

AN INTELLIGENT WEB APPLICATION FOR PERSONALIZED RESUME GENERATION

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ABSTRACT:

Our resume builder web application is a robust and user-friendly platform designed to streamline the process of creating professional resumes. It provides a seamless experience for users, starting with a simple sign-up and login process to access the resume creation form. Once logged in, users are presented with an intuitive interface where they can input their details and customize their resumes. The application supports multiple resume styles, allowing users to create professional, modern, or image-enhanced resumes that suit their individual needs and preferences. One of the key features of our application is the ability to generate resumes in various formats. Users can easily print their resumes directly or download them as PDF files, ensuring their documents are ready for distribution. Additionally, the application offers a unique feature to change resume colors, providing users with the flexibility to personalize their documents to match their personal brand or the aesthetics of their industry.

Editing and updating resumes is made effortless with our application. Users can revisit their resume forms, make necessary changes, and immediately see the updated version of their resumes. This dynamic feature ensures that users can keep their resumes current without the hassle of starting from scratch each time they need to make an update.

To assist users in crafting compelling resumes, the application provides access to sample resumes and hints. These resources serve as valuable guides, helping users understand what makes a strong resume and how to present their information effectively. The 'Contact Us' page further enhances user support, allowing users to submit queries or feedback easily. This feature ensures that users receive timely assistance and can communicate any issues or suggestions they might have. Administrators are equipped with tools to manage the platform efficiently. They have access to detailed user information and contact submissions, enabling them to oversee user activity and address any concerns promptly. This administrative capability ensures the platform runs smoothly and maintains a high level of user satisfaction. The technical backbone of the application comprises HTML, CSS, and JavaScript for the frontend, creating a responsive and visually appealing user interface. The backend is powered by JSP (JavaServer Pages), which facilitates dynamic content generation and interaction with the MySQL database. The MySQL database securely stores user data, ensuring that all information is handled with the utmost care and confidentiality. The application is deployed on an Apache server, guaranteeing reliable and efficient performance. Overall, our resume builder web application stands out as a comprehensive tool for individuals seeking to create professional, polished resumes.

It combines user-friendly design with powerful features, providing a seamless and supportive environment for users to develop and maintain their resumes. With the integration of customizable options, sample resources, and robust administrative capabilities, the application addresses the diverse needs of its users, making resume building a straightforward and efficient process.

1. INTRODUCTION

Our “Resume Builder” web application offers a comprehensive platform for users to craft professional resumes effortlessly. Designed with a user-centric approach, the application requires users to sign up and log in to access the resume creation form. Upon submission, users can choose to generate their resumes in various formats including PDF for easy sharing or direct printing. A standout feature allows users to personalize their resumes by selecting different colour schemes.

The application supports seamless editing and updating of resumes, empowering users to modify content and immediately reflect changes in the generated resumes. Users have the flexibility to create different resume styles such as professional and modern designs, with options to include images to enhance personal branding.

For guidance and inspiration, users can access sample resumes and development hints, aiding them in creating compelling documents. A 'Contact Us' page facilitates user queries, ensuring prompt communication and support. Administrators have access to a dashboard displaying user details and contact inquiries for efficient management.

Built using HTML, CSS, and JavaScript for the frontend, and leveraging JSP for dynamic content rendering on the backend, the application integrates with a MySQL database for secure storage of user information. Deployed on an Apache server, the system ensures robust performance and reliability. Overall, our resume builder web application empowers users with intuitive tools to craft professional resumes tailored to their unique career aspirations, backed by robust technology to deliver a seamless user experience.

2. LITERATURE SURVEY

2016 – Growth of Template-Based Resume Systems

In 2016, the resume-building domain saw significant advancements with the introduction and popularization of template-based systems. These platforms used pre-defined layouts that automated much of the formatting work, reducing the effort needed to create visually consistent resumes. Research and market trends during this time indicated a growing demand for platforms that combined usability with design quality. However, most of these systems operated on a freemium model, limiting access to features such as advanced templates and downloadable PDFs. From a technical standpoint, most of these applications were built using standard web technologies like HTML, CSS, and JavaScript, and began experimenting with basic client-side scripting to improve interactivity. Despite these improvements, the tools of this era often lacked mobile optimization and real-time preview capabilities, and their templates were not always compatible with Applicant Tracking Systems (ATS), which filtered resumes based on keyword and formatting standards.

2017 – Enhanced User Guidance and Form-Based Resume Creation

In 2017, resume builders evolved to include more sophisticated form-based input systems, enhancing the user experience by guiding applicants through step-by-step data entry. Platforms such as Resume.io and Enhance incorporated interactive forms that dynamically populated resume templates, making the process more intuitive and reducing errors in formatting. Research during this period emphasized the importance of user-centric design, highlighting that clear instructions and structured input fields significantly improved resume quality and user satisfaction. Technologically, developers began integrating JavaScript frameworks like AngularJS to improve front-end responsiveness and interactivity.

2018–2019 – Enhanced Client-Side PDF Generation

During 2018 and 2019, resume builder platforms increasingly adopted client-side PDF generation technologies such as jsPDF, html2pdf.js, and PDFMake, enabling users to create and download their resumes directly from web browsers without server dependency. This advancement improved performance and user experience by allowing real-time preview and export of resumes in professional formats. Additionally, many tools expanded their collection of customizable templates to accommodate diverse industries and personal styles. Despite these improvements, challenges persisted in maintaining precise layout fidelity, font embedding, and ensuring mobile responsiveness in generated PDFs. Concurrently, research and industry focus intensified on Applicant Tracking System (ATS) compliance, as studies revealed that many visually appealing resumes were often rejected by automated screening tools due to improper formatting or lack of keyword optimization. This period marked a critical transition towards building resume builders that balanced aesthetic appeal with backend functionality to maximize job application success rates.

2020 – Shift Toward Fully Web-Based, Mobile-Friendly Resume Builders

The year 2020 marked a significant transformation in resume-building technologies, driven largely by the global shift toward remote work and online recruitment during the COVID-19 pandemic. Resume builders evolved to prioritize fully web-based, responsive, and mobile-friendly platforms that could cater to a wide range of users accessing tools from different devices. This period saw an increased emphasis on user experience (UX) and accessibility, ensuring that even those with limited technical skills could create polished resumes easily. Developers incorporated modern web frameworks like React and Vue.js to deliver smooth, interactive interfaces. Additionally, the importance of cloud integration for saving and managing resume data gained traction, enabling users to update and share resumes seamlessly. While aesthetic improvements continued, there was a stronger focus on producing resumes that remained ATS-compliant and optimized for digital recruitment processes. However, many platforms remained freemium or subscription-based, limiting free access to advanced templates and export options.

2021–2022 – User-Centric Enhancements and ATS Compliance

During this period, academic and industrial focus shifted toward user-centric design, ATS compliance, and real-time previewing. Tools like Canva introduced resume templates, but they often prioritized appearance over functionality. Studies identified a gap in balancing aesthetic quality with recruiter-friendly formats. Open-source projects and frameworks also began to be explored for educational and student-based resume builders.

2023–2024 – Emphasis on Automation, Accessibility, and Open Source Recent developments have focused on automating resume content generation, improving template customization, and ensuring better PDF fidelity across browsers. Technologies like React, Tailwind CSS, and Node.js have enabled smoother, faster resume builders. Researchers and developers have started addressing broader accessibility, mobile optimization, and the integration of AI-based suggestions to guide users in writing impactful resumes.

3. PROBLEM STATEMENT

Many job seekers struggle to create professional and well-organized resumes due to a lack of design skills, limited knowledge of what content to include, and the time-consuming nature of formatting and editing. This often results in resumes that are either poorly structured or inconsistent, reducing their chances of making a strong impression on employers. Additionally, access to quality resume templates and tools is not always available or affordable for everyone. Therefore, there is a clear need for a user-friendly resume builder that can simplify the process by providing easy-to-use features, customizable templates, and guidance, enabling users to quickly create effective resumes that improve their chances of success in the job market.

Furthermore, many existing resume-building tools are either too complex for beginners or lack flexibility, making it difficult for users to tailor their resumes to specific job applications. This often leads to generic resumes that fail to highlight individual strengths and experiences effectively. The absence of real-time feedback and guidance in these tools also contributes to frustration and decreased motivation among users. Consequently, a well-designed resume builder should not only simplify the creation process but also provide intuitive customization options and helpful suggestions to ensure each resume is unique and impactful.

4. ARCHITECTURAL DESIGN

The **system architecture** of a Resume Builder project using **JSP and Servlets** for backend logic. The flow begins with the **user interacting via a Frontend UI** developed in HTML, CSS, and JavaScript. Requests are sent to the backend, which handles various modules such as **authentication (login/register)**, **resume creation and editing**, **template and colour customization**, **PDF generation**, **sample resume and tips display**, and a **contact support form**. All backend logic is hosted on an **Apache Tomcat server**, which facilitates communication with a **MySQL database** for data storage and retrieval. The system also includes a **chatbot support module** to provide help and FAQs to users. For administrative control, an **Admin Dashboard** allows management of users and resumes. The admin and chatbot modules also interact with the database for necessary data access and updates.

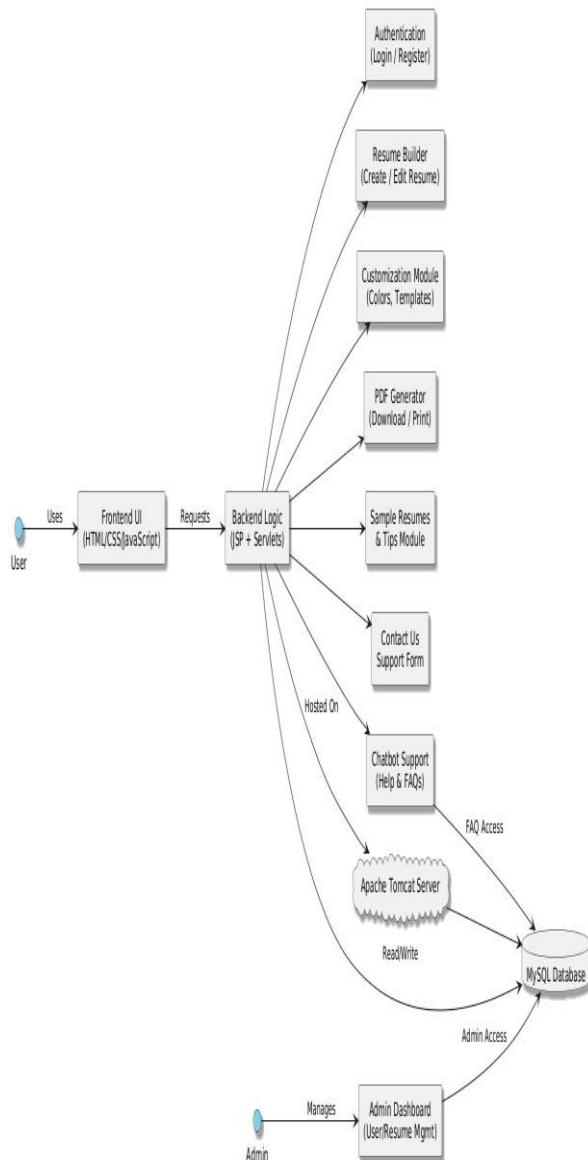


FIG 4.1 ARCHITECTURAL DESIGN

5. USECASE DIAGRAM

The Resume Builder application is designed to simplify the process of creating professional resumes for job seekers. The primary actor, the User, can begin by registering or logging in to access their personalized dashboard. From there, users can create a resume by inputting personal, educational, and professional details through a guided interface. Once the information is entered, users can select from a variety of templates to Determine the style and layout of their resume. The system allows users to edit and update their resume as needed and provides a preview option to review the final layout before generating the document. When satisfied, users can download their resume in PDF format for submission to employers. Additionally, users have the ability to manage their account, including updating profile information and changing passwords. For administrative purposes, the system includes an Admin role with optional access to manage templates—allowing the addition or removal of design options—and manage users, such as viewing or deleting user accounts. This structured and user-friendly

platform streamlines the resume creation process, making it accessible and efficient for users with varying levels of technical expertise.

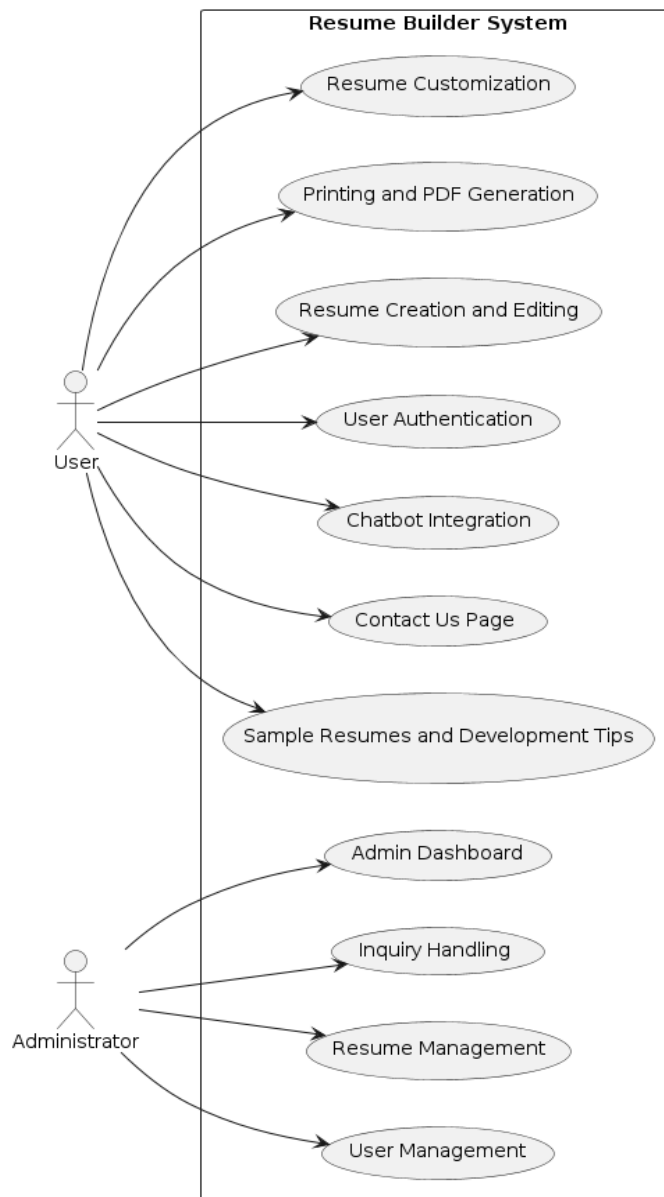


FIG 5.1 USECASE DAIGRAM

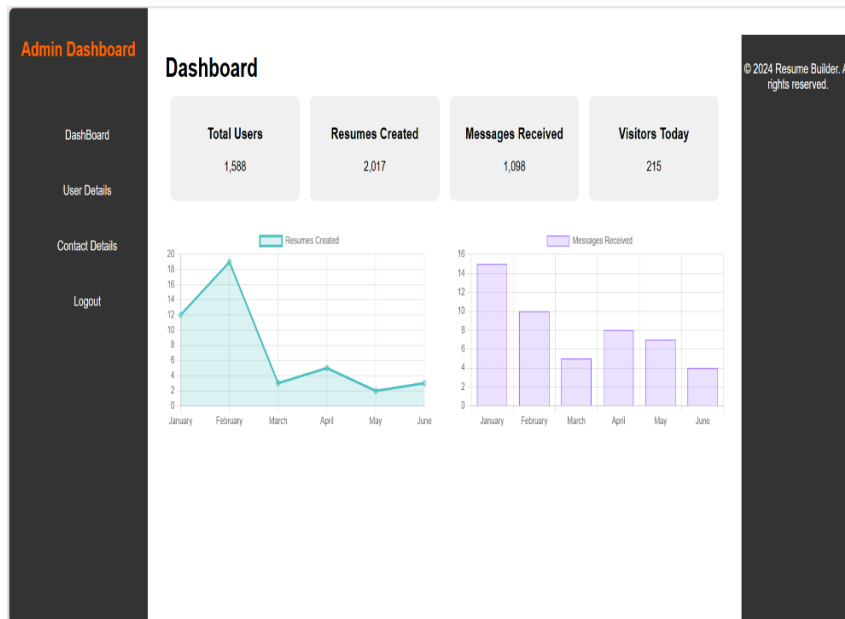
6. EVALUATION AND DESCRIPTION

The Resume Builder application is a web-based tool designed to assist users in creating professional resumes quickly and efficiently. It provides an intuitive interface that guides users through entering their personal, educational, and professional information, ensuring all necessary sections are completed. The system offers a variety of customizable templates to cater to different styles and industries, helping users produce visually appealing resumes without requiring design expertise. Users

can save their progress and edit their resumes at any time, making the process flexible and user-friendly. The application also supports exporting resumes in popular formats such as PDF and Word, facilitating easy sharing with potential employers. Additionally, the system incorporates features like input validation and data security to enhance reliability and protect user information.

7. OUTPUT SCREEN

The image is a collage of four screenshots from a web application for building resumes.
1. Top-left: The 'Hirevac' homepage. It features a dark blue header with navigation links (HOME, ABOUT, RESUME SAMPLE, BUILD RESUME, EDIT RESUME, CONTACTUS, ADMIN, LOGIN, SIGN UP). The main content area has a background image of a classroom and the text 'BUILD YOUR POWERFUL CAREER' with a quote. Below this is a form with fields for 'Username', 'Email', and 'Message', and a 'SUBMIT NOW' button.
2. Top-right: A 'PDF Document Library' section with a yellow background. It displays a 3x3 grid of document thumbnails, each with a 'View' button.
3. Bottom-left: The 'Resume Builder - Insert Data' form. It has a yellow background and contains input fields for Name, Email, Phone, Address, Father's Name, Date of Birth, Gender, Nationality, Marital Status, Languages, and Hobbies. Below these fields is a list of categories to choose from: Education, Experience, Skills, Projects, Interests, Achievements, Activities, References, Declaration, and a 'Submit' button.
4. Bottom-right: The 'Generated Resume' output. It has a green header and displays the user's information (Name: Dhana, Email, Phone, Address, Father's Name, Date of Birth, Gender, Nationality, Marital Status, Languages, Hobbies) followed by the selected resume sections: Education (mca), Experience (assistant professor), Skills (software engineering), Projects (jms), Interests (java), Achievements (got gold medal), Activities (completed certificate), References (nil), and a Declaration (truly declared, Signature: dhana). At the bottom, there is a 'Print Resume Content' button and a color selection tool for the resume content.



8. CONCLUSION

The Resume Builder project represents a comprehensive solution designed to empower users in creating professional resumes tailored to their career aspirations. Throughout its development, the project has focused on integrating robust features that enhance usability, functionality, and overall user experience. From user authentication and resume creation to customization, printing, and PDF generation, each module has been meticulously crafted to ensure intuitive navigation and seamless operation. The system's emphasis on real-time previews, diverse template selections, and customizable layouts underscores its commitment to catering to varied user preferences and industry standards. The inclusion of sample resumes and development tips not only provides inspiration but also serves as a practical resource for users at different stages of their careers. The contact page facilitates direct communication, ensuring prompt resolution of inquiries and feedback, while the admin dashboard enables efficient management of user accounts, resumes, and support interactions. Integration of a chatbot further augments user support by offering instant responses to common queries, thereby enhancing accessibility and user satisfaction. Comprehensive security measures, including robust authentication protocols, data encryption, and secure file handling, safeguard user information and ensure compliance with privacy regulations. Throughout the testing phases unit testing, integration testing, user interface testing, performance testing, and system testing the project has undergone rigorous scrutiny to validate functionality, reliability, and performance across diverse scenarios. This rigorous testing approach has been instrumental in identifying and rectifying issues promptly, ensuring a stable and dependable platform for users. In conclusion, the Resume Builder project not only meets but exceeds expectations by providing a user-centric interface, robust functionality, and enhanced security features. It stands poised to empower individuals in their professional journeys by equipping

them with the tools needed to craft compelling resumes that make a lasting impression in today's competitive job market