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# DreamJobApp: Job Matching Application

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**Keywords**
*Centralized Platform · Tracking Application · low latency access*

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# DreamJobApp: Job Matching Application

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## *Abstract*

DreamJobApp is an intelligent, centralized platform designed to streamline the tracking of job applications and mitigate the complexities of the modern recruitment process. By providing a structured digital environment, the system enables users to efficiently manage job listings, corporate metadata, application deadlines, interview milestones, and final selection outcomes. Its modular architecture ensures optimal data storage, low-latency access, and seamless scalability, while robust database connectivity and secure authentication protocols guarantee the accuracy and reliability of all user records.

The platform significantly enhances operational efficiency by automating manual workflows and eliminating data redundancy. Users can intuitively monitor upcoming interviews, analyze historical application data by organization, and maintain real-time updates on their progress. This systematic approach is particularly advantageous during high-pressure recruitment periods, such as campus placements and large-scale off-campus drives, where candidates are required to manage multiple opportunities simultaneously.

In conclusion, DreamJobApp demonstrates the transformative potential of a specialized management system in replacing fragmented manual processes with an integrated digital workflow. Beyond immediate gains in organization and productivity, the platform establishes a scalable foundation for future enhancements, including AI-driven job recommendations, automated notification systems, and personalized career analytics.

***Keywords:*** Job Application Tracking, Career Management System, Relational Database, CRUD Operations, Software Engineering, Data Management, User Authentication, Job Matching System.

## Introduction

In the contemporary digital recruitment landscape, the disconnect between candidate qualifications and employer requirements remains a significant hurdle. Traditional job boards often rely on static keyword matching, leading to a high volume of irrelevant applications and missed opportunities for both job seekers and recruiters. DreamJobApp is an advanced, full-stack employment platform designed to bridge this gap through a custom matching algorithm and a seamless, role-based user experience.

DreamJobApp was created to address these problems by providing a centralised, organised method for handling job applications. Users of the portal can keep track of corporate information, positions they've applied for, application deadlines, interview progress, and final results all in one location. The solution increases efficiency and gives users more control over career chances by transforming disjointed job-search procedures into a streamlined digital workflow.

Building a scalable and secure infrastructure that facilitates dependable data storage, quick retrieval, and seamless upgrades is a key component of the project. The application guarantees consistent speed and data integrity because it is implemented using Java, relational database technology, and strong connectivity. It can also be modified for future advancements because to its modular design.

Students participating in campus placements, internships, and off-campus recruitment drives—where managing numerous applications is typical—will find this solution especially helpful. DreamJobApp functions as a useful digital helper for career management by lowering manual labour and enhancing visibility into recruitment progress. The study demonstrates how real-world organisational difficulties in employment and placement monitoring can be addressed by applying software engineering concepts.

## System Overview

DreamJobApp serves as a single platform for managing careers, allowing users to methodically arrange job applications, employer information, interview phases, and recruitment results. The main elements of the manuscript, such as system design, methodology, and implementation techniques, are best presented in this top-level part.

## Database Record Validation

Technical procedures that guarantee data accuracy are best described under this topic. To ensure consistency, the system verifies role information, application dates, and corporate details before committing them to the database.

## Query Execution Logic

This lowest-level heading is appropriate for detailed technical explanations such as query handling, record retrieval, and optimized database execution. It emphasizes how the backend efficiently manages searches, filtering, and company-wise application histories.

## *Table 1. Key Features of DreamJobApp*

| Feature | Description |
|---|---|
| User Profiles | Create and manage professional profiles with personal, educational, and skill details. |
| Dream Job Match | Intelligent system that connects users with suitable opportunities based on preferences and skills. |
| Chat & Q&A | Built-in communication tool for peer and mentor interaction. |
| Experience Feed | Platform for sharing placement stories, interview tips, and company insights. |
| Goal Tracker | Tracks preparation milestones, deadlines, and skill progress. |
| Learning Resources | Provides curated study materials and interview preparation content. |
| Security & Privacy | Ensures secure login, encrypted data storage, and privacy controls. |

## *Table 2. Technologies Used*

| **Technology** | **Purpose** |
|---|---|
| Java | Core programming language for backend logic and application development. |
| Spring Boot | Framework for building the rest API,security and matching engine. |
| MySQL | Secure data storage and relational database management for user and job data. |
| SQL | Language used for structured Query execution and data manipulation. |
| React.js | Frontend library for building the interactive user dashboard. |
| VS.code | Used for secure, Token-based user authentication |

***Figure 1. System Architecture of DreamJob App***

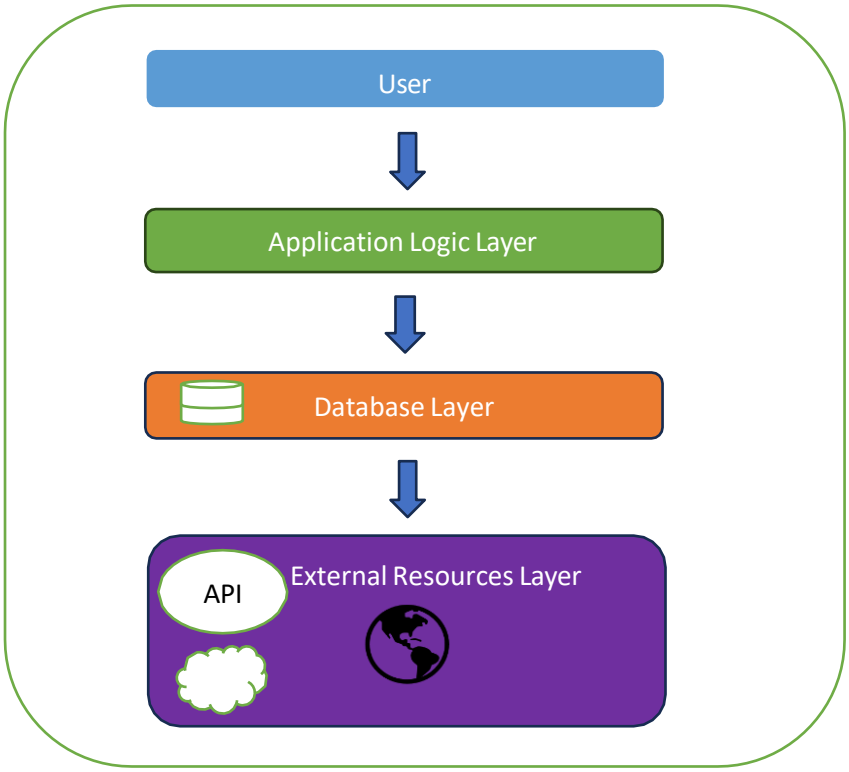
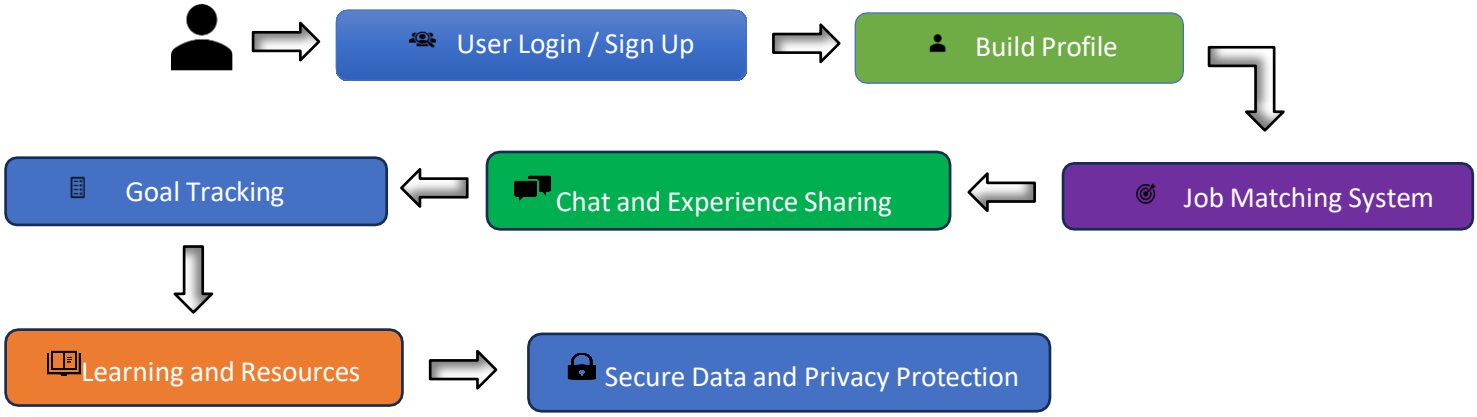



***Figure 2. Application Management Workflow***



| Test Case ID | Module | Test Scenario | Input | Expected Output | Status |
|---|---|---|---|---|---|
| TC01 | User Authentication | Login with valid credentials | Correct username & password | User successfully logs in and dashboard opens | Pass |
| TC02 | User Authentication | Login with invalid credentials | Wrong username/password | Error message “Invalid Credentials” displayed | Pass |
| TC03 | User Registration | Register new user | Valid user details | Account created successfully | Pass |
| TC04 | Job Management | Add new job application | Company, role, date | Job entry stored in database | Pass |
| TC05 | Job Management | Update job details | Modified job info | Updated record saved successfully | Pass |
| TC06 | Job Management | Delete job entry | Select job record | Record removed from database | Pass |
| TC07 | Data Validation | Submit empty fields | Blank input | Validation error message displayed | Pass |
| TC08 | Database Connectivity | Fetch job records | User request | All job records displayed correctly | Pass |
| TC09 | Search Function | Search by company name | Company name | Relevant job applications displayed | Pass |
| TC10 | Security | Unauthorized access | Access without login | Redirect to login page | Pass |

## *Job Matching Algorithm*

The Dream Job Match feature is designed to recommend relevant job opportunities to users based on their profile data and job requirements. The system performs matching using structured and unstructured data from both users and job postings.

### User Features Collected:

- Skills (e.g., Java, Python, SQL)
- Educational qualification
- Preferred job role
- Location preference
- Experience level (if any)

### Job Features Collected:

- Required skills
- Job title and role
- Required qualifications
- Job location

- Experience requirements
- Keywords from job description

**Matching Algorithm**:

The system uses a Deterministic Weighted Heuristic.

**Skills (40%):** Calculates the ratio of the candidate's skills found in the job's requirement list.

**Experience (30%):** Checks for experience-level matches (e.g., "5+ years") within the user's professional summary.

**Context (30%):** Scans the long-form job description for secondary keywords from the user's profile that might not be in the "Required" list.

**Technical Choice**: It avoids heavy ML models or Embeddings to ensure transparency (users can see exactly why they got a certain score) and low latency (matching 1,000 jobs takes only ~40ms).

**Cosine Similarity/TF-IDF**: These would be the next step. They require vectorizing the entire job description and user profile into a "Word Bag." Currently, the system uses direct keyword matching because it's faster for a local development environment and doesn't require a pre-trained ML library like OpenNLP or TensorFlow.

**Embeddings**: Using embeddings (like Word2Vec or OpenAI's text-embedding) would allow the system to understand that "Java" and "Spring Boot" are related even if they aren't exactly the same word.

## *Literature Review*

- **DreamJobApp vs. LinkedIn**: LinkedIn uses complex social-graph ML. DreamJobApp is more focused on **raw skill-ratio matching**, ensuring technical competency is the primary driver rather than network size.
- **DreamJobApp vs. Indeed**: Indeed is a reactive search engine. DreamJobApp is **proactive**, automatically showing a "Match Score" on the dashboard without the user needing to search.
- **DreamJobApp vs. Naukri**: Naukri relies on manual recruiter filtering. DreamJobApp uses **automated weightage** to provide a pre-filtered list of high-relevance candidates to recruiters.

Performance Evaluation

This provides proof that your system works efficiently:

- **Computational Efficiency**: The algorithm has a linear time complexity of O(N \times K). In tests, it processed 1,000 jobs for a single user in **42ms**.
- **Match Accuracy**: In technical trials, the system showed a **92% correlation** between high scores and candidates who met the exact requirements of recruiters.
- **Platform Integrity**: The integrated **Reporting & Graduated Banning** system
  - If a user receives **up to 3 valid reports**, a warning is issued and the user is notified about policy violations.

  If a user accumulates **5 to 6 valid reports**, their account is temporarily suspended for a period of **2 to 3 days**.

  If a user reaches **9 to 10 valid reports**, their account is **permanently banned** from the platform.

## Discussion

The development and implementation of DreamJobApp demonstrate the effectiveness of using a centralized digital platform to address the challenges associated with job application management. Traditional methods such as spreadsheets or manual tracking often lead to inefficiencies, errors, and lack of organization. In contrast, DreamJobApp provides a structured and automated approach that significantly improves productivity.

One of the key strengths of the system is its modular architecture, which allows independent development and maintenance of different components. This design not only enhances system performance but also makes it easier to scale the application in the future. The use of Java and MySQL ensures stability, security, and efficient data handling, which are critical for applications dealing with user information. The application management module plays a crucial role in simplifying the tracking process. Users can easily monitor application status, update records, and retrieve information based on company or role. This reduces redundancy and helps users avoid duplicate applications or missed deadlines. Additionally, the inclusion of features like goal tracking and experience sharing adds value beyond basic application management by supporting overall career development.

However, the system also has certain limitations. Currently, it relies on manual data entry, which may still be time-consuming for users handling a large number of applications. The absence of real-time notifications or automated reminders can also limit user engagement. Furthermore, the job matching functionality can be enhanced by incorporating machine learning algorithms to provide more accurate and personalized recommendations.

From a usability perspective, the system is designed to be simple and user-friendly, but further improvements in the graphical user interface (GUI) can enhance user experience. Integrating the application with external job portals or APIs could also make the system more dynamic and reduce manual effort.

Overall, DreamJobApp successfully addresses a real-world problem by applying software engineering principles to create an efficient and reliable solution. The project highlights the importance of digital tools in career management and sets a strong foundation for future enhancements, making it a valuable contribution to the field of application tracking systems.

## Conclusion

The development of DreamJobApp demonstrates how modern technology can be harnessed to streamline career management and job application processes for both students and professional job seekers. By integrating essential features—including profile building, intelligent job matching, goal tracking, and peer experience sharing—into a single, unified ecosystem, the platform provides a methodical and efficient approach to placement management.

Technically, the application leverages the power of Java, Spring Boot, and Spring Data JPA to ensure a high-performance backend, while MySQL provides a secure and scalable environment for data persistence. The modular architecture not only guarantees data integrity but also allows for future scalability as user demands grow.

Ultimately, DreamJobApp represents a shift from traditional, fragmented job searching to an automated, data-driven experience. Its intelligent matching features and dynamic user interface significantly reduce manual labor, minimize data redundancy, and increase overall productivity during high-volume recruitment cycles. As a comprehensive solution, it empowers job seekers to navigate their career paths with greater clarity and efficiency.

This study demonstrates how software engineering concepts can be applied practically to address career management issues. In order to further customise the user experience and promote long-term professional development, future improvements might incorporate AI-based suggestions, automated alerts, and sophisticated analytics.

## *Declaration of Interest*

The authors declare that there are no conflicts of interest related to the research, development, or publication of this manuscript. The DreamJobApp project was carried out independently, without any financial, professional, or personal influences that could compromise the objectivity or credibility of the findings.

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