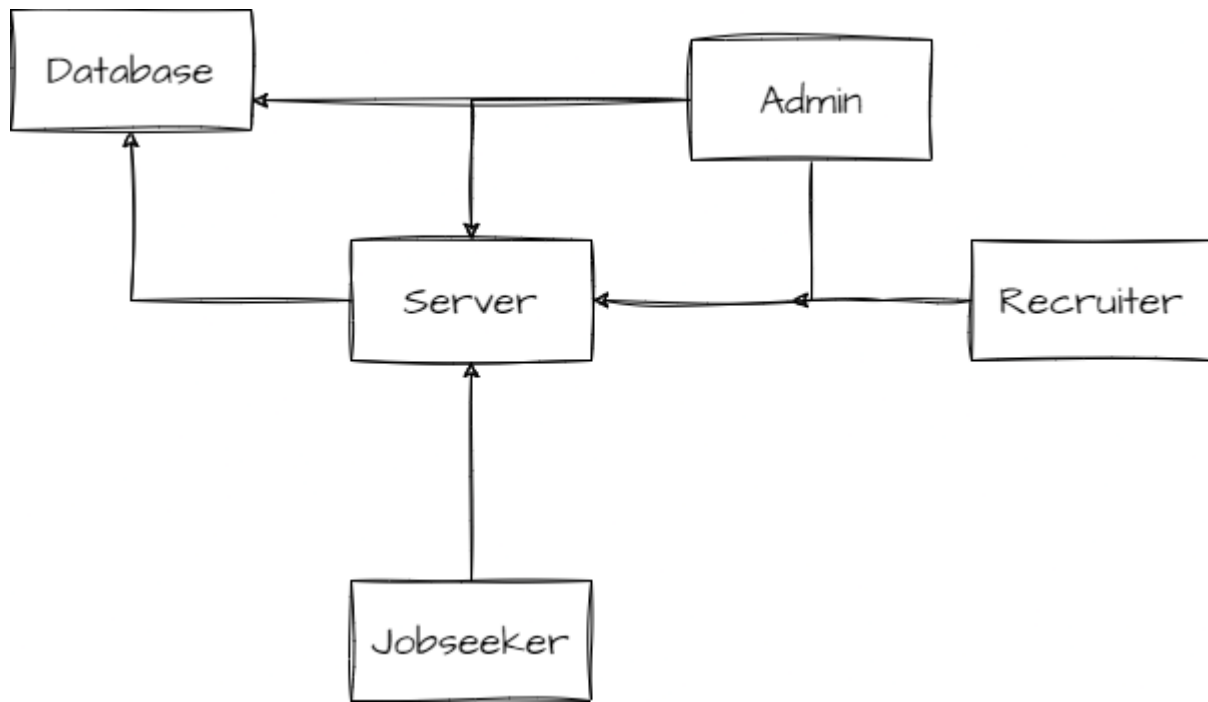This section depicts the basic structure and interaction of various components:

Figure 1: Over view of system architecture

3.3   Implementation

The system implementation consists of three components: the front end, the database and the back end. When it comes to the front end we utilize React, a JavaScript library known for its stability and modular structure. React is widely adopted among developers due to its community support and its ability to facilitate development of client-side applications. As an open-source platform developed using Chromes JavaScript runtime React enables us to create scalable network applications. Moreover, being backed by Facebook ensures maintenance and support for React while the availability of plugins like 'react hot toast' allows us to enhance user experience through features, like notifications. Considering these aspects, we have opted for using react on the server side of our system. For our database development we opted for MySQL, which seamlessly integrates with Nodejs. Known for its excellence in development, MySQL is a popular open-source R-DBMS. It offers data security measures. Enhances customer interactions. We chose MySQL not for its speed in development but for its strong

transaction support ensuring secure online transactions. Moreover, it proves to be valuable for testing projects and making modifications without an internet connection.

For the server side we have opted to utilize Nodejs as our platform. Nodejs is an open-source framework built on Chromes JavaScript runtime designed to facilitate the development of scalable network applications. It is known for its efficient nature, making it particularly well suited for data real time applications that span across multiple devices. Additionally, NodeJS operates on an event driven non-blocking I/O model. Taking all these factors into consideration we have chosen to implement for our server-side application.
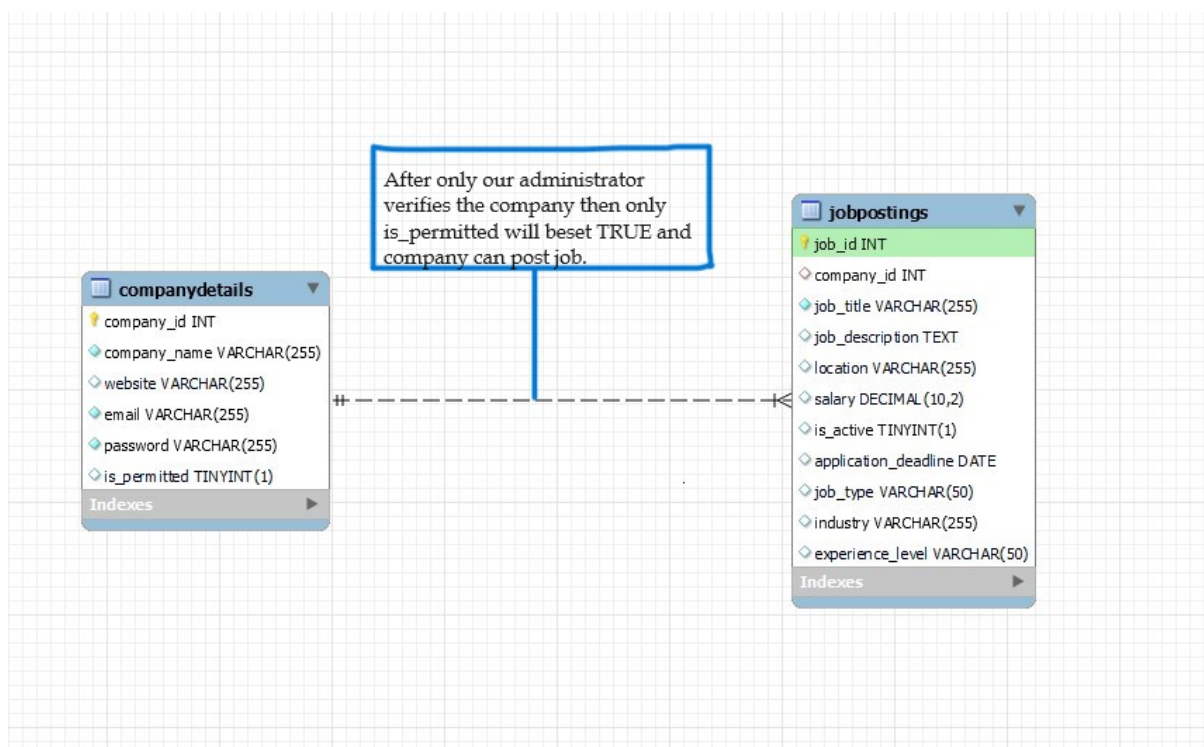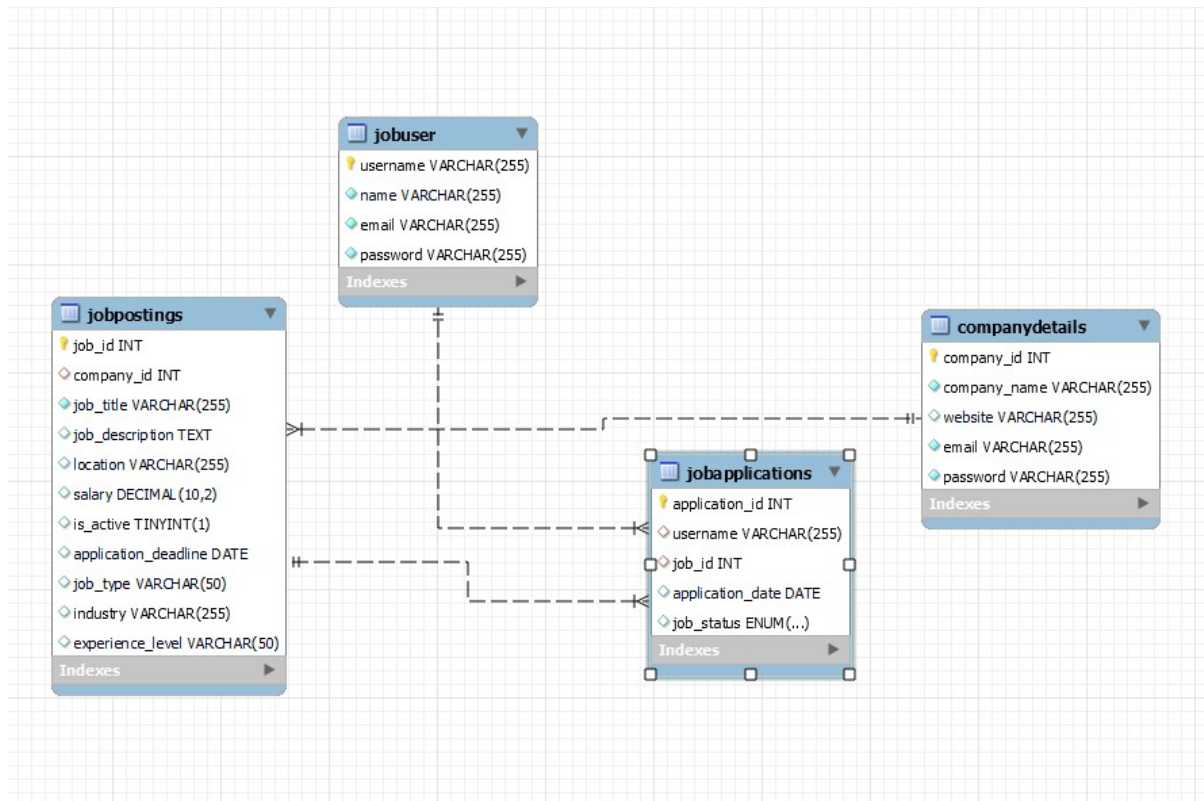

Figure 2: Company verification step

Figure 3: ER Model

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