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JOB PORTAL WITH AI-BASED RESUME BUILDER

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Abstract— This paper presents an AI-powered job portal integrated with a dynamic resume builder and an intelligent job matching system. Built using the MERN stack, the platform leverages NLP-based algorithms to optimize resume creation, streamline candidate-job matching, and enhance the recruitment process. The system benefits both job seekers and recruiters by providing real-time recommendations, ATS-optimized resumes, and actionable analytics, delivering an intuitive, secure, and scalable hiring platform

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I. INTRODUCTION

In today's highly competitive job market, both job seekers and employers face significant challenges. Job seekers struggle with creating compelling resumes tailored to specific roles, while employers are burdened with the task of filtering through a large volume of generic applications. The lack of personalization and optimization in traditional recruitment processes has created a pressing need for smarter solutions.

To address these issues, the project introduces a job portal enhanced with Artificial Intelligence (AI) to streamline resume building and job matching. The platform empowers job seekers to create professional, industry-specific, and ATScompliant resumes using an AI-powered builder. This builder provides real-time feedback, formatting suggestions, keyword optimization, and grammar checks, making resume creation efficient and impactful.

On the other hand, employers benefit from an AI-driven Applicant Tracking System (ATS) that automates resume screening, ensuring that only the most relevant candidates are shortlisted. This reduces recruitment time and improves selection accuracy. The system also offers real-time analytics and insights, assisting recruiters in understanding talent trends and enhancing hiring decisions.

Key features of the platform include AIpowered job matching that personalizes job recommendations based on user profiles, interactive virtual career coaching, realtime feedback loops, and intelligent filtering options for efficient searches. Additionally, the system promotes continuous improvement through skill gap analysis and interview preparation tools.

The portal is designed with a scalable architecture using modern web technologies like the MERN stack (MongoDB, Express.js, React.js, Node.js) and integrates advanced Natural Language Processing (NLP) models to power its AI functionalities. It supports multiple industries and languages, ensuring a broad user base. In summary, this AI-powered job portal reimagines the recruitment process by integrating intelligent automation and usercentric features. It not only enhances the job search experience but also helps bridge the gap between candidate capabilities and employer expectations.

II. PROBLEM STATEMENT

Job seekers and recruiters encounter numerous challenges in the current recruitment ecosystem. Candidates often struggle to create resumes that align with industry standards and effectively communicate their skills. Generic formats, lack of keyword optimization, and inadequate personalization frequently result in resumes being filtered out by Applicant Tracking Systems (ATS), reducing visibility and interview chances.

Simultaneously, recruiters face inefficiencies in sorting through large volumes of unqualified or mismatched applications. Existing job portals typically offer outdated listings, limited filtering options, and poor user interfaces—making the hiring process time-consuming and ineffective.

Moreover, traditional resume-building processes overlook critical factors like soft skills, personalization, and ATS compatibility. The lack of AI-driven features like smart matching, real-time feedback, and skill gap analysis further limits their effectiveness.

These limitations highlight the urgent need for an intelligent, AI-based solution that can streamline resume creation, provide personalized job recommendations, and automate the candidate screening process—ultimately improving recruitment outcomes for both job seekers and employers.

III. PROPOSED METHOD

The proposed system introduces an AIpowered job portal that aims to overcome the limitations of traditional job portals by integrating advanced technologies and user-centric design. At its core, the system combines an intelligent resume builder, job recommendation engine, and application tracking system to streamline the recruitment lifecycle for both job seekers and employers.

For job seekers, the platform offers an AI Resume Builder that helps create optimized resumes tailored to specific roles. It uses Natural Language Processing (NLP) to extract key information from user profiles and job descriptions, suggesting improvements such as keyword inclusion, formatting adjustments, and skill enhancements. This ensures resumes are both professional and ATS-friendly.

In addition to resume building, the system provides AI-powered job matching. Based on a user's profile, preferences, and behavior, the platform recommends jobs that best align with their skills and career goals. It continuously learns from user interactions to refine recommendations, making the process increasingly personalized and accurate.

The workflow for job seekers includes:

• Registration and profile creation

• Resume upload or generation with feedback

• Skill assessments and suggestions for improvement

• AI-curated job recommendations

• Application tracking and interview preparation

For employers, the system simplifies recruitment through smart filters, candidate shortlisting based on skill-fit, and integrated interview scheduling. Employers can create detailed job postings, use AI suggestions to enhance job descriptions, and receive curated lists of suitable candidates. The platform architecture includes: • A React.js-based frontend for dynamic UI • Node.js and Express.js backend for business logic and API handling • MongoDB for storing user data, job listings, and application records • AI and NLP libraries (like spaCy and NLTK) for parsing and semantic analysis UML diagrams such as Use Case, Component, Sequence, and Activity diagrams are used to represent system interactions and data flows. These illustrate user interactions with modules like resume builder, job search, employer dashboard, and AI recommendation engine. Overall, the proposed system offers a smart, efficient, and scalable approach to recruitment, transforming how candidates apply for jobs and how employers discover talent.

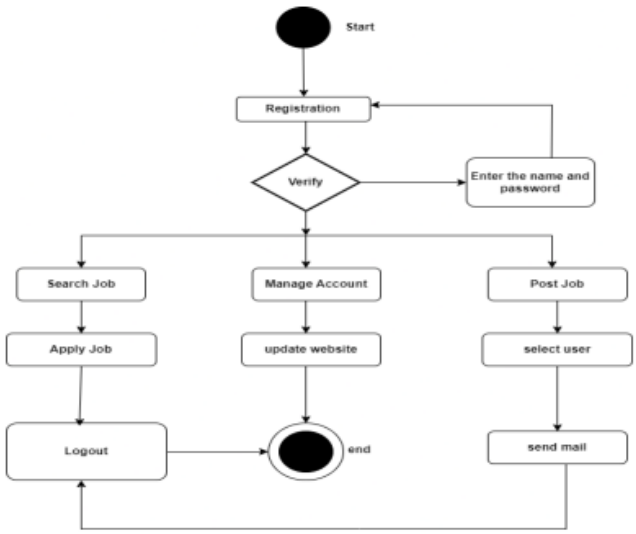

Fig 1:- State Diagram

IV. IMPLEMENTATION

The AI-based job portal is built on a robust and scalable architecture that utilizes the MERN stack (MongoDB, Express.js, React.js, and Node.js) for fullstack web development. The system integrates AI capabilities through NLP libraries and frameworks, ensuring an intelligent and responsive platform for job seekers and recruiters. A.

Technology Stack:

• Frontend: React.js – for building a responsive, component-based user interface supporting real-time updates for job searches and resume previews.

• Backend: Node.js with Express.js – handles API requests, server logic, and middleware functionalities like authentication and data handling

• Database: MongoDB – stores structured and semi-structured data such as user profiles, job listings, resumes, and application statuses.

• AI/NLP Tools: spaCy, NLTK – used for resume parsing, keyword extraction, skill matching, and semantic similarity between resumes and job descriptions.

• Hosting/Deployment: AWS – for scalable and secure deployment of the web app and its services. B. Block Diagram:

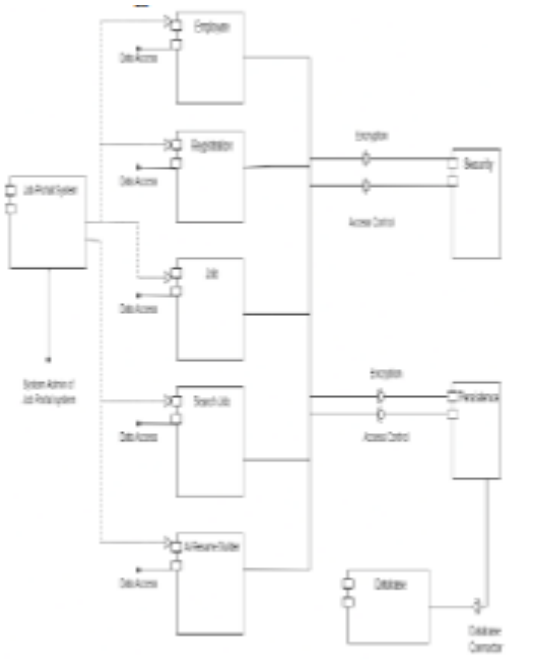

Fig 2 :- Component Diagram

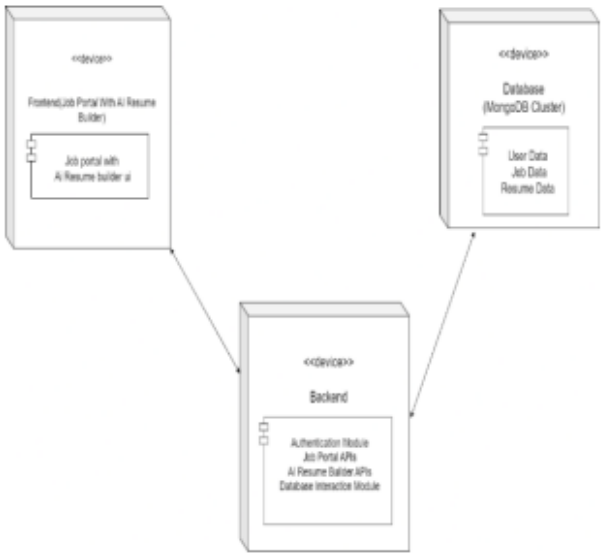

Fig 3:- Deployment Diagram

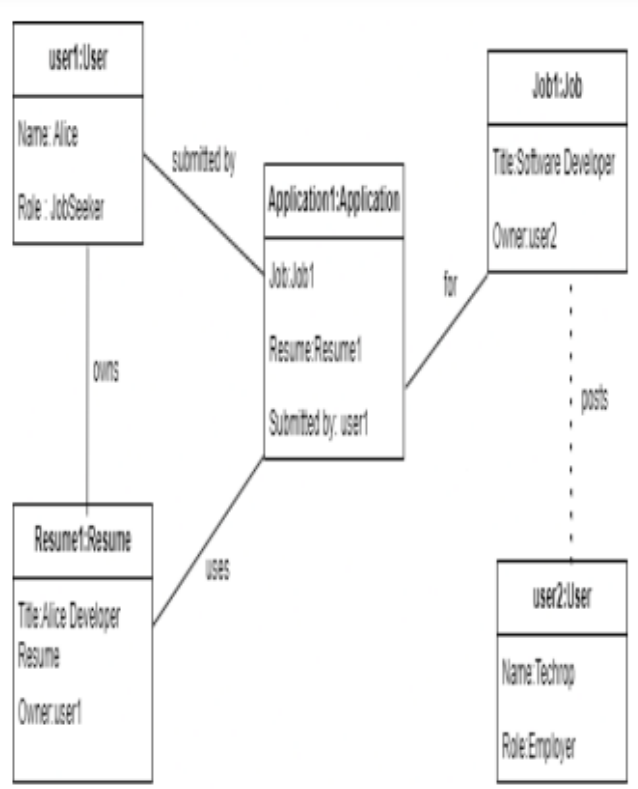

Fig 4:- Object Diagram

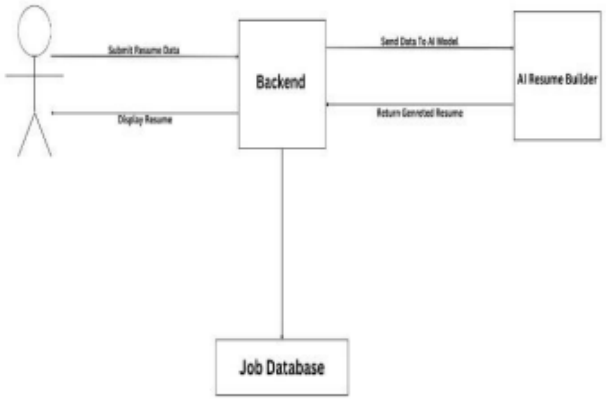

Fig 5:-Communication Diagram

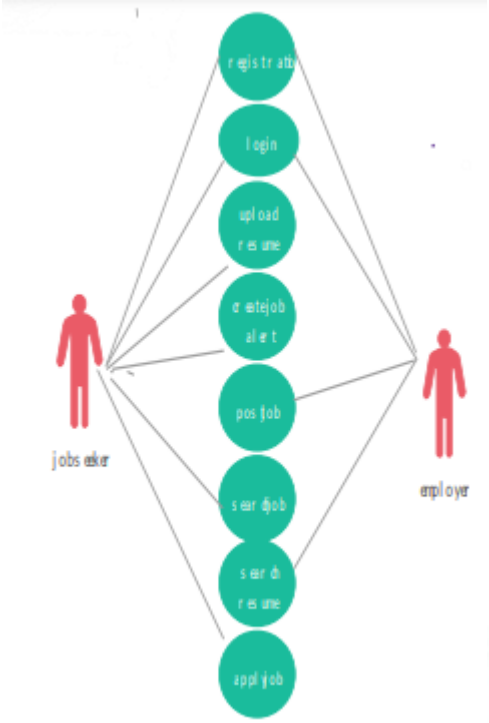

Fig 6:- Use Case Diagram

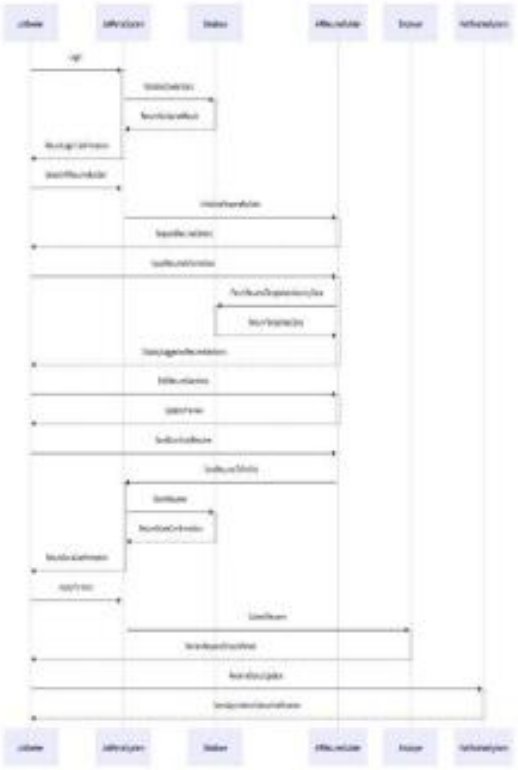

Fig 7:-Sequence Diagram

C. Sample Code:

```
import { StrictMode } from 'react'
import { createRoot } from 'react-dom/client'
import './index.css'
import App from './App.jsx'
import { createBrowserRouter, RouterProvider } from 'react-router-dom'
import SignInPage from './auth/sign-in'
import Home from './Home/Home'
import Dashboard from './dashboard/Dashboard'
import { ClerkProvider } from '@clerk/clerk-react'
import EditResume from './dashboard/resume/[resumeid]/EditResume'
import ViewResume from './my-resume/[resume-Id]/view/ViewResume'

const PUBLISHABLE_KEY = import.meta.env.VITE_CLERK_PUBLISHABLE_KEY
const router=createBrowserRouter([
  {
    path:'/',
    element:<Home/>
  },
  {

    element:<App/>,
    children:[
```

Fig 8:- Routing Setup

```
import React,{useState, useEffect} from 'react'
import AddResume from './components/AddResume'
import { useUser } from '@clerk/clerk-react'
import GlobalApi from '../../../service/GlobalApi';
import ResumeCarditem from './components/ResumeCarditem';

function Dashboard() {
  const {user}=useUser();

  const [resumeList,setResumeList]=useState([]);
  useEffect(()=>{
    user&&GetResumesList()
  },[user])


  const GetResumesList = () => {
    if (!user?.primaryEmailAddress?.emailAddress) return;

    GlobalApi.GetUserResumes(user.primaryEmailAddress.emailAddress)
```

Fig 9:- Dashboard Component

```
import { Button } from '@/components/ui/button'
import { Input } from '@/components/ui/input'
import { Textarea } from '@/components/ui/textarea'
import { ResumeInfoContext } from '@/context/ResumeInfoContext'
import { LoaderCircle } from 'lucide-react'
import React, { useContext, useEffect, useState } from 'react'
import { useParams } from 'react-router-dom'
import GlobalApi from '../../../../../service/GlobalApi'
import { toast } from 'sonner'

function Education() {

  const [loading,setLoading]=useState(false);
  const {resumeInfo,setResumeInfo}=useContext(ResumeInfoContext);
  const params=useParams();
  const [educationalList,setEducationalList]=useState([
    {
      universityName:'',
      degree:''
```

Fig 10:-Education Component

V. RESULT

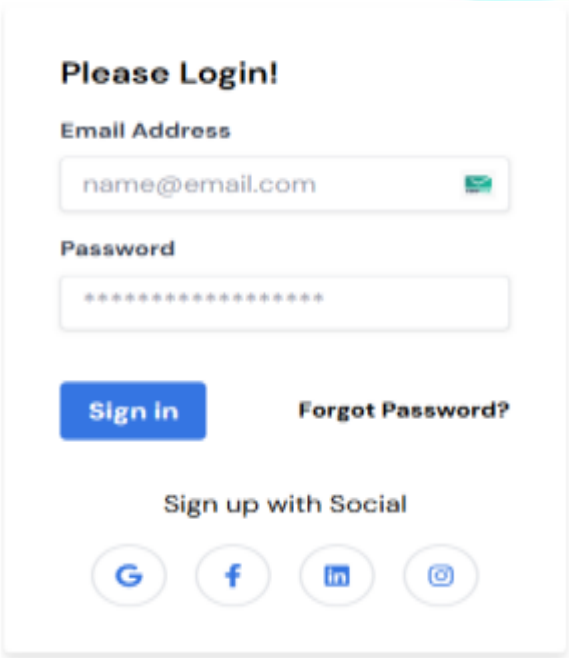

Fig 11:- Login Page

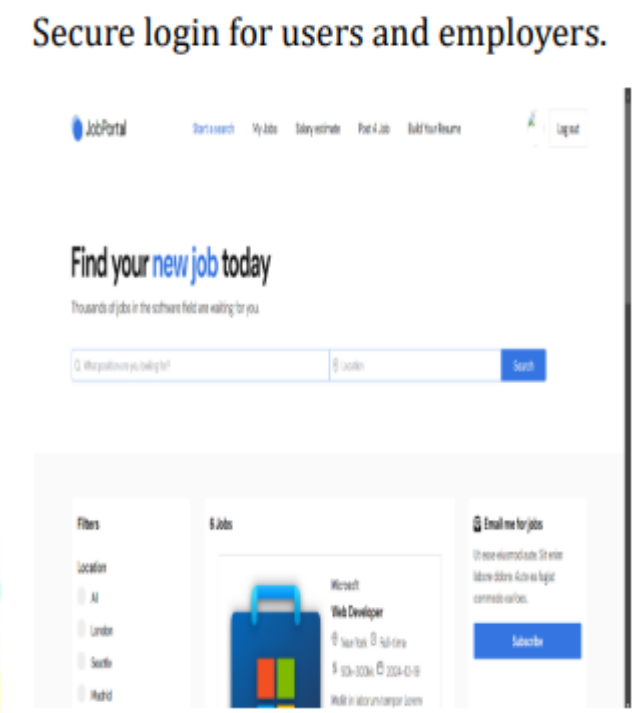

Fig 12 :- Job Portal

Fig 13:- Resume Builder

Real-time filtering and recommendations Section-wise AI suggestions (skills, education, experience).

V. CONCLUSION

The AI-Based Job Portal with Resume Builder successfully addresses the limitations of traditional recruitment platforms by integrating intelligent technologies and user-centric design. It simplifies the job search process for candidates by providing tools to build professional, ATS-optimized resumes and offers personalized job recommendations through AI and NLP.

For employers, the platform improves hiring efficiency with automated resume screening, candidate filtering based on skillmatching algorithms, and real-time analytics. Its scalable architecture ensures reliable performance even under high traffic, while its intelligent modules foster better alignment between job requirements and applicant qualifications.

Overall, the project demonstrates how AI can revolutionize the recruitment experience—making it faster, smarter, and more inclusive for both job seekers and recruiters.

REFERENCES

[1]. The project references a mix of widely-used job platforms, AI-powered resume tools, and academic sources that support the implementation and research behind the job portal system

[2]. Job Portals: o Indeed and Naukri are cited for their AI-driven job recommendation systems, showcasing real-world applications of intelligent job 7 matching and personalized search results.

[3]. Resume Optimization Tools: o Resume.io and Jobscan are referenced for their AIpowered resume enhancement capabilities, particularly for improving ATS compatibility through keyword optimization and structured formatting.

[4]. Academic & Technical Sources: o Sources like IPFS documentation, Hyperledger Fabric, and peer-reviewed articles on blockchain, NLP, and AI integration in hiring processes provide foundational knowledge for system architecture, secure data handling, and intelligent decision-making. These references validate the design choices of the platform and offer insights into best practices for AI in recruitment.