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Design and Development of an Interactive Resume Web Application using Angular

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ABSTRACT:

The modern recruitment space often finds that simple resumes are ineffective in showcasing resume holder's skills and creativity package. This paper describes the design and subsequent development of an interactive resume web application development using the Angular framework. The proposed web application changes the standards of conventional resumes in PDF or Word format, by allowing interactive resume content, modular navigation, and animations to create user engagement in a more professional presenter. The Resume application is structured in Angular by disassembling it into separate components as the following: Home, Projects, Experience, and Contact which are rendered as presented routes within the application. The use of Angular's component and modular architecture, routing, and animation modules allows for a modular, responsive, and wrapper reusability approach to the application development. The interactive resume web application also fosters accessibility across devices and enhances the capability to link external resources with links to APIs such as LinkedIn and GitHub. An experimental evaluation of the interactive resume web application was undertaken with participants utilizing usability surveys. The data revealed that user engagement, navigation of content and positive user display of the interactive resume was considerably better than their use of static resumes. The use of modern web technology allows for the complicated makeup of showcasing skills and make resumes interactive, visual and significant professional presentations.

Keywords: Interactive Resume, Angular, Firebase, Web Application, Single Page Application (SPA), Firebase Database, Firebase Authentication, Firebase Hosting, Responsive Web Design, Dynamic Resume Builder

Introduction:

The resume is probably the most important document in hiring, as it is the first way that candidates showcase their skills, qualifications and experiences to employers. Resumes have traditionally taken the form of static linear documents in PDF or Word form, which has led to a lack of creativity and interactivity in developing resumes. While static documents do provide important information, they do not always provide a picture of the personality, technical abilities, or willingness to use modern day digital tools that exist within many job seekers today.

With many recruiters reviewing resumes within a matter of seconds and with the gig economy taking off, the need for new ideas in personal branding has only increased for young job seekers and interactive resumes are a modern way to engage through visual presentation and dynamic interactivity, allowing users to engage with the content rather than reading it from a screen. In addition, these interactive systems do not only improve user experience in terms of the recruiters use and experience as they review resumes, they allow candidates to reinvent the way they present and market themselves through portfolios and projects and other accomplishments in an unique, and thoughtful, manner.

The growth of web technologies has enabled relatively easy design of interactive systems. Angular is a popular front-end framework created by Google. Several key features of Angular include two-way data binding, component-based development, modular, and animation support. Based on these features, Angular is the best choice for developing a highly scalable, user interactive, and responsive interactive applications like the Interactive Resume Application described in this paper.

This paper has described the design and development of an Interactive Resume Web Application using Angular. The proposed solution contains several resume segments (Home, Projects, Experience, and Contact) each to be dynamically displayed in the application with nice ecosystem transitions. The intended outcome would run on various devices and provide the end user with a professional interactive platform that supersedes the limits of a static resume as well as provide interaction, style, and scale to the application.

What is an interactive resume?

An interactive resume is a digital resume, in web format, which allows users to navigate through the resume via dynamic components, animations and responsive design across sections such as skills, projects and experience. Interaction adds a level of engagement, personalization, and professional presentation not available in static documents, but it does more - it combines and utilizes modern web technologies.

Top roles are:

- Candidate (Owner/ Creator): The individual creating and building the resume to demonstrate their profile.
- Recruiter/ Employer (Viewer): The end user that will use the resume to evaluate the candidate's skills, projects, and experience.

Key functionalities

- Home Section: Including a candidate's profile photo and introduction, and entry point to resume.
- Projects Section: Showcasing projects completed at the academic level, while displaying projects completed at a professional level, generally with description, links, and images.
- Experience Section: Describing work/experience history, typically with jobs, or internships, or other work roles. It will normally have a reveal function to use as an interactivity.
- Contact Section: This includes forms or links to be able to communicate (e.g., email, LinkedIn, GitHub).
- Animations & Navigation: Allow for some type of smooth transitions, builds of buttons, and responsive, smooth design elements, and the user engagement should be considerably higher.

Review of Literature

The change in resumes from paper to digital and web-based is indicative of the increasing impact of technology in hiring. Early digital resumes in PDF or Word formats were an improvement in terms of accessibility, but they were made poorly and not interactive. [1]Research on human–computer interaction and usability on the web indicates that interaction, animation, and structured content increase user experience and recruiter interaction significantly.[2] Research also found that using responsive and progressive-disclosure content, along with importing content from community-based sites such as LinkedIn and GitHub to increase authenticity from the hiring candidates perspective, could make a candidate stand out in a competitive hiring landscape.[3]

From a technical point of view, the advent of front-end frameworks such as Angular, React, and Vue has made way for modular, scalable, and interactive resume applications development. [4]Angular, has easily adapted to interactive resumes, and with its component architecture, routing, and animations was able to represent the major resume sections Home, Projects, Experience, and Contact all with sophistication.[5]Prior works from researchers and practitioners on non-linear digital resumes and interactive online portfolios have demonstrated all these components: increased presentation, improved accessibility (non-linear), yet still demonstrated extremely simplistic personalization, poor smoothness of interactivity, and are not in most cases connected to applicant tracking systems.

Among the surveyed systems, recurrent weaknesses have been identified:

- Few systems exist utilizing Angular, with most literature focusing on React.js or static templates.
- Limited backend, many were using static content instead of JSON/API based dynamic resumes.
- No interactive features, no skill charts, no animations, no gamification to attract recruiter engagement.
- More focus on portfolios and ultimately their longer form content than on the shorter format and the added interactivity of resumes to the facilititation information for recruiters.
- No real time updating, and resume content could update dynamic, from the backend.
- Limited research on recruiter usability/evaluation, mostly research/studies based technical implementation only.

Methodology:

Technology Stack Overview

Angular: Used for developing the front-end Single Page Application (SPA) and creating reusable resume components.

User Roles: candidate, viewer.

Firebase Hosting: Used to deploy and host the interactive resume with global accessibility

Features: Dynamic rendering of resume sections (Personal Info, Education, Skills, Experience, Projects).Data stored and fetched from Firebase in real-time.

Existing Methodologies

Typically a traditional resume is created as a static document format like Word or PDF. These are simple to share and distribute but are non-interactive, unable to include animations, or perhaps most importantly, engagement. Template online web builders like Canva or Zety offer better design options, and formats but are still limited in functionality and personalization.

Some candidates will also utilize their personal websites, or simple portfolios, but again only use very basic HTML or CSS creating pages that provide little scalability and poor integration with platforms like LinkedIn or GitHub. All of these options serve as examples of the limitations of existing options and demand for newer resume applications that provide much more dynamic, user-friendly experiences.

Proposed Methodology Using Angular

The Interactive Resume is built using the component-based, modular design of Angular, with sections for Home, Projects, Experience, and Contact created as buildable components. This modularity will also help when the Interactive Resume needs updating, maintaining, or when new sections are added as the candidate gains new experience. Candidate information (including projects and experience) is built from structured JSON files, or received dynamically from APIs to retrieve data like GitHub project data or a job database for career history to ensure the information on the resume, as much as possible, is current and correct without constant manual changes, too.

The Animation Module of Angular was used to enhance user experience with transitions and effects and to provide opportunities for user interaction by clicking buttons and controls that will reveal the sections of Projects and Experience that were hidden before. The design uses CSS Flexbox, CSS Grid, and Angular Material for responsiveness across desktop users, tablet users, and mobile users to allow any recruiter the ability to view the application interface. Additionally, Angular Router made possible the ability for the user to go from component to component smoothly instead of reloading everything on the page as traditional static resumes do, too, to enrich the user experience.

System Architecture

The system configuration of the Interactive Resume Application follows a typical client–server framework and integrates Angular as the front-end framework with Firebase as the back-end service provider. The application shares system configurations that are modular, scalable, and real-time capabilities of synchronous data.

Development Process

- Users can access the interactive resume via computer and mobile device web browsers.
- The candidates are able to create, edit, and update the resume details, while recruiters can view the resume synchronously and dynamically.
- Developed as a single-page application (SPA) by using Angular.
- Contains the following modular components (Header, Skills, Education, Experience, Projects).
- Implements data binding to call resume particulars from Firebase in real-time.

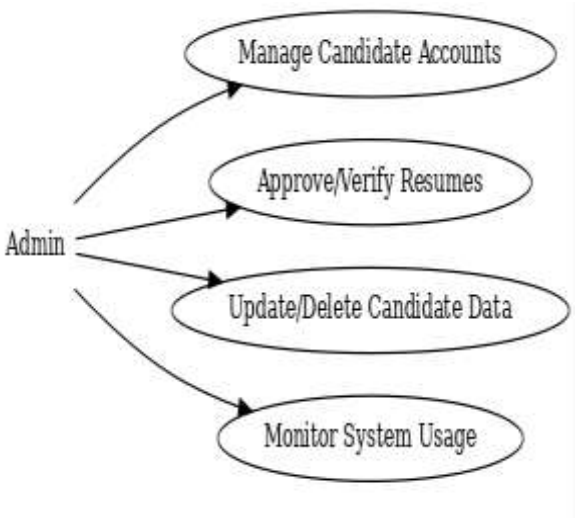

Figure 1: User Use Case Diagram

Results

The Interactive Resume Application was built using the Angular framework with Firebase used as its back-end. The objectives of providing the applicant with a dynamic, easy to use and responsive way to build resumes using real-time data management were accomplished. The information from the resume (candidate's personal information, education, skills, projects, and experience) was exported and stored in Firebase and imported into the Angular interface for dynamic rendering. The web application hosted in Firebase Hosting provided the applicant the benefits to share their resume in a secure, sharable web link, allowing access to anyone in the world. Responsive Design ensured the applicant's resume is adjustable, and easily visible on desktop, tablet and mobile devices. The Interactive Features of skills charts, progress bars, and experience timeline provided a level of engagement for recruiters, beyond the typical (paper-based) static resume format. Real-time Updates provided applicants the opportunity to change their resume stored in Firebase, within seconds those changes could appear live on the Angular application.

Comparison Table:

Criteria	**Traditional Resume (PDF/Word)**	**Online Resume Builders**	**Proposed (Angular+Firebase Interactive Resume)**
Data Storage	Static, stored locally	Limited cloud storage	Cloud-based (Firebase) with real-time updates
Accessibility	Requires sharing files manually	Link-based access	Hosted on Firebase, accessible anytime via secure URL
Scalability	Not scalable	Limited	Highly scalable with Firebase backend
Deployment	Not deployable	Platform-dependent	Firebase Hosting with global CDN support

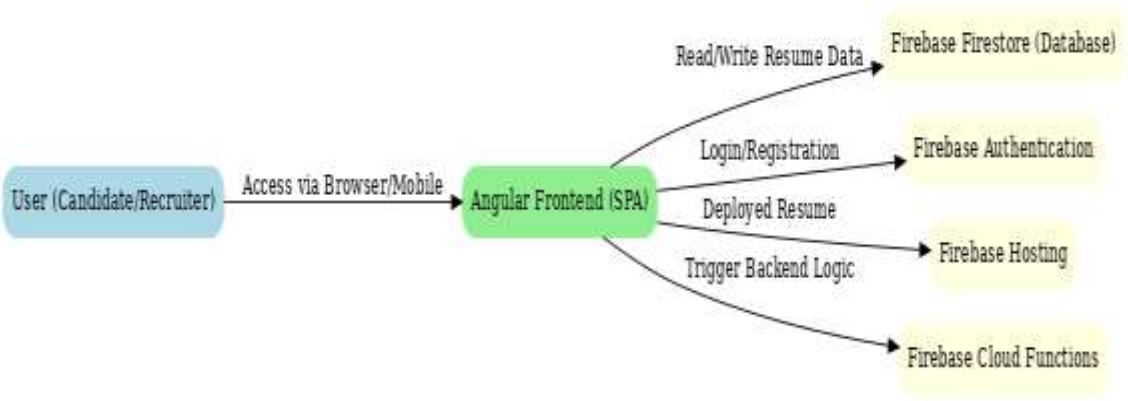

Figure 2: Block Diagram

Advantages of Using angular in Interactive Resume

- Each section of the resume (Home, Projects, Experience, Contact) is created as a reusable component.
- This allows for simplicity in maintaining the application and will make it easy to add new sections in the future, as well as, however simply to update and synchronize data from the model to the view, which automatically will remove the tears.
- These will ensure that when an update is made (for example, adding a new project in Firebase), the change is echoed immediately in interface
- This provides an optimized browsing experience for recruiters!

Conclusion:

The Interactive Resume project illustrates how Angular and Firebase can revolutionize conventional, professional resumes. The component based framework enables modularity, scalability, responsive design, smooth routing, and interactivity through animations to enhance the experience for both applicants and recruiters in contrast with traditional resumes that remain still in an static and inflexible format. The application can leverage dynamic data to support the notion that project and experiences data could remain in Firebase and be fetched in real-time, meaning that your content is always relevant and up-to-date as opposed to manual and repetitive changes to a traditional classic document.

Theoretically and practically, this work suggests that modern front-end frameworks coupled with cloud-based back end solutions can be leveraged as very effective personal branding applications. With Angular and Firebase you have very secure, scalable, and interactive frameworks and applications that are suited to the digital recruitment landscape. The system would act as a launch point for future research and features. Potential refinements and enhancements could look at incorporating API's from LinkedIn/GitHub, AI suggestions for content, with brief analytics to measure recruiter engagement. All indicating the generalizability of the concept of the project, with contributions to knowledge and practice in interactive resume systems.

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