Computing Lab - CS701

Report
on
Job Portal Web Design

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1 Project Description

1.1 Introduction

Online Job Portal is an application aimed to replace the manual recruitment system. It provides an interface between job applicants and employers. It is a one-stop efficient and convenient solution to provide ease in the recruitment process.

It is challenging f or every organization to run the recruitment process. They have to supervise many things like available vacancies, details of job applicants, call letters, Interviews etc. It becomes overhead for the company to manage all this stuff. Online Job Portal will overcome this problem by managing the recruitment process for the organization. Companies just need to register on the website and post their Job openings. This application will provide them with an interface through which they can view the applied candidates, select them based on their profile and call for an interview.

On the other hand, job applicants usually apply for many companies together. It becomes difficult for them to visit the company's website individually, search for job roles, check vacancies and then apply. Because of this tiresome process job applicants may even miss out on some good job offers provided by other companies. Online Job Portal provides a one-stop solution to overcome this challenge. Here, Job applicants can browse through several Job opportunities from various companies at once and apply for all appropriate job roles. Moreover, they can also check their application status (whether it is accepted or rejected) through this Portal.

1.2 Motivation

To form a centralized network to help Job Seekers get employed and to help Employers find great talent. An interactive and intuitive web platform that can be accessed anywhere, anytime, all at once catering to the ever changing needs of the Industry.

Hence, this project helps in bridging the gap between Job Ready Candidates and Employers.

2 Business Requirements

The job portal shall include the following.

1. Admin Module

2. Candidate Module

3. Employer Module

2.1 Admin Module

The admin module shall include all the privileges specific to the administrator of a webpage. Admin function primarily includes:

1. Add/Modify/Delete any users: Admin has all the privileges of creating new users, modifying the users, deleting the users.

2. Verify Employer: Admin shall be able to verify a new employer. An employer shall be allowed to post jobs only after getting verified by the admin.

2.2 Candidate Module

A candidate who wish to do jobs through the portal should be able to

1. Register using valid email id

2. Once the candidate login, they need to update their profile. The candidate should be able to create, track and update their profile in their login. The candidate should upload their resume and educational details in the profile area.

3. Apply for eligible and interested opportunities.

4. View the status of application for all the companies he/she has applied to.

2.3   Employer Module

Any enterprise which wishes to act as an employer in the portal will be able to:

1. Register using valid email id.

2. Enter the basic details about the company and submit for verification.

3. After successful verification from the admin, the employer should be able to post job opportunities by listing their job requirements, mentioning their major areas of expertise requirement and eligibility criteria. Employer also has options to update the job requirements when required.

4. View the list of applied candidates to their posted opportunities based on the criteria specific to the role.

5. Accept/reject the applications sent in by the candidates.

3 Context Diagram

The main purpose of context diagram is to show relationship of our system with external entities. While creating context diagram, we consider our system as a single high level process.

It is a pictorial representation of how data flows through the system. It is a skeleton of our project's scope.
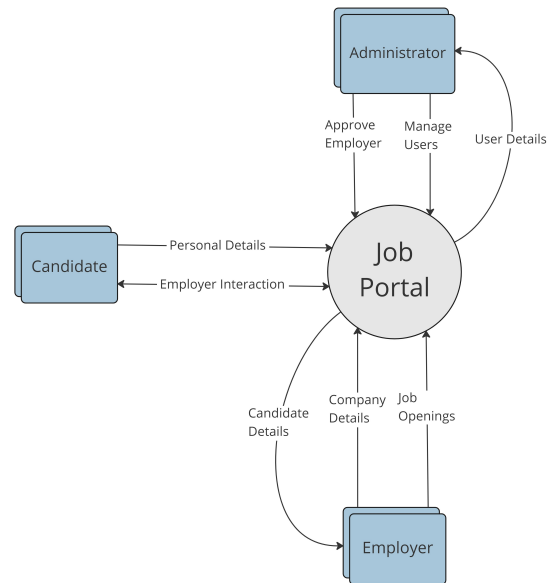
Figure 1: Context Diagram

4 Data Analysis and Interpretation

4.1 E-R Diagram
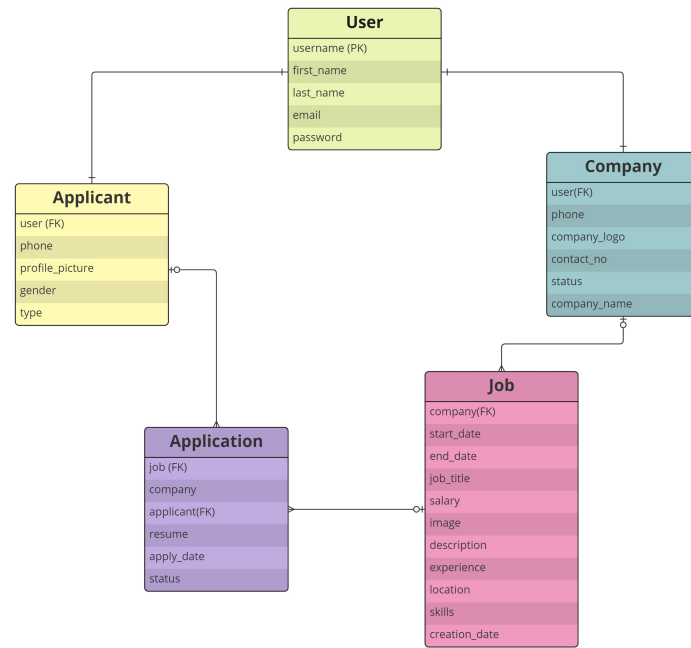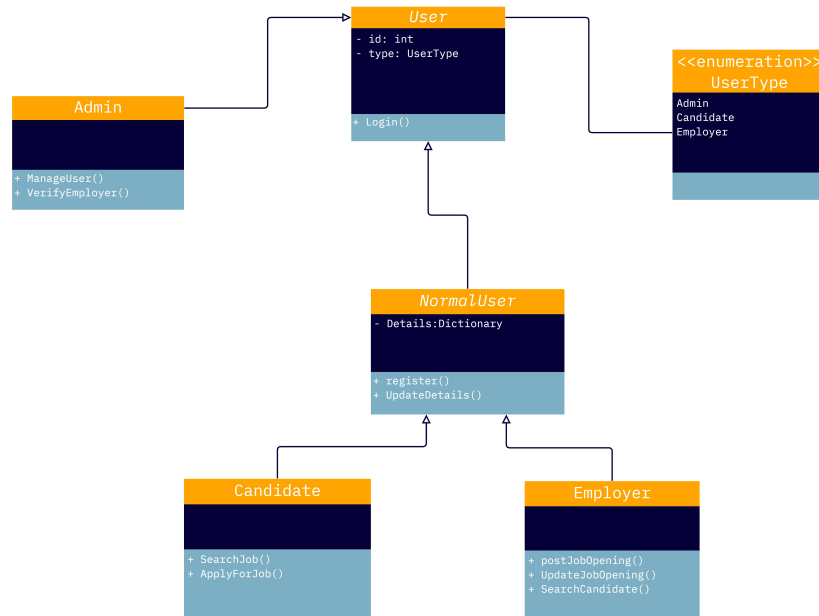

Figure 2: Entity Relationship Diagram

4.2   UML Diagram

Figure 3: UML Class Diagram

4.3 Use Case Diagram
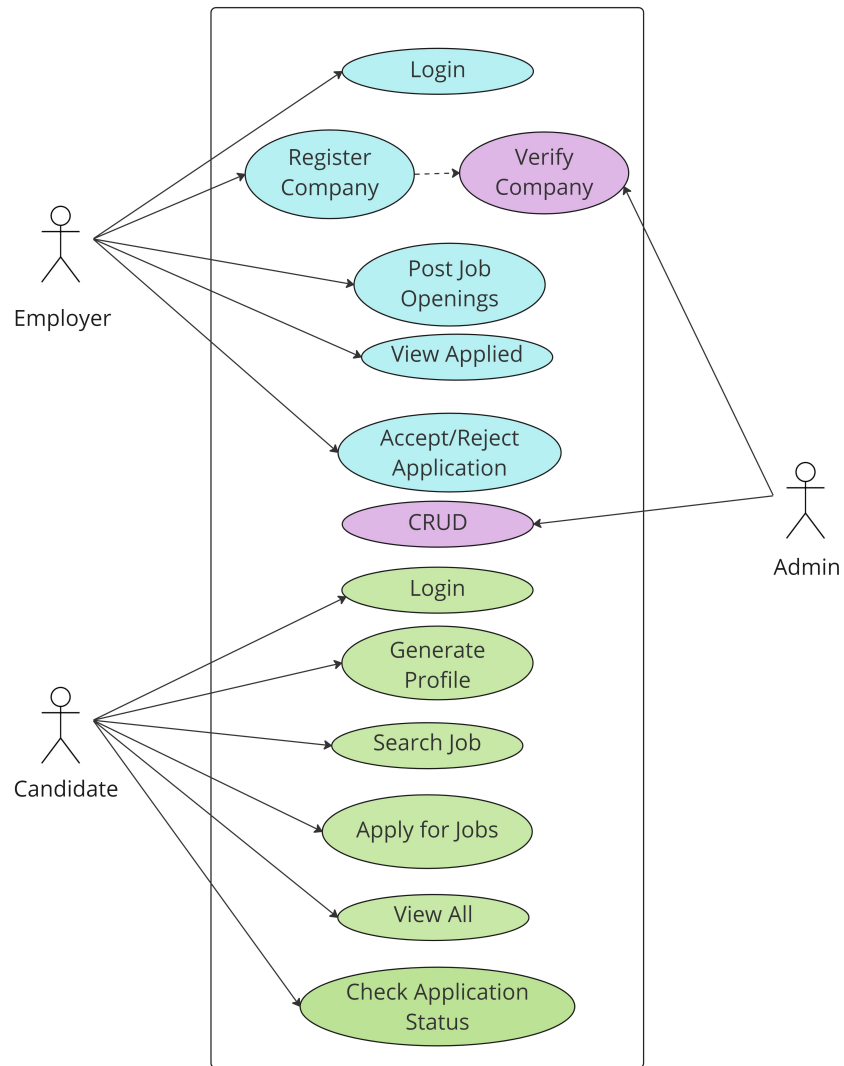
Figure 4: Use Case Diagram

4.4 Data Flow Diagram
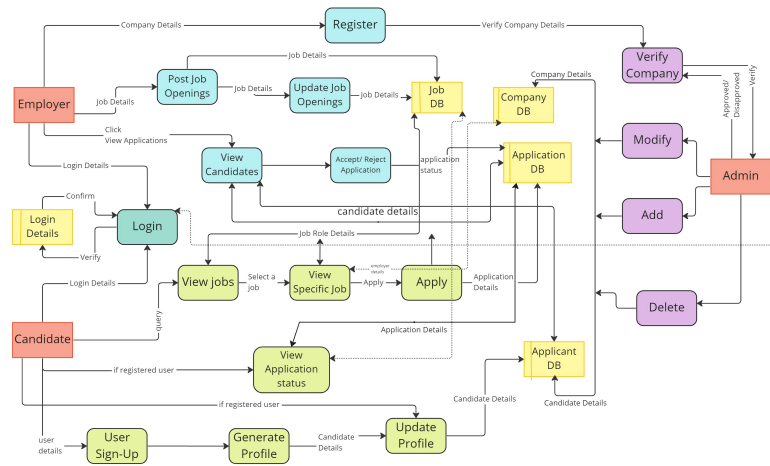
Figure 5: Data Flow Diagram

5 Project Plan

5.1 Week 1

Completed **Phase 1** Activities:

- Prepared Project Description which includes **Introduction** and **Motivation**.

- Procured and listed **Business Requirements** for the development of Job Portal Web Application.

- Visualised and implemented **Context Diagram** based on the retrieved Business Requirements.

- Designed and Represented **Data Analysis and Interpretation** for the Web Application, which includes: **ER Diagram, UML Diagram, Use Case Diagram** and **Data Flow Diagram**.

- Designed **Project Plan** for the upcoming activities beginning from Week 2 as depicted in the figure below:

5.2   Week 2-6
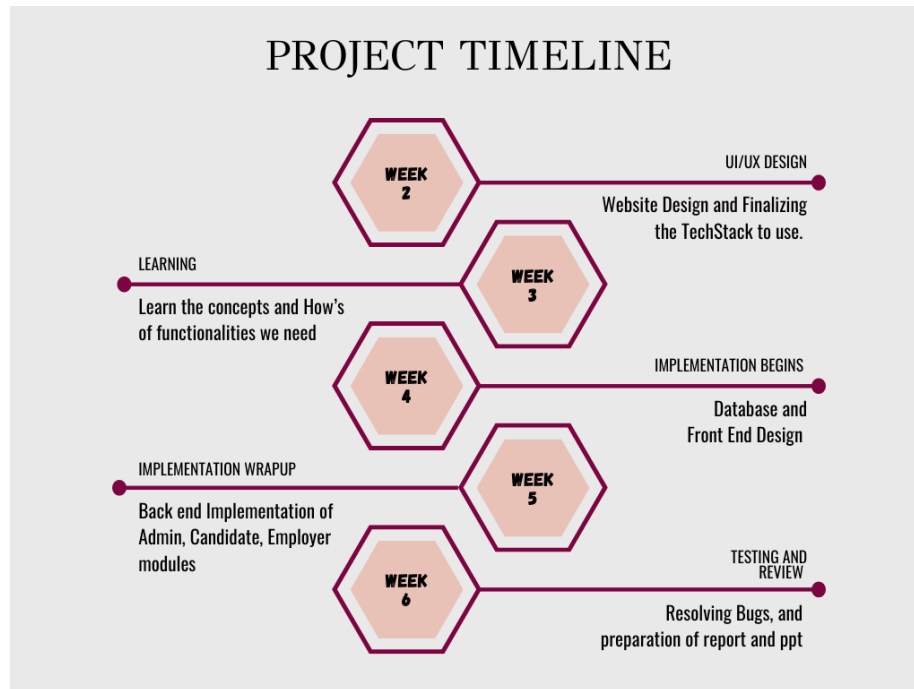
Figure 6: Project Plan

6 Background

Job Portal is a Web Application developed to provide services to the recruiting company and job seekers. Companies can post job details, vacancies, and other information on the web portal. Job seekers may explore these openings and submit applications based on their interests.This application is developed using Django- Python Web Framework. The database used is Sqlite3 which is supported by the Django framework. Additionally, HTML, CSS, and Bootstrap are used to design the front end.

6.1 Related Work

6.1.1 Existing Models

The traditional method for Job Recruitment and Job Search includes manual techniques. For recruitment, such procedures involve posting job updates on the company's website. Other methods includes inefficient and time consuming processes like providing advertisements in newspapers, templates, and social media. Whereas the Job seeker usually needs to go through company websites or such advertisements frequently. Such methods are inconvenient for both the parties.

6.1.2 Disadvantages of Existing Models

Such traditional approaches are time inefficient and exhausting. Job seekers typically submit many applications at once. It becomes challenging for them to go to the company website individually, look for employment opportunities, check for openings, and then apply. Due to this laborious process, job seekers could even pass up some excellent job offers from other organizations. On the other hand, the company finds it difficult to manage the hiring process. They must keep an eye on various items, including open positions, application information, call letters, and interviews. The cost of the business managing all of this increases. Thus existing approaches are time inefficient, laborious, and difficult.

6.2 Proposed System

This system aims to bridge the gap between the recruiting Company and the Job Seeker by providing an efficient and easy-to-use interface. Through the internet, Companies and Job Seekers can access this portal, post job updates, and apply for job requirements, respectively. Thus, providing a one-stop and convenient solution to the recruitment process.

6.2.1 Purpose

The proposed system is a Web Application that will assist the Company and job seekers with recruitment. Companies can post their job updates along with

necessary information like Job description, skills required, experience, salary, company location, and start and end date. Usually, the Company's Job openings requirements change dynamically; hence an option to update the currently posted job opening is also provided. Job seekers can view all available jobs, apply for particular jobs according to their interests, and submit resumes. The Company can list all the applications and accept or reject the application based on the resume provided by the applicants.

6.2.2 Objective

The following are the objectives of the proposed system:

- It will serve as a one-stop solution for Job Seekers by providing functionalities to search and apply for multiple jobs through a single portal.

- Similarly, companies can post multiple job updates, view all applications, and accept/reject them based on resumes provided by the applicants.

- Moreover, Admin will have the functionality to approve the company before they post any job openings. This validation will assist in maintaining the legitimacy of the company and the job openings provided by them.

6.2.3 Advantages

- One-Stop solution for recruitment process.

- No technical knowledge is required for Companies to post Job Openings. They can simply post a Job opening through the GUI provided.

- Job Seekers only need to register once. After that they can apply for multiple jobs.

- It is Time efficient.

- Provides an inexpensive solution as compared to the existing systems.

7 Requirement Analysis

The following are technical specifications for developing the job Portal Web Application.

7.1 Software Requirements

- Operating System: Windows 10

- IDE: Visual Studio Code

- Frameworks: Django

- Database: sqlite3

- Front End:HTML, CSS, Bootstrap

7.2 Hardware Requirements

- Processor: Intel core i7

- RAM: 8GB

8 Data Dictionary

1. User:
   The Django User Model is part of the Django Authentication package. It provides you with a standard model that is used as a backbone for your user accounts.

Field Name	Data Type	Field Length	Constriants	Description
Username	CharField	150	Primary Key	150 characters or fewer. Usernames may contain alphanumeric, _, @, +, . and - characters.
Email Address	CharField	150	Not Null	Email Address
First Name	CharField	150	Not Null	150 characters or fewer.
Last Name	CharField	150	Not Null	150 characters or fewer
Staff Status	boolean	1	Not Null	Designates whether this user can access the admin site.

2. Applicant:
   Basic information about the Applicants will be stored in this table.

Field Name	Data Type	Field Length	Constriants	Description
User	CharField	150	Foreign Key	150 characters or fewer. Usernames may contain alphanumeric, _, @, +, . and - characters.
Phone	CharField	10	Not Null	10 digit Phone Number of Applicant
Image	ImageField	100	-	Image of Applicant
Gender	CharField	10	Not Null	Gender of Applicant

3. Company:
   Information about company will be stored in this table. After the company's registration, Admins will either approve or disapprove the company which will be reflected in the status field of following table.

Field Name	Data Type	Field Length	Constriants	Description
User	CharField	150	Foreign Key	150 characters or fewer. Usernames may contain alphanumeric, _, @, +, . and - characters.
Phone	CharField	10	Not Null	10 digit Phone Number of Applicant
Image	ImageField	100	-	Company Logo
Status	CharField	20	Not Null	Status of Company as updated by the Admin.
Company Name	CharField	100	Not Null	Company's Name

4. Job:
   Companies can post multiple Job Openings. These Job details will be stored in Job Table. It contains necessary information regarding the job role which will be displayed to the Applicants. Applicants can only apply for the job within the start date and end date mentioned in the table.

Field Name	Data Type	Field Length	Constriants	Description
Company	CharField	150	Foreign Key	150 characters or fewer. Usernames may contain alphanumeric, _, @, +, . and - characters.
Start Date	DateField	-	Not Null	Job Opening Start Date
End Date	DateField	-	Not Null	Job Opening End Date
Title	CharField	200	Not Null	Job Title
Salary	CharField	100	Not Null	Salary in INR
Image	ImageField	-	-	Company Logo
Description	CharField	400	Not Null	Job Description
Experience	CharField	100	Not Null	Experience required for the specific Job Title
Location	CharField	100	Not Null	Exact Job Location
Skills	CharField	200	Not Null	Skills required for the specific Job Title
Creation Date	DateField	-	Not Null	Date of posting Job Opening

5. Application:

Applicants can apply for available jobs by providing their resume and other necessary details. This information will be stored in Applications table.

Field Name	Data Type	Field Length	Constriants	Description
Company	CharField	150	Foreign Key	150 characters or fewer. Usernames may contain alphanumeric, _, @, +, . and - characters.
Job	CharField	200	Foreign Key	Job Title
Applicant	CharField	150	Foreign Key	Applicant's Name
Resume	ImageField	-	Not Null	Applicant's Resume
Apply Date	DateField	-	Not Null	Date of Application for the specific Job Title
Skills	CharField	200	Not Null	Applicant's Skills
Creation Date	DateField	-	Not Null	Applicant's profile creation date

9 GUI and Implementation

9.1 Home Page

The Landing page,
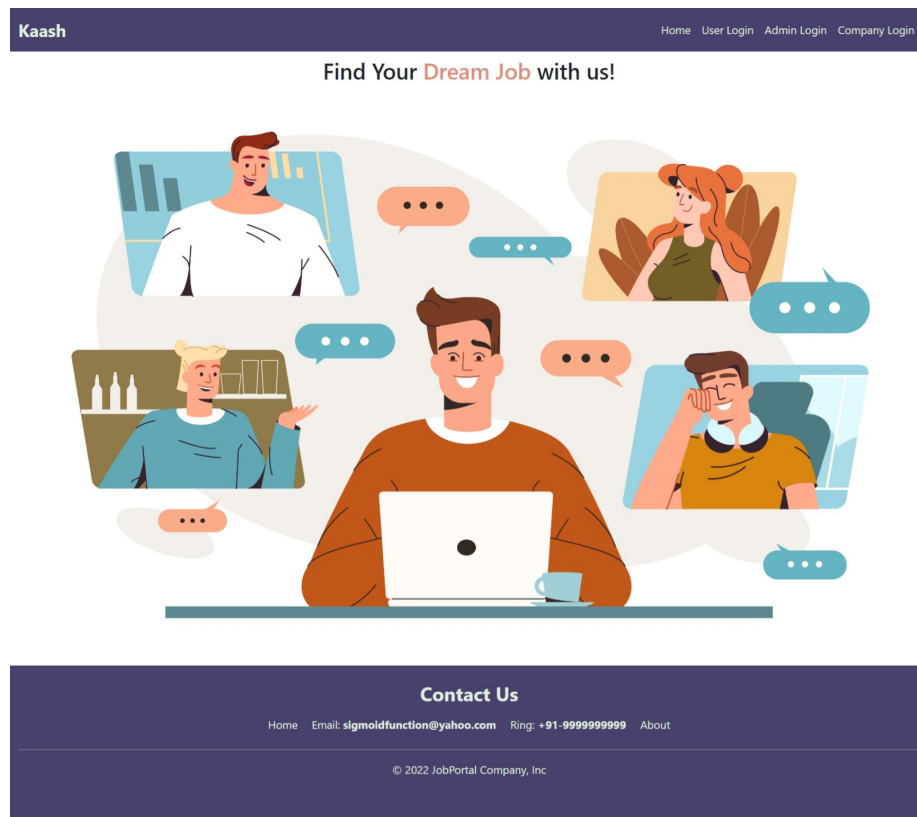
Figure 7: Home Page

9.2 Applicant

Figure 8: Applicant SignUp

Figure 9: Applicant Login

Figure 10: Applicant Home

Figure 11: Seeing Job List

If a candidate is interested in a certain job, he/she can click on APPLY button. And a detailed view of job will appear.
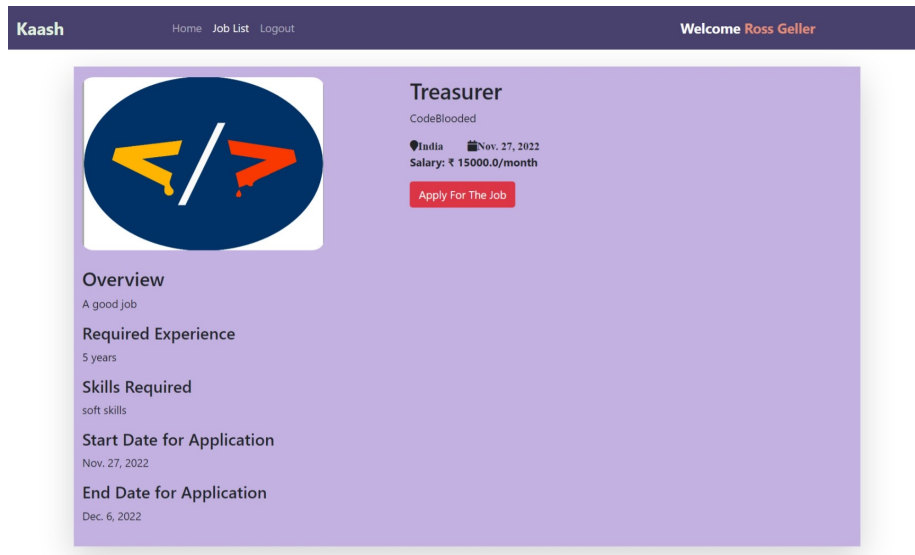
Figure 12: Detailed View of Job

If candidate applies, his/her resume will be taken.
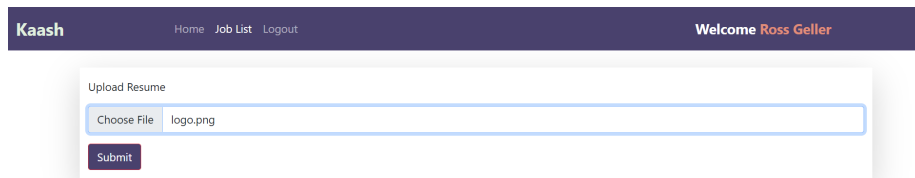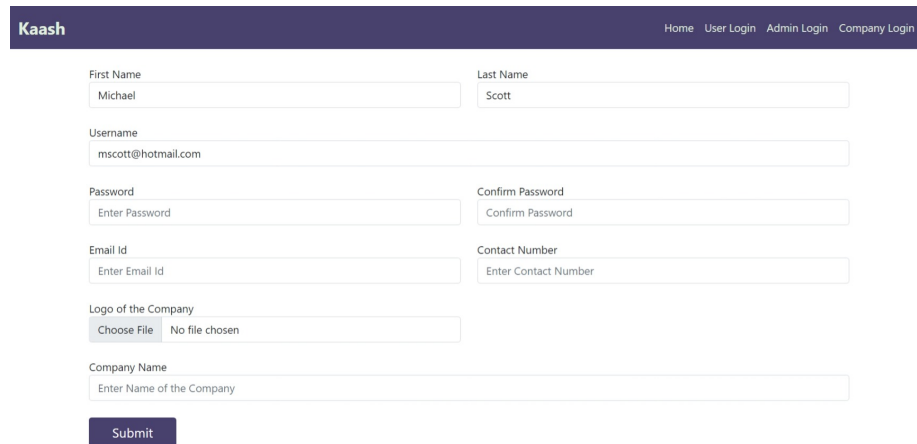
Figure 13: Uploading Resume

9.3   Company

Figure 14: Company SignUp

After the approval from admin, the employer can sign-in.

Figure 15: Company Login

Figure 16: Company Home

Figure 17: Adding a Job

Figure 18: View Posted Jobs

Figure 19: View Applications for Jobs

Figure 20: View Selected Applicants

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9.4 Admin

Figure 21: Manage Companies

Figure 22: Manage Applicants

10   Testing and Future Work

Testing a web application is a complex task, because a web application is made of several layers of logic – from HTTP-level request handling, to form validation and processing, to template rendering. With Django's test-execution framework and assorted utilities, you can simulate requests, insert test data, inspect your application's output and generally verify your code is doing what it should be doing.

For	Test Case	Expected Output	Pass/Fail
ADMIN	Provide valid login credentials	Login successfully and show admin dashboard	Pass
ADMIN	Provides Invalid login credentials	Shows Error Message	Pass
ADMIN	Change Company Status	Company status should be changed	Pass
Applicant	Provide Details for registration	Successful registration	Pass
Applicant	Apply for a job	Applicant DB should be updated	Pass
Applicant	Logout	Redirect to Home Page	Pass
Company/Employer	Provides valid details while registration	Company Registered and Sent for review	Pass
Employer	Tried to post job with insufficient information	Force to fill all the information	Pass

Table 1: Some Important Test Cases

10.1   Future Work

This project fulfills the primary requirements of the job seekers and employers. However, the The UI/UX can be improved. Moreover, instead of function based views, we can utilise the power of class based views. We can also customise the Django's prebuilt User Model.