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DESIGN AND DEVELOPMENT OF AN AI-POWERED RESUME BUILDER

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ABSTRACT :

The development of an AI-powered resume builder aims to simplify and improve the resume creation process for students and job seekers. Traditional resume preparation requires considerable time and effort to organize personal details, educational qualifications, technical skills, projects, and achievements in a professional format. The proposed system provides a web-based platform that enables users to create, customize, and preview resumes through an interactive interface. The application incorporates multiple resume templates, real-time preview, AI-powered suggestions, and PDF download functionality to support the preparation of structured and professional resumes. Users can enter their information, select suitable templates, and modify resume content according to their requirements. The system also provides AI-based recommendations to improve resume descriptions and highlight relevant skills and qualifications. The application is developed using web technologies, with PHP and MySQL supporting server-side operations and data management. By integrating resume customization with AI-assisted guidance, the proposed system aims to reduce manual effort, improve usability, and help users present their professional profiles more effectively. This project demonstrates the practical application of artificial intelligence and web development techniques in simplifying resume preparation and supporting career development.

Keywords: Artificial Intelligence, Resume Builder, PHP, MySQL, Resume Customization, Career Development.

INTRODUCTION

A resume is an essential document for students and job seekers to present their educational qualifications, technical skills, projects, and achievements to potential employers. Traditional resume preparation involves manual formatting and content organization, which can be time-consuming and challenging, especially for fresh graduates. Therefore, an efficient and user-friendly solution is required to simplify the resume creation process.

Many job seekers prepare resumes in general-purpose word processors, where alignment, spacing, and section order have to be adjusted by hand. Writing clear descriptions for skills, projects, and internships is also difficult, and a resume that is not well organized may fail to show a candidate's abilities properly.

The proposed AI-Powered Resume Builder (ResumeCraft) is a web-based application developed to help users create professional resumes with ease. The system provides user registration and login, a dashboard, structured forms for personal and educational details, skills, projects, certifications, and achievements, along with multiple resume templates and live preview functionality. Gemini AI integration provides suggestions to improve resume content, while PHP and MySQL support server-side operations and data storage. Users can review their resumes and print or save them as PDF documents.

The main objective of this project is to reduce manual effort in resume preparation by combining customizable templates, real-time preview, and AI-assisted content suggestions within a single platform. The application aims to make resume creation more convenient and accessible for students, fresh graduates, and job seekers.

OBJECTIVE

- To develop a web-based platform for creating and managing professional resumes.
- To provide structured forms for entering personal details, skills, projects, education, and certifications.
- To offer multiple resume templates with design customization and a real-time preview.
- To integrate Gemini AI for content suggestions, proofreading, and career guidance.
- To store resume data securely and allow users to print or save resumes as PDF documents.

LITERATURE SURVEY

1. Yadav and colleagues presented an AI-powered resume builder with automated content generation. Their work focused on generating resume content with the help of AI so that users can prepare a resume with less manual writing.

2. Jadhav, Deshmukh and Kulkarni developed CLEVERCV, a generative-AI driven resume builder. Their work focused on improving resume creation and optimizing resumes for applicant tracking systems (ATS).

3. Researchers investigating an intelligent resume builder based on modern web architecture combined generative AI with a serverless edge computing architecture. Their system adapted resume content to job requirements and was evaluated through user feedback on response speed and real-time resume preview.

4. Tayal, Sharma, Singhal and Thakur studied resume screening using machine learning. Their work examined how resumes can be processed automatically, which shows the importance of clear and well-structured resume content.

5. Gan, Zhang and Mori proposed a framework that applies large language model agents to recruitment and resume screening. Their study highlighted how language models can understand resume text and support recruitment tasks.

METHODOLOGY:

The AI-Powered Resume Builder is developed as a web-based application that integrates user input, database management, and AI-assisted content suggestions. The system uses HTML, CSS, and JavaScript for the user interface, PHP for server-side processing, and MySQL for storing user and resume information. Gemini AI is integrated to generate suggestions for improving resume content.

1. **User Authentication and Access:** Users register and log in to access the application dashboard. Login is done with an email address and password, and passwords are stored in hashed form.

2. **Resume Creation and Data Entry:** From the dashboard, users create a new resume by giving it a title and open the editor. Personal details, professional summary, technical skills, work experience, projects, education, and certifications are entered through structured forms.

3. **Template Selection and Customization:** The entered information is organized into a resume using one of the 10 available templates. Users can also change the font family, accent colour, body font size, and line spacing to suit their requirements.

4. **Live Preview:** The editor uses a split-screen layout in which the resume preview is updated while the user edits the details, so the effect of every change can be seen immediately.

5. **AI-Based Suggestions and Career Guidance:** Gemini AI provides suggestions to improve resume descriptions and content presentation, and the proofread option checks the resume content. The Career Assistant analyses skills against a selected job role and shows role match scores and keywords.

6. **Data Management and Output:** Resume records and user information are stored in the MySQL database through PHP. After reviewing the resume in the full preview, users can print it or save it as a PDF for future use.

EXISTING SYSTEM:

1. Manual Resume Formatting:
Resumes are usually prepared in word processors, where layout, spacing, and section order have to be adjusted manually.

2. Limited Template Choices:
Free templates are often generic and cannot be customized easily for different roles or industries.

3. Difficult Content Writing:
Fresh graduates often find it difficult to write clear summaries and project descriptions for their resumes.

4. No Content Feedback:
Users do not receive suggestions or proofreading support to improve the quality of their resume content.

5. Lack of Role-Specific Guidance:
Users cannot easily check how well their skills match a job role or which keywords and skills are missing.

6. Poor Resume Management:
Different versions of resumes are saved as separate files, making them difficult to organize, update, and reuse.

PROPOSED SYSTEM:

1. Structured Data Entry:
ResumeCraft provides forms for personal details, summary, skills, experience, projects, education, and certifications, so that information is entered in an organised way.

2. Multiple Resume Templates:
The system offers 10 templates, including minimal, executive, ATS-friendly, two-column, and college fresher styles, with options for font, accent colour, font size, and line spacing.

3. Live Preview:
A split-screen editor shows the resume preview while the details are being edited, helping users review the layout before finalizing.

4. AI Content Suggestions:
Gemini AI gives suggestions for improving summaries and bullet points and can proofread the resume content.

5. Career Assistant:
The Career Assistant helps users analyse skill gaps, view role match scores, and obtain targeted keywords for a selected job role.

6. Resume Management Dashboard:
The dashboard shows saved resumes and allows users to create, edit, preview, rename, copy, and delete them.

7. Print and PDF Output:
Users can open the full preview and print the resume or save it as a PDF document.

SYSTEM REQUIREMENTS:

Hardware Requirements:

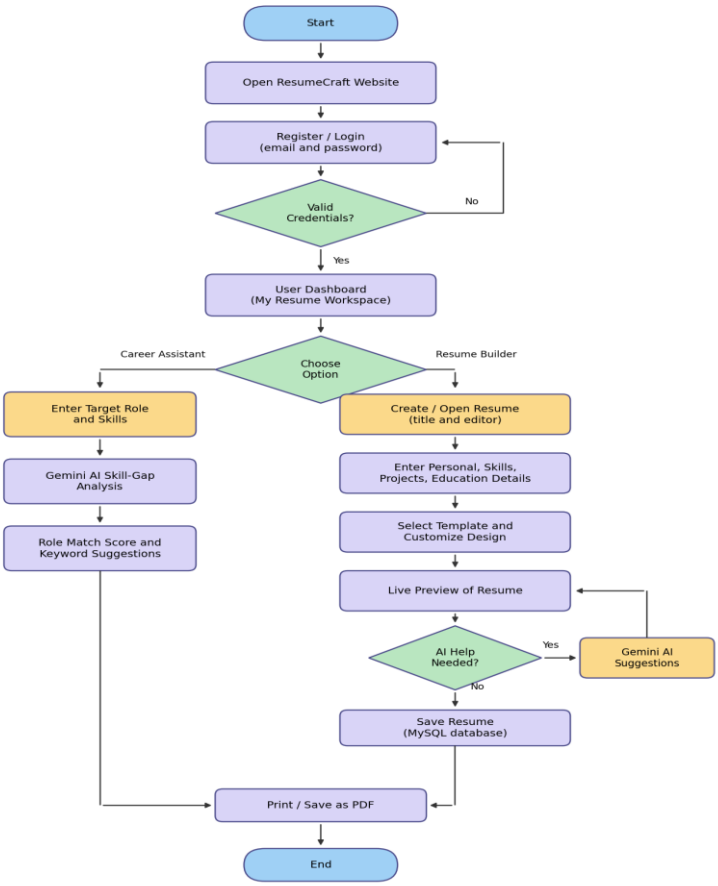
- Processor: Intel Core i3 or higher or equivalent.
- RAM: Minimum 4 GB; 8 GB recommended.
- Storage: 256 GB or higher.
- Display: Standard HD display or higher.
- Network: Stable internet connection for development and AI/API communication where applicable.

Software Requirements:

- Operating System: Windows 10/11, Linux or macOS.
- Frontend: HTML, CSS and JavaScript.
- Backend: PHP (Apache server using XAMPP).
- AI Processing: Google Gemini API.
- Database: MySQL (MariaDB).
- Browser: Google Chrome, Mozilla Firefox or Microsoft Edge.

PROCESSING:

Figure A1.1 Flowchart of the AI-Powered Resume Builder



MODULES:

1. User Authentication: Handles registration, login, and sign-out so that only registered users can access their resumes.
2. Dashboard and Resume Management: Displays saved resumes and allows users to create, edit, preview, rename, copy, and delete them.
3. Resume Editor: Provides structured forms for personal details, summary, skills, experience, projects, education, and certifications.
4. Template and Design Customization: Offers 10 templates along with font family, accent colour, font size, and line spacing options.
5. Live Preview: Shows the resume in a split-screen view and updates it as the user edits the content.
6. AI Suggestion Module: Uses Gemini AI to suggest improved summaries and bullet points and to proofread the resume.
7. Career Assistant: Analyses skills against job roles and provides skill-gap details, role match scores, and keywords.
8. Print and PDF Output: Opens the full preview and allows the resume to be printed or saved as a PDF document.

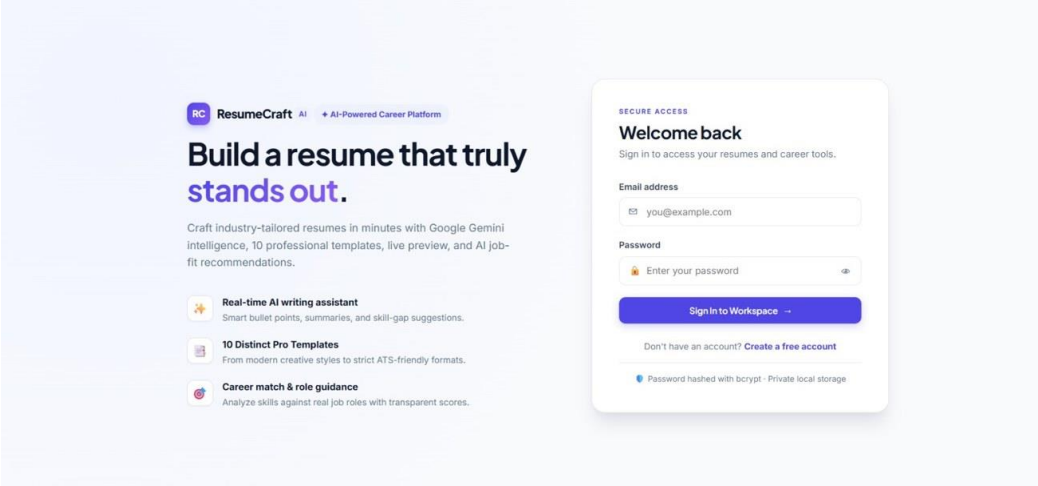


Figure A2.1 Login Page

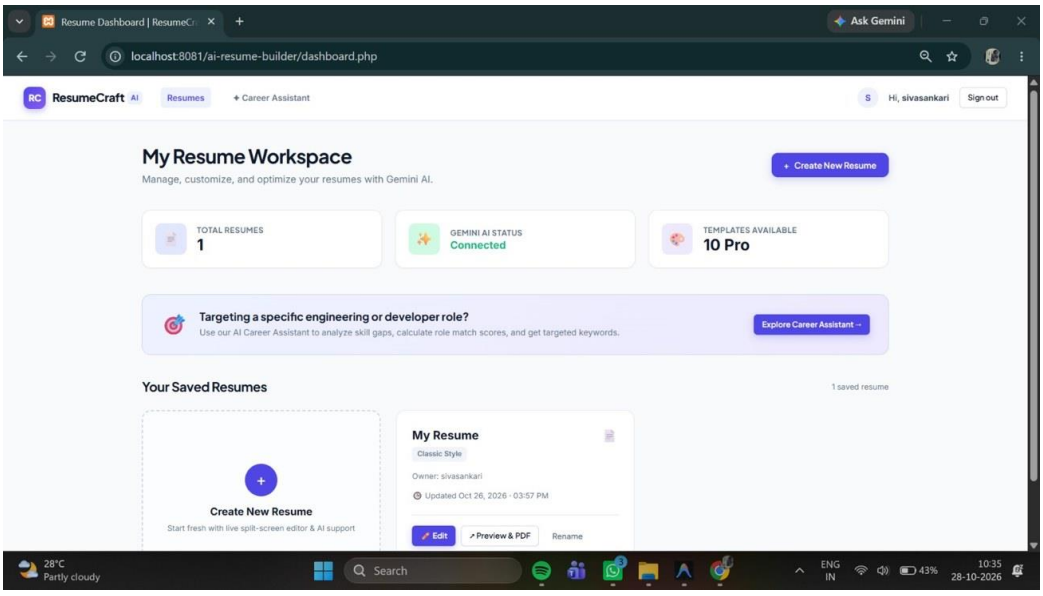


Figure A2.2 Dashboard

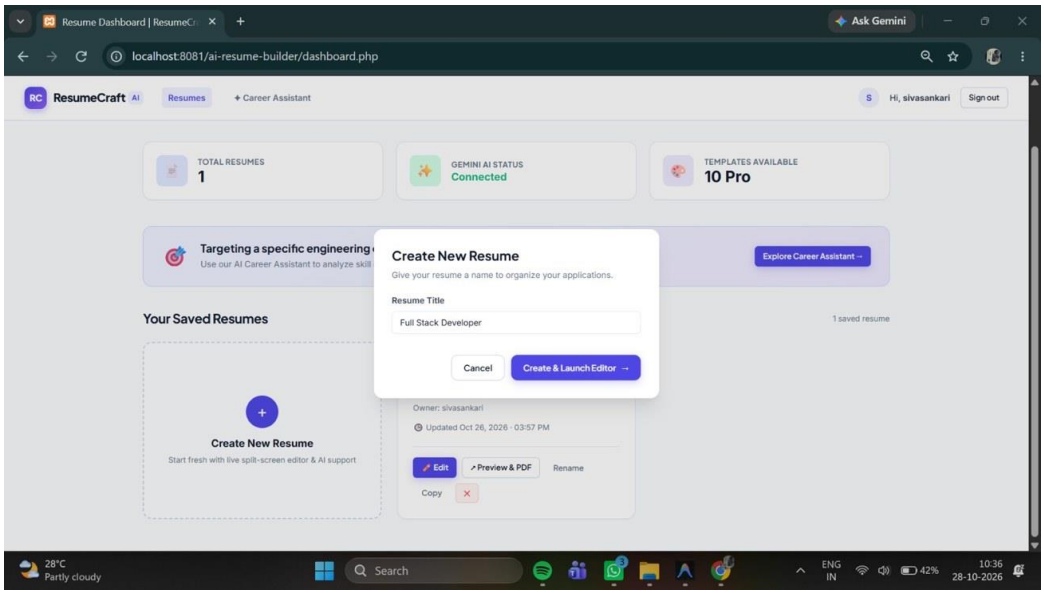


Figure A2.3 Create New Resume

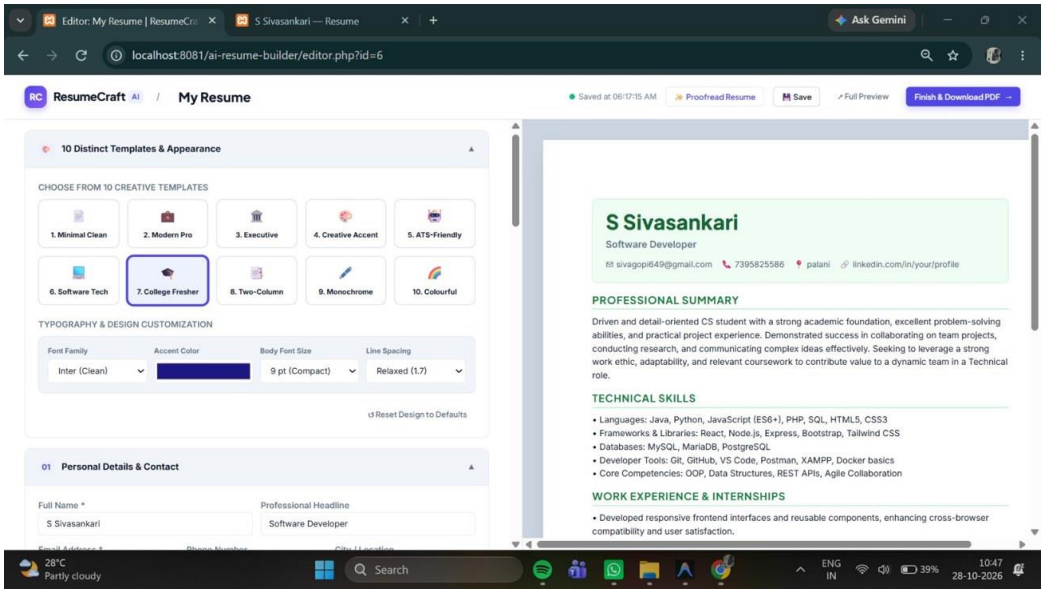


Figure A2.4 Resume Editor with Live Preview

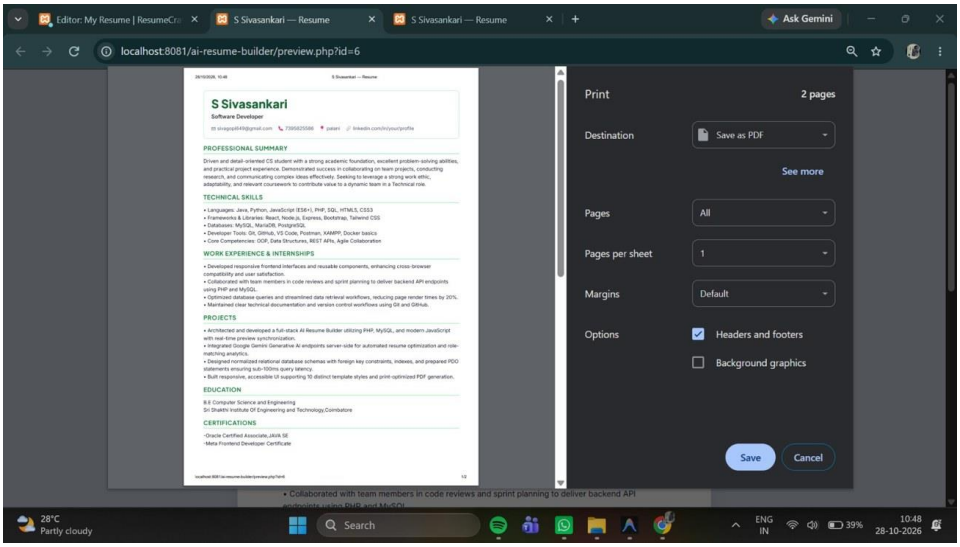


Figure A2.5 Print Preview and PDF Output

CONCLUSION

The AI-Powered Resume Builder provides an efficient web-based solution for creating and customizing professional resumes. By integrating user authentication, structured data entry, multiple resume templates, live preview, and Gemini AI-based suggestions, the system simplifies the resume preparation process. PHP and MySQL support application processing and data management, while the print functionality enables users to save resumes as PDF documents. The proposed application demonstrates the practical use of artificial intelligence in resume development and offers a convenient platform for students, fresh graduates, and job seekers to present their qualifications and skills effectively.

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