

**DESIGN AND IMPLEMENTATION OF WEB BASED WEBSITE:
AUTOMATED PORTFOLIO CREATION**

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FINAL YEAR DESIGN PROJECT REPORT

This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

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DHAKA, BANGLADESH

July 2024

APPROVAL

This Project titled “Automated Portfolio Creation”, submitted by Md Mursalin Khan and Nabir Hossain Nihal to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 15-07-2024

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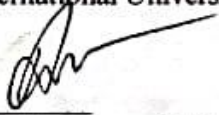
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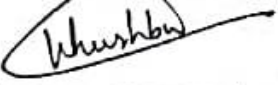
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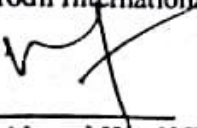
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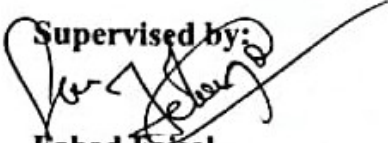
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DECLARATION

We hereby declare that this project has been done by us under the supervision of **Fahad Faisal**, Assistant Professor, Department of Computer Science and Engineering, Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for the award of any degree or diploma.

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ACKNOWLEDGEMENT

First, we express our heartiest thanks and gratefulness to almighty for His divine blessing making it possible for us to complete the final year project/internship successfully.

We are grateful and wish our profound indebtedness to **Fahad Faisal, Assistant Professor**, Department of CSE Daffodil International University, Dhaka. Deep Knowledge & keen interest of our supervisor in the field of “*Web Development*” to carry out this project. His endless patience, scholarly guidance, continual encouragement, constant and energetic supervision, constructive criticism, valuable advice, reading many inferior drafts, and correcting them at all stages have made it possible to complete this project.

We would like to express our heartiest gratitude to the **Dr. Sheak Rashed Haider Noori, Head of the Department of CSE**, for his kind help in finishing our project and also to other faculty members and the staff of the Department of CSE, Daffodil International University.

We would like to thank our entire course mate in Daffodil International University, who took part in this discussion while completing the course work.

Finally, we must acknowledge with due respect the constant support and patience of our parents.

ABSTRACT

Portfolio Builder is a new generation web-application which is aimed at providing effective tools for professional portfolio construction and job search as well as job application. To aid the users in this selection, portfolio layouts are available in many designs allowing the users to have their preferred portfolio designs that suit their proficiency and experience. The functionality of the platform involves the input of the personal information, the history of work experience, the experience in the projects, and the experience in skills with providing the real-time view of the final structure. Finally, users are able to export the portfolio in the format of their choice. Besides the portfolio creation, Portfolio Builder also contains a job search engine where customers can view and sort through the present job offers according to particular characteristics, including the locality, sector, and/or kind of work. It also has a good way through which individuals applying for jobs can apply directly on the site; the status of their application can also be viewed. Developed with the MERN stack, the front part of the web application uses HTML, Tailwind CSS, Daisy UI, and React.js along with the help of React-router for better location management and Redux for better handling of the application state. The backend, with the help of Node.js and Express.js, guarantees quick and proper work of the server, and MongoDB solves the problem of data storage competently. Portfolio Builder covers the objective of providing a complete solution for people who seek to improve their professional profiles and make career search easier and less time-consuming.

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CHAPTER 1

Introduction

1.1 What is Portfolio Builder?

Currently, recruitment and hiring for any job opening is highly rigorous and therefore the need to ensure that a portfolio meets all the requirements of today's job market. The conventional portfolio development processes might be and or not efficient, requiring a lot of time and do not meet the required level of personalization to fit the potential employer or client's requirements. This was a challenge that we have noted and, in a bid, to solve it, we have designed the Portfolio Builder which is an internet-based application that seeks to change the way practitioner portfolios are built, maintained and showcased.

It indeed has a flexible design since Portfolio Builder allows users to choose from one of the many layouts. This customization makes every portfolio look unique, and it might be the representation of their professional career. Real time preview is included and the general layout of the site helps in the creation of project description information, employment history, skills, and projects. Once a portfolio is compiled, the users are able to download it in a format of their choice awaiting to be used in the job interviews.

Apart from portfolio creation, Portfolio Builder offers extensive components of job search and application. It enables users to search for the existing jobs based on the set standards of the users, sort the results by one criterion, and save the applied for vacancies. The employment process is quite integrated, the users can directly apply for a job and attach to the well-made portfolios. Such an approach also makes the process of job searching easier while also making the chances of a user making a good first impression on the employer higher.

Portfolio Builder is not only a portfolio development application; it is an application that can be used throughout any post-secondary professional's career. Portfolio Builder integrates the three key areas of building a portfolio, searching and applying for jobs to help the clients present the best of themselves and work towards their dreams.

1.2 Motivation

The design of Portfolio Builder was informed by the realization of the difficulties plaguing the construction of excellent portfolios and the job search process. In the current world, one's online profile is highly relevant to the job search process, and thus, an effective portfolio is essential to grab employers' attention. General approaches to portfolio creation are also often rigid and do not meet the specific needs for presenting oneself strengths and accomplishments. Also, working in collaboration with people, the search for new vacancies and submitting job applications can be unorganized and take a great amount of time, which also results in potential openings missed and extra ways wasted.

Portfolio Builder was designed to tackle these issues as it ensures there is a single application that would perform all these tasks. This way, multiple layout options and the platform's user-friendly design allow the users to produce the portfolios that capture their career paths best. Also, incorporation of job search and application enhanced the career enhancement feature as users can search and apply for a job easily. Given the features of modern Web technologies, Portfolio Builder guarantees convenient and effective use; it can become a required element of the work of any specialist who is focused on the improvement of the Web presence as well as career growth.

Hence, Portfolio Builder endeavors to assist people by giving them necessary tools to market themselves and to search for jobs successfully in order to obtain the desired occupations.

1.3 Objectives

The main goals of this Project are:

Enhance Portfolio Creation: A tool needs to be created for professional portfolio with many choices of skin appearance. Let the users directly feed themselves and categorize the information regarding themselves, their experience, projects, and skills. Give small portions to be changed over on the portfolio of the users so that they get to experience the change instantly.

Simplify Job Search: Provide employment opportunity search algorithms with a basic

option so that users get an opportunity to see a wide range of vacancies depending on several combined filters that could be geography, branch, and the type of employment.

User friendly features: Make sure that the users are allowed to bookmark any position they find interesting in applicant tally.

Streamline Job Applications: Offer a smooth application feature that ought to enable the users to apply for a number of jobs within the site. Enable the users to associate the created portfolios with real job vacancies that would in turn enhance their stand a chance to clinch the hearts of employers. This needs to be complemented with an option that would enable the tracking of the status and history of the job applications for efficient working.

Utilize Modern Web Technologies: MERN stack framework entails MongoDB, Express, React, and Node, and these should be used in developing the platform.js, React.js, Node.js for scalability. For front-end development mainly, you should use HTML, CSS, specifically, Tailwind CSS DaisyUI, and React.js. Vue.js and Redux for designing the appealing and dynamic User Interface of the frontend. Minimize the crises of critical data and enhance the server side through the use of Node.js, Express.js, and MongoDB.

Empower Professional Growth: Assist the clients to come up with better and attractive portfolios to promote themselves on the internet. Create segments that would complement the user's professional growth interests by providing options on how they can search and approach the information submitted. Enable users to have assurance and effective ways of obtaining their desired employment to achieve their objectives.

1.4 Expected Outcomes

The expected outcomes for " Portfolio Builder " include:

It is expected that the Portfolio Builder is going to greatly improve overall OD experience in terms of constructing personal portfolios and searching for employment opportunities as well as for submitting applications for the vacancies. Since the users will have multiple template choices for the portfolio, they will be able to create good-looking and easy-to-navigate portfolios that present their skills and experiences in a way that grabs people's attention. The convenience of the integrated job search engine and being able to apply for a job without having to jump through hoops will make job searching easier for the user. Thus, users will obtain the desired exposure to potential employers and the probability of employment offers. In conclusion, Portfolio Builder is meant to help users to view themselves in the most professional manner and get or/and obtain a correlated career.

1.5 Project Management and Finance

Project Management:

The development of Portfolio Builder will incorporate a project management paradigm in order to complete it within a set time frame. The project will be divided into distinct phases: which are pre-planning, planning, analysis, design, implementation, and maintenance. The working specification, which will include more refined requirements, will be collected during the planning process, and the schedule will be set. The design phase will mainly involve designing the user interface/user experience as well as the design of the platform. The development phase will be done in sprints to adhere to Agile methodologies to allow formation of iterative feedback. After the development processes, the platform is to be tested through unit tests, integration tests, as well as the user acceptance testing. After that, the testing process will be completed, and the platform will be brought into use; the post-launch assistance strategy will be unveiled if there are any problems or user suggestions that need to be incorporated into the platform. Sustaining communication and status update will also be observed so that stakeholders are on the same stand with objective setting and achievement of the project goals.

Finance:

Portfolio Builder's resource consideration process includes the financial aspects of development, designing, testing, and deploying the software. Start-up capital is used for recruiting qualified personnel, particularly developers, designers, and project managers, other various necessary licenses, tools, and cloud hosting costs. Budget will also be set for marketing and promotion to get users once the application is launched, and operational expenses, for things like application maintenance, development updates, among others, will also be factored. Contingency funds will be set aside for purposes of handling any other incidents that may be unpredictable and will arise in the course of the project's life cycle. The economical control will involve frequency balancing of the project budget in order to ensure that the project implementation adheres to the set budget while, at the same time, delivering the most desirable product. Specifically, financial control and management would also be employed to ensure that the aspects of the project under consideration would be sustainable and scalable after its launch.

1.6 Report Layout

Developing a thorough report layout for " Portfolio Builder" entails organizing several parts to highlight the specifics of the project, its stages of development, its features, and its results. An outline for the report layout may be seen below:

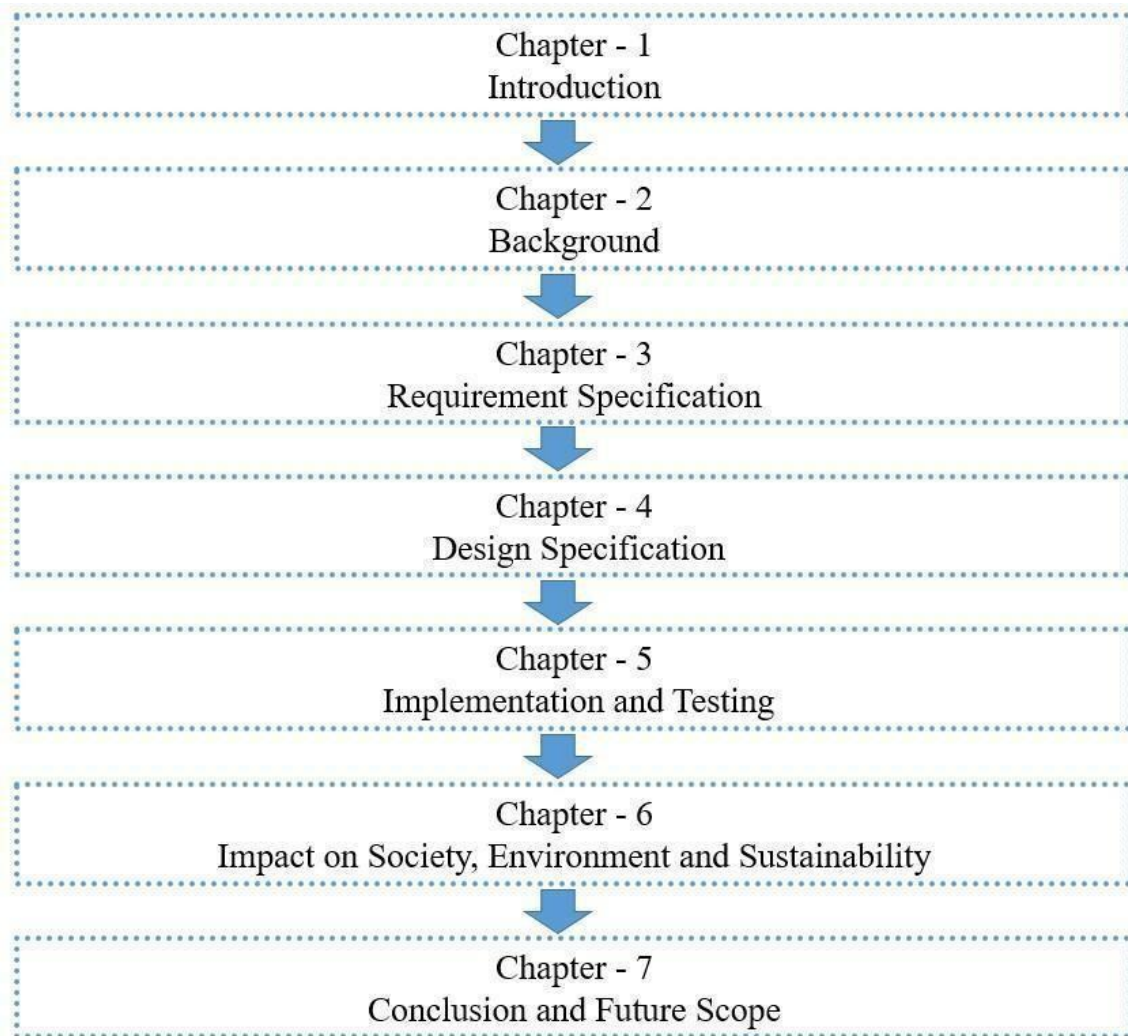


Figure 1.6.1: Report Layout of this Project

CHAPTER 2

Background

2.1 Terminologies

Here are terminologies related to "Portfolio Builder ":

Portfolio: A portfolio of Works, implementations, activities, and successes best used in a way to prove on job skills or accomplishments to an employer or a client.

Layout Options: Templates or layouts withing Portfolio Builder that a user has an opportunity to select and apply in different manner in order to structure and display portfolio contents.

Job Search Engine: An internal search functionality available in the context of Portfolio Builder that enables the users to set up the filters for the desired job vacancies that could be location, a particular industry, the job title, or any keyword.

Job Application: A mechanism that used users present themselves to employers directly by using a Portfolio Builder that requires completion of details about themselves and their portfolio in order to seek a particular job.

MERN Stack: MongoDB: a nonrelational database, more Express: a web application framework, and Node.js (backend web framework), React.js (frontend library) and Node Hence, the purpose of this paper is to present those aspects of Node.js ([J]run-time environment, for creating extant World Wide Web applications).

UI/UX Design: User Interface design is generally on the appearance of design of the complete platform, but User Experience design is more specific on the usability and interaction of the complete website and the positivity it holds for the users.

Backend: The Portfolio Builder contains a server-side that is responsible for receiving queries, processing them and sending queries and responses to the database, in this case MongoDB that provides dynamic content to the frontend.

Frontend: The portion of the Portfolio Builder that clients engage with; Developed using HTML, CSS, and, JS, including TailwindCSS and DaisyUI, for creating modern interfaces

Deployment: To make Portfolio Builder more publicly accessible it would be necessary to stand servers and environments, configure them and guarantee for the platform to be fairly as stable and ready to welcome the users.

Agile Methodologies: An approach and process of building software applications based upon the propositions of iterative development, evaluation and enhancement, adaptability and incorporation of end users within a project's life cycle.

2.2 Related Work

It is established that Portfolio Builder works amid numerous online portfolio creation services, job search, and the all-in-one career management platforms. Many other related services have similar capabilities and are available, all of which have different advantages and options.

1. LinkedIn: LinkedIn is another social media site that primarily works like a professional networking site where one can create a detailed profile of the user which will contain working experience, skills, and achievements. It also contains facilities for job search and application processes towards the concerned job vacancies. However, LinkedIn is somewhat different as it is primarily centered on connecting with other people and does not necessarily have a specialized feature that would allow the person to display potential projects in a way that would be most appealing to the employer.

2. Behance: Often artists and designers share their portfolios on Behance which is the part of the Adobe Creative Cloud. It provides user tailored portfolios and help the users in getting job offers in creative industries. As compared to Portfolio Builder, Behance is more inclined to artists and other creative sort of workers and does not include employment application solutions.

3. Wix and Squarespace: Website builders that have portfolio templates include Wix and Squarespace. It provides the ability to establish unique and individual websites with a

highly variant appearance. They offer great design freedom but contain limited links to the specific services of career management, including job searching and submission.

4. Canva: It is evident that Canva offers templates and features that can be used in designing good looking portfolios and resumes. They can easily be used by clients with no skills in designing due to the drag and drop option as well as the broad array of built-in templates. Despite that, it does not include search for jobs or application to jobs, which are essential functionalities of an ideal resume tool but it is aimed more at document generation.

5. GitHub Pages: GitHub Pages enables the developers to build personal profile web sites that are hosted on their GitHub repositories. This is extremely beneficial for displaying coding projects and IT aptitudes, yet it is, honestly, more complicated and does not have the ability to search for jobs and apply to them.

6. Job Boards (Indeed, Glassdoor): Services like Indeed and Glassdoor, have vast search options with the possibility of applying for a position. However, there is no functionality to build personalized portfolios; it is oriented mainly on posting job offers and applying for them.

2.3 Comparative Analysis

This is especially a highlight of Portfolio Builder as it aggregates in one site both the service to construct the portfolio, job search and application. Lastly, we present an analysis of identical services such as portfolio builder that would reveal the position that the service takes.

LinkedIn:

- ❖ Portfolio Builder: Used to have templates for the generation of individual portfolios and integrated employment portal and application.
- ❖ LinkedIn: It is very limited when it comes to the kind of profiles that can be

created and is more of a business-oriented professional network other than portfolio for artists.

- ❖ Advantage: Three big shifts that Portfolio Builder made to the options for building the portfolios.

Behance:

- ❖ Portfolio Builder: Improves various occupations by having different portfolios for templates, and also can search for a job.
- ❖ Behance: Mainly for creative workers and does not include some of the options that may be connected to job search tools.
- ❖ Advantage: Setting the fact that the Portfolio Builder consist of several professions and that the job application in question are interlinked also contributed to it being favorable.

Wix and Squarespace:

- ❖ Portfolio Builder: Designs many specific layouts for professional portfolios; furthermore, it has a job board and a built-in application tool.
- ❖ Wix and Squarespace: Offer a high level of design configurability, but none of them includes a search for vacancies and submission of resumes.
- ❖ Advantage: The various services included in the Portfolio Builder career management service are very numerous.

Canva:

- ❖ Portfolio Builder: Allows creation of portfolio of the applicant while at the same time applying for the job and submitting the portfolio.
- ❖ Canva: Does not have other main options for users which are the search for vacancies and filling in of CVs while initially it is a platform focused on design of documents and portfolios only.
- ❖ Advantage: An unbroken and all-encompassing malady of the professional progression aid of the Portfolio Builder.

GitHub Pages:

- ❖ Portfolio Builder: Very easy to use and does not need any programming knowledge; relevant for any type of business.
- ❖ GitHub Pages: It is advantageous to developers but disadvantageous to general

- users because its core is program codes; it does not relate to job search/application.
- ❖ Advantage: Which is mainly due to the fact that it can be utilized and encompasses all the essential features required by a non-technical user for portfolio creation.

Job Boards (Indeed, Glassdoor):

- ❖ Portfolio Builder: This one amalgamates job search and portfolio creation where the users can directly apply using their tailor-made portfolio.
- ❖ Job Boards: Power search functions for jobs but there is no feature of building or customizing a portfolio.
- ❖ Advantage: Portfolio Builder has clean integration models of portfolio construction of job site for job search and application for every portfolio to fulfill their customer's requirement.

2.4 Scope of the Problem

Today, more than ever, professionals find it incredibly difficult to come up with argumentatively sound portfolios that would present one's strengths and achievements. The conventional techniques do not offer the right degree of customization and are not easy to use which in a way results into uninteresting formats of presentations. Employers, for their part, commonly have a disorganized and dispersed job posting and application pipeline that leads candidates through disunited channels, which wastes people's time and resources. Apart from wasting so much time this approach lowers the opportunity of making a good first and/or second and/or third impression to the potential employer. The absence of a convenient and useful application interconnecting the creation of one's portfolio to job search and application services only adds to these problems, underlining the importance of a single platform like Portfolio Builder in the professional development and career progression schemes.

2.5 Challenges

I think that the major goal in creating the Portfolio Builder is to combine several features that may be useful for users, such as the possibility to build a customized portfolio, the tools for the efficient job search, and the multiple application forms, in one application without creating discomfort for users due to a large number of functions in the application interface. Another challenge relates to varying needs of different categories of users who vary in terms of requirements as to the degree and type of customization and problem complexity. Also, it remains imperative to sustain high performance as well as protect sensitive data of the users and job application details are amongst some of the core priorities. Another challenge is to design for multiple platform compatibility and adapt to fit; this requires different devices' compatibility feature to offer the same usability experience. Addressing these issues, much more detail on how every step should be taken, specialist knowledge, and constant input from the target users regarding the improvement of the platform's functions.

CHAPTER 3

Requirement Specification

3.1 Business Process Modeling

Business process modeling in respect of Portfolio Builder is the representation of the system that entails the modeling of the complete process of building a portfolio, job searching, and applying for the posts. The process starts with user registration and personal data input; further, a portfolio layout can be chosen, and professional information such as working experience, projects, and skills must be inserted. Users can then continue to preview and make specific changes before using the portfolio tool as a way to present their collection. Upon their completion, the portfolio and resume can be downloaded and, at the same time, utilize the integrated job search option to match the desired jobs. The application of job vacancies is made easy, users can simply apply for the job through the website by attaching their portfolio and follow up on their application. The integration of the portfolio management with the tools for career advancement in this all-encompassing model guarantees a complete continuity of the processes and a smooth transition from one step to the other.

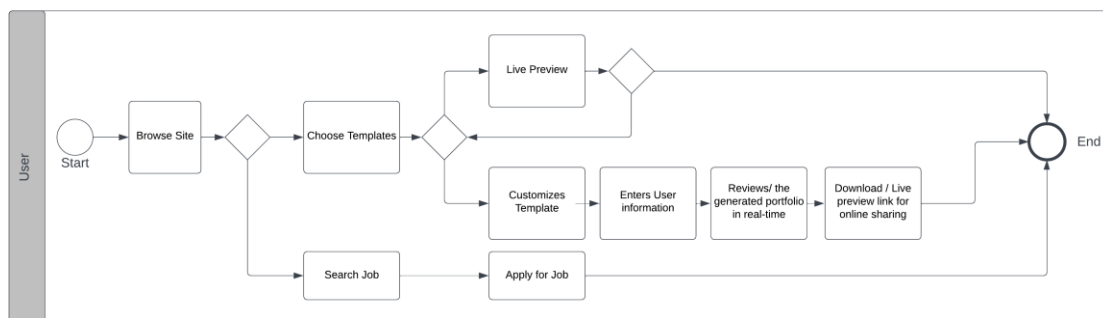


Figure 3.1.1: Business Process Modelling

3.2 Requirement Collection and Analysis

Requirement Collection and Analysis for "Portfolio Builder" involves a systematic approach to gathering and understanding the needs of system administrators, organizers, and customers. Here's an outline of the process:

1. Stakeholder Identification:

- ❖ Primary Users: Employees who apply for a new job and customers who want to find a job and employers and students who want to build their portfolios also.
- ❖ Secondary Users: Job seekers, who will be able to view a portfolio and employers and recruiters who will be able to post jobs.
- ❖ Development Team: Da-front end developers, backend developers, UI/UX designers, project managers.
- ❖ Support Team: Consumer care, staff of marketing departments, and directors of sales.

2. Functional Requirements:

- ❖ User Registration and Authentication: Creating accounts and ensuring users can register, access, and readjust their profiles and general settings is allowed.
- ❖ Portfolio Creation: There are many kinds of layout that users can select. A user can input new data and modify the existing one concerning personal details, employment history, projects, and skills. Real-time preview of portfolios.
- ❖ Download Portfolio: It also lets the users download their created portfolios in the PDF format.
- ❖ Job Search: One can search through the job post either based on location, the type of job one is seeking and the sector. Save favorite job listings.
- ❖ Job Application: The aim is to meet this challenge by having unemployed applicants be able to directly apply for any available job through the platform. Link creates portfolios to the employment places. Status of an application and record of its activity.

3. Non-Functional Requirements:

- ❖ Performance: This is due to the fact that the platform design has to be easily accessible, as well as able to manage multiple users at once.
- ❖ Security: Encrypt data related to users and the applications to ensure that they are safe.
- ❖ Usability: Easy to use with the features arranged in a convenient and easily comprehensible way.
- ❖ Scalability: The platform should scale in terms of the number of users and generated data.
- ❖ Compatibility: This website can be viewed using platforms such as a PC and a Smartphone.

4. Technical Requirements:

- ❖ Frontend:

Technologies: HTML, CSS, especially Tailwind CSS and its UI library – DaisyUI, JavaScript, React.js, Redux.

- ❖ Backend:

Technologies: Node.js, Express.js

- ❖ Database:

Technology: MongoDB.

Hosting and Deployment: Cloud-based hosting solutions.

5. Analysis:

User Interviews and Surveys: Advertise potential users to know how they feel with having to daily use the Smart Charger and seek their opinion.

Competitive Analysis: Evaluate current solutions to reveal their assets and liabilities as well as the deficiencies of current approaches.

Use Case Scenarios: Identify specific use cases to depict the users' actions and needs in order to achieve better understanding of the proposed solution. Wireframing and Prototyping: Use wireframes and/or prototypes to test the design and features with stakeholders.

3.3 Use Case Modeling and Description

Use Case Modeling for "Portfolio Builder " covers situations such as many layouts and job offer section. Every instance describes how system administrators, organizers, and consumers interact with one another, outlining certain features and user roles in the platform's process.



Figure 3.3.1: Use Case Diagram.

3.4 Logical Data Model

"Portfolio Builder" has a logical data model with the following entities: users, portfolios, templates, jobs, and feedback. Interactions are defined by the relationships between these entities. Users manage and customize their portfolios, which include personal information, education, work experience, and skills. Templates offer predefined structures for easy customization. The jobs entity includes job listings that users can search for and apply to. The platform showcases templates, with plans to add premium templates in the future. Feedback collects user input for continuous improvement. These entity attributes gather essential data, creating a robust framework for portfolio building, job searching, and user engagement.

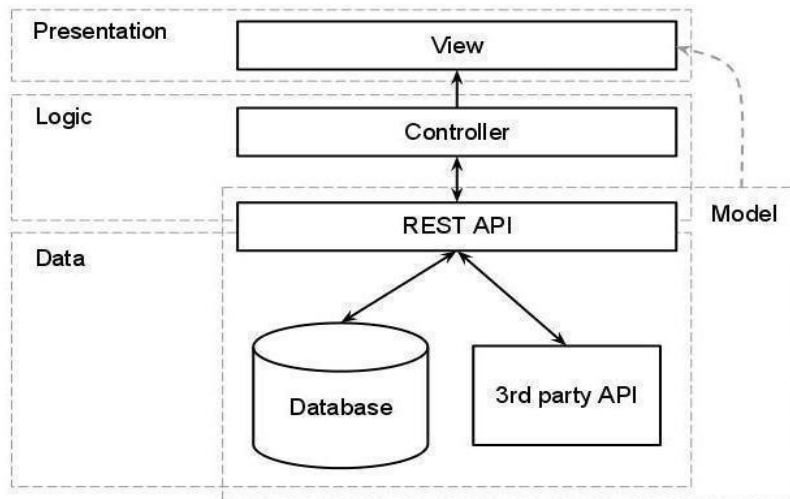


Figure 3.4.1: Logical Data Modeling.

3.5 Design Requirement

Design requirements for "Portfolio Builder" encompass various aspects to ensure an effective and user-friendly system:

User Interface (UI) Design:

- ❖ **Intuitive Navigation:** Make sure that the navigation remains intuitive and efficient in order the users to have the leverage of easily accessing some sections of the website like creation of portfolio, job search and application tracking.

- ❖ Responsive Design: Make it fully responsive so that the design as well as the content of the platform should function and look great on desktop and laptop computers, tablet computers, and mobile devices.
- ❖ Aesthetic Appeal: Make use of modern design styles that are neat and professionally built. Despite this, the application should have a good user interface which should be achieved by using Tailwind CSS alongside DaisyUI.
- ❖ Customizable Templates: Prepare many specific portfolios structure designs and allow clients to add tags including basic information, experience, projects, and skills on their portfolio.
- ❖ Real-time Preview: Build the possibility when a user enters some data or changes it, he or she can immediately observe changes in portfolios.

User Experience (UX) Design:

- ❖ Simplicity: Ensure the user interface is briefly created in such a way that one does not have to undergo a number of processes, for instance, creating a portfolio or next to the job application.
- ❖ Customization: The portfolios to be more individualistic with different format, styles and areas where you can add pictures & text ease the users' real lifestyle & career.
- ❖ Guided Process: A guided flow should be designed as supplemented with tooltips and reminders that will assist people in completing the portfolios and having position's application.
- ❖ Error Handling: It should also have inviting error messages to enable the users correct any error or missing information.
- ❖ Performance: Make sure that throughout the process of acquiring an overall impression in front of the audience, the interaction is as fast as possible to eliminate any kind of delay.

Functional Design:

- ❖ Portfolio Creation:
- ❖ Templates: Provide many design layouts that are unique or different that the users

can then pick from and adjust.

- ❖ Sections: Some of the common areas to be provided in an individual's CV are personal details, employment history, details of the projects they have worked on, skills and knowledge, education and other relevant details.
- ❖ Media Integration: Enabling the users to upload picture, photography, and any other form of user information they may want to include in the portfolios.

Downloadable Portfolios:

- ❖ Formats: Let the users view their portfolio completion results in different format that includes the pdf format.
- ❖ Quality: Ensure that when portfolios are being down loaded, they are in a position to maintain proper formatting features and designing.

Job Search:

- ❖ Filters: Some of them are location, industry, the job's description, level of experience or any other factor that can be suitable for a candidate search.
- ❖ Search Results: List the job opening in the simplest way possible and as much details as possible is placed in large fonts at the side bar.

CHAPTER 4

Design Specification

4.1 Front-end Design

The front-end design of Portfolio Builder is focused to be visually appealing and user-friendly thereby making it easy for the user to navigate through the website. Built with HTML, CSS (TailwindCSS), and JavaScript (React.js), the aesthetic appearance of the design also focuses on the user experience to be as smooth as possible for the user.

Factors to consider are: It is desirable that most of the elements of the design are similar, the site is accessible to all users, performance should be high when viewed at different devices and with different resolutions. Real-time elements for the previewing of portfolio and the other features such as interactive job searching are incorporated to captivate the users. By focusing on usability and visual aspect, the front-end of Portfolio Builder is going to help people to build their portfolios and resumes, search for jobs, and apply for them with ease, thus allowing individuals to present their professional accomplishments to potential employers with confidence.

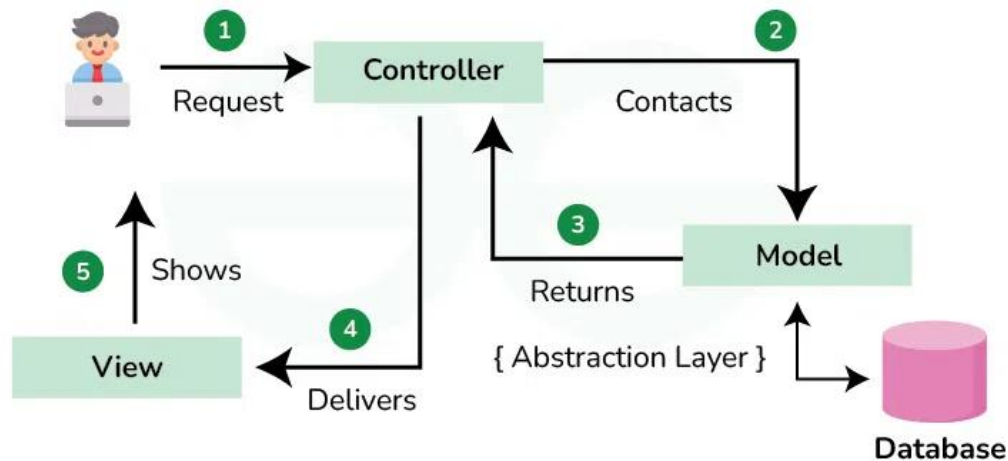
4.2 Back-end Design

The back-end design of Portfolio Builder is focused on Node.js with Express.js, which forms the basis of effectively implementing functionalities on the server side and work on the management of data. MongoDB is used for database management which means that many user profiles, portfolios, job list, and applications can be stored without limitation of space and with great flexibility. The back-end architecture centers itself on how to design APIs that will best complement the front-end in as much as there is need for functionalities like authentication, portfolio, custom search algorithms, and processing of applications.

To streamline the user authentication process, Firebase is integrated, offering traditional email/password sign-ups and logins, as well as social logins via Google. This integration ensures that users can easily and securely access the platform. Using these technologies and methodologies, back-end structure of Portfolio Builder is designed to provide users

with the secure, efficient, and high-performing platform for organizing the professional portfolios and achieving professional objectives successfully

Figure 4.2.1: MVC Architecture.



4.3 Interaction Design and User Experience (UX)

To achieve a simple, fluid experience throughout Portfolio Builder, interaction design and UX are critical components. Interaction design defines the specific procedures and processes concerning interface and interaction from the perspective that will be applicable to how the interface and interaction should be done in a way that is both easy to use and fun for the users. This covers such areas as; creating seamless user experience procedures that can accompany the creation of portfolios, job search process and application for the jobs.

Generally, there key steps that are followed when designing a product with an aspect to UX design:

- ❖ User Research: User personas and the user journey and user flow maps to understand target users' needs, activities, and or frustrations and what to provide and incorporate in the solutions.
- ❖ User-Centered Design: Managing the process by creating for yourself a working

specification that all decisions made will have to meet in terms of how useful, easy to use, and pleasant to use it will be to the end-user.

- ❖ Wireframing and Prototyping: Organizing sketches and mock-ups to explain the rationale for choosing the layouts and interfaces' designs; enhancing the overall I in interface design given the feedbacks and tests incurred during the development process.
- ❖ Visual Feedback: It deals with icons, graphics, blinking, and all the other principles of providing feedback of the event to the user, which is started by the user or the state of any event or information that has been indicated to be stored in the system.
- ❖ Consistency and Standards: Making sure that the users do not have to spend a lot of time searching on which part of the system resemble or is similar to other systems that they are familiar with and on where definitions used are different or new to them.
- ❖ Accessibility: Making the platform accessible for all the users and adhering to all accessibility guidelines and often giving more than one option of how to find the page as well as providing text for non-text content.

4.4 Implementation Requirements

The following technical, operational, and developmental elements are included in the implementation requirements for "Portfolio Builder":

Front End Technologies:

- HTML
- CSS
- Tailwind CSS
- DaisyUI
- React
- Redux

Back End Technologies:

- Express js
- NoSQL
- Mongodb

Tools:

- Node js
- Composer
- Web Browser
- Visual Studio Code (*IDE*)

CHAPTER 5

Implementation and Testing

5.1 Implementation of Database

By using Database Tables, the application can effectively store, manage, and retrieve data, providing a reliable foundation for the application's functionality and ensuring data integrity, security, and performance.

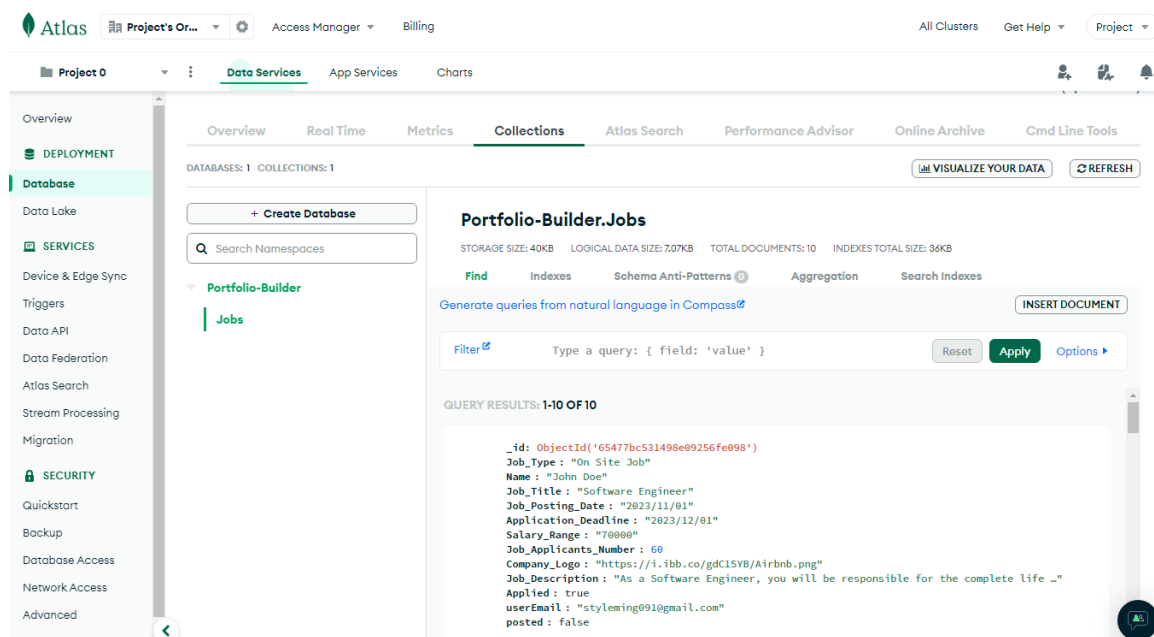


Figure 5.1.1: Database Architecture.

5.2 Implementation of Front-end Design

The front-end design of Portfolio Builder" focuses on creating an intuitive and responsive interface, enabling easy navigation, personalized Course and software planning, and efficient management for users worldwide

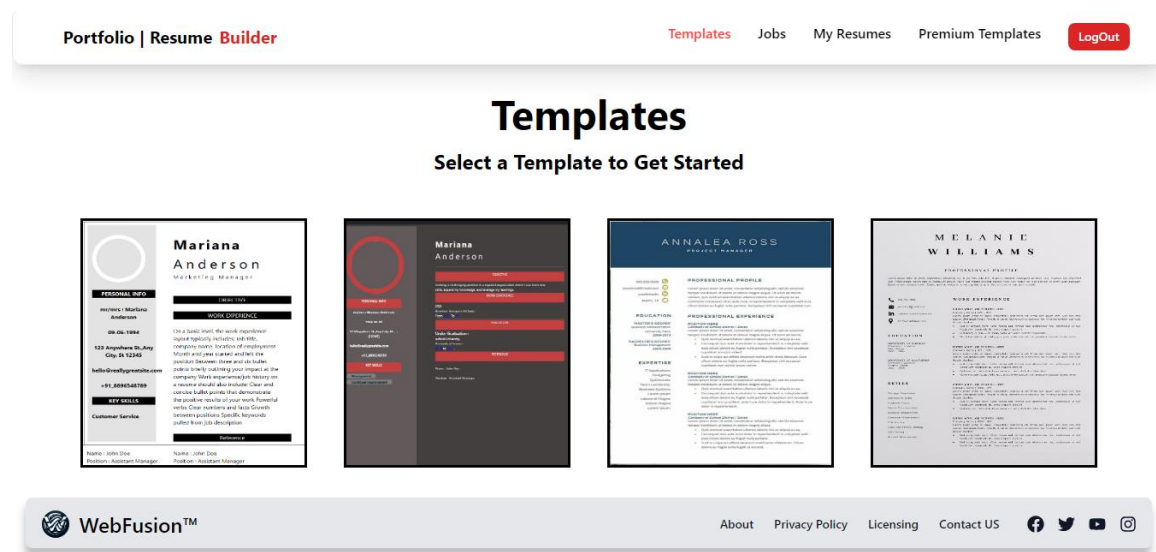


Figure 5.2.1: Home Page Design.

This is the home page of Portfolio Builder. Here show some options such as Login option, Template selection, Premium templates, Job list, Contact us, social media links, Discussion Forum, etc.

Find your Dream job by category

All Jobs
On Site Jobs
Remote Jobs
Part Time
Hybride

Posted By	Job Title	Job Posting Date	Application Deadline	Job Applicants Number	Salary Range	Details
John Doe United States	 Software Engineer On Site Job	2023/11/01	2023/12/01	60	\$70000	details
Jane Smith United States	 Data Analyst On Site Job	2023/11/02	2023/12/02	52	\$80000	details
Alice Johnson United States	 Web Developer Remote Job	2023/11/03	2023/12/03	61	\$90000	details
Bob Williams United States	 UX Designer Remote Job	2023/11/04	2023/12/04	57	\$100000	details
Daisy Miller United States	 Graphic Designer Part Time Job	2023/11/06	2023/12/06	35	\$35000	details
Mark Hedson United States	 Graphic Designer On Site Job	11/07/2023	12/02/2023	4	\$74000	details

Figure 5.2.2: Job listing Design.

This page is Job listing of Portfolio Builder. And this page shows many jobs list posted by company when customer can find their desired job and apply.

Preview of our upcoming premium templates, tailored for various industries and roles, designed to enhance your professional presentation. Our premium templates will be available in both free and paid versions, offering essential and advanced customization features.

Stay tuned for updates and be the first to access these new templates.

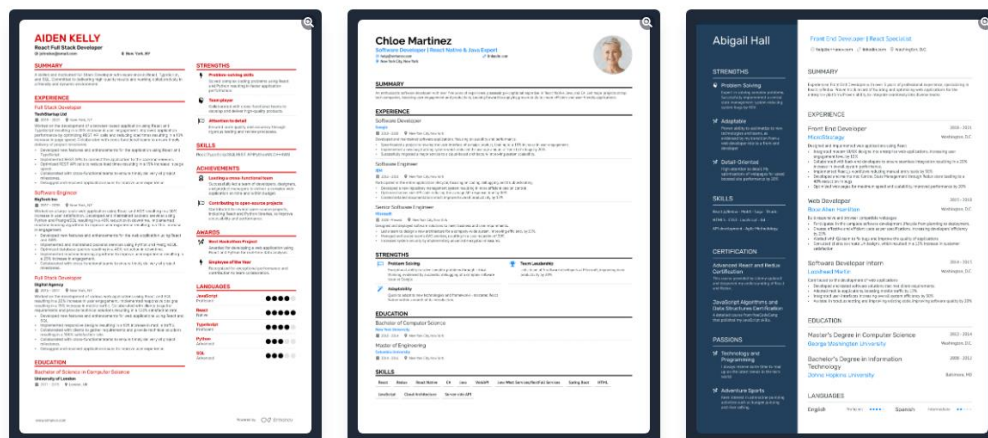


Figure 5.2.3: Upcoming Premium Templates

This page is the Upcoming Premium Templates of Portfolio Builder where our future upcoming premium templates are shown.

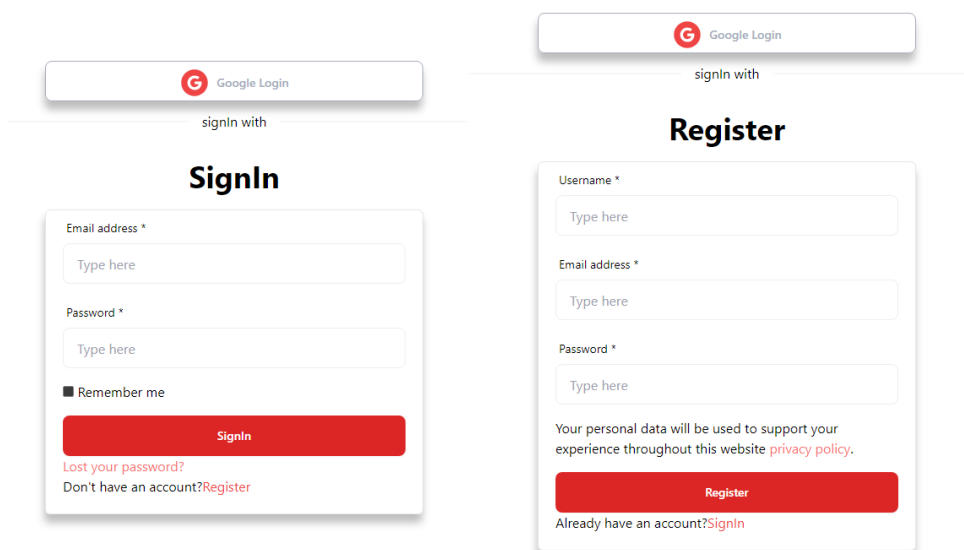


Figure 5.2.4: SignIn and SignUp page

This page is the SignIn and SignUp page of Portfolio Builder where user need to signup and signin to access our platform.

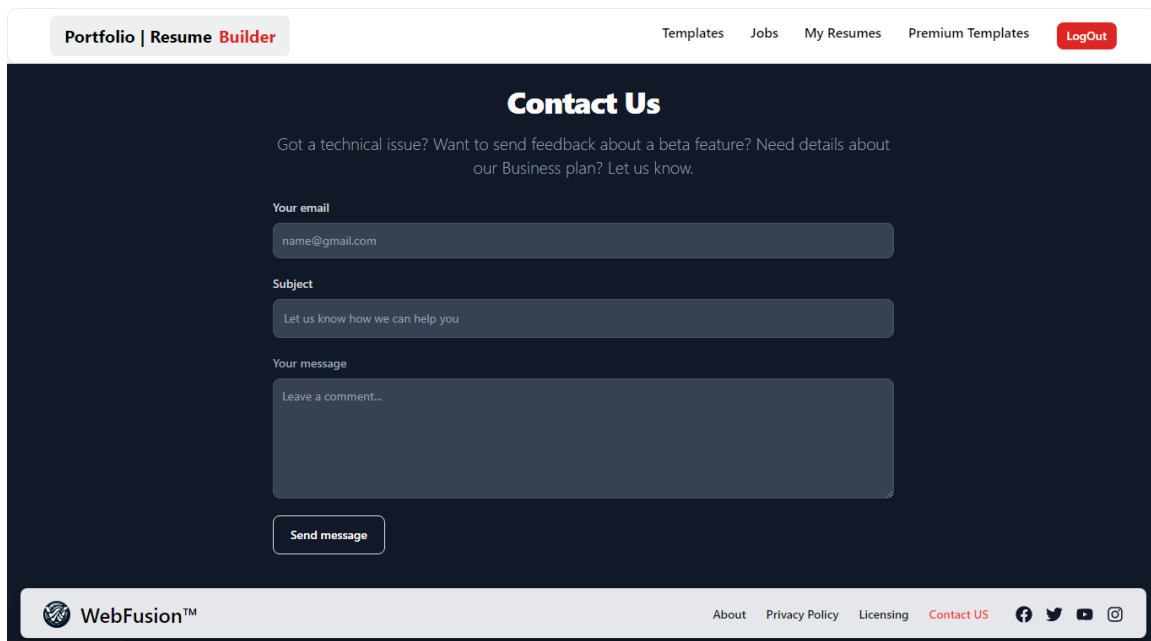


Figure 5.2.5: Contact US

This page is the Contact US of Portfolio Builder where user can connect with us, share their valuable feedback and idea

5.3 Testing Implementation

An organized strategy is used in the testing implementation for Portfolio Builder" to guarantee the platform's performance, security, usability, and usefulness. This is a summary of the testing protocols: The testing implementation for Portfolio Builder includes the strict procedure which must consider and guarantee proper functionality, high performance, and staff and customers' security along with a comfortable and satisfying user experience. This entails unit testing in isolation of elements, integration testing of sub-modules to ensure that they communicate correctly, end to end testing where the user process of using the applications is tested, performance testing to test the application's functionality under different working conditions, security testing to ensure that private information of the users is protected, and usability testing where the best way the user is to interact with the application is established. When practicing these development methodologies for testing consistently during development, Portfolio Builder expects to

provide the professionals within portfolios with a system that is reliable and user-friendly for the management of the portfolios in career development.

5.4 Test Results and Reports

Once specific projects under the work Portfolio Builder are tested, complete test results and detailed test reports are prepared depending on the assessment results to check its compliance with the set quality standards. These reports involve details of unit tests showing the effectivity of the particular units, facts concerning integrated tests confirming the compatibility of the different parts of the program, and facts concerning end-to-end tests which check all the performance of the program from the generation of the portfolio to the submission of the job application. Some examples of the findings of performance test reports are information on the ability of the platform to handle various loads, and security test report captures measures that have been put in place to protect information belonging to the various users and transactions from fraudulent access. Usability test reports involve data on the impressions of the interface design and structure as well as the navigation in order to make improvements. Through these tests and reports the Portfolio Builder corrects all the presented issues making sure that it provides maximum functionality, performance, security and user-friendliness before it is available for users to test.

CHAPTER 6

Impact on Society, Environment, and Sustainability

6.1 Impact on Society

Enhanced Career Opportunities: It also assists in the displaying of skills and experiences since; it avails its users with professional/stylish portfolios to get the jobs or some concern. For this reason, it can improve its access to employers with an interest in the charming jobs that the attractive occupations presentation outlines and, consequently, improved employment possibilities and employment prospects.

Skill Development and Showcasing: Furthermore, it surrounds the concept of presenting one's skills and achievements in a very orderly way that can be demonstrated. It also helps the professionals to get an idea on how better they can brand themselves and at the same time fashions a culture of skill and general improvement in one's career.

Accessibility and Inclusivity: Ease and, moreover, aesthetic appeal of the layouts as well as more varied portfolios offered within the Portfolio Builder impressed and met students', freelancers', job seekers', and people of the other categories' needs and expectations. This may ensure that there is protection of the "less fortunate" or "minority" in the community for them to be given a chance for promotion in their career and thus a noble strategy to integrating diversity within organizations.

Efficiency and Productivity: Besides helping make the organization of portfolios less of a challenge to undertake, Portfolio Builder also saves the users of the service from having to look for jobs on the This efficiency makes it possible for people to perform more on the career development activities than the time that would be spent on other administrative chores hence increasing on the productivity and job satisfaction levels.

Educational and Institutional Impact: In some cases, a portfolio is assembled for depicting students' choice process in a particular school or training course like universities and training centers, can use the Portfolio Builder to inform students how they can construct a portfolio in addition to a career path plan. This empowers the future generation manpower

with the right knowledge and skills on how to competently and efficiently secure a job in the employment domain.

Economic Growth: Therefore, Portfolio Builder enlightens the role of economic development through the interaction between the candidates and employers with no barriers. Recruitment enables organizations to incorporate layouts that enhance the process of hiring technical individuals, thus boosting invention and effectiveness.

6.2 Impact on the Environment

The responsibilities of Portfolio Builder regarding influence on the environment mostly concern its essentially virtual nature, which allows for fewer impacts than paper-based analogues. Through providing the function of portfolio creation, job searching, and applications online, Portfolio Builder eliminated the use of writing materials including paper, ink, and transportation from the conventional job application procedures. This digital approach helps in conservation due to the following: minimization of usage of paper, transportation of papers leads to emission of carbon, and environmentally friendly professionalism is developed. Furthermore, Portfolio Builder allows users to work remotely and minimize the requirement for offices by providing efficient employment matching; thus, it promotes environmentally friendly workspaces and contributes to the fight against climate change. Therefore, Portfolio Builder prolongs career expectations and upholds environmentalism by eradicating paper work and other effects from conventional job applications.

6.3 Ethical Aspects

The major components of Portfolio Builder are ethical since this is the guideline by which the platform is built and regulates the actions of both the company and the users for their advantage.

First of all, the principles which should be applied are User Privacy & Data Protection. Users' privacy protection is significant for Portfolio Builder, that is why there are such features as data security measures like encryption, data storing, and periodic security check. As for the privacy aspect, the only thing that is evident is that the sites have their privacy policies where they clearly state the practice that concerns data and ways on how the user could express his or her consent regarding his or her personal data. This commitment privacy not only assists in the formation of trust with clients it is also ethical to send to admit autonomy and confidentiality.

Secondly, as would be expected from a firm that has stated that policy, both Equality, and Non-Discrimination principles are upheld to the highest standards. When recommending jobs and when applying for them, stereotypes will be avoided and the emphasis will be made on the equal opportunities. All the algorithms are intended to act as fair algorithms and recognize merit as the only relevant factor and disregard the users' background, race, sex, color, or disability. This preventive approach to discriminating against its clients is best illustrated by the Portfolio Builder's sustainable desire to provide every client with a fair chance when it comes to presenting oneself for a job or an internship when lacking the genetic potential necessary for the job.

In other words, it can be concluded that, while targeting the user's privacy and data protection, equality, and nondiscrimination, Portfolio Builder claims to provide a perfect environment of satisfying the user's requirements while indicating high ethical standards to the sphere of the career management digital platforms. Such ethical practices are praiseworthy since in addition to legal and meeting standards of practice, they form a way of improving the quality of the online environment as a medium for professional development in a fairer nature compared to the other party.

6.4 Sustainability Plan

Digital Sustainability: The organizational reduction of pen and using paper-based ideologies shall take place by centralizing digital processes to avoid the utilization of paper and to reduce the company's production of carbon emissions intensive to pen and paper paradigms as well as provisions for the physical offices.

Energy Efficiency: For cutting down power usage and carbon footprint further efficiency in hosting and operating the hardware and structure proposed the features of using possible renewable power in operations.

Remote Work Advocacy: To reduce the amount of carbon that is produced from vehicles and also improve work life balance, it is encouraged that wherever possible employees be allowed to work from home.

User Education: The audience should be offered advices how to carry out the environmentally friendly employment search and how to avoid physically preparing documents and materials in the application of digital application in the recruitment.

Community Engagement: Economic Empowerment Support local communities through such partnership and exercises that foster; Diversification of the economy and availabilities for employment.

Continuous Improvement: Strategically evaluate with the assistance of measurement and analysis of the results of the main participants of the organization about the sustainable practices, incorporate it into the regulation of management activity, and assess the results from the use of the performance indicators.

CHAPTER 7

Conclusion and Future Scope

7.1 Discussion and Conclusion

Portfolio Builder can thus be described as a step forward in terms of career management tools available via the Internet, which enable users to build professional portfolios and search for jobs as well as submit applications with the help of a single platform. This necessarily called for the development of this platform mainly to help job seekers counter some of the problems they encounter when presenting their skills and experiences in the current market. With the use of contemporary tools and technologies including the usage of MERN stack for back-end and front-end development, MongoDB, Express.js, React.js, Node.js, the application is optimized for both the use on PCs and mobile devices through the incorporation of Tailwind CSS as well as DaisyUI. Some major points that were tackled during the program development included the overall UI design, the structure of the application's back-end, and the incorporation of key features, namely, live portfolio preview, efficient job searching, and secure application submission. Ethical issues were included as fundamental principles throughout the platform's implementation, particularly with regard to user data and non-discrimination. As for recognizing users' rights and honoring their personal information these ethical principles also promote the principles of equality for all professionals.

In the future, the key idea of Portfolio Builder is to develop the existing services even further with the help of feedback from the clients and introduce new technological and sustainability solutions. In so doing, the aim is to further not only career prospects but also digital sustainability, skills development and a proper stance towards community and sustainability in general.

Therefore, Portfolio Builder is not only an application for building professional portfolios but also the vision of the effective utilization of digital technologies, professionalism and concern for the ethical and socially responsible management of modern business. Portfolio Builder is set on the right course to transform the lives of its users by enabling them to

secure their ideal jobs efficiently without compromising the standards of ethical practices.

7.2 Scope for Further Developments

" Portfolio Builder - website" presents several prospects for additional development and improvement:

Enhanced Collaboration Tools: Some new feature like the usage of service for portfolio sharing and reviewing, the option to find a mentor or a career advisor, the availability of the virtual job fair or networking.

Blockchain Technology for Credential Verification: Understanding the application of blockchain solutions for the problems associated with drug recovery, mandatory registration of sexual criminals, employment tests, identity theft, and verifiers' reliability, building trust and openness.

Augmented Reality (AR) and Virtual Reality (VR) Experiences: Applying AR/VR solutions in order to design portfolios in cooperation with VR, to conduct an interview or interactive job description whose purpose would be to illustrate how creative the user is in showing his/her abilities.

Global Expansion and Localization: Existence of Expatriate Population If there is existence of large expatriate population in the targeted countries and cities, the platform should be extended to the particular countries and cities and create contents and jobs to fit the targeted regions.

Integration with Learning Management Systems (LMS): Based on discussions with partners that are MOOC platforms or institutions of learning, line up the creation of portfolio instruments into curricula so that to foster the relationships between learning & work.

Sustainability Initiatives: Promoting measures which would improve the sustainability efforts and the promotion of sustainable actions reducing the negative footprint that

technology possesses currently and supporting anything that may exist in the field of sustainability and corporate responsibility.

Continuous User Feedback and Iterative Development: Adapting the modern trends of the Agile development that also incorporates the user-oriented design concept that entails such elements as the feedback from the users and also undertaking of the specific tests of the particular features and functionalities, with the reception of the users on the outcome of the changes.

Reference

- [1] Learn about Wikipedia, available at << <http://www.wikipedia.org/>>>, last accessed on 29-06-2024 at 12:00 PM.
- [2] React – A JavaScript library for building user interfaces, available at << <https://reactjs.org/>>>, last accessed on 29-06-2024 at 10:00 AM.
- [3] Tailwind CSS – Rapidly build modern websites without ever leaving your HTML, available at << <https://tailwindcss.com/>>>, last accessed on 29-06-2024 at 10:05 AM.
- [4] GitHub - Where the world builds software, available at << <https://github.com/>>>, last accessed on 29-06-2024 at 10:10 AM.
- [5] Firebase – App success made simple, available at << <https://firebase.google.com/>>>, last accessed on 29-06-2024 at 10:15 AM.
- [6] Visual Studio Code - Code editing. Redefined., available at << <https://code.visualstudio.com/>>>, last accessed on 29-06-2024 at 10:30 AM.
- [7] Node.js, available at << <https://nodejs.org/>>>, last accessed on 29-06-2024 at 10:35 AM.
- [8] MongoDB – The application data platform, available at << <https://www.mongodb.com/>>>, last accessed on 29-06-2024 at 10:40 AM.
- [9] Express - Fast, unopinionated, minimalist web framework for Node.js, available at << <https://expressjs.com/>>>, last accessed on 29-06-2024 at 10:45 AM.
- [10] LinkedIn Website - [LinkedIn] available at << <https://www.linkedin.com/>>>, last accessed on 29-06-2024 at 12:00 PM.
- [11] Behance Website - [Behance] available at << <https://www.behance.net/>>>, last accessed on 29-06-2024 at 12:00 PM.
- [12] Canva Website - [Canva] available at << <https://www.canva.com/>>>, last accessed on 29-06-2024 at 12:00 PM.
- [13] GitHub Website - [GitHub] available at << <https://github.com/>>>, last accessed on 29-06-2024 at 12:00 PM.
- [14] Bdjobs Website - [Bdjobs] available at << <https://www.bdjobs.com/>>>, last accessed on 29-06-2024 at 12:00 PM.

Appendix

Complex Engineering Problems (EP) and Complex Engineering Activities (EA) Analysis

Title: Automated Portfolio Creation

Students ID: 203-15-14549 And 203-15-14554

CO	CO Descriptions	PO
CO1	Integrate recently gained and previously acquired knowledge to identify a real-life complex engineering problem for the Final Year Design Project	PO1
CO2	Analyze different aspects of the goals in designing a solution for the Final Year Design Project	PO2
CO3	Explore diverse problem domains through a literature review, delineate the issues, and establish the goals for the Final Year Design Project	PO4
CO4	Perform economic evaluation and cost estimation and employ suitable project management procedures throughout the development life cycle of the Final Year Design Project	PO11

Addressing of COs, Knowledge Profile (K), and Attainment of Complex Engineering Problems (EP):

SN	EP Definition	Attainment	CO	Justification (with Knowledge Profile)	References
1.	EP1: Depth of Knowledge required	Yes	CO1, CO2, and CO3	Creating our project requires programming knowledge (HTML, CSS, JS) and backend development skills (MongoDB, Express.js). We need individuals with strong coding and UI/UX design skills that cover both K3 and K4 .	Page no: 7-8
				Our project demands a deep understanding of user needs and expectations. We have designed a web-based front-end using React, Material-UI, Tailwind CSS, Daisy UI, and Redux that covers both K5 and K6 .	Page no: 23
				We have studied existing portfolio builder with similar goals (K8)	Page no: 08-11

2.	EP2: Range of Conflicting Requirements	Yes	CO2	Our project strives to balance conflicting requirements like user-friendliness (ease of use) and customization (allowing users to personalize their portfolios), while also prioritizing performance. However, implementing backend coding for extensive customization might pose challenges due to the need for in-depth coding skills.	Page no: 14-17
3.	EP3: Depth of analysis required	Yes	CO2	Our project employs user research (surveys, interviews) and usability testing to inform design decisions and ensure the platform meets user needs.	Page no: 15-16
4.	EP4: Familiarity of Issues	Yes	CO3	Our project delves into the domain of user experience (UX) design by focusing on creating an intuitive and user-friendly interface which may also require an understanding of user psychology and interaction design principles.	Page no: 17-18
5.	EP6: Extends of stakeholders involved and conflicting requirements	Yes	CO3	Our project primarily considers the needs of two main stakeholder groups: Users (The platform should be easy to use, customizable, and visually appealing and Developers:(The codebase should be well-structured, maintainable. We addressed these requirements through user research (Surveys, interviews) and code reviews. .	Page no: 14-16

6.	EP7: Interdependence	Yes	CO3	Our project consists of interconnected components like Front-end:(user interface and interactions) and Back-end:(Manages data storage and retrieval. We ensured seamless integration between these components through careful planning, design, modular coding, and testing.	Page no: 20-21
7.	-	Yes	CO4	We have prepared a budget to estimate the development costs for our project. Since our service will be free for everyone, we won't require traditional commercial aspects such as in-depth cost estimation or economic evaluation.	Page no: 04-05

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