**ClassConnect: by Creating a 3rd Party Web-Based Application File Management System.**A Thesis Project

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# CHAPTER I

# THE PROBLEM AND ITS BACKGROUND

## Background of the Study

In this digital era, File Management System has been an essential tool for many people nowadays, especially in industries. Anyone can access any file storage available using any devices such as mobile, tablet or computers. As cloud storage solutions continuing to grow in popularity, users rely on services like Google Drive, Dropbox, and OneDrive to store and access their data. While these platforms provide valuable features, users often face challenges when managing file across multiple services. These challenges include switching between platforms, maintaining synchronization, and ensuring ease of access. With the study of Du Juan (2021) about the personnel File Management based on computer information technology, shows that the File management System change in many different types of management system and have developed and widely used. It is also achieved the improvement of management quality based on computer technology.

However, in file management system lies in their limited integration of academic performance analytics. The current systems lack features that compile and analyze grades, track student progress, and identify areas of excellence or needed improvement over time, even though they are frequently made for basic record-keeping and data retrieval. Additionally, parents and teachers are not given enough useful information by these systems, such as thorough reports on the overall growth of a student or individualized learning support methods. By filling this game, file management systems could become more useful tools for tracking academic progress and encouraging improved communication between students, parents, and teachers. In a study conducted by Abdullah Alshanqiti (2020) highlights the importance of student performance, which enables the detection of low-performing students. This early detection empowers educators to intervene during the learning process and implement necessary interventions.

Furthermore, an educational file management system serves as comprehensive benefactor of the educational ecosystem and is a priceless tool for administrators, teachers, and students. An academic experience at Eastwoods Professional College of Science and Technology in Balanga City, Bataan, will greatly improve by such a system. It can increase the students’ productivity and efficiency by giving them a centralized platform to store, arrange, and retrieve notes, assignments, and study materials. Easy management of course materials, progress tracking for students, and collaboration through shared documents are all the advantages for teachers. Simplified document management procedures benefit administrators by guaranteeing commitment to rules and guidelines. Thus, this study focuses on developing a third-party web-based application designed to simplify file management system by integrating with the best of cloud storage APIs. The application aims to provide a unified interface that allows users to manage files seamlessly.

## Statement of the Problem

This study aims to develop a File Management System that can be used to manage their files, and it also provides a smooth friendly user-interface. The system intends to address the following problems:

1.What are the technologies needed on developing the File Management System?

2.What are the features and functionalities of ClassConnect: File Management System?

3. What will be the benefit of the system to the beneficiary and researcher?

4.What are the challenges does the user face in uploading and sharing files in existing file management systems?

## Objectives of the Study

The objective of this study is to create a Web-Based Application that can manage, store, and any. The objective of this thesis study is to develop a web-based file management system that integrates with the Google Drive API, providing users with an efficient and user-friendly application for file organization, sharing and deadline management.

1. The technologies needed on developing the File Management System is Google Drive using Google API.
2. Evaluate features and functionalities of ClassConnect: File Management System?
3. The benefits of these system to the beneficiary and researchers is to notify the users or members in that shared folder for deadlines, for uploading their activities and other school related activities.
4. Create a user-friendly interface that can user simplify especially for non-technical users that can use for everyone.

## Significance of the Study

This study aims to benefit aside from benefactors, other stakeholders as well by addressing the gaps in the existing file management systems, especially for educational and professional use cases.

1. **Educational Institution Administration and Teacher**s - The system can provide a platform for managing academic file submissions of the students, it enables the teachers and administrators to organize, monitor and retrieve the files more efficiently based on specific activities or deadlines.
2. **Students** - By implementing the deadline management and integrating file synchronization using Google API, the system offers students an organized to submit their activities and assignments that can reduce the risk of late or misplaced submissions.
3. **Professionals** - Not just students who will benefit from this system, but the professionals that work in a collaborative setting type of company will utilize this system. In a corporate job, file management is very important when it comes to submitting files and following the deadline dates, making sure that all of the tasks are submitted not just on time but in an organized way of submitting files from their task.
4. **Future researchers** - This study can contribute the understanding of integrating third-party APIs such as Google API (Drive, Sheets etc.) that can make a system that can utilize by everyone, it will serve as a reference for future researchers for innovation and upgrades in file management systems. .

## Scope and Delimitation

The ClassConnect: File Management System will only focus on the college students and the teachers of the Eastwoods Professional College of Science and Technology. The main purpose of this study is to make the file managing more efficient and can see and follow the submission deadline that teacher set when they submit the file of their activities so the teacher can see all of the activities that students submit in a one folder. Both students and teachers will also benefit with the file management system because they can store their own files their like in the existing file management systems.

The researchers identify the task for every entity stated above.

**Teachers:**

1. Sign-up/Log-in to ClassConnect
2. Choose a Department
3. Choose a Subject
4. Create a subject folder
5. Create an activity folder
6. Upload the Activity in activity folder
7. Create a Deadline
8. Grade the students once they submit their activities on their subject.

**Students**

1. Sign-up/Log-in to ClassConnect
2. Choose enrolled course
3. Choose year in that course
4. Access subject folder
5. Access the activity folder
6. Download the file inside the activity folder
7. Submit the activity before the deadline.
8. View grades once the teacher recorded their activities

**PAKI SUYO PO NUNG DETAILS NETO THANKS MUCH!!**

## Definition of Terms

# File Management System – This helps users to organize, store, retrieve and manage files on their computer within a network.

**Web-based Application –** is a software application that runs on a web server rather than being installed on the local computer.

**Cloud Drives –** (Google Drive, Dropbox, OneDrive, etc…) are online storage services that allows people to save, access, and manage your file over the internet.

**Researchers –** Are individuals or groups who investigate a particular field of study to discover new knowledge.

**Integration –** The process of combining different elements into a whole.

**Admission –** Refers to the process of organizing and managing the operations of organizations, government, or institution.

# CHAPTER II

# REVIEW OF RELATED LITERATURE

Wang Xiang et al. (2019) The study addresses the inefficiencies and risks of traditional, manual file management systems in universities, such as time consumption and potential loss of documents. It proposes a webpage-based system integrated with an automated access control system to optimize file management. The system enables teachers to preview, edit, and retrieve files efficiently, while administrators manage user accounts. It avoids the complications of mobile app installations by providing a mobile-friendly web interface with Quick Look and Quick View features, ensuring files are securely stored and easily accessible.  The design incorporates modern, flat-icon aesthetics and smooth transitions for the front-end, inspired by global web design standards. Utilizing the ASP.Net framework for the backend, the system ensures seamless operation and efficient filing. Additionally, the webpage enhances user experience by showcasing the university's profile, news, and highlights. The study emphasizes the combination of functionality and visual appeal, offering a practical and engaging solution for university file management.

 According to Martin Joseph Simbulan (2019) the designing and developing is a centralized web-based management information system called 1Kyusi. The system aims to enhance recordkeeping efficiency and accessibility, thereby improving the delivery of basic social services and disaster response preparedness by local government units. 1Kyusi will serve as a data bank for residents of Quezon City, ensuring updated records for every individual while complying with the Data Privacy Act of 2012 (Republic Act 10173). The implementation of 1Kyusi at the barangay level is expected to significantly impact project initiatives and disaster response efforts managed by the local government

Samuel M. Alade (2020) the rapid growth and varying perspectives in document management. It highlights the importance of document management systems in organizational workplaces. Data was collected through interviews, scenario creation, and examination of current procedures. The development followed the Object-Oriented Hypermedia Design Methodology, using Unified Modeling Language (UML) tools to create a web-based electronic document management system (WBEDMS). The system's database was built with MySQL, and it was constructed using XAMPP, HTML, and PHP. The system evaluation showed high satisfaction among users, with a 96.60% satisfaction rate, 95% accuracy, and 99.20% usability. The study concluded that the electronic document management system would enhance user satisfaction, productivity, and efficiency in managing organizational knowledge assets.

The limitations of traditional online file management services like Google Drive and OneDrive, which offer limited storage and low download speeds for free users, and pose privacy risks due to centralized architecture. To overcome these issues, the study proposes a peer-to-peer (P2P) file management system called FileWallet, based on IPFS and Hyperledger Fabric. FileWallet allows users to store and share files securely, forming a P2P network for distributed storage and a Fabric network for maintaining blockchain ledgers of file transactions. The decentralized design reduces storage and communication costs, and file owners retain full control over access permissions. Experimental results demonstrate FileWallet's wide applicability and scalability. Yuan Lui (2021).

According to Leif Jay B. De Sagun (2021) The File Storage and Management System (FSMS) at Asian College of Technology, Cebu, during the 2014-2015 academic year, focusing on adapting to Cloud Computing Technology. Forty-three employees participated in the study, which used descriptive-developmental research methods. The study found the current FSMS to be inefficient and ineffective. It recommended developing and deploying a cloud-based FSMS to improve efficiency and effectiveness. The proposed system, designed using Unified Modeling Language, PHP, and MySQL, is expected to help employees perform their jobs more effectively and efficiently.

This study focuses on the extension and community relations unit of a university, which acts as a bridge between the academe and the communities. The unit ensures timely delivery of quality extension programs and projects to underserved and underprivileged community stakeholders. Due to the pandemic, the study aims to design and develop an online management system for project proposal submission, approval, report generation, and document storage. The system is expected to streamline transactions, reduce COVID exposure, and keep important documents accessible and convenient. Key design elements include ease of use, accessibility, and the ability to produce downloadable and printable documents for submission to external agencies. Paul Joseph Melchor (2022).

This study aimed to develop a web-based file management system for the Department of Education, Tagum City Division, to replace manual file and record administration with a reliable, efficient, and secure system. The Digital Library was created using Feature Driven Development, emphasizing quality at all stages. The system archives previously published research papers digitally, categorizes them for easier tracking, and includes a search filter for finding research outputs using keywords. It allows Teacher-Researchers and the Schools Division Research Committee to conduct literature reviews and decide on research subjects. The Digital Library can be accessed via Cloud Storage and Web Hosting, providing convenient access to Teacher-Researchers outside the Division Office. Allyn Joy Calcaben (2022)

Based on Ayah Mohammad Ahmed et al. (2023) The complexities and inefficiencies of managing employees' salaries manually, particularly in developing regions like the Kurdistan Region of Iraq. It presents the design, implementation, and evaluation of a web-based payroll management system (WPMS) to address these issues. The WPMS can efficiently calculate monthly and annual salaries, maintain records of pay, allowances, and deductions, and generate payslips, reports, and statistics automatically. The system, built using HTML, PHP, JavaScript, jQuery, AJAX, and MySQL, offers a user-friendly interface for easy data access, updates, and deletions. Usability testing showed high satisfaction, with an 87.8% score, indicating the system's effectiveness in improving payroll management.

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Kamal Acharya (2024) On developing an online aptitude test system to efficiently evaluate candidates through a fully automated process, saving time and providing fast results. The system allows students to take tests at their convenience without needing paper or pens and can be used in educational institutions and the corporate world. It eliminates the need for examiners to be present during tests and offers features like open book exams and randomized question sequences. The system provides interfaces for examiners to create and store questions and for students to take timed exams. It enhances security by encrypting exam files and shuffling questions to prevent memorization. The system aims to streamline the examination process, making it more efficient and accessible for both examiners and students.

According to Alfio I. Regla et al. (2022) on implementing a document management system for Romblon State University, Cajidiocan Campus, Romblon, Philippines. To date, most Higher Education Institution like the Romblon State University generates the bulk of documents of several types like feedback reports, minutes of the meeting, syllabi, lesson plans, policies, memos, and other circulars. These documents are often stored in filing cabinets and are used as compiled evidence for accomplishment reports or accreditation purposes. With such, the school is faced with problems like storage space, document security and sharing of documents when needed.

Interlaced Magnetic Recording (IMR) is an emerging recording technology for hard-disk drives (HDDs) that provides larger storage capacity at a lower cost. By partially overlapping (interlacing) each bottom track with two adjacent top tracks, IMR-based HDDs successfully increase the data density while incurring some hardware write constraints. To update each bottom track, the data on two adjacent top tracks must be read and rewritten to avoid losing their valid data, resulting in additional overhead for performing read-modify-write (RMW) operations. Therefore, researchers have proposed various data management schemes to mitigate such overhead in recent years, aiming at improving the write performance. However, these designs have not taken into account the data characteristics of the file system, which is a crucial layer of operating systems for storing/retrieving data into/from HDDs. Consequently, the write performance improvement is limited due to the unawareness of spatial locality and hotness of data. This paper proposes a file-system-aware data management scheme called FSIMR to improve system write performance. Yi-Han LienYen-Ting Chen (2023).

Aisha Gemala Jondya et al. (2024) This research aims to develop an innovative Death Certificate Management System to minimize document damage, reduce risk of document loss, and enhance the efficiency of the document issuance process. The system developed as a Web-based Application because this type of system is very flexible to use on various hardware and does not need a complicated installation process. The System was developed at one of the public health centers, PUSKESMAS Kalideres, which has the main feature to receive input and then save it into the database. The system allows users to export the database to Ms. Excel document as well as Ms. Word document as legal proof to Death Registration later. The system development process follows the Agile Scrum method where in designing the UI/UX the User Centered Design method is used to ensure that users are always involved and their needs are covered. Internal evaluation was conducted using the black box testing method, while user evaluation involved distributing questionnaires to users and conducting interviews to stakeholders. The questionnaire results showed that 96.2% of users found the system beneficial in facilitating their work to Death Certificate input and issuance, while 3.8% had different opinion. Additionally, the system helped them in reporting mortality figures through the recapitulation feature.

The use of cloud storage, which provides ubiquitous and simultaneous access to files, is prevalent among researchers for their collaborative projects. This study uncovered activities that needed better support and possible ways of making shared file management practices more satisfactory by identifying variables associated with satisfaction. Among different shared file management activities, finding/re-finding, archiving, and organizing activities needed better support. Researchers’ satisfaction was the highest when their research team had explicit rules for organizing and archiving shared files, when they organized files regularly, used location/ organization of the files when finding/re-finding files, and managed shared files frequently. Kyong Eun Oh (2024)

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Based on Besart Prebreza et al. (2024) Security access technology has reached a high point of development and research, although more may be deemed to be researched in this field. The aim of this project is to be developing a web application tool for Document Management, to simplify application procedures for students in diploma subject trying to help them increase the impact of their work. Given that the students to have so far applied for the thesis in classical way, despite the advancement in information technology and digitizing time, the aim has been to build this online application which will facilitate the application for thesis.

Achieving and maintaining file integrity poses numerous challenges, including the ever-evolving threat landscape, complex IT infrastructures, and regulatory compliance mandates. To address these challenges, organizations employ a variety of strategies and technologies. Encryption, access controls, and digital signatures are deployed to protect files from unauthorized access and tampering, while file integrity monitoring (FIM) solutions continuously scrutinize files for any alterations. Moreover, robust security policies, employee training programs, and incident response plans are integral components of a pro-active approach to file integrity and security. By fostering a culture of security awareness and investing in advanced technologies, organizations can effectively mitigate risks and safeguard their digital assets. Keywords: Encryption, Fostering, Integrity, Monitoring, tampering, Unauthorized.  Manoj Ramashish Gupta(2024)

Jeyadev NeedhiRam et al. (2024) Our system allows users to perform file system operations such as creating directories, renaming files, and deleting files by issuing voice commands. We develop a voice assistant using Python libraries and integrate it with the file system in Linux. The voice assistant is capable of understanding natural language and executing commands based on the user's voice inputs. We conduct experiments to evaluate the performance of the system and demonstrate that our approach is effective and efficient in managing the file system using voice commands. Our system can enhance the accessibility and usability of the file system in Linux for individuals with disabilities or those who prefer a hands-free approach to file management.

In this modern era of technology and digitalization, keeping track of a manual file system in the office environment is a challenging task. This research proposes a radio frequency identification (RFID) technology to improve conventional file management systems. The proposed system includes advances in information and communication technology (AICT) algorithm that addresses tag collision problems, resulting in increased data collection and reduced communication traffic. The system consists of modules such as information collection, file management, and user management. Moreover, the proposed approach provides a simple and convenient way to manage files in real-time meeting the needs of modern times. The AICT algorithm excelled the other algorithms regarding recognition efficiency. Shan Ge (2024).

18. File management method and hierarchy management file system / 2021 / Hitoshi KameiTakahiro Nakano

https://www.researchgate.net/publication/302823553\_File\_management\_method\_and\_hierarchy\_management\_file\_system

There is provided a file management system and method of creating a hierarchy management file capable of preventing an access performance from dropping when a user accesses to a file. According to the system and method, a server creates file systems in high-speed and low-speed volumes and a file-sharing server virtually integrates those file systems into one system as a pseudo file system. Then, the server moves a file to be moved to the file system created in the low-speed volume in advance, not when an access is made to the file. When a user accesses to the file after that, the user directly accesses to destination without requiring copying the file, so that the accessing performance may be prevented from dropping.

 Muhammad Hannan et al. (2024). The auto-insurance industry faces significant challenges related to data security, fraud, and inefficiencies due to its centralized structure, reliance on intermediaries, and extensive paperwork. These issues compromise trust and transparency, key elements for effective insurance management. A multi-consensus mechanism ensures all stakeholders, including insurers and policyholders, participate equitably in claim approvals and settlements, reducing the need for intermediaries and improving trust.A notable feature is the vehicle lifecycle management module, which securely tracks vehicle data throughout its lifespan, reducing fraud and streamlining processes. The Decentralized Application (DApp) interface allows users to create policies, submit claims, and track their progress in real time, with data securely stored on IPFS to ensure immutability and decentralization.By combining blockchain's consensus and security strengths with IPFS's scalable storage, this solution aims to enhance transparency, reduce fraud, and improve operational efficiency in the auto-insurance industry.

# CHAPTER III

# RESEARCH DESIGN AND METHODOLOGY

This chapter outline the research methodology implemented, provides details about the study participants, discuss the instruments used, explains the data collection process and describes the statistical analysis of data.

## Research Methods

This study we used the mixed-methods type of research approach that explores the evaluation of the ClassConnect: Creating a 3rd Party Web-Based Application File Management System to gather some data and information from Teachers and Students of Eastwoods Professional College of Science and Technology. The researchers used a quantitative research methodology, to collect thorough data, which is a quantitative approach. This process makes it easier to spot on trends and patterns, which enhances researchers’ understanding and yields information. It also enables researchers to collect beneficial insight and opinions from the participants. Thus, this method provides insights into user perception and system performance.

## Research Locale

This study was conducted at Eastwoods Professional College of Science and Technology, located in Balanga, Bataan. EPCST provides a wide range of academic environment that caters to students and teachers from different college departments. The purpose of this study, both students and teachers of EPCST were involved in the data collection process. Their participation was crucial in providing insights and essential information to understanding the existing practices of file management and identify the challenges that could inform the development of the proposed web-based file management system. The study was primarily focused on gathering their own different perspectives from these two key benefactors within the EPCST community. Students were approached to get and understand their experiences and challenges in managing academic files. While teachers were interviewed to gain their different insights into their needs and expectations for an efficient file management system. By involving these benefactors, the research is aimed to establish an understanding of the institutional requirements and limitations in current file management systems. The research local was chosen because of its relevance of the study to the institution’s educational environment. The insights that are gathered from students and teachers are expected to contribute a large and broader discourse on improving file management in educational setting, forming the basis for future system development.

## Respondents of the Study

The respondents of this study are the college students and teachers of Eastwoods Professional College of Science and Technology. The students were surveyed through Google Forms and we gathered around 22 responses of total respondents.

## Software Development Methodology

This study will use and follow the Agile SDLC(Software Development Life Cycle). Agile is chosen for its flexible and using the iteration on each tasks and it can leverage with Scrum, ensuring that the development aligns with the needs throughout the project cycle.

**Diagram

Description automatically generated**

***Figure 1*** *SDLC*

**Development Process based on the selected SDLC**

**Requirements**

            Gather all of the information and requirements through surveys of students and interviews of the teachers explain the main features and what technology of the system will be implemented.

**Design**

Design a wireframe and the mockup that represents the whole system and show the whole flow of the prototype and what will be the final product once it’s developed. We also design the DFD and the use-case diagram to show how the system flows and works once they use the system.

**Development**

 Developers will design the front-end using HTML CSS and JS and we will use Bulma CSS as a CSS framework, HTML CSS and JS is known for their flexibility so you can use the system with mobile phones, tablets, and laptops so it’s going to be an easiest way to develop the system with web development languages thanks to its compatibility with different browsers like Chrome, Edge and many more. For the back-end development we will use MySQL for the database of the users and the files that the user will be uploading and we will also use Microsoft API for its integration and synchronization of files in the system.

**Implementation**

In the implementation phase of the system we will start gathering requirements and choosing the technologies that is right to this system. In the early stages, we will focus on the core features of the system such as log-in via Microsoft, uploading, delete, viewing, downloading the files and setting up the deadlines, then we will test this to users and we will write down the feedback of the users like what should be fixed, what should be added and many more.

**Testing**

Do an initial testing on the file management system making sure it uploads files and creates a folder in the system, check the Google API if it’s working properly and it can synchronize the files that is uploaded in the system and also test in the smaller devices such as phones, tablets and laptops.

**Deployment**

On the deployment phase it involves making the system live and accessible to the intended users which is the teachers and the students. The system will be hosted on a secure and reliable domain to ensure the stability of the system’s access for the benefactors. During this phase we will conduct training for teachers and students how to use the system and familiarize with the user interface and the system’s main features ensuring the smooth transition and process of adoption of the system. The deployment will include a review from the benefactors that address any issues or any bugs from the system.

**Review**

The final phase of ClassConnect, we will focus on optimizing the application After the optimization of the application we will prepare it to deploy in the web domain that will be ready to use and ensuring the stability and accessibility of the system to users.

**Kulang yung STEPS NG AGILE WALA ANG STEP 3 AND 6**

## Research Instruments

The research instruments that are used in this study are surveys and interviews surveys is used for gathering the factual information and answers from the students and interviews for collecting the different answers of the faculty of Eastwoods Professional College of Science and Technology (EPCST).

Surveys - We used this research instrument to collect information and answers from the students with choices to obtain their experiences and problems that they’ve encountered from the existing file management systems.

## System Development Tools

The development of ClassConnect will utilize the software, frameworks and other technologies we used on the system and we will also gonna test it on different devices to ensure it’s functionality and effective efficiency of the system The following tools we will use:

1. **Visual Studio -** This will be the text editor for the development of the system.
2. **Front-end Languages -** HTML, CSS and Javascript will be the front-end of the system to ensure the flexibility and it can operate efficiently in different devices.
3. **Back-end Languages -** MySQL will be the chosen language on this system to store the user’s information.
4. **APIs -** This system will utilize the Google API especially Drive and Sheets this will be the feature of the system once the system is developed.
5. **Version Control and Project Managing -** Github and Jira will be the version controlling and the project managing softwares will be used to make sure that the system development is on this two websites to manage the overall development.

### Data Flow Diagram

On this Data Flow Diagram, displays how the students interact with the system and show the AI how they respond on the student based on the student’s preferences like the skills while the administrator or the developer is involve for training the AI itself and add some more features on AI to keep the AI stay on the specific purpose.

### Use Case Diagram

The use-case diagram shows how the system works between students, which is the benefactor of this study, while the administrator/developer is the researcher who will keep the AI trained and update and fix the database in case of necessary fixes. We use the UML Use-case Diagram for easy interpretation and the easy to uflow of how the system works.

### Technologies to be used

**HTML-** A markup language that is used to create websites and it can be accessed through a browser.

**CSS -** A essential parts of the HTML website, it can be use to design the website’s appearance and make the websites more beautiful.

**JS -** Javascript is the essential part of the HTML and CSS that can be use to add the interactivity with the website and it can also improve the website’s features by using API.

**MySQL -** This will be the database we will use to store user’s information.

**NodeJS -** A runtime software that uses Javascript and it will be the one who will integrate with MySQL

**BulmaCSS -** A front-end framework that is designed to make the CSS designing more easier and time-efficient developed by Jeremy Thomas.

**Google API -**  This will be the technology we will utilize for file management system because it can synchronize the file you upload with this system.

**Version Control and Managing Projects:**

**Github -** This one is for the system version control.

**Jira -** This will be the managing website to manage sprints everytime we develop this system

## Software Evaluation

The system was based on and evaluated using the ISO 25010 standards for Software quality. The functionality of a system was described based on characteristics namely: Functional Stability, Perfromance Efficiency, Usability, Compability, Reliability, Maintainability, Security and Portability.