

Career Bridge Online Using Swing and MySQL

Prof. Ajay Talele
Assistant Professor
Vishwakarma Institute of Technology
Pune,
ajay.talele@vit.edu

Shashank Akhade
Computer Engineering
Vishwakarma Institute of Technology
Pune,
shashank.akhade23@vit.edu

Akshat Gupta
Computer Engineering
Vishwakarma Institute of Technology
Pune,
akshat.gupta23@vit.edu

Aditya Kulkarni
Computer Engineering
Vishwakarma Institute of Technology
Pune,
aditya.kulkarni23@vit.edu

Advay Rathi
Computer Engineering
Vishwakarma Institute of Technology
Pune,
advay.rathi23@vit.edu

Aditya Nath
Computer Engineering
Vishwakarma Institute of Technology
Pune,
aditya.nath23@vit.edu

Abstract— The Career Bridge Project represents an ambitious endeavor to streamline the job recruitment process using cutting-edge technology. Developed using Java for the graphical user interface and MySQL for robust data between job seekers and companies. The Career Bridge Project simplifies job recruitment using Java and MySQL. Companies register, provide job details, and contact information. Users sign up, specify job preferences, and submit. The system matches users with job opportunities and displays company contact details for direct communication. It streamlines job search, bridging the gap between companies and job seekers. The Career Bridge Project not only simplifies the job search process but also enhances the efficiency and effectiveness of job recruitment, bridging the gap between companies and potential employees. This project demonstrates the potential of technology to revolutionize the employment landscape, making job search and hiring processes more accessible and productive.

Keywords— Java, GUI (Graphical User Interface), SQL (Structured Query Language)

I. INTRODUCTION

The job recruitment process has changed dramatically in the modern-day digital transformation era. With the development of technology, creative approaches have replaced conventional approaches to employment and job searching. In this regard, the "JobPortal" initiative has come to light as a shining example of how technology may transform the hiring and job-searching processes.

Career Bridge is a cutting-edge platform created to improve efficiency and user friendliness of the hiring process by streamlining it. This project makes use of MySQL for data storage and Java

for the creation of a Graphical User Interface (GUI). Its main objective is to close the employment gap that exists between job seekers and employers.

The **Career Bridge** project's architecture, features, and importance are examined in this paper. The purpose of this paper is to examine the **Career Bridge** project's fundamental architecture, functioning, and applicability. It explores its fundamental elements, including job posting, job search, and user and corporate registration features. Moreover, it emphasizes how this platform uses database management to improve communication between businesses and individuals. As we

progress, we will delve into the technical intricacies of the project, exploring the key features, interactions, and the seamless integration of SQL databases. By the end of this report, readers will have a comprehensive understanding of how the **Career Bridge** project leverages technology to create a more effective and user-centric job recruitment experience.

II. METHODOLOGY

The "**Career Bridge**" project stays to a structured process that covers every stage of the software development lifecycle. To guarantee an in-depth understanding of the requirements and expectations of employers and job seekers alike, the first step in the process begins with a thorough requirement analysis. A key decision for the project's technology stack is the Relational Database Management System (RDBMS), MySQL, and Java for the Graphical User Interface (GUI) and GUI, respectively.

Creating a schema that meets the requirements of the project is part of the database design phase. It has tables for storing users and companies registration data, users details, and Job giving companies details. The platform's success depends on effective data administration and retrieval, which is ensured by its meticulous design.

The creation of the Graphical User Interface (GUI), which is accomplished by using Java's Swing library, is the central focus of the project. This library offers a strong foundation for designing a user-friendly and aesthetically pleasing interface.

Separate registration forms are provided to users and companies, which gather pertinent data based on their profiles. Employers can use the site to publish job openings, including the position's description, contact details, and domain. The MySQL database securely stores this data. On the other hand, job seekers apply for jobs, including their contact details, qualifications, and the position in which they are interested.

The platform's database, a important backbone of the system, plays a big role in efficiently managing data storage and retrieval. By the using of SQL queries, it ensures seamless handling of large volumes of data, enabling essential functionalities for both job seekers and employers. Job seekers benefit from the ability to search for relevant job listings based on various criteria, while the companies gain streamlined access to job applications from potential candidates. The

overarching goal of the development process has been to enhance user experience and facilitate important interactions between users and companies. To achieve this, the platform continuously changes with the integration of user-centric features. These include intuitive job search tools, straightforward job application submission processes, and efficient channels for user-company communication. Each feature is designed and refined with a focus on creating a

user-friendly and engaging environment that meets the needs of all stakeholders involved. Testing and quality control are essential project phases. To find and fix any software defects or problems in the GUI and database components, thorough testing is done. In this stage, user feedback is essential to maintaining the stability and dependability of the platform.

The project continues to undergo refinements and updates based on user feedback, technological advancements, and the evolving job recruitment landscape.

The Career Bridge project was built using an agile and rigorous process, ensuring that features would stay cohesive while catering to natural demands by job seekers and employers alike. It consists of multiple steps, such as analyzing requirements and technology stack selection, database design, interface development, with continual iterations for testing. Each stage is described in detail in the subsections that follow.

2.1 Requirement Analysis

The first step was to determine the basic features needed by the two major audiences: employers and job-seekers. Employers required a simple way to advertise job listings by outlining job particulars, minimum experience or education needed, and some basic information about their employer. Job seekers wanted a simple solution to sign up and search for jobs as well as applying to relevant job opportunities.

During this phase, we did a ton of user testing and brought in domain & subject matter experts to identify the frictions users were experiencing with the current job portals. Those results highlighted the need for:

A system that scales and can have a lot of users, but we want it secure.

An easier way for users to register and post jobs.

Additional job search features which make your user experience customizable.

2.2 Technology Stack

The following technologies were chosen that satisfies these requirements:

Java Swing: To create the GUI, provides more flexibility and very customizable. Swing features sophisticated components like tables and forms, critical for the dynamic interaction that defines this platform.

MySQL — a trusted RDBMS for data storage / retrieval, and security. It offers efficient methods of manipulating user profiles, applications for jobs, and companies with its powerful query methods.

Java and MySQL communicates well with the front end and back end making the experiences quicker for users as they experience a faster web while still taking advantage of secure database transactions.

2.3 Database Design

Special attention was paid to normalization on part of the database design process so as to avoid redundancy and enhance efficiency. Among them, we have the following important tables from the schema:

USERS TABLE: Holds user ID, name, e-mail address, qualifications and preferences etc.

Companies Table: stores information about companies registered on the platform such as their ID, contacts details and employer job

posting.

Table for Job Listings: wildlife jobs details along with the job title, skills needed, and domain category (IT or Education or Healthcare etc.)

Applications Table — Stores the information about jobs that users applied for along with applicant IDs, job IDs and timestamps.

It is designed so that data can be always accessed securely and access is given based on the role which could be either a job seeker or an employer. Complex search operations during latency at use through optimized SQL queries.

2.4 Interface Development

The development of user interfaces is an important part of the project, it greatly affects the convenience for users working with this system. A nice interactive GUI implementation is built using Java Swing. The interface features:

Distinct Registration Forms: Unique job seeker and employer registration forms to collect domain specific information.

Job Board Forms – Employers can post the job details that belong to industry domains such as IT, medical, education, finance and more.

Job Search Filters– It allows everyone to set job search filters according to the location, domain, and many aspects.

The architecturally modular design of the Swing library made it easy to design reusable components, like buttons, text fields, and drop-down menus to keep things uniform throughout the platform.

.Invalid input confirmed through error handling mechanisms in-built to allow higher levels of feedback.

2.5 Security with Data Validation

Both the database as well as application design had security ensured in it. I implemented the following measures:

Feature 1: Input Validation — It validates data entered by users (like job descriptions, application info) and much more. This limits the chances of SQL injection and having a data mismatch.

Hashing User Password: Storing Unity3d user passwords in the database in a hashed way to keep sensitive information safe.

Role-Based Access Control — Some features can only be accessed by users with certain roles, preventing any unauthorised actions.

2.6 Application Workflow

The application workflow connects the front end and back end to guarantee proper functionality of everything. The primary steps include:

Registration: Users and companies register through the GUI, entering basic information. All these details are stored in a secured way in the database.

Job Posting — Employers log in to their accounts and create job openings by simply filling internal (domain-specific) forms. The updated postings are kept in the database.

Searching & Applying for Jobs: Job seekers search the job posting list with filters then apply right in the interface. On the database level, applications are stored and matched to job IDs.

Data Retrieval: Using SQL queries to obtain job-related data, in order to show it on the GUI without delay.

2.7 Testing and Quality Assurance

Career Bridge was thoroughly tested for reliability and usability Testing phases included:

Unit Testing: Independent testing of each module (including GUI components and SQL queries)

Integration Test: Verified communication between front end(Java Swing) and back end(MySQL).

UAT (User Acceptance Testing): We rolled out the platform to a cohort of job seekers and employers, gathering their feedback to hone features.

2.8 Future Scope and Enhancements

During these phases, we identified and addressed common problems like interface lag and incorrectly populated databases.

Testing iteratively helped to make sure that it always got better. Still in progress, the Career Bridge project takes a step toward overcoming these key hiring and job search hurdles by providing an intuitive, engaging interface for users. But considering how the job market is improving itself all through with minutes, there is a lot of space to improve it along even more by some innovations and few help facilities. There are internal areas that show promise for evolution, like introducing AI/ML to provide a more personalized experience. AI driven algorithms that analyze user profiles, preferences and application history could help job seekers by providing them with recommended job opportunities aligned specifically to their qualification and needs while helping employers finding adequate candidates. Not only this would save time but also increase the accuracy of job matching, resulting in happy both sides. There is also immense potential for growth due to a mobile app. As people use their smartphones for various daily activities nowadays, it may certainly be beneficial to develop the Career Bridge app available on Android and iOS versions. The next most immediate step would obviously be a mobile app, which would allow job seekers and employers alike to access the platform wherever they are and thus lower another barrier to engagement. With features like push notifications and easier navigation, the mobile app could be an essential recruiting and job searching tool. Apart from AI and mobile app development, the platform can also introduce real-time notification systems. These systems would notify users of updates like a new job posting, changes in their application status, or communication from an employer. Notifications would be sent through email, SMS or in-app message that can keep users updated and easily engaged preventing users to check the platform manually. That would truly elevate the system's responsiveness and make it dynamic and purposeful. It also can be improved by integrating with 3rd party tools and platforms such as professional networking sites like LinkedIn or job boards like Indeed. The integration would enable users to simply import their profiles and resumes, which pivots all of the work needed for multiple-profile creation and maintenance onto one platform. Additionally, similar to what we saw in the previous section, analytics dashboards might be a way to enable employers make data-driven decisions by having access to information regarding application patterns.

III.LITERATURE SURVEY

[1] This is a simple online recruitment system, Java Career Job Search Application to apply for jobs and manage accounts of job seekers. It has two basic user roles: applicants who can look for jobs based on their qualifying factors, and employers who post job opportunities and search for the right employees. This system streamlines the job search experience by linking graduates to prospective employers, which is designed to improve job placement rates, although officials said it will not fix all of graduates' employment problems.

[2] It also keeps in mind that portals cannot eliminate what jobless graduates are facing. This is a part of Final Year Project. Terna Engineering College, Mumbai University — Faculty of Computer Engineering It also mentioned Marjan Mansourvar and Norizan Binti Mohd Yasin study to develop a web portal for job offer in university to achieve the better quality of education published on International journal of computer theory and engineering February 2014.

FLOWCHART:

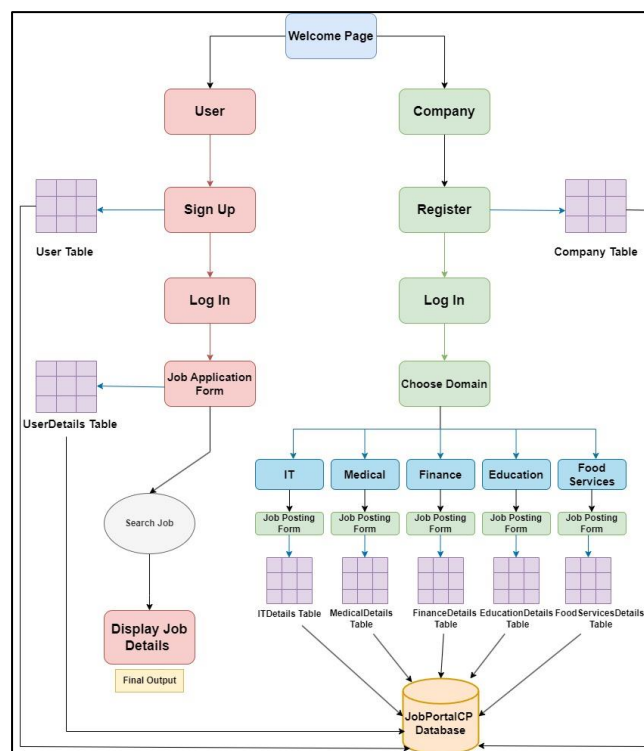


Fig.1. Flow Chart

[3] In this paper, the authors present JRC, a job-Résumé classifier that they developed at The Arab American University to make online recruitment more effective in terms of job posts and résumés classification. JRC incorporates an occupation category classification knowledge base, and sections segmentation with natural language processing methodology. The experimental results show that JRC matches resumes to job posts better than any existing systems with the improved matching precision and decreased running time from traditional systems.

[4] Corporate portals are explained by different specialists in the area, yet they represent applications empowering organizations to gain and channel inward just as outer data, giving a custom-made view that is basic for settling on an educated choice. Overall these portals for processing and decision processing ultimately allows the information to enter the hands of employees which will be efficiently shared with customers and partners that can facilitate integration and help new employees with education. Corporate portals have publishing facilities, import/export interfaces features and subscription services that enable relevant information to be delivered to the users based on profile that leads to providing high ROI because they are easier to maintain and deploy than customized solutions.

[5] Abstract The paper analyses Monster data to study the demand for IT professionals. com and HotJobs. com. It indicates that demand is high for programming languages (such as Java and C++), web technologies (such as SQL and HTML), databases (e.g., Oracle) Most jobs require a multi-skilled different experienced person so communication skills are also recommended. They also note that some older skills, such as COBOL, are no longer needed. Schools must update courses as per market requirements, Student should work as interns to be more attractive during job opportunities.

[6] This thesis describes the implementation of a simple job portal with cakephp framework. This gateway connects job seekers to the employers and can be used flexibly without having to register.

Developed with technologies such as HTML, CSS, JavaScript, and MySQL implementing MVC architecture for modularity and scaling. It is an application that allows registered and non-registered to apply for jobs, post jobs and manage profiles. The incremental nature of the agile methodology, paired with strong testing from usability testing goals, ensured continuity and improvements. While lacking in some areas (like simple communication features between users) the portal has been formed as a good foundation on which to build weitere functions, such as the development of a mobile app or designing an even prettier interface.

[7] The literature on job portals highlights their pivotal role in modernizing recruitment processes, addressing inefficiencies in traditional methods such as job fairs and print advertisements. These portals cater to the growing demand for IT professionals skilled in programming languages like Java and C++, web technologies such as SQL and HTML, and databases like Oracle, emphasizing the need for multi-skilled individuals. The diminishing relevance of older technologies, such as COBOL, underscores the importance of updating educational curriculums to align with current market needs. Additionally, communication skills are increasingly valued for effective collaboration, while internships are advocated to enhance employability and provide practical industry experience. By integrating advanced technologies and user-friendly features, job portals streamline the hiring process, offering mutual benefits to job seekers and employers in an increasingly competitive job market.

IV.DISCUSSIONS

Career Bridge delivers effective solutions to problems associated with conventional recruitment process by using Java for GUI and My SQL for backend database. Its job matching service, company registration and a focus on the user makes it truly bring jobs to your doorstep. It enhances efficiency by enabling companies to post job opportunities directly, as well as users searching for suitability jobs on the basis of qualifications and preferences. The second factor is plain MySQL and storage; this removes the complexities of using other databases, making it possible for quick retrieval of job listings and applications while guaranteeing accuracy — two areas that traditional recruitment fails to meet effectively.

The project will use Java Swing for GUI which provides a more user-friendly and visually appealing interface, increasing user interaction. The platform comes with dedicated forms for different industries, including IT, medical, education etc., which means excellent industry customisation. Such segmentation enables finer matching of jobs, in echoing with previous studies stressing the significance of tailored recruitment solutions for better hiring results. Also, using optimized SQL queries when talking to the database helps with scalability and reliability as databases have proven that they can handle a huge amount of data (and I mean huge) if configured correctly over time and usage by lots of users

Looking at Career Bridge in comparison to other systems, either by employ MVC frameworks or use natural language processing that encourages the job seeker and company matcher for a resume-job match — the simplicity of style is a definite advantage. JRC, for instance, focuses on complex classification methods as a core requirement of their system while Career Bridge emphasizes user-friendly interactions and easy process implementation. In fact, we see congruence with the literature that speaks to several needs of non-technical users in emerging markets—namely, accessibility and ease of use. But it may not compete well against more sophisticated platforms due to the lack of foundational

Looking ahead, incorporating these features such as machine learning-based job recommendations and integration of third-party

tools (e.g., LinkedIn or Indeed APIs) could significantly enhance functionality. Users' Feedback will be pivotal in shaping the platform's evolution, and continued iterative updates will be crucial for adapting to dynamic market needs. The project's success so far as it underscores the potential for technology to transform recruitment, but it also highlights the need for continuous innovation to stay aligned with industry advancements and user expectations.

V.RESULTS

After running the code, we have written and discussed above in the report following is the output:

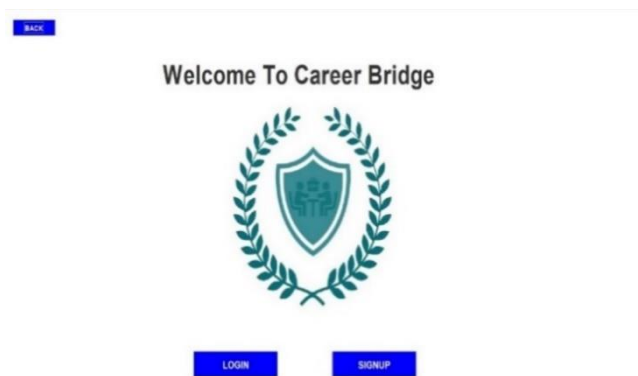


Fig.2. Welcome Page of Project

Organization Side:

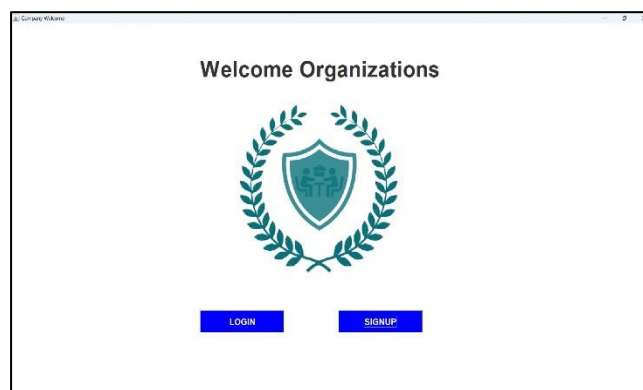


Fig.3. Welcome Page of Organization

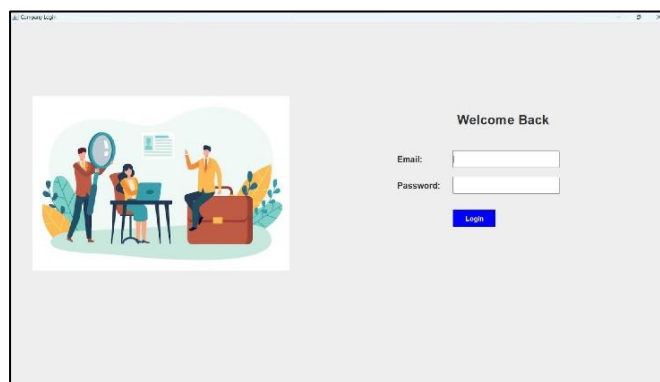


Fig.4. Login page for company

Choose one of the following Domain

IT

Education

Medical

Finance

Food Services

Fig.5. Domain Page

Fill the following Finance job details:

Company Name:

Location:

Salary:

Available Position:

Vacancy:

Mobile No:

Email:

Submit

Fig.9. Form for Bank giving Jobs

Fill the following IT details:

Company Name:

Location:

Salary:

Vacancy:

Available Position:

Mobile No:

Email:

Submit

Fig.6. Form for IT Companies giving Jobs

Fill the following Food Services job details:

Restaurant Name:

Location:

Salary:

Available Position:

Vacancy:

Mobile No:

Email:

Submit

Fig.10. Form for food services Jobs

Fill the following Medical details:

Name of Hospital:

Location:

Salary:

Available Position:

Vacancy:

Mobile No:

Email:

Submit

Fig.7. Form for Medical Companies giving Jobs

User Side:

Signup

Email:

Username:

Password:

Signup

Fig.11. User Signup Page

Fill the following Education details:

Institution Type:

Institution Name:

Location:

Salary:

Available Position:

Vacancy:

Mobile No:

Email:

Submit

Fig.8. Form for School/Colleges giving Jobs

Welcome Back

Username:

Password:

Login

Fig.12. User Login Page

VII.ACKNOWLEDGMENT

We extend our sincere gratitude to all those who contributed to the successful completion of this research and project on the JobPortal. First and foremost, we acknowledge the support of our institution Vishwakarma Institute of Technology for providing the necessary resources and environment for this Project.

We would like to express our appreciation to the experts in the field of Java and Database management System and infant care who generously shared their insights and guidance, which significantly enriched our Project. This research would not have been possible without the collaborative efforts of these individuals and institutions, and their support is sincerely appreciated.

VIII.REFERENCES

- [1] Career Job Search Application Built in JavaONLINE JOB PORTAL : Pinjari, Mustafa, Nishit De, Rutvij Kokne, Aamir Siddiqui, and Dnyanoba Chitre. "Online job portal." *International Research Journal of Engineering and Technology* 6, no. 4 (2019).
- [2] JRC: A Job Post and Resume Classification System for Online Recruitment : Zaroor, Abeer, Mohammed Maree, and Muath Sabha. "JRC: a job post and resume classification system for online recruitment." *2017 IEEE 29th International Conference on Tools with Artificial Intelligence (ICTAI)*. IEEE, 2017.
- [3] Corporate portals: a literature review of a new concept in Information Management : Dias, Cláudia. "Corporate portals: a literature review of a new concept in Information Management." *International Journal of Information Management* 21.4 (2001): 269-287.
- [4] A Web portal for CMS Grid job submission and management : Braun, David, and Norbert Neumeister. "A Web portal for CMS Grid job submission and management." In *Journal of Physics: Conference Series*, vol. 219, no. 7, p. 072012. IOP Publishing, 2010.
- [5] Job Portal Using CakePHP Framework : Ashraf, Asim. "Job Portal Using CakePHP Framework." (2016).
- [6] <https://docs.oracle.com/javase/8/docs/technotes/guides/jdbc/>
- [7] Chakravarty, Urmi. "Online job portal." (2017).

Fig.13. User Form

Company Name	Location	Role	Date Posted
...
...
...
...

Fig.14. Table of Jobs user can apply

VI.CONCLUSION

The "Career Bridge" initiative is changing the way people find jobs and companies hire employees in sectors, like technology (IT) healthcare (medical) finance (services) education and food services industry by offering a user platform that makes it easy for businesses to advertise job openings and for job seekers to find positions that match their skills and career goals effectively. The platform makes job matching easier, by being user friendly and handling data, in a way that saves time and effort for everyone involved.

"Caring deeply about progress and putting users at the centre of our work is central, to the foundation of "Career Bridge." This dedication guarantees that the platform grows in tandem with shifting industry demands and advancements in technology to stay current and efficient. By integrating elements such as tailored job suggestions and strong search capabilities while prioritizing data handling practices, "Career Bridge" establishes itself as a leader, in digital recruitment solutions.

The platform is also influenced by the methods used in portals by customizing information delivery and providing tools specific, to each user to improve decision making and facilitate communication, between employers and job seekers.

Corporate websites are often praised for their role, in boosting efficiency within an organization. Can serve as a blueprint for how platforms such, as "Career Bridge" can bring value to users.

Portals guarantee that accurate information is delivered to the users at the moment through features, like data importing/exporting options and subscription services which are recognized for being budget friendly and efficient.