"Archivez: A Multiplatform Research Paper Repository Management System with Real-Time Review and Evaluation for Baco Catholic, Inc."

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CHAPTER 2. REQUIREMENTS SPECIFICATION

This chapter outlines the specific requirements, features, and functionalities significant to the researchers' system development.

Hardware and Software Requirements

Hardware Requirements

Server/s – Researchers' will need servers since they provide data storage, processing, and security to the system. It centralizes data management, allows collaboration, and maintains data integrity and accessibility for the users.

Storage (SSD) - To store and manage the system's data and to access the data more efficiently.

Memory (RAM) and Processor (CPU) – To provide smoother performance in handling the system's data.

Network Connectivity - To provide a fast and reliable network connection for the system, since the system involves remote access and data exchange.

Mobile Devices – To test and try out the responsiveness and compatibility of the system in

mobile devices enhancing its efficiency and flexibility.

Software Requirements

Visual Studio Code – A free and powerful lightweight code editor providing support to the researchers' system by conducting development operations like debugging, task running, and version control.

CodeIgniter 4 – A popular and powerful MVC (Model-View-Controller) framework and an open-source PHP framework that is used to develop web sites and web applications.

Vue JS – A progressive JavaScript Framework use for developing mobile apps simultaneously with a single codebase.

MySQL – An open-source relational database management system (RDBMS)used for storing and managing the system's structured data.

User Interface Templates – Samples are Bootstrap and Tailwind, they are ready-made web design composed of HTML and CSS along with other optional

JavaScript plugins for easy customization of the system's UI.

Web browsers – Samples are Google chrome, Firefox, and Microsoft edge, etc. These are used to enable the system's access to necessary web-based contents and manage interactions with online services and resources.

Windows 10 and Windows 11 – Are versions of the Windows operating system that will be use for the researchers' system.

Laragon - A powerful development environment and server stack for building and managing the researchers' system.

phpMyAdmin - A web-based tool that supports a wide range of operations and helps manage the system's MySQL databases.

Functional Requirements

User Registration and Authentication – users should be able to register, login securely using their credentials and manage their accounts.

User Roles and Permissions - Roles should be defined (e.g., student, teacher, research coordinator) with varied levels of access and authority.

Document Management - Users can upload research papers and theses, adding metadata such as title, author, keywords, and publication date.

Version control – Enabling version control for research documents should allow tracking of document revisions and updates.

Search and Discovery - A search function should enable users to find documents using keywords, topics, authors, and publication dates.

Retrieve and Download - Users should be able to preview and download research papers.

User Profiles - Users can create profiles to showcase their research contributions and academic achievements.

Activity tracking – Users should be able to track their log document uploads, participation in discussions, and other engagement in the system.

Document Download Settings - Users will have the ability to specify whether their research papers are downloadable by others or not. This feature allows users

to maintain control over the accessibility of their work and aligns with the system's objective of respecting the authors' preferences.

Data Analytics Display – Offer users a visual representation of key performance indicators, system usage trends, and user engagement metrics. Users, including students, alumni, and teachers, should be able to access relevant data analytics related to their activities and contributions, while administrators should have access to comprehensive system-wide analytics.

Admin Dashboard/Panel – To manage and monitor users, users' action, and their research documents.

Advanced Research Browsing and Search - Users, including students, alumni, and teachers, should be able to efficiently browse and search research uploads within the system. The search algorithm should consider various criteria, including keywords, topics, authors, and dates.

Comments and Discussions – Allow users to write comments, give feedbacks, and engage in discussions about research materials.

Document Tracking – Send users updates by notifications regarding their uploaded documents, if it already had been approved, posted or publish into the system.

Mobile Accessibility and Responsiveness – Ensure that the system is accessible and functional on mobile devices with a responsive design.

Research Paper Ranking and Recommendation - Assess the quality and relevance of research papers and provide users with personalized recommendations based on their preferences and browsing history and allow users to have the option to upvote or star recommended research papers to express their preferences and influence recommendations.

Citation Management - Allow users to easily add citations in various citation styles (e.g., APA, MLA, IEEE) for the papers they cite or reference. This feature simplifies the citation process and encourages adherence to academic integrity standards.

Non-Functional Requirements

Operational Requirement

Cross-Platform Compatibility - The system will operate seamlessly on various web browsers and devices, including desktops, tablets, and smartphones.

User Training and Support - The system will provide clear and user-friendly documentation or guidance to help users navigate and utilize its features effectively.

User Activity Logging - The system will log user activities, including document uploads and checks for auditing and monitoring purposes.

Data Privacy and Compliance - The system will adhere to data privacy regulations and maintain user data confidentiality.

Scalability - The system will be designed to handle an increasing number of documents and users over time.

User-Centric Interface - The system will enhance the user-friendliness of the system's interface,

making it more accessible and appealing to a broad range of users.

Compliance with Web Standards - The system's code and interface will comply with web development standards and best practices to ensure consistent operation across various platforms.

Performance Requirement

Response Time - The system will provide rapid response times for document searches, previews, and when teachers review and comment on student research papers.

Concurrent Users - The system will support a high number of concurrent users without significant performance degradation.

Search Performance - Search queries will be executed quickly, even when dealing with a large dataset of documents.

System Uptime - The system will maintain a high uptime percentage, with minimal downtime or maintenance periods.

Document Upload Speed - Users will experience efficient document upload processes, even for large files.

Scalability - The infrastructure will be designed to scale easily to meet growing performance demands.

Security Requirement

User Authentication - User accounts will be secured with strong password requirements.

Data Encryption - Data in transit and at rest will be encrypted to protect against unauthorized access.

Access Control - Role-based access control will be implemented to ensure that users have appropriate permissions and access to system features.

User Data Protection - User data, including personal information, will be stored securely and protected from breaches.

Data Integrity - Data will be protected from unauthorized modifications or tampering.

Secure Uploads - The system will scan document uploads for potential security threats, such as malware.

Compliance with Data Privacy Laws - The system must comply with relevant data privacy laws and regulations.