CS3563: DBMS II
Group 9 Project Report

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Introduction

The Job Portal system serves as a platform that bridges job seekers and employers. We have developed a web-based application for job seekers and employers to connect with each other. Job seekers can create profiles, browse job listings, apply for positions, and track the status of their applications. Employers can post job openings, review applications, and manage candidate information efficiently. The system also provides notifications to keep users informed about relevant events.

Database Design

ER Diagram: Figure 1 shows the ER Diagram of the database.

Technology Stack

- Frontend: HTML, CSS, JavaScript

- Backend: Django (Python)

- Database: PostgreSQL

Functionality

- User Registration/Sign-up/Login and Authentication

    - Implemented CustomUser Model extending AbstractBaseUser provided by Django, to allow users to login using email. Used Highly Secure Django's Authentication System for user authentication.
    - Extended User Sign-up to For Different Registration of Job Seeker and Job Provider.
    - This kind of Role-based Authentication allowed us to implement Role Based Access Control.

- Job Seeker

    - Job Seeker can create a profile with relevent details, upload resume, and apply for jobs.
    - Job Seeker can search for jobs based on location, Job Title, Company Name, Industry, etc.

- Job Seeker can view and manage their job Application at one place. Allowing applicant Withdrew Application, View Application Status and other job relevent job details.

  – Job Seeker can view the list of jobs they have applied for.

- Job Recruiter

  – Job Recruiter can create company profile with relevent details, and post jobs.

  – Job Recruiter can view and manage their job postings at one place. Allowing recruiter to Edit Job Posting, Delete Job Posting, View Job Posting Status and other job relevent job details.

  – Job Recruiter can view the list of job seekers who have applied for their job postings.

- Notifications

  – User recieves notifications for various events like job posting, apllication status updates, etc.

  – Recruiters recieve notifications when a job seeker applies/withdraws from their job posting.

- Job Listing

  – All the jobs are listed on the home page.

  – Jobs can be filtered based on location, job title, company name, industry, etc.

  – Users can see the details of the job and apply for it.

- Resume Upload: Can upload resume in pdf format, and use that to apply for jobs directly.

- Additional tables: Support for additional tables like Industry, Location, Skill, etc.

Challenges Faced

- Implementing RBAC: To allow different users to access different parts of the application.

- Normalizing the database: To reduce redundancy and improve performance.

- Debugging: As lot of components were interacting with each other, it was difficult to debug the application.

Future Work

- AI based job recommendation system

- Resume Parsing and auto-filling application form

Conclusion

We have successfully implemented a Job Portal System that allows job seekers and employers to connect with each other. The system provides a user-friendly interface for users to interact with the application.
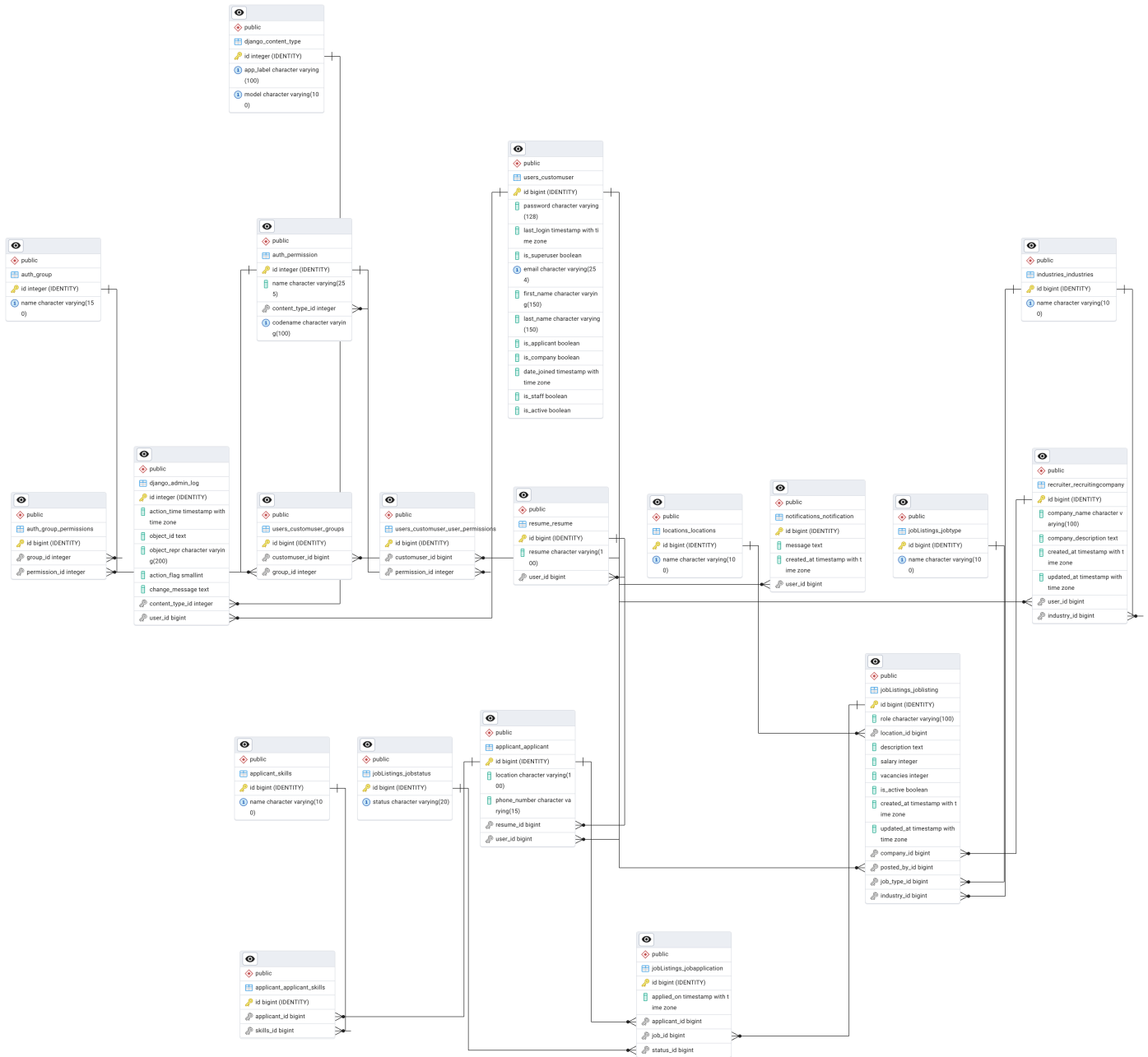
django_content_type

public

- id integer (IDENTITY)
- app_label character varying (100)
- model character varying(100)

users_customuser

public

- id bigint (IDENTITY)
- password character varying (128)
- last_login timestamp with time zone
- is_superuser boolean
- email character varying(254)
- first_name character varying(150)
- last_name character varying (150)
- is_applicant boolean
- is_company boolean
- date_joined timestamp with time zone
- is_staff boolean
- is_active boolean

auth_permission

public

- id integer (IDENTITY)
- name character varying(255)
- content_type_id integer
- codename character varying(100)

industries_industries

public

- id bigint (IDENTITY)
- name character varying(100)

auth_group

public

- id integer (IDENTITY)
- name character varying(150)

django_admin_log

public

- id integer (IDENTITY)
- action_time timestamp with time zone
- object_id text
- object_repr character varying(200)
- action_flag smallint
- change_message text
- content_type_id integer
- user_id bigint

auth_group_permissions

public

- id bigint (IDENTITY)
- group_id integer
- permission_id integer

users_customuser_groups

public

- id bigint (IDENTITY)
- customuser_id bigint
- group_id integer

users_customuser_user_permissions

public

- id bigint (IDENTITY)
- customuser_id bigint
- permission_id integer

resume_resume

public

- id bigint (IDENTITY)
- resume character varying(100)
- user_id bigint

locations_locations

public

- id bigint (IDENTITY)
- name character varying(100)

notifications_notification

public

- id bigint (IDENTITY)
- message text
- created_at timestamp with time zone
- user_id bigint

jobListings_jobtype

public

- id bigint (IDENTITY)
- name character varying(100)

recruiter_recruitingcompany

public

- id bigint (IDENTITY)
- company_name character varying(100)
- company_description text
- created_at timestamp with time zone
- updated_at timestamp with time zone
- user_id bigint
- industry_id bigint

jobListings_joblisting

public

- id bigint (IDENTITY)
- role character varying(100)
- location_id bigint
- description text
- salary integer
- vacancies integer
- is_active boolean
- created_at timestamp with time zone
- updated_at timestamp with time zone
- company_id bigint
- posted_by_id bigint
- job_type_id bigint
- industry_id bigint

applicant_skills

public

- id bigint (IDENTITY)
- name character varying(100)

jobListings_jobstatus

public

- id bigint (IDENTITY)
- status character varying(20)

applicant_applicant

public

- id bigint (IDENTITY)
- location character varying(100)
- phone_number character varying(15)
- resume_id bigint
- user_id bigint

applicant_applicant_skills

public

- id bigint (IDENTITY)
- applicant_id bigint
- skills_id bigint

jobListings_jobapplication

public

- id bigint (IDENTITY)
- applied_on timestamp with time zone
- applicant_id bigint
- job_id bigint
- status_id bigint

Figure 1: ER Diagram