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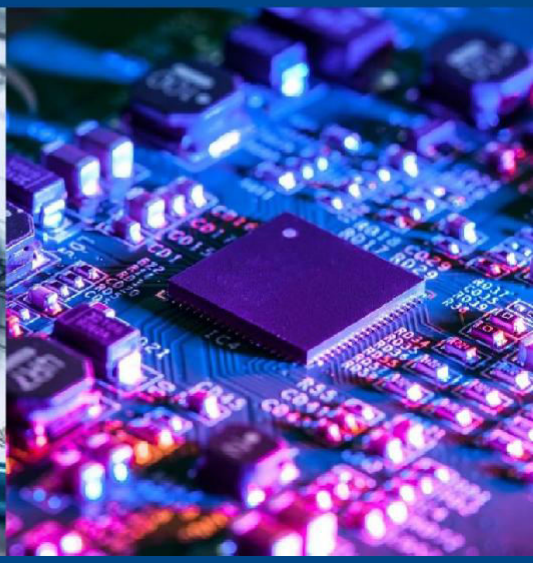

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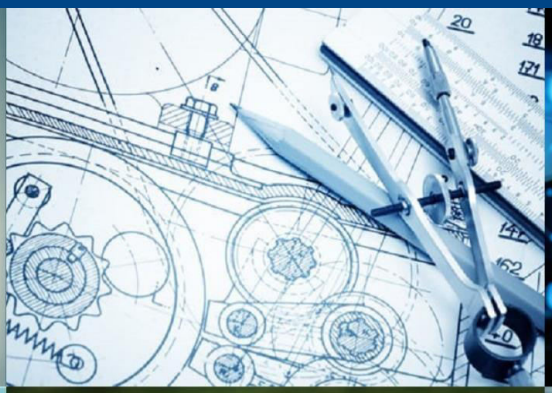

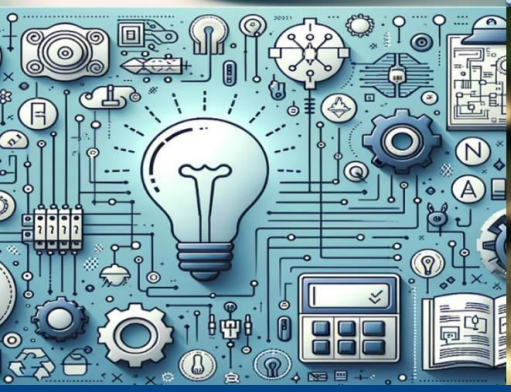

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CAREERWISEAI: SMART COACHING FOR CAREER OPTIMIZATION

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ABSTRACT: CareerWiseAI is an AI-powered web application designed to simplify and personalize the creation of professional career documents such as cover letters and resumes. By integrating Next.js for a unified frontend and backend architecture, the platform delivers a seamless and responsive user experience. The system leverages the Google Gemini API to generate context-aware and professionally worded documents based on user-provided job descriptions and career details. Secure user authentication is implemented through Clerk, while Prisma ORM with PostgreSQL (NeonDB) ensures reliable data storage and retrieval. Real-time markdown previews allow users to visualize their documents instantly, while Inngest handles background tasks such as large file exports without affecting performance. Designed with Tailwind CSS and Shadcn UI, CareerWiseAI provides an intuitive, aesthetically pleasing interface. The platform reduces the time and effort required for job application preparation, enabling users to produce tailored, high-quality documents that improve their chances of career success.

KEYWORDS: Career Guidance, AI-Generated Content, Next.js, Gemini API, Clerk Authentication, Prisma ORM, PostgreSQL, Tailwind CSS, Shadcn UI.

I. INTRODUCTION

In today's competitive job market, standing out among hundreds of applicants requires more than just qualifications — it demands professionally crafted, tailored documents such as resumes, cover letters, and job proposals. While traditional templates and manual writing offer some support, they often lack personalization, adaptability, and efficiency. This results in job seekers spending excessive time creating documents that may still fail to communicate their strengths effectively CareerWiseAI is designed to bridge this gap by combining the power of Google's Gemini API with a modern, scalable web application architecture. Developed using Next.js, the platform integrates Clerk for secure authentication, Prisma ORM with PostgreSQL (NeonDB) for robust data storage, and Inngest for asynchronous task processing. The application allows users to input job descriptions, personal experience, and preferences, and instantly generates high-quality, customized career documents. A live markdown preview ensures that users can review and refine the generated content before finalizing it

II. LITERATURE SURVEY

A literature survey serves as a review of the current technologies, tools, and methodologies in the domain of AI-powered career assistance and document generation. It identifies the strengths and weaknesses of existing solutions and highlights the innovation brought forward by the proposed system.

EXISTING SYSTEM

Most existing career document creation tools rely on either manual editing or static templates. Platforms such as Microsoft Word, Canva, and basic online resume builders provide pre-defined layouts but require users to manually craft content. Some AI-based tools exist, but they often generate generic, non-personalized text, lack secure authentication, and do not store documents for future use. Additionally, these systems rarely integrate real-time previews or background processing for tasks like PDF export. As a result, job seekers spend significant time tailoring documents, and the process remains inefficient, repetitive, and prone to human error.

PROPOSED SYSTEM

CareerWiseAI is designed to overcome these limitations by combining Next.js for the application framework, Google Gemini API for AI-driven personalized content generation, and Clerk for secure user authentication. Generated

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documents are stored persistently using Prisma ORM with PostgreSQL (NeonDB), allowing users to retrieve and edit them anytime. A live markdown preview ensures that users can review AI-generated content instantly, while Inngest manages background processes like file exports without affecting performance. This integrated, secure, and AI-powered approach enables faster, more accurate, and more professional career document creation compared to traditional systems.

III. SYSTEM ARCHITECTURE

The system architecture of CareerWiseAI is designed as a modular, scalable, and efficient framework that integrates multiple components to deliver a seamless AI-powered career assistance platform. At the client side, the frontend is built using **Next.js**, providing a responsive and interactive interface where users can securely log in, input their career details, and preview AI-generated content in real time. User authentication is managed by Clerk, ensuring secure sign-up, sign-in, and profile management through email or OAuth. The backend, implemented via Next.js API routes, serves as the bridge between the user interface, AI processing, and the database. It handles incoming requests, validates inputs, and interacts with the Google Gemini API to generate context-aware resumes, cover letters, and career recommendations. Generated content is stored in a PostgreSQL database (NeonDB) managed with Prisma ORM, enabling secure, structured, and scalable data handling. Heavy background operations, such as exporting documents to PDF, are processed asynchronously through Inngest, preventing delays in user interactions. The workflow begins with authentication, followed by user data input, AI content generation, real-time preview, secure storage, and optional export. This architecture ensures that the system remains performant, user-friendly, and adaptable to futurenhancements.

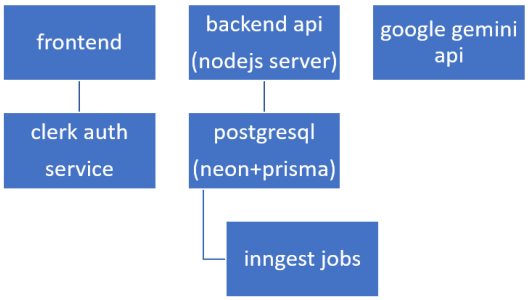

Fig 3.1 Modular diagram

IV. METHODOLOGY

The development of CareerWiseAI followed a systematic approach to ensure the creation of an efficient, reliable, and user-friendly AI-driven career document generation platform. The process began with a detailed requirement analysis, identifying the needs of job seekers who require personalized and professional resumes, cover letters, and career guidance. This analysis helped in outlining the limitations of existing systems and defining the core features such as AI-powered content personalization, secure authentication, real-time content previews, and persistent storage. Based on these requirements, the system architecture was designed to integrate the frontend, developed using Next.js and Tailwind CSS, with a backend powered by Next.js API routes. The backend was responsible for handling secure communication between the frontend, AI services, and the database. The Google Gemini API was integrated to generate professional, ATS-friendly documents by processing user-provided details such as skills, experience, and career goals. For secure user authentication, Clerk was incorporated, while PostgreSQL with Prisma ORM served as the database layer for storing user profiles, generated documents, and activity logs.

V. DESIGN AND IMPLEMENTATION

The design of CareerWiseAI was structured to ensure modularity, scalability, and seamless integration between the frontend, backend, and AI services. The frontend was developed using Next.js, leveraging its server-side rendering

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capabilities for fast page loads and improved SEO, while Tailwind CSS was used for building a clean, responsive, and visually appealing UI. The interface includes secure login, input forms for career details, a live markdown preview for AI-generated content, and an export/download section. Clerk was implemented for user authentication and session management, supporting multiple login methods such as email and OAuth providers. The backend was implemented through Next.js API routes, which acted as an intermediary between the frontend, AI services, and the database. User requests containing career details were validated and processed before being passed to the Google Gemini API, which generated resumes, cover letters, and career advice based on contextual understanding. To store user data and generated documents, the backend integrated PostgreSQL hosted on NeonDB, with Prisma ORM managing the database schema, migrations, and queries.

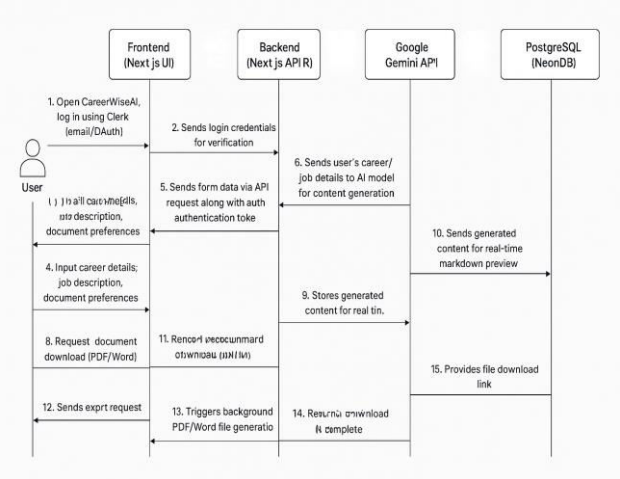

Fig 5.1 Sequential Diagram

VI. OUTCOME OF RESEARCH

The development of CareerWiseAI successfully demonstrated the practical application of advanced AI models and cloud-based technologies to automate the process of resume and cover letter creation. The system's integration with Google Gemini API enabled the generation of personalized and context-aware professional documents tailored to a user's career goals and specific job descriptions. Through Clerk authentication, the platform ensured secure and personalized access, while NeonDB (PostgreSQL) provided a reliable, scalable solution for storing user data and generated content.

VII. RESULT AND DISCUSSION

The implementation of CareerWiseAI yielded highly promising results in terms of both functionality and user experience. The platform was tested with diverse user profiles, job descriptions, and industries to evaluate the adaptability of the AI-generated content. The system consistently produced professional-grade resumes, cover letters, and career suggestions that aligned closely with the input data, demonstrating the effectiveness of the Google Gemini API in contextual text generation. The real-time markdown preview allowed users to visualize the final document instantly, reducing the need for multiple edits.

Fig 7.1 Registration page

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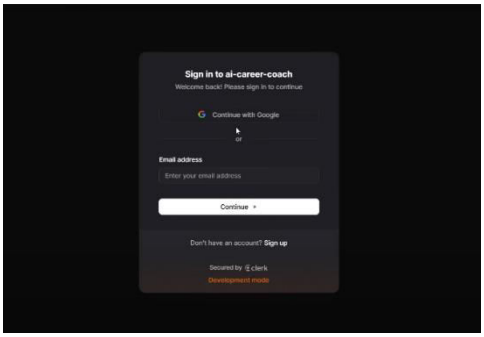

Fig 7.2 Login page

VIII. CONCLUSION

The CareerWiseAI platform successfully demonstrates how artificial intelligence can be harnessed to streamline and enhance the process of creating professional career documents. By integrating modern technologies such as Google Gemini API, Next.js, Clerk authentication, and NeonDB, the system offers a secure, efficient, and user-friendly environment for generating personalized resumes, cover letters, and career guidance. The implementation of real-time previews and background processing further optimized performance, ensuring a smooth experience even during resource-intensive operations. The research validates that AI-driven career assistance tools can save significant time, improve content quality, and provide tailored outputs that align with job-specific requirements. While the system delivers high accuracy and professional results, human oversight remains valuable to ensure emotional tone, creativity, and personal branding are preserved. Overall, CareerWiseAI bridges the gap between AI automation and career personalization, offering a scalable solution that can be expanded to include additional professional development features in the future.

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