MBARARA UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF COMPUTING AND INFORMATICS

COURSE: WEB PROGRAMMING

YEAR TWO SEMESTER ONE

GROUP 7 BCS

ASSIGNMENT: CAREER CONNECT HUB DETAILED REPORT

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Introduction

Career Connect Hub is a modern, web-based platform created to connect students seeking employment opportunities with employers offering jobs and internships. The system provides an interactive and user-friendly environment that supports profile creation, job postings, and application management.

The platform was designed as a Progressive Web Application (PWA), meaning it functions seamlessly across desktops and mobile devices while also supporting offline access. It combines web technologies, responsive design, and database integration to deliver an accessible and efficient job-matching experience for all users.

The project also serves as a demonstration of the practical application of PHP, MySQL, HTML, CSS, and JavaScript in developing a secure, responsive, and dynamic web system.

Problem Statement

Many students and fresh graduates struggle to find suitable job opportunities due to scattered information and lack of digital platforms connecting them with employers. Likewise, employers find it difficult to reach qualified candidates efficiently. This gap results in missed opportunities and delayed recruitment processes.

Business Case

Career Connect Hub was developed to bridge this gap by creating a centralized online platform where students can easily find and apply for jobs, and employers can post vacancies and manage applications. The system improves efficiency, transparency, and accessibility in recruitment, reducing time and cost while promoting career growth for students.

System Justification

The development of Career Connect Hub is justified by the increasing need for digital solutions that streamline job placement and recruitment. The system leverages modern web technologies such as PHP, MySQL, and Progressive Web App features to ensure reliability, scalability, and cross-platform accessibility. It provides an efficient, low-cost, and sustainable approach to connecting students and employers, aligning with the university's goal of promoting technology-driven career development and employability among graduates.

Objectives of the Project

The main objective of Career Connect Hub is to bridge the gap between students and employers through a centralized digital platform. Specifically, the system was designed to:

- Provide a reliable and secure platform for students to find and apply for job opportunities.

- Enable employers to post and manage job openings efficiently.
- Allow administrators to oversee platform activities, ensuring data integrity and proper system management.
- Demonstrate secure coding practices, including the use of prepared statements and password hashing.
- Show the importance of mobile-friendly design through PWA features such as offline use and installation on devices.

By meeting these goals, Career Connect Hub promotes employability, professional networking, and transparency in recruitment.

System Overview

Career Connect Hub operates through three main user roles — Students, Employers, and Administrators — each with distinct features and permissions.

Students can create profiles, upload CVs, search and apply for jobs, and track their application status. They can also save preferred listings and personalize their interface using a light or dark theme.

Employers, on the other hand, can register their companies, post job advertisements, and review applicant information. They are also provided with a dashboard to analyze job engagement and performance.

Administrators have a hidden login portal with enhanced security. Their responsibilities include monitoring all users, managing posted jobs, maintaining platform data, and ensuring that the system remains functional and secure.

System Architecture and Technologies

The platform follows a client-server model and was developed using open-source technologies. The frontend was built using HTML, CSS, and JavaScript to ensure responsiveness and interactivity. The backend was implemented in PHP, handling authentication, database operations, and other business logic.

Data storage and management are handled by MySQL, providing a stable and secure database solution. The system was deployed and tested on InfinityFree, a free hosting platform compatible with PHP and MySQL.

The integration of service workers and a manifest.json file enables Progressive Web App capabilities, such as offline access and the ability to install the site like a mobile application.

Overall, the architecture ensures scalability, efficiency, and accessibility while maintaining a modern look and feel.

Security Implementation

Security was treated as a core aspect of the Career Connect Hub system. Various layers of protection were implemented to ensure that user data and interactions remain safe.

All passwords are encrypted using PHP's password_hash() function, which utilizes the bcrypt algorithm. Database queries are handled through prepared statements with parameter binding to prevent SQL injection attacks.

Every form submission includes a CSRF token for cross-site request forgery prevention, and user inputs are sanitized using htmlspecialchars() to defend against cross-site scripting (XSS) attacks.

Session management follows secure practices — sessions are regenerated after login and use HTTP-only cookies. File uploads are validated by MIME type and file size to prevent malicious uploads.

Through these measures, the platform maintains data confidentiality, integrity, and reliability.

Progressive Web App (PWA) Integration

A unique feature of Career Connect Hub is its Progressive Web App integration. Users can install the application on their phones or desktops, access it offline, and enjoy app-like performance.

The manifest file defines the app's name, theme colors, and icons, while service workers manage caching and offline access. This allows users to continue browsing or preparing applications even without an internet connection.

Using tools such as PWABuilder, the platform can also be packaged into an Android application, extending its accessibility beyond the browser environment.

Deployment and Testing

Deployment was carried out through InfinityFree, using FTP for file transfer and phpMyAdmin for database configuration. After setup, extensive testing was performed to verify system performance and reliability.

Testing included registration, login, job posting, application submission, file uploads, and theme toggling. The system was tested across multiple browsers — including Chrome, Firefox, Safari, and Edge — and adjusted to ensure consistent performance on both desktop and mobile devices.

All functionalities performed as expected, confirming that the system meets responsive design and security standards.

Challenges and Solutions

During development, several challenges were encountered and resolved. The navbar initially overlapped page content during scrolling, which was fixed through CSS adjustments and shadow styling.

Compatibility issues with database migrations on hosting were resolved by importing SQL files manually via phpMyAdmin. PWA installation errors were corrected by ensuring proper HTTPS configuration and updating the manifest file.

Additionally, session inconsistencies were addressed by configuring the session save path and verifying cookie settings on the hosting server.

These solutions ensured smooth system functionality and deployment stability.

Expected Impact

Career Connect Hub provides a valuable solution to employment challenges faced by students and fresh graduates. By bringing together job seekers and employers in a centralized, secure, and easy-to-use system, it enhances job accessibility and promotes career growth.

It also demonstrates the power of modern web development in solving real-world problems, providing an example of how academic knowledge can translate into practical digital solutions.

Conclusion

Career Connect Hub successfully integrates responsive web design, database management, and strong security practices into a unified job-matching platform. It supports multiple user roles, ensuring that students, employers, and administrators each have a tailored experience.

Through PWA integration and a well-structured backend, the system achieves high performance and accessibility across devices. It serves as a demonstration of full-stack web development using PHP and MySQL, while emphasizing security, usability, and scalability.

Future improvements could include artificial intelligence for personalized job recommendations, real-time notifications, and integration with external APIs for career analytics.

11. **References**

- PWABuilder Documentation – https://www.pwabuilder.com
- InfinityFree Hosting – https://www.infinityfree.net
- PHP Official Documentation – https://www.php.net
- MySQL Documentation – https://dev.mysql.com/doc

Our Hosted Web Application link: https://careerhub1.gt.tc/