ABSTRACT

JobZee is an online job portal designed to streamline the recruitment process for both employers and job seekers. It offers specific features tailored to each user group, enhancing their overall experience. Employers benefit from comprehensive job management tools, allowing them to view and post jobs, and manage applications efficiently. The platform also provides a streamlined applicant review process, enabling quick and effective evaluation of candidates. Job seekers can explore a wide range of job opportunities, apply easily, and use the resume builder to create professional resumes. Additionally, JobZee offers skill development resources with valuable courses to enhance their qualifications and employability. To further improve user experience, JobZee features a Gemini-powered chatbot on the homepage. This chatbot assists both employers and job seekers with their queries and guides them through the platform. JobZee aims to bridge the gap between employers seeking qualified talent and job seekers searching for their ideal careers. By facilitating a smooth and efficient recruitment experience, JobZee makes the hiring process more effective for all parties involved.

Chapter – 1

INTRODUCTION

1.1 Background

The job market is a dynamic ecosystem where employers constantly seek the right talent to drive their organizations forward, while job seekers navigate through a myriad of opportunities to find the perfect fit for their skills and aspirations. However, this process often involves challenges such as inefficient recruitment methods, limited access to job listings, and difficulty in matching candidates with suitable positions. Recognizing these pain points, the concept of "JobZee" emerged as a solution to revolutionize the job search and recruitment process. With the advent of digital technologies and the increasing demand for streamlined recruitment platforms, "JobZee" aims to address these challenges by providing a user-friendly and comprehensive platform that caters to the needs of both employers and job seekers.

1.2 Objectives

- Develop a platform that allows employers to streamline their recruitment processes, from posting job listings to managing applications, to find the best candidates for their organizations.

- Offer job seekers access to resources such as skill-enhancing courses and resume-building tools to empower them in their career development journey.

- Integrate a chatbot powered by the Gemini API into the platform, providing real-time assistance and support to both employers and job seekers, thereby enhancing their experience.

1.3 Scope

The scope of the study encompasses the development and implementation of the "JobZee" platform, including its key features and functionalities such as:

- User authentication and profile management for both employers and job seekers.

- Job listing management, including posting, editing, and removing job listings for employers.

- Job search and application functionalities for job seekers, including advanced search

Department of Computer Science and Engineering

filters and application tracking.

- Integration of skill-enhancing courses and resume-building tools for job seekers.
- Implementation of a chatbot powered by the Gemini API to provide personalized support and assistance to users.
- Testing and optimization of the platform to ensure usability, functionality, and security.

1.4 Significance of Study

The significance of the study lies in its potential to transform the job search and recruitment landscape by addressing the pain points and inefficiencies prevalent in traditional recruitment methods. By providing a user-friendly and comprehensive platform like "JobZee," the study aims to:

- Facilitate seamless interaction between employers and job seekers, thereby bridging the gap between talent supply and demand.
- Empower job seekers with resources and tools to enhance their skills and improve their employability.
- Streamline the recruitment process for employers, saving time and resources in finding the right candidates for their organizations.
- Provide personalized support and assistance to users through the integration of a chatbot, enhancing their overall experience on the platform.

Overall, the study seeks to contribute to the advancement of recruitment technology and the improvement of the job search experience for both employers and job seekers.

Chapter – 2

LITERATURE REVIEW

TITLE	FOCUS	SOURCE
THE IMPACT OF ONLINE JOB PORTALS ON RECRUITMENT OUTCOMES	ANALYZES EFFECTIVENESS OF ONLINE JOB BOARDS FOR HIRING	ScienceDirect (scholarly database)[1]
ALGORITHMIC BIAS IN ONLINE RECRUITMENT PLATFORM	EXAMINES POTENTIAL BIAS IN JOB PORTAL ALGORITHMS	ACM Digital Library: https://dl.acm.org/[2]
EFFECTIVENESS OF ONLINE JOB SEARCH World of Labour	REVIEWS RESEARCH ON THE EFFECTIVENESS OF ONLINE JOB SEEKING SEARCHING IZA	World of Labour (scholarly database)[3]
A REVIEW STUDY ON ONLINE JOB PORTAL	GENERAL OVERVIEW OF ONLINE JOB PORTALS	academia.edu[4]
ONLINE JOB PORTAL- JOB SEEKER'S PERCEPTION	JOB SEEKERS PERCEPTION AND EXPERIENCE WITH ONLINE JOB PORTALS	SDNB Vaishnav College for Women: sdnbvc.edu.in[5]
A STUDY OF ISSIES IN JOB PORTALS: RESEARCH ANALYSIS	ISSUES FACED BY USERS OF ONLINE JOB PORTAL	IJCRT.ORG[6]
OUR HERITAGE A STUDY ON IMPORTANCE OF JOB PORTALS IN DEVELOPMENT OF URBAN AREAS	IMPACT OF ONLINE JOB PORTALS ON JOB MARKETS	ResearchGate[7]

<div align="center">**Chapter – 3**</div>

<div align="center"># DESIGN AND IMPLEMENTATION</div>

3.1 Frontend (React.js):

- **User Interface (UI):**
  - Separate landing pages for Employers and Job Seekers.
  - Employer Dashboard:
    - Job posting form with fields for title, description, skills, etc.
    - List of posted jobs with options to edit, view applicants, and remove.
    - Applicant profile view with skills and application details.
  - Job Seeker Dashboard:
    - List of jobs with company names, titles, and brief descriptions.
    - Option to apply for jobs with resume upload and cover letter option.
    - Application status tracker.
    - Resume builder with pre-defined templates and skill sections.
    - Access to skill-enhancing course listings (potentially integrated with external platforms).
  - Chatbot integration using a React component for the Gemini-powered chatbot.
- **User Interaction:**
  - Implement user authentication (login/signup) with secure password hashing.
  - Utilize React libraries for managing application state and handling user interactions.
  - Integrate APIs (developed in backend) for fetching and manipulating job data, user profiles, and application statuses.

3.2 Backend (Node.js & Express.js):

- **API Development:**
  - Develop RESTful APIs for CRUD (Create, Read, Update, Delete) operations on:
    - Jobs (posting, editing, fetching)
    - Users (registration, login, profile management)
    - Applications (submission, status updates)

- o   Implement functionalities for:

    - ▪ Secure user authentication (JWT tokens for authorization)

    - ▪ Bcrypt.js for password hashing and user authentication.

    - ▪ File upload for resumes using Cloudinary (secure storage)

    - ▪ Express validator for input validation

    - ▪ Search functionality for job listings based on filters

    - ▪ Integration with Gemini API for chatbot functionality

3.3 Database (MongoDB):

- Design Schemas for:
    - o   Users (storing user information, roles - employer/seeker)
    - o   Jobs (title, description, skills, company details)
    - o   Applications (job applied for, applicant details, status)
- Utilize Mongoose ODM (Object Data Modelling) for interacting with MongoDB collections.

3.4 Deployment:

- Host the frontend (React build) and backend (Node.js server) on separate cloud platforms like Vercel or AWS.
- Configure the backend server to connect to the MongoDB database hosted on a cloud database service like MongoDB Atlas.

DATABASE SCHEMA

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WORK FLOW

```
┌──────────┐      ┌──────────┐      ┌────────────────────┐      ┌──────────────────┐
│ Employer │ ───→ │Post a job│ ───→ │Review Applications │ ───→ │ Review Job Status│
└──────────┘      └──────────┘      └────────────────────┘      └──────────────────┘
     ↑
┌──────────────┐
│Login/Register│
└──────────────┘
     ↓
┌──────────────┐   ┌────────────────┐   ┌────────────────┐   ┌──────────────────────┐
│  Job-seeker  │──→│View Listed Jobs│──→│ Apply for a job│──→│ Wait for Confirmation│
└──────────────┘   └────────────────┘   └────────────────┘   └──────────────────────┘
                              │                  ↑
                              ↓                  │
                        ┌──────────────┐
                        │Create Resume │
                        └──────────────┘
```

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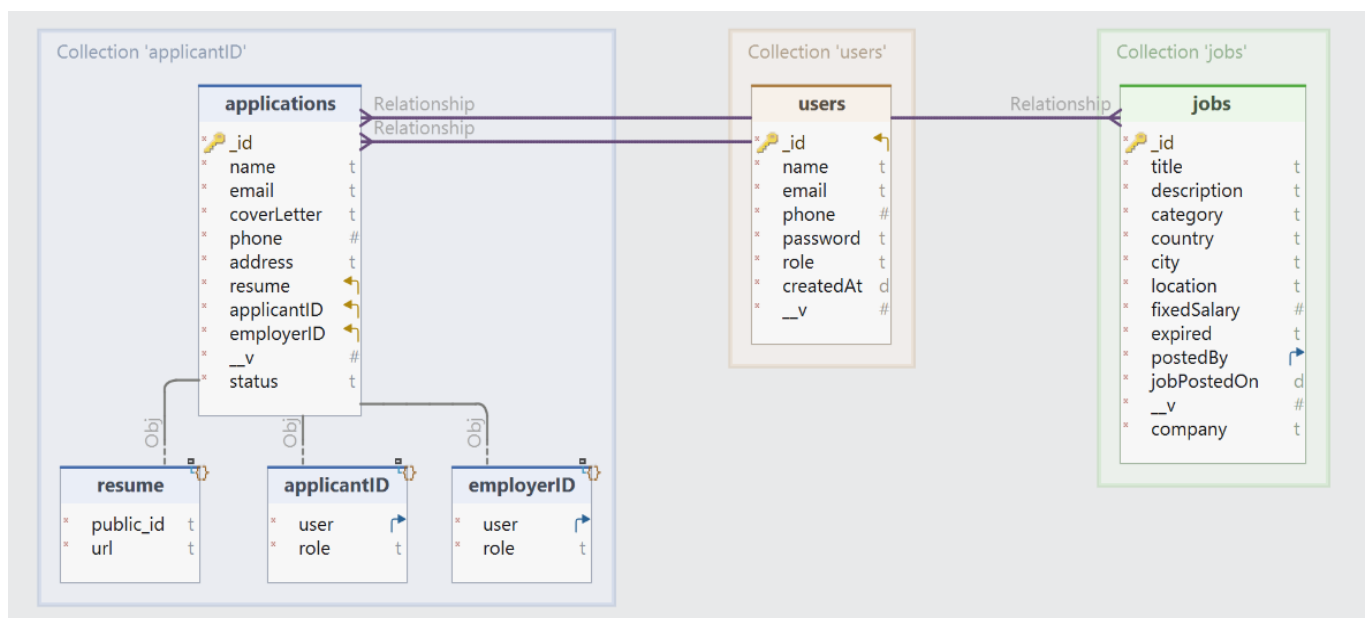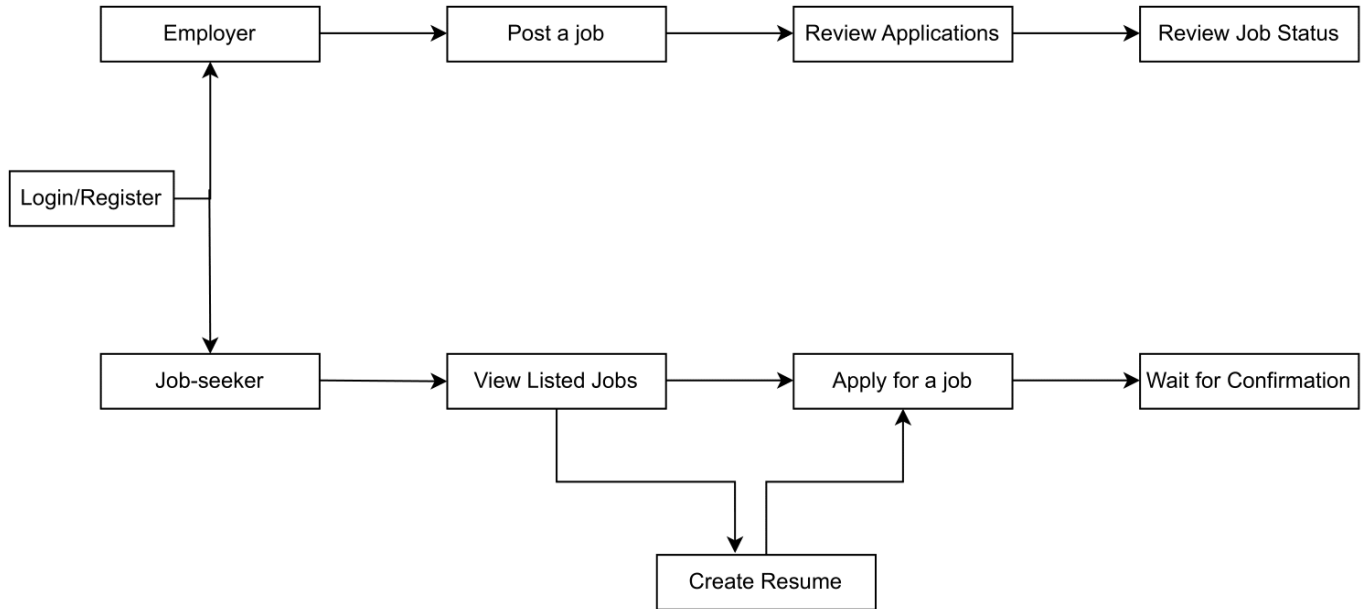
Chapter – 4

RESULTS AND DISCUSSION

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This chapter elaborates the websites functioning, effectiveness and responsiveness. This includes:

- Register and login

- Homepage

- PRAVI – Chatbot

- View all Jobs

- Post a job

- Apply for a job

- Check Applicant's application

- Creating a Resume

- Courses

- Responsiveness

4.1 Registration and Login

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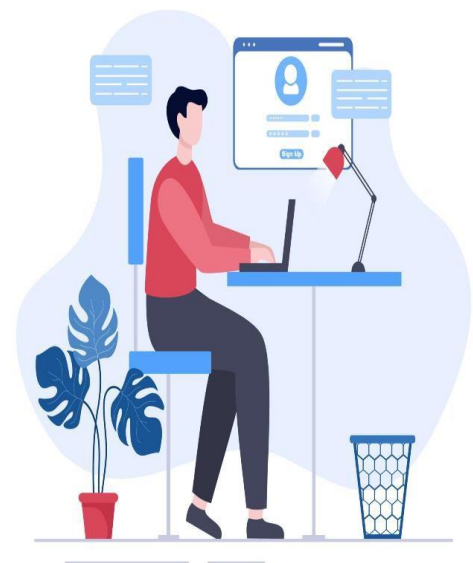
Fig1.Registered as an Employer

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Fig2.Login as an Employer

4.2 Homepage

Fig3.Homepage section for Employer

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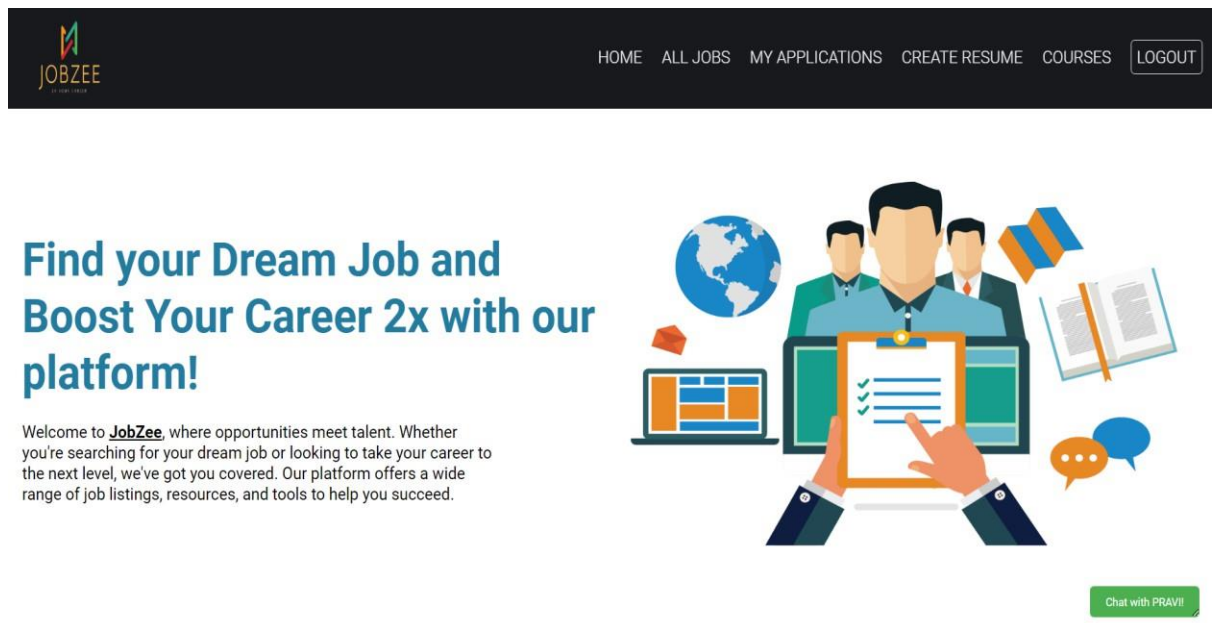
Fig4.Homepage section for job-seeker
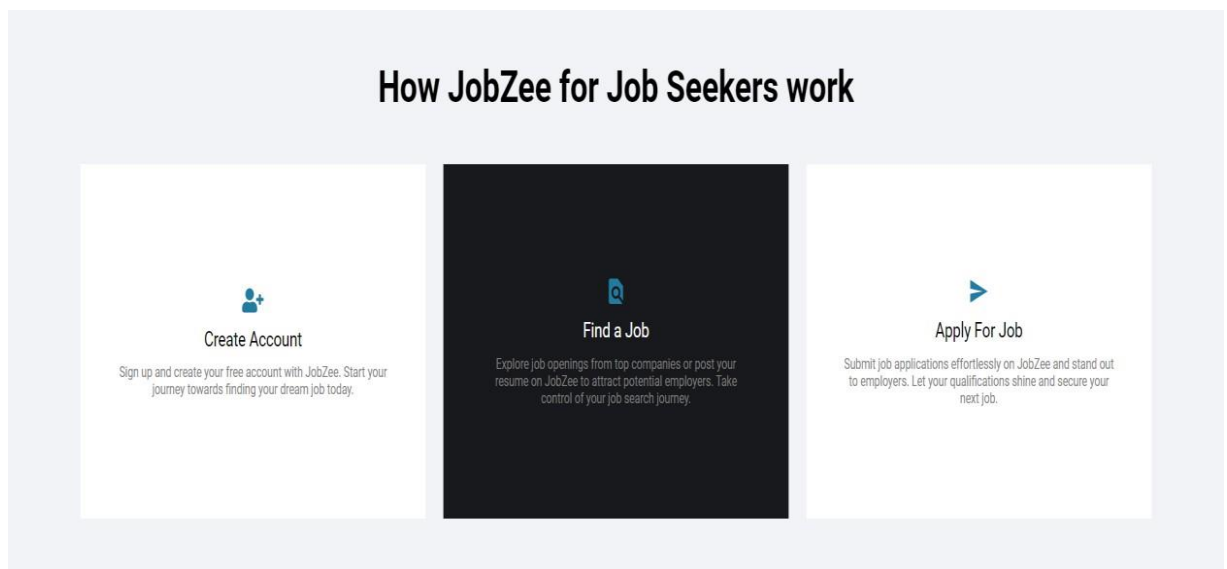
Fig5.Other homepage sections

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4.3 PRAVI – (Chatbot)
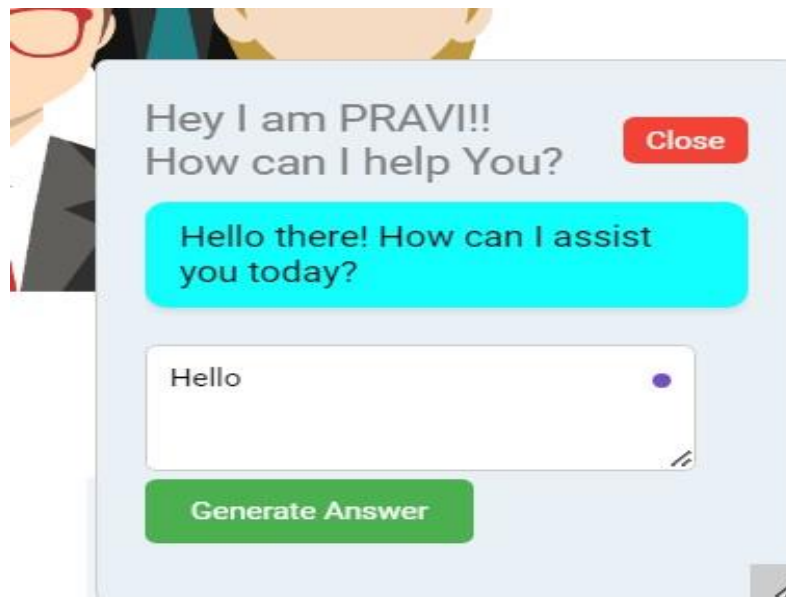
Fig6.Responds to Greetings
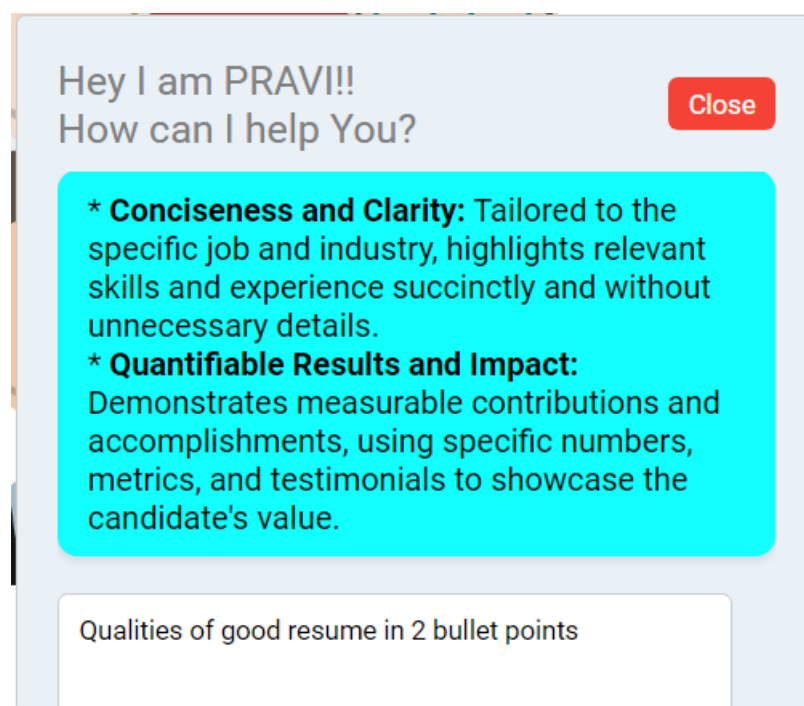
Fig7.Finding answers for what u need made easy

4.4 View Jobs
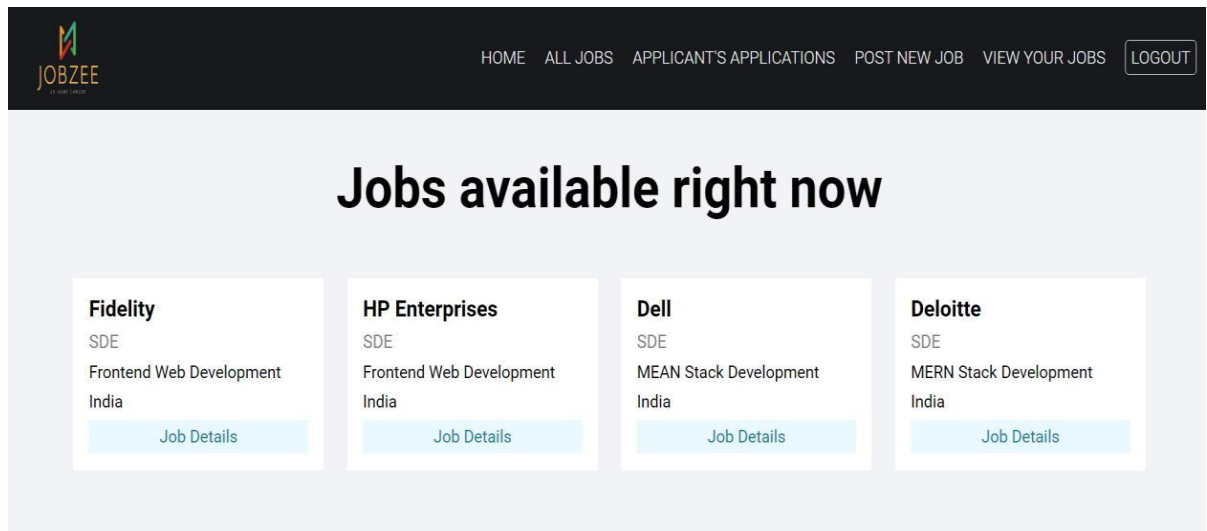
Fig8.All available jobs displayed

Fig9.Job Details

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4.5 Post a Job

Fig10.Posting a Job

Fig11.Job List updated

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4.6 Apply for a Job

Application Form

XYZ

xyz@gmail.com

9786543210

SJCE, JSS STU, Mysore

I am applying for the role of Finance Manager in your company. I have an experience of 5 years in this role.
Please do consider me for this role.
I have attached my Resume below.

Select Resume

Choose File Resume_VISA.jpg

Submit Application

4.7 Check Application

Fig12.Application from job-seeker point of view

Fig13.Application from Employer point of view

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4.8 Create a Resume (for Job-seekers)

Fig14.Filling the details according to the sections

Fig15.Updated after saving changes of first section

Fig16.Complete Resume using our Resume Generator

4.9 Courses – (for Job-seekers)
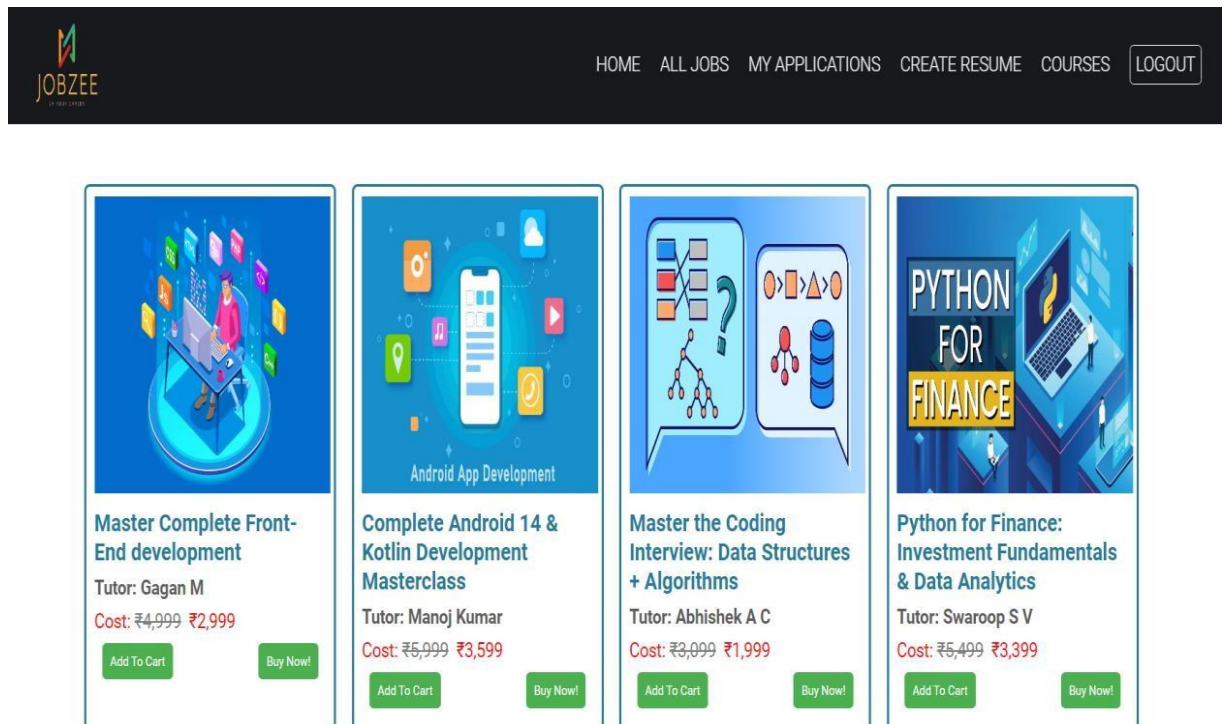

Fig17. Courses

4.10 Responsiveness

Fig18. Android and iOS compatible

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Chapter – 5

CONCLUSION AND FUTURE WORK

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The development of the "JobZee" project, a comprehensive job portal website, utilizing the MERN stack, presents a robust solution to the challenges faced by both employers and job seekers in the recruitment process. Through meticulous design and implementation, the project successfully achieves its objectives of providing efficient recruitment, enhancing the job search experience, empowering skill enhancement, and offering personalized support through chatbot integration.

The frontend of the project, built with React.js, offers a user-friendly interface for both employers and job seekers, facilitating seamless interaction and efficient navigation. Meanwhile, the backend, powered by Node.js and Express.js, ensures secure authentication, manages job listings and applications, and handles interactions with the MongoDB database. The integration of external APIs, such as Gemini for chatbot functionality, enriches the user experience and provides valuable assistance.

FUTURE WORK

Advanced Matching Algorithms: Implement advanced algorithms to enhance job matching based on candidate skills, preferences, and cultural fit, improving the quality of job recommendations.

Enhanced Personalization: Introduce personalized job suggestions, notifications, and career development recommendations tailored to each user's profile and behavior.

Integration with AI Technologies: Explore the integration of AI technologies, such as natural language processing (NLP) and machine learning (ML), to automate resume screening, candidate evaluation, and interview scheduling processes.

Social Integration: Integrate social media features to enable job seekers to showcase their professional profiles, network with industry professionals, and receive endorsements and recommendations.

Chapter – 6

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- BOOKS:

    • Karthik R.,2019. International Journal of Recent Technology and Engineering

    • Sumi Maharjan 2020. Quest Journal of Management and Social Sciences Graduates Perception on Job Search: A Critical Review.

- [2]:ACM Digital https://dl.acm.org/

    [3]: IZA World of Labour (scholarly database): https://wol.iza.org/

- CHATBOT INTEGRATION (Gemini API): https://aistudio.google.com