De La Salle University – Manila

Gokongwei College of Engineering

Electronics and Computer Engineering Department

Final Project Website

LBYCPG3

Final Project
Website with Javascript, React, NodeJS, and other features

Submitted by:

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LBYCPG3– EQ3

I, Nathanael Adrian T. Cua can attest that my website is original and does not involve plagiarism

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I. Introduction

The project at hand represents a thorough demonstration of students' proficiency in using modern online technologies, including Node.js and React, to build a versatile and engaging website. This project provides an opportunity to blend both personal and professional elements into a cohesive online presence, utilizing a variety of web technologies to meet specific, predefined criteria. At its core, the goal of this project is to create a dynamic website that seamlessly integrates personal and professional themes, showcasing a diverse set of web development skills. The website is crafted to meet specific functional and aesthetic requirements, including the creation of a personal profile, implementation of password-protected areas, and a photo album with interactive features. In addition, the site includes a portfolio page, a series of technical articles, and a professional services section, each adding its own advanced functionalities and design elements.

Node.js is employed on the server side to handle backend processes, such as serving static files, processing file uploads, and managing user authentication. The use of Node.js allows for efficient handling of asynchronous operations and interactions with the file system, making it an ideal choice for building scalable and responsive web applications. React is used on the client side to build dynamic and interactive user interfaces. React's component-based architecture facilitates the development of reusable UI elements, such as the personal profile page, secure pages, and the interactive photo album. React's efficient rendering and state management capabilities ensure a smooth user experience and enhance the overall performance of the website.

For the personal aspect, the website features a personal profile page and pages secured by password protection. The profile page offers a snapshot of the individual, while the secure pages use AJAX and JSON-formatted text files to restrict access, ensuring that sensitive information is only available to authorized users. The photo album, powered by jQuery and React components, presents a gallery of at least ten images and includes a slide show option to enhance user engagement.

On the professional side, the site showcases a portfolio page that highlights significant achievements and projects, such as awards and recognitions or completed projects relevant to Continuing Professional Education (CPE). The technical articles section is designed to be interactive, featuring embedded video players, Google Charts for data visualization, and a technical calculator. These components are intended to offer educational insights and practical value.

The website also includes pages dedicated to professional services, featuring job order or engagement forms. These forms, processed with JavaScript and Node.js, generate summaries and quotations based on user input, demonstrating the practical application of web development skills in a professional setting. To ensure a cohesive and responsive design, the website uses Bootstrap for its layout, complemented by JavaScript, React, and jQuery for

interactive functionalities. The design avoids standard databases and non-JavaScript programming languages, focusing instead on client-side technologies and server-side JavaScript. The site incorporates essential elements such as headers, footers, navigation bars, and tooltips, along with a drop-down menu to improve user experience.

Overall, this project embodies a range of web development skills and technologies, including Node.js and React, providing a comprehensive demonstration of the student's ability to create a functional, visually appealing, and technically sound website. The integration of personal and professional elements, combined with adherence to technical guidelines, reflects a deep understanding of modern web development practices.

II. Project Overview

This project is designed to showcase the application of contemporary web technologies in creating a comprehensive and interactive website. The primary objective is to develop a multifaceted site that integrates both personal and professional elements, leveraging Node.js and React to meet a specific set of requirements. This project serves as a platform to demonstrate proficiency in web development, including both backend and frontend technologies.

Scope and Purpose

The website aims to provide a dynamic user experience by combining personal and professional components into a single cohesive platform. It will feature various functionalities, including user authentication, interactive media, and data visualization, to highlight the student's ability to utilize modern web technologies effectively. The project is designed to address a range of requirements, from personal profile management to professional portfolio presentation, incorporating advanced features to enhance both functionality and user experience.

Key Components

1. Personal Elements:
   - Personal Profile Page: Provides a detailed overview of the individual, showcasing relevant information and achievements.
   - Password-Protected Pages: Implemented using AJAX and JSON to secure sensitive content. Access is restricted based on user credentials, demonstrating knowledge of secure user authentication mechanisms.
   - Photo Album: A dynamic gallery displaying at least ten images, with interactive features such as a slide show, built using jQuery and React to enhance user engagement.

2. Professional Elements:
   - Portfolio Page: Highlights significant accomplishments and projects relevant to Continuing Professional Education (CPE), including awards, recognitions, and detailed project descriptions.

- Technical Articles: Includes a series of articles or tutorials featuring:
  - Embedded Video Player: For multimedia content.
  - Google Charts: For data visualization, incorporating bar, pie, and line charts with data stored in JSON format.
  - Technical Calculator: A functional calculator implemented with JavaScript for technical computations.

3. Professional Services:
  - Service Pages: Provide information about professional services and include a job order or engagement form. These forms are processed using JavaScript and Node.js, generating summaries and quotations based on user input.

Technologies Used

- Node.js: Employed for backend development, handling server-side operations, file management, and user authentication.
- React: Utilized for building interactive and dynamic user interfaces, enabling component-based development for personal profiles, secure pages, and interactive media.
- Bootstrap: Ensures a consistent and responsive design across the website, with a focus on modern, mobile-friendly layouts.
- JavaScript and jQuery: Implemented for client-side interactions and functionalities, including the photo album and technical calculator.

Design and Technical Specifications

The website is designed to adhere to modern web development standards, incorporating essential elements such as headers, footers, navigation bars, and tooltips. It avoids the use of traditional databases and non-JavaScript programming languages, focusing instead on client-side and server-side JavaScript technologies. The inclusion of a drop-down menu enhances navigation, while the integration of tooltips and responsive design features improves user experience.

III. Objectives

1. Demonstrate Proficiency in Web Technologies:

Develop a comprehensive website utilizing Node.js and React to showcase a range of modern web development skills. This includes backend server management, frontend user interface design, and integration of interactive features.

2. Implement Secure User Authentication:

Create password-protected pages using AJAX and JSON for secure access to sensitive content. Implement a robust authentication system to ensure that restricted pages are accessible only to authorized users.

3. Design and Develop Interactive Components:

Build a dynamic photo album with at least ten images and interactive features such as a slide show, using jQuery and React. This component should enhance user engagement through smooth and responsive interactions.

4. Integrate Advanced Functionalities:

Incorporate advanced features such as an embedded video player, Google Charts for data visualization, and a technical calculator. These elements should be seamlessly integrated into the website to provide educational and practical value.

5. Ensure a Consistent and Responsive Design:

Utilize Bootstrap to create a cohesive and responsive website layout. Ensure that all pages have a uniform look and feel, including essential elements like headers, footers, navigation bars, and tooltips, to provide a consistent user experience across devices.

Summary Table

Requirement / Addendum	Description Link
Personal Profile	Personal Page
Password Secured Pages	Personal Page
Photo Album	Personal Page
Portfolio Page	Personal Page
Video Player	Professional Page
Google Charts	Professional Page
Technical Calculator	Professional Page
Professional Services Form	Professional Page
Tooltips	Professional Page
Drop Down Menu	Professional Page