



**Tribhuvan University**  
**Faculty of Humanities and Social Science**

**JOB BOARD**

**A PROJECT REPORT**

**Submitted to Department of Computer Application**  
**Orchid International College**

*In partial fulfillment of the requirements for the Bachelors in Computer Application*

**Submitted by**  
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## **ABSTRACT**

This project involves building a job board web application on the Django web framework. The project requires defining the scope, setting up the development environment, creating a Django project, creating Django apps for each feature, defining models, creating views and templates, implementing authentication, and implementing search functionality. The job board web application will include features such as job posting, job search, candidate profiles, and application tracking. The project will use Python, Django, PostgreSQL as Database and other libraries as required. The completed web application can be deployed to a web server or a cloud platform.

**Keywords: Django, PostgreSQL, JS, CSS**

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## **LIST OF ABBREVIATIONS**

CSS: Cascading style sheet

ER: Entity-Relationship

HTML: Hyper Text Markup Language

IDE: Integrated Development Environment

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# **Chapter 1: Introduction**

## **1.1. Introduction**

The job board web application project on Django aims to create a platform for employers and job seekers to connect and facilitate the recruitment process. The web application will allow employers to post job listings and manage applications from candidates, while candidates can create profiles, search for job listings, and apply to positions.

The platform will have features such as job category filtering, keyword searching, resume uploading, and messaging between employers and candidates. It will also provide analytics and reporting functionalities to help employers track the performance of their job listings and optimize their recruitment strategies.

Overall, the job board web application project on Django aims to provide an efficient and effective solution for job seekers and employers to connect and fulfill their recruitment needs.

## **1.2. Problem Statement**

The different problems faced in the job boards are:

- Difficult to find and hire right candidate
- Traditional methods like posting ads on newspapers are costly and time consuming
- Storage problem (update, search, delete, edit), these types of methods are not accessible and not carry with the manual method.
- Unable to analyze past data

### **1.3. Objectives**

The objectives of designing the Job Board are :

- to provide a web application that keeps track of employers, their jobs posted and applications,
- to allow job seekers to apply for the jobs
- To provide fast and accurate services to customers without a single visit.

### **1.4. Scope and Limitations**

#### **1.4.1. Scope:**

- User Registration and Authentication: Users can register and create an account. Users can authenticate themselves through login credentials.
- Job Category Management: Employers can assign appropriate categories to their job listings. Users can filter jobs based on job categories.
- Administrative Panel: An administrative panel will be provided to admins to manage user accounts, job listings and job data.

#### **1.4.2. Limitation:**

- Security risks: The platform will contain sensitive information, including user data and job listings. Therefore, it is critical to ensure that the platform is secure and protected against hacking attempts and other security threats.
- Technical difficulties: The platform may encounter technical difficulties, such as server downtime or data corruption, which could result in the loss of user data and damage to the platform's reputation.
- Competition: The job board market is highly competitive, with several established players in the industry. The platform may struggle to attract users and compete with existing platforms.

## **Chapter 2: Literature Review**

### **2.1. Literature Review**

Job boards are an essential component of the modern job search process. They allow job seekers to browse job listings and apply for positions online, while also providing employers with a way to reach a larger pool of candidates. Web applications built on Django, a high-level Python web framework, have become popular for building job boards due to their ease of use and scalability.

One study by Liang (2019) examined the use of web-based job search platforms in China and found that these platforms have become an important tool for both job seekers and employers. The study highlighted the need for effective job matching algorithms and user-friendly interfaces, both of which can be achieved through the use of web application frameworks like Django.[1]

Another study by Kuo (2018) focused on the design and development of a job board web application for the hospitality industry. The authors used Django to build a platform that allows employers to post job openings and candidates to apply for positions. The study found that the use of a web application framework like Django can significantly reduce development time and costs while also providing a robust and scalable platform. [2]

Overall, the literature suggests that building a job board web application on Django can provide a cost-effective and scalable solution for employers and job seekers alike. The use of Django's built-in features such as ORM and authentication, along with the ability to integrate with other Python libraries, make it a suitable choice for building job boards with advanced features such as job matching algorithms and machine learning.

## Chapter 3: System Analysis and Design

### 3.1. System Analysis

The system analysis of the system is done by conducting requirement analysis, feasibility analysis, data modeling and process modeling as follows:

#### 3.1.1. Requirement Analysis

The requirement analysis of job board is done through finding the functional and non-functional requirements for the system.

##### 3.1.1.1. Functional Requirements

Functional Requirements are the statements of services the system should provide, how the system should react to particular inputs and how the the system should behave in various situations.

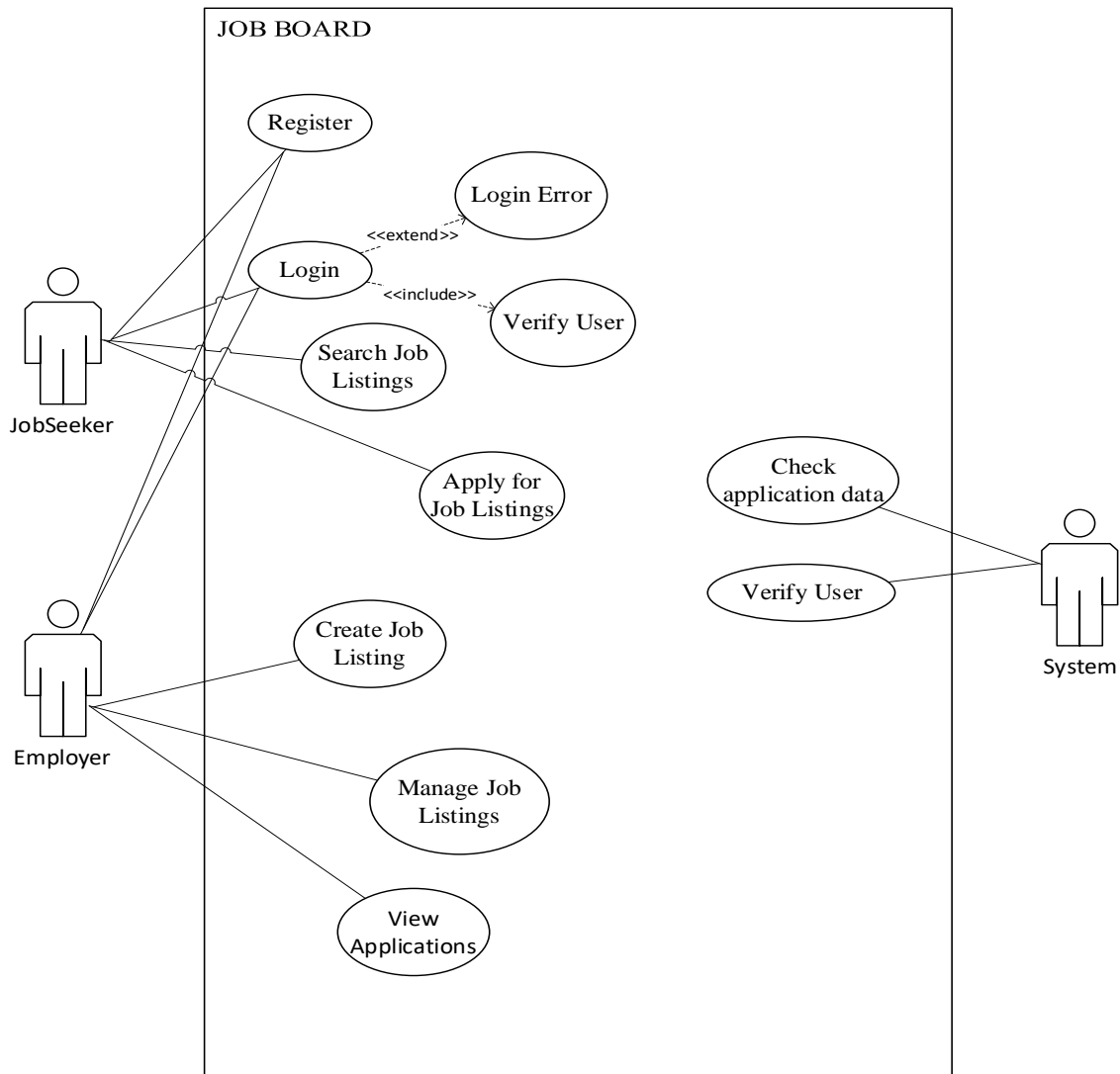


Figure 3.1: Use Case Diagram for Job Board

*Table 3.1: Use Case for Login*

Use Case Identifier	UC1: Login
Primary Actor	User
Secondary Actor	None
Description	The user should be able to log in to the system.
Success Scenario	<ol style="list-style-type: none"><li>1. The user is logged in</li><li>2. The user is acknowledged.</li><li>3. Redirected to home page.</li></ol>
Failure Scenario	<ol style="list-style-type: none"><li>1. The user is not logged in.</li><li>2. User is not acknowledged.</li><li>3. Flash error message.</li></ol>

*Table 3.2: Use Case for Add Jobs*

Use Case Identifier	UC2: Add Room
Primary Actor	Employer
Secondary Actor	None
Description	The employer should be able to add a new job.
Success Scenario	<ol style="list-style-type: none"><li>1. The job is added to the database.</li><li>2. The employer is acknowledged.</li><li>3. Redirected to index page</li></ol>
Failure Scenario	<ol style="list-style-type: none"><li>1. The database is not updated.</li><li>2. The employer is not acknowledged.</li><li>3. Flash error message</li></ol>

*Table 3.1: Use Case for Applying for Job*

Use Case Identifier	UC3: Apply for Job
Primary Actor	User
Secondary Actor	None
Description	Logged in user should be able to apply for jobs.
Success Scenario	<ol style="list-style-type: none"><li>1. The job is applied.</li><li>2. Application table is updated in the database</li><li>3. The user is acknowledged.</li><li>4. Redirected to users' application history page</li></ol>
Failure Scenario	<ol style="list-style-type: none"><li>1. The database is not booked.</li><li>2. Application table in the database is not updated</li><li>3. The user is not acknowledged.</li><li>4. Validation error is displayed on the apply page.</li></ol>

### **3.1.1.2. Non-Functional Requirements**

#### **a. Performance**

This system is designed for smooth performance with optimization and good response.

#### **b. Security**

In this system only authorized personnel can gain access to the admin panel and only valid users with valid username and password can access the user dashboard.

#### **c. Availability**

The system is designed to be available 24\*7. In case of major malfunctions, the system will be repaired quickly so that the business is not severely affected.

#### **d. Ease of Use**

Users with simple level of understanding of how sites work can easily use this system as it is built with that in focus.

### **3.1.2. Feasibility Analysis**

Feasibility analysis is used to assess the strengths and weaknesses of a proposed project and present directions of activities which will improve a project and achieve desired results.

#### **3.1.2.1. Technical**

The job board web application project on Django is technically feasible. The Django web framework is widely used and has excellent documentation, making it easy to develop web applications with complex functionality. Additionally, there are many libraries and third-party packages available for Django that can be used to enhance the platform's functionality.

#### **3.1.2.2. Operational**

The job board web application project on Django is operationally feasible. The platform will be designed with a user-friendly interface, allowing employers and job seekers to easily navigate and use the platform. Additionally, the platform will be scalable, allowing it to handle a large number of job listings and applications.

#### **3.1.2.3. Economic**

The job board web application project on Django is economically feasible. The platform will be built using open-source technologies, reducing the cost of development.

#### **3.1.2.4. Legal**

The job board web application project on Django is legally feasible. The platform will comply with applicable laws and regulations such as data protection and privacy laws, as well as comply with industry standards for recruitment platforms.



### 3.1.3. Data Modeling (E-R Diagram)

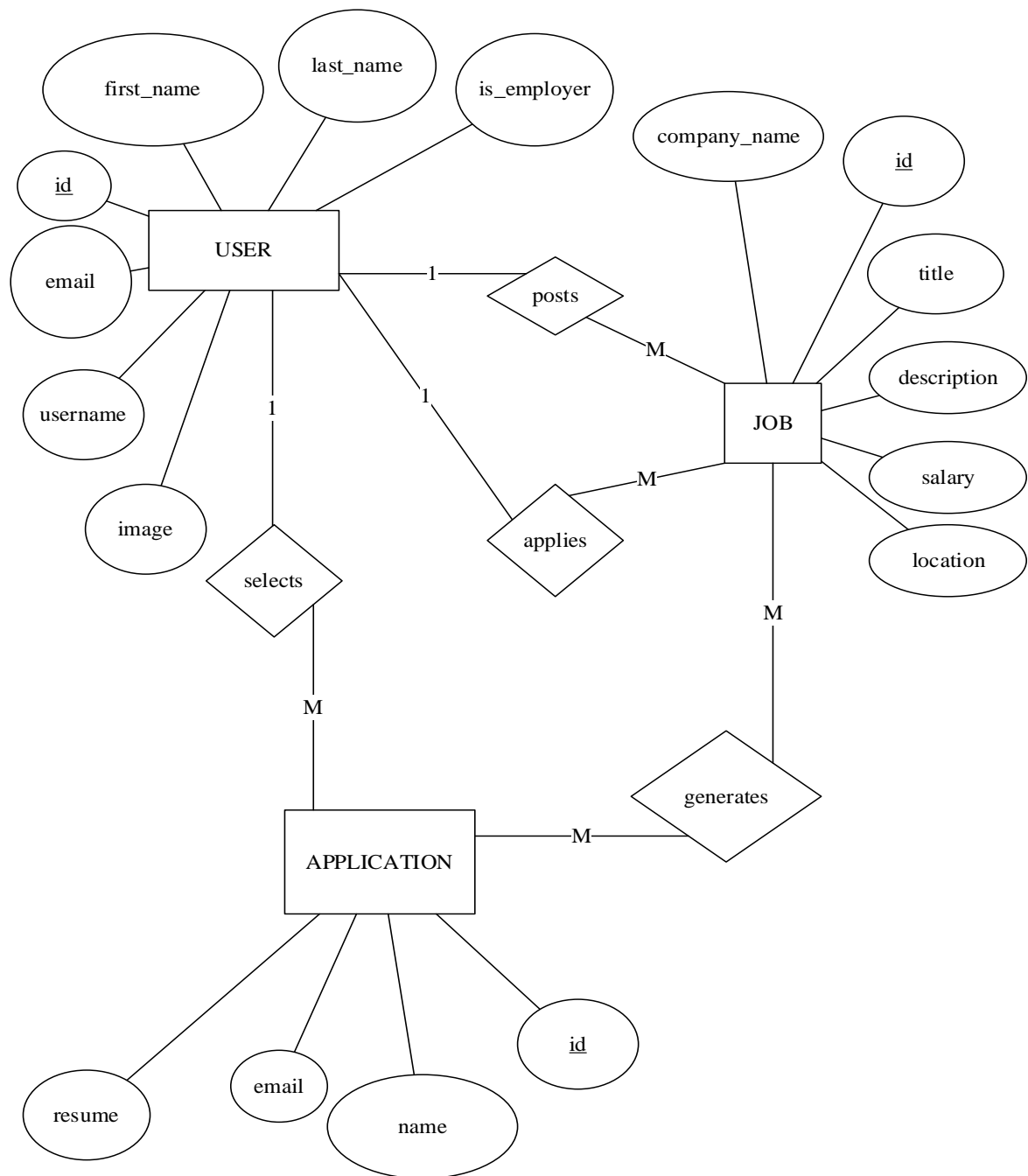


Figure 3.3: E-R Diagram for Job Board

Here, employers add different job listings. Users can apply for those job listings.

## 3.2. System Design

System Design of the Job Board consists of Architectural Design, Database Schema Design, User Interface Design.

### 3.2.1. Architectural Design

A three tier client-server model is used as basis for the architectural design. The three layers are User layer, Application layer, Database layer.

#### User Layer:

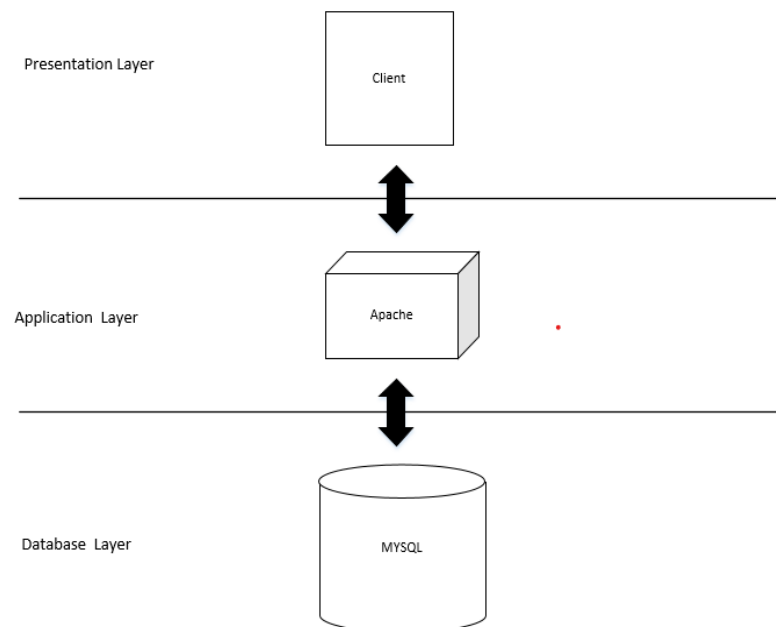
The user layer consists of what is to be seen by the user i.e. the user interface. This tier is built with the help of HTML, CSS, JavaScript in this project. This layer communicates with other tiers by sending results to the browser.

#### Application Layer:

The Application Layer controls the core functionality by detailed processing and hence this layer is also called logic tier. The core processing in this project is done with the programming language Django.

#### Database Layer:

The database layer consists of Database Servers used to store and retrieve data as needed. The database used for this project is PostgreSQL.



*Figure 3.6: Architectural Design for Job Board*

### 3.2.2. Database Schema Design:

The database schema design for job board showing all the relation along with their respective attributes and inter-relationship between the relations is shown below:

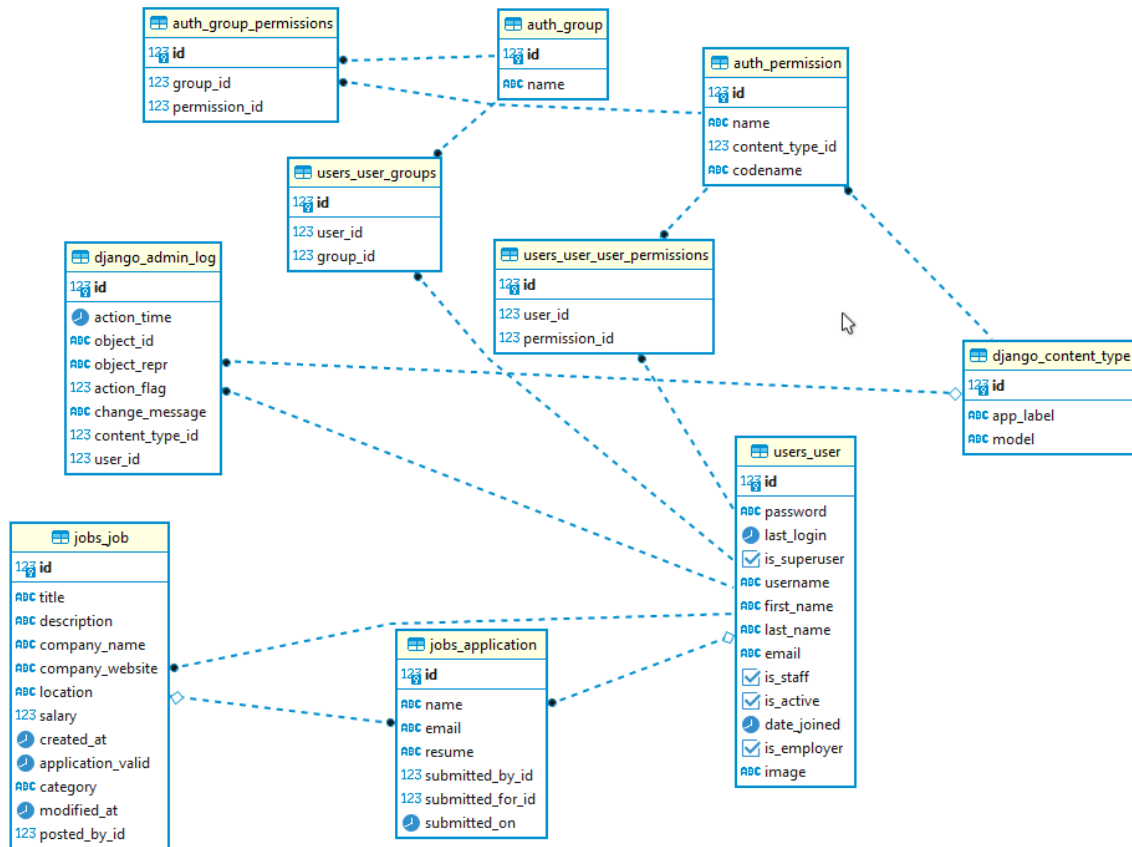


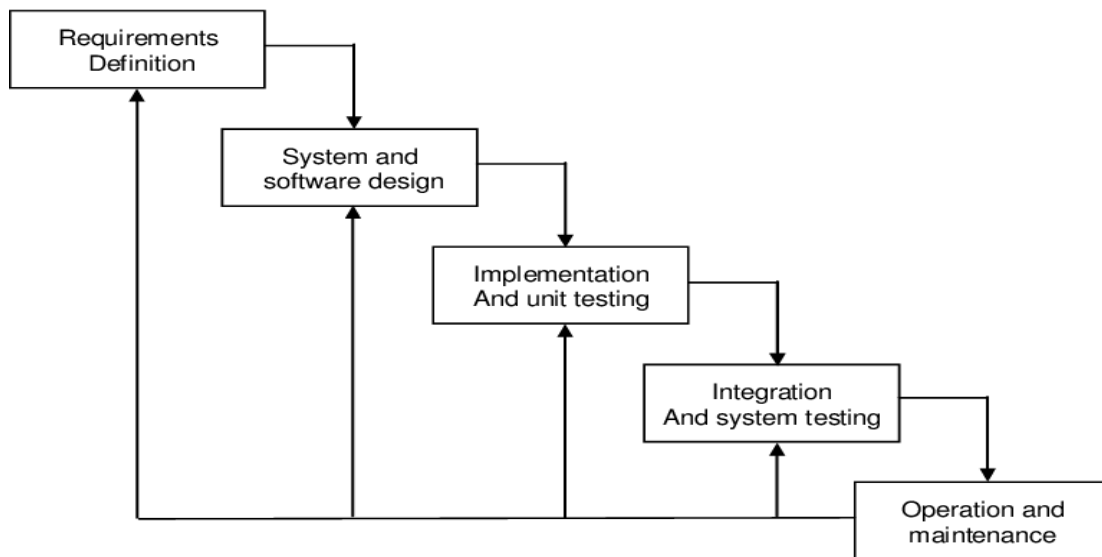
Figure 3.7: Database Schema Design for Job Board

## Chapter 4: Implementation

### 4.1. Implementation

In this stage the system requirements are converted into a working system by the means of code. In other words, this is the stage in which the system is developed.

Waterfall model is used in creation of this project. The waterfall model is a sequential design process, used in software development processes, in which progress is seen as flowing steadily downwards through the phases of planning, analysis, design, implementation and testing.



*Figure 4.1: Waterfall Model*

#### **4.1.1. Tools Used**

##### **Programming Language:**

Django is used as ServerSide Scripting Language and JavaScript is used as ClientSide Scripting. Django is used to specifically connect, create, update, delete, modify content in PostgreSQL database.

##### **IDE:**

VS Code is a text editor used for writing codes in various programming languages with ease.

VS code is an IDE as it helps developer in writing code with efficiency and accuracy.

##### **Diagram Making Tool:**

Microsoft Visio is used to make all the UML diagrams for the documentation and implementation of this project.

## **Chapter 5: Conclusion and Future Recommendation**

### **5.1. Lesson Learnt**

A lot of requirements were missed during the requirement collection phase which were later visible during coding that resulted in longer time consumption. I had to regularly take help from the Internet as well my friends. I had to contact our teachers for issues that looked simple afterwards. I did a lot of research and tried to solve the problems.

### **5.2. Conclusion**

When all conditions are complete a web application for Job Board will be available for use. The web application will allow users to register as employers and jobseekers and when registered employers will be allowed to post job listings and jobseeker will be allowed to apply for those jobs.

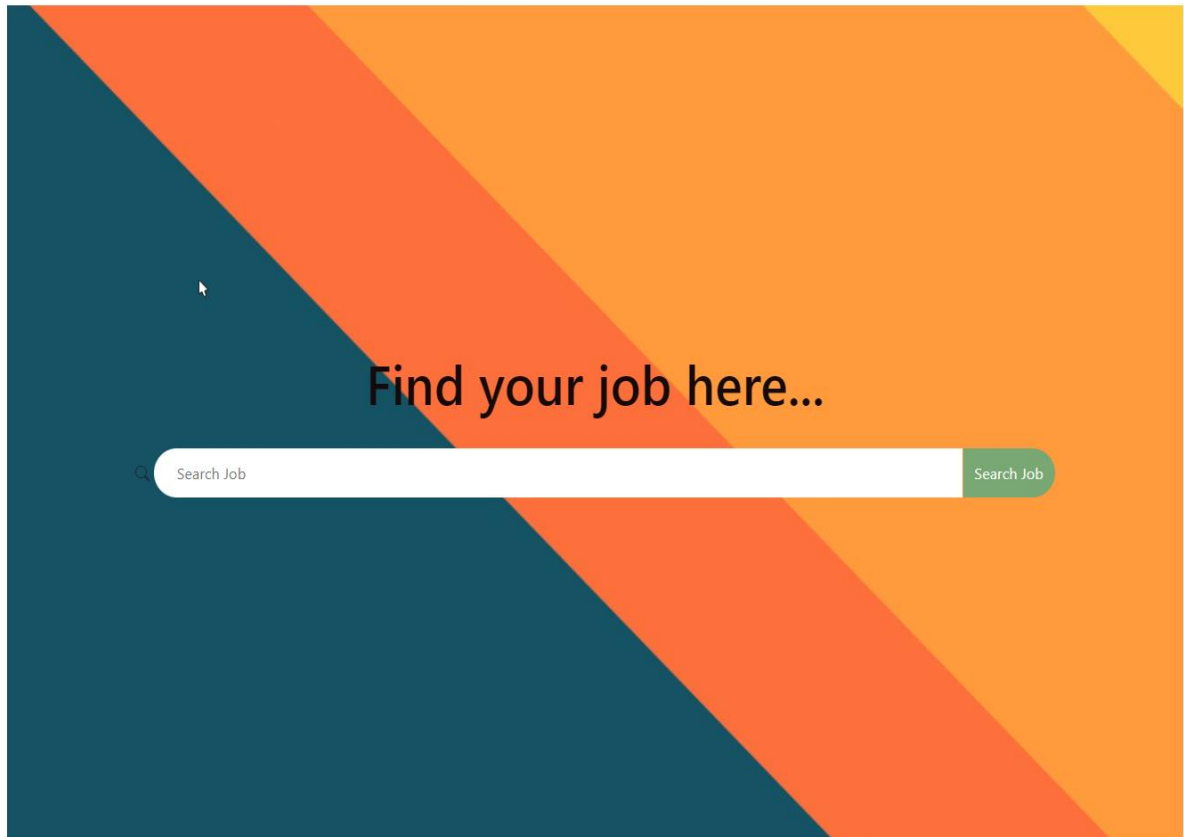
### **5.3. Future Recommendations**

The system is made country specific for Nepal which can be furthermore upgraded to work on other countries as well. The UI can also be made more responsive than it currently is.

## **References**

- [1] Liang, Y., Cao, X., & Zhang, H. (2019). Research on web-based job search platform based on data mining. In Proceedings of the 2019 International Conference on Management Science and Industrial Engineering (pp. 414-420).
  
- [2] Kuo, Y. F., Chen, Y. L., & Lin, Y. C. (2018). Design and development of a web-based job recruitment platform for the hospitality industry. *Journal of Hospitality and Tourism Technology*, 9(2), 173-187.

## Appendices





## Register your account

First name:

Last name:

Username:

Email:

Password1:

Password2:

Is employer:

Image:

No file chosen

Register

I already have an account. [Login](#)

## Login with your account

Username:

Password:

Login

[Forgot password?](#)

I don't have an account. [Register](#)

## Job Listings

### Engineers

This is for Software Engineers

XYZ

Gorkha

[View More](#)

### Designers

Designer

ABC

Gorkha

[View More](#)

### Project Manager

This is for project managers.

DEF

Gaushala, Kathmandu

[View More](#)

### QA

This job is for QAs.

Info Tech Pvt. Ltd.

Lakeside, Pokhara

[View More](#)

### Data Analysts

We are looking for Data Analysts.

Info Tech Pvt. Ltd.

Pokhara

[View More](#)

### Graphic Designer

This is for graphics designers

Info Tech Pvt. Ltd.

Pokhara

[View More](#)

## Apply for Job

Name:

Aadarsha Shrestha

Email:

aadarsh.stha36@gmail.com


Resume:

Choose File

No file chosen

Apply

## My Profile

<b>Image</b>	
<b>Name</b>	Aadarsha Shrestha
<b>Username</b>	aadarshjr
<b>Email</b>	aadarsh.stha36@gmail.com
<b>Employer</b>	False
<b>Actions</b>	<a href="#">Edit</a>

## Post a Job

Title:

Description:

Company name:

Company website:

Location:

Salary:

Application valid:

mm/dd/yyyy

Category:

Fulltime