Smart Resume Builder with AI Suggestions

Abstract

This project presents a modern Resume Builder application integrated with AI-powered suggestions to enhance content quality. Built with React, Node.js, and MongoDB, the system allows users to create, customize, preview, and export professional resumes. The OpenAI API provides intelligent recommendations for phrasing, grammar, and structure, ensuring impactful and polished resumes.

Introduction

A well-crafted resume is crucial for career opportunities, yet many users struggle with wording, structure, and formatting. The Smart Resume Builder addresses this by combining a clean interface with AI-powered improvement suggestions. Users can input data through structured forms, instantly preview the resume, receive content improvement tips, and download the final version in PDF format.

Objective

- To simplify the process of creating professional resumes.
- To enhance resume quality with AI-driven suggestions.
- To provide real-time previews and one-click PDF export.
- To securely store and manage multiple resumes.

Tools Used

- **Frontend:** React.js, TypeScript, Tailwind CSS, Vite
- **Backend:** Node.js, Express.js
- **Database:** MongoDB (Mongoose)
- **AI Integration:** OpenAI API (GPT-3.5 free tier)
- **Utilities:** html2canvas & jsPDF for PDF export
- **Version Control:** GitHub

System Workflow

User Input → React Forms → Backend (Node.js) → AI Suggestions (OpenAI API)
→ MongoDB Storage → Resume Preview → PDF Export

Steps Involved in Building the Project

1. Designed structured forms for resume sections using React and Tailwind CSS.
2. Configured Node.js backend with Express.js for data handling and API requests.
3. Integrated MongoDB for secure resume storage and retrieval.
4. Connected OpenAI API for generating AI-based improvement suggestions.
5. Implemented real-time preview functionality for user edits.
6. Added PDF export using html2canvas and jsPDF.

7. Conducted testing for usability, responsiveness, and performance.

Project Directory Structure

```
resume-builder/
├── src/
│   ├── components/     # React components
│   ├── types/          # TypeScript definitions
│   ├── App.tsx
│   ├── main.tsx
│   └── index.css
├── server.js           # Express backend
├── package.json
└── README.md
```

Challenges Faced

- Ensuring consistent formatting across different resume sections.
- Maintaining PDF export accuracy across devices and browsers.

Outcomes

- Simplifies resume creation with a user-friendly interface.
- AI suggestions significantly improve grammar, clarity, and impact.
- Supports secure storage and management of multiple resumes.

Future Enhancements

- Add customizable resume templates and themes.
- Support for multi-language resume generation.
- Role-specific AI suggestions (e.g., for engineers, designers, managers).
- Integration with LinkedIn and job application platforms.

Conclusion

The Smart Resume Builder successfully integrates modern web technologies and artificial intelligence to deliver a powerful tool for professional growth. It simplifies resume creation, improves quality, and provides a seamless user experience. This project demonstrates how AI can enhance everyday applications, making career development more efficient and accessible.

A report by:
Sreyansu Sekhar Mohanty
Email- sreyansu90@gmail.com