



JobSync: Streamlining the Path from Unemployed to Employed

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INTRODUCTION

Background of the Study

Job hunting has become a completely different experience compared to ten years ago. Back then, people would walk into businesses with their resumes or browse through newspaper job sections every Sunday morning. Those straightforward approaches are practically extinct now. Everything happens online, but honestly, most of the current job websites create more problems than they solve.

People spend their entire weekends creating accounts on different job sites, only to input the exact same resume details over and over again. It's frustrating to see them send out dozens of applications and then wait weeks without getting even a simple "thanks, but no thanks" email. In contrast with this, there are small business owners who complain that they post one job opening and get flooded with 200 applications from people who clearly didn't read the job description.

During the initial research phase, we noticed something interesting: some of the current employment websites seem to work well for the companies running them, but they're not actually solving the core problem of helping the right people find each other. While there are various job boards and recruitment platforms available, very few successfully address the needs of both sides of the employment equation. Most systems favor either the employer or the job seeker, but rarely create a balanced environment that benefits everyone involved.

This project emerged from recognizing these real-world challenges. We wanted to develop a comprehensive database-driven system that doesn't just post jobs or collect resumes, but actually helps people connect with the right opportunities while giving employers access to qualified candidates efficiently.

Statement of the Problem

Through our preliminary research and observations, we've identified both general and specific issues that our system needs to address:

General Problem:

Not just simply unemployment but proper employment, or finding a job fit to you is still a big issue until today. Due to inefficient information management systems and taxing procedures, the current employment landscape suffers a lot between job seekers and employers, which causes more unemployment issues.

Specific Problems:

1. Job seekers spend excessive time visiting multiple job websites without finding positions that match their qualifications and preferences.
2. Employers receive overwhelming volumes of irrelevant applications, making it difficult to identify qualified candidates efficiently.
3. There is no centralized platform that effectively serves both job seekers and employers with integrated communication tools.
4. Current systems lack proper organization tools for job seekers to track their applications and for employers to manage their recruitment processes.
5. Poor data management in existing platforms leads to missed connections between qualified candidates and suitable job opportunities.

Scope and Delimitation

This project is about building a practical and easy-to-use job posting and application system that helps connect people looking for work, and people looking for someone who can work. It is designed to cover the essentials, such as, searching and applying for jobs. Employers will also be able to post job openings and reach out to potential candidates. The project focuses on keeping the system secure, reliable, and accessible across devices. That said, the limitations include a system that does not have its own resume generating tool, hence, employers who are yet to create their resumes and portfolios will need a separate tool for it. The main goal is to build something that works well for the basics, without trying to do everything at once.

Target Users

We designed this system with specific groups of people in mind, based on who would benefit most from what we're building:

Primary Users Who Will Benefit Most:

Job Seekers Include:

- College students and recent graduates who are just starting their careers and need guidance navigating the job market.

- People who are currently unemployed and actively searching for new opportunities.
- Individuals looking for part-time work or flexible arrangements that fit their lifestyle.
- Career changers who want to explore different industries but aren't sure where to start.

Employers We're Targeting:

- HR professionals in companies of all sizes who handle recruitment as part of their daily responsibilities.
- Small business owners who need to hire employees but don't have dedicated recruitment staff.
- Recruitment agencies that work with multiple companies and need efficient tools for managing candidates.
- Department managers who get involved in hiring for their specific teams.
- Startup founders who are building their companies and need to attract talent quickly.

Secondary Users Who Will Also Use the System:

We also considered people who might use the system less frequently but still play important roles, such as IT staff who will maintain the system, career counselors at universities who help students find jobs, and government employment offices that might use the platform for public sector positions.

The interface design keeps in mind that users have different comfort levels with technology, so we've made sure the system is intuitive enough for someone who isn't particularly tech-savvy while still providing the advanced features that power users might want.

PROJECT OBJECTIVES

The goal of this project is to build **JobSync**, a simple and effective job posting and application platform that helps job seekers and employers connect more easily. We aim to cut down on the time, effort, and frustration that both sides often face when looking for jobs or trying to hire. The main objectives of this project are:

1. **Make job searching easier for applicants**
Job seekers will be able to search for available jobs, track their applications, and get notified when they are hired or not.
2. **Give employers better tools to find the right candidates**
Employers will be able to post job openings, review and filter applications, message candidates directly, and schedule interviews, all in one place.
3. **Contribute to the emerging online platforms of digital applications**
The project will be able to contribute and help advertising the use and advantages of developing more advanced online platforms for job hiring and applications.
4. **Deliver a User-Friendly and Intuitive Interface**
The portal aims to provide a pleasant experience for users by focusing on key goals such as usability and accessibility, ensuring a smooth and visually appealing interface with consistent buttons and actionable objects.

In short, **JobSync** is all about making the hiring process smoother, smarter, and more accessible for everyone involved.

BUSINESS RULES

In order to ensure the JobSync platform functions properly for all users, a set of business rules has been established. These rules define how users interact with the system, what conditions must be met for certain actions to be enabled, and the constraints that maintain the platform's order.

1. User Registration Is Required to Access Core Features

- **Constraints:** Users (both job seekers and employers) must create an account before posting jobs or applying for positions.
- **Conditions:** Registration requires an email address and password. Employers must provide business information for verification. Users who do not register cannot access the core features of the platform.

2. One Account Registration per User

- **Constraints:** Users (both job seekers and employers) are only allowed to create a single account.
- **Conditions:** The registration of accounts especially include a username with a minimum of 3 characters and a password of at least 8 characters. Upon registering an account with the same credentials of an existing account won't allow the user to continue the registration process.

3. One Application for the Same Job per User

- **Constraints:** A job seeker can only apply once to the same job to avoid duplicate entries.
- **Conditions:** Users may apply to different jobs at the same time, but once hired, users can no longer apply to other job hirings. However, the user may still apply for the same job even when rejected as long as the user doesn't still have any other jobs they are already hired in.

4. Job Posts Must Contain Required Information

- **Constraints:** Employers cannot publish a job post unless all mandatory fields (job title, age requirement, salary, and location) are completed.
- **Conditions:** Posts with missing required fields will be discarded

5. Can Only Contact Applicants Who Applied to Their Job Posts

- **Constraints:** Employers cannot access or contact job seekers unless the seeker has applied to one of their posted jobs.
- **Conditions:** Direct messaging is only enabled after an application is submitted and remains available unless the application is withdrawn or rejected.

6. Job Description Requirements Restrictions

- **Constraints:** Job seekers will not be hired for a job when the written requirements do not make them qualified.
- **Conditions:** Job seekers must make sure that they are qualified in every aspect that the employer seeks for that certain job application (e.g. age).

DATABASE MODELS

The following shows the Relational Model and Entity Relationship Diagram of the program that shows how each table and entity is interconnected with each other to make the whole program function as it is.

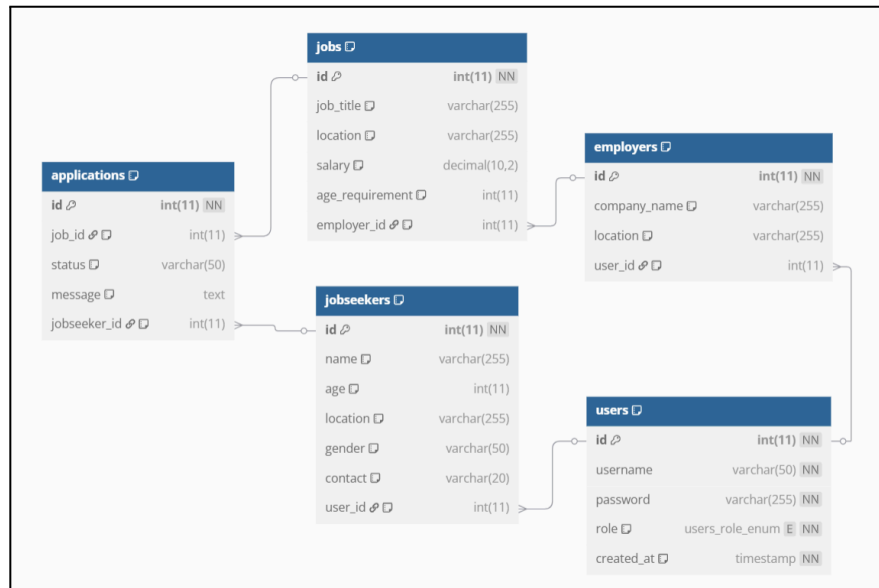


Figure 1.1: JobSync Relational Model

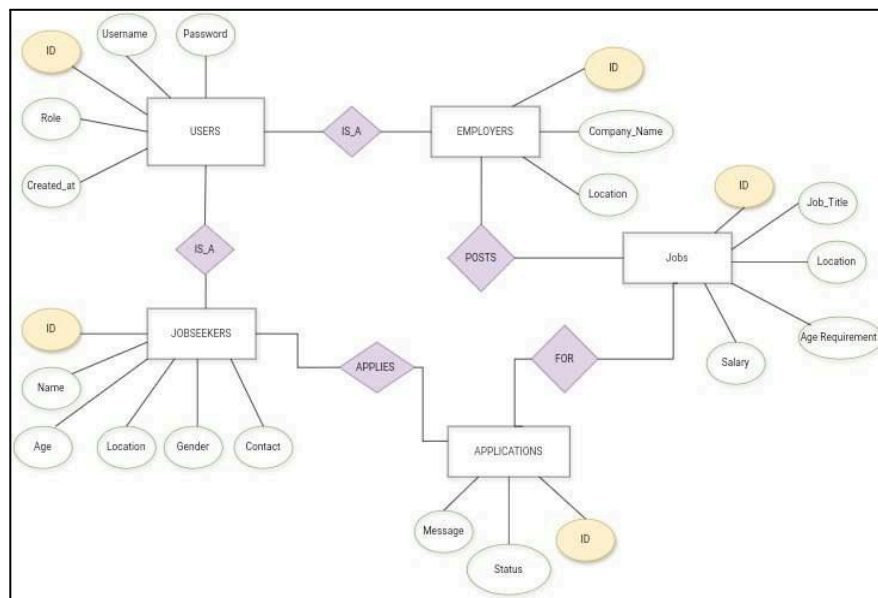


Figure 1.2: JobSync Entity Relationship Diagram

PROJECT OVERVIEW

JobSync is all about making the job search and hiring process less frustrating and more effective for both job seekers and the employers who are looking for people to hire. It's a web-based platform where job seekers can build an account, search for existing hiring jobs, apply easily, and keep track of their applications in one place. On the other side, employers can post job openings, sort through candidates, and communicate directly with people to either hire or reject them. The idea came from real frustrations we've seen in both job seekers and employers, with too much time wasted and not enough useful connections being made. With JobSync, we're focusing on the essentials: a system that's easy to use, works across devices, and helps the right people find each other faster in the context of job, without all the unnecessary complexity found in many existing platforms.

SETUP INSTRUCTIONS

To deploy and evaluate the developed job portal system, we configured both the database and the application environment as described below.

Database Configuration

1. Installation and Initialization:
 - The MySQL module was enabled via XAMPP. Using the XAMPP shell, the working directory was changed to the location containing the database files.
 - The MySQL server was accessed by logging in as the root user.
2. Database Creation:
 - A new database, designated as `CCCS105`, was created to store all required data.
3. Schema and Data Import:
 - The database schema was imported using the following command, with `new_database_name` replaced by the actual name (i.e., `CCCS105`):

```
→ mysql -u root -p new_database_name < schema.sql
```
 - Subsequently, the initial data set was loaded via:

```
→ mysql -u root -p new_database_name < initial_data.sql
```
 - These steps ensured that the database was populated with the necessary structure and baseline data for system operation.

Environment Preparation

1. Software Installation:

- The system was developed in Python; hence, a compatible version of the Python interpreter was installed prior to configuration.

2. Dependency Management:

- Essential Python libraries were installed using the following commands in the terminal:
 - ➔ `pip install customtkinter pillow`
 - ➔ `pip install mysql-connector-python python-dotenv`
- These dependencies included libraries for the graphical user interface, database connectivity, and environment configuration.

3. Commencement of Application:

- The primary application script, `'main.py'`, located within the designated `'source_code'` directory, was executed to launch the system.

Once the above steps were completed, the application was fully operational, and its features could be explored in detail.

TEAM MEMBERS

- **Guiller Angelo Hermoso**
Role: Team Leader, Program Developer, Video
- **Ivy Pauline Mui**
Role: Documentation, Video
- **Senbie Oronan**
Role: Database Diagrams, Video

DEPENDENCIES

The following presents the tools used and libraries imported in order to develop the project:

IDE: VSCode

Database Application: XAMPP

Libraries for GUI:

CustomTkinter

Tkinter

Pillow

Libraries for Database Connection:

MySQL Connector for Python

MySQL Error Handling

Python Dotenv (Environment Variable Management)

RUNNING INSTRUCTIONS

To run the JobSync system locally on your machine, follow these step-by-step instructions:

1. Start the XAMPP Server

- Open XAMPP on your computer.
- Start both Apache and MySQL by clicking the "Start" buttons beside them.
- Make sure both services are running (they should turn green).

2. Open a Terminal or Command Prompt

- You can use Command Prompt, Windows Terminal, Git Bash, or your preferred terminal.
- Navigate to the folder where your JobSync project files are stored.

3. Create a New MySQL Database

- Open your browser and go to **phpMyAdmin** by typing
- Click on the “New” button on the left panel to create a new database.
- Name the database: CCCS 105.

4. Import the Database Schema

- After creating the database, click on the CCCS 105 database in the sidebar.
- Go to the “Import” tab at the top.
- Click “Choose File” and upload the .sql file from your project folder.
- Click “Go” to run the import and set up your tables.

5. Run the Project

- Go back to your browser and navigate to the project folder.
- When everything is set up correctly, the main menu of JobSync should load.