DOCUMENT MANAGEMENT SYSTEM FOR THE ACCREDITATION OF CURRICULAR PROGRAMS OF THE DAVAO DEL NORTE STATE COLLEGE

DAVAO DEL NORTE STATE COLLEGE

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A Capstone Project Presented by:

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CHAPTER 1

INTRODUCTION

Background of the Study

Documents are one of the most important materials in any establishment or institute. Storing, transmitting, and locating documents is one of the vital components of practicing document management. The productivity of any office in how they process requests and follow-up approvals are depending on how their ways of documentation cater to these activities in an establishment or institute.

Nowadays, document management systems now facilitate the administration of document-based information throughout its life cycle. Many studies have been undertaken throughout the world to compare traditional document management systems (DMS) and electronic document management systems (EDMS) in terms of user performance and to demonstrate the benefits of newly developed electronic systems. Organizations have shifted from traditional DMS to an electronic form of DMS as new technologies have developed because it facilitates managerial work through file integration and control [1].

Increase of the reproduction process in different types of copied paper at high and slow speeds due to age and the increased size of the paper archive, costs, the need to reserve many locations to hold these big and expensive paper files, and the difficulty of tracking and accessing the papers [2]. According to [3], research conducted by Russia's Nosov Magnitogorsk State Technical University on the use of automated electronic document management systems in municipal entities, the project of improving the document flow of municipal units represents the list of organizational, administrative, and economic measures. The purpose of the project is to create such document flow within a municipal unit, which would ensure efficient management of the organization, scheduling, processing, and, control of documents and information. The automated electronic document management system includes the following functions: registration of incoming, outgoing, and internal documents; centralized accounting and control of documents; information and reference support; compiling of work reports. It was concluded in the study that it increases the effectiveness and efficiency of document flow within the municipal unit. This is why more financial institutions see digitization as a viable alternative cost-effective option.

Based on [4] in the study of Electronic Document Management System (EDMS) Implementation: Implications for the Future of Digital Transformation in Philippine Healthcare. The process of delivering high-quality healthcare services is mostly driven by data collection and analysis. Consistency in documentation is highly valued in the healthcare sector since it allows for monitoring patients' health, which may prevent larger concerns from happening later in their lives. Furthermore, fire, insects, and even water can destroy paper archives. Considering the ubiquitous use of paper medical records, the healthcare industry has emphasized the importance of practitioners' cooperation for this type of recordkeeping. A commonly held belief is that electronic document management systems (EDMS) are one of the most important development strategies in digital healthcare innovation, and their widespread adoption in industrialized nations has had a significant influence on the field's advancement.

The significance and role of the Electronic Document Management System (EDMS) in providing immediate access to critical patient health data, improving patient shift of care and care collaboration, reducing excessive usage and redundancy of diagnostics, diagnostic imaging examinations, and other screening tests, and enabling the practice of precision medicine will be better understood and appreciated as a result of its implementation in Philippine healthcare.

Several reforms have taken place and one of the initiatives being done is rationalizing the structure of public higher education and improving the budget to ensure resource mobilization and cost-efficiency [5]. It adds value to society by assuring quality, enabling the government to make sound judgments about the use of public funds, aiding the private sector in decisions about financial support, and easing the transfer of credit [6]. The accreditation of curricular programs in the Philippines, particularly for state universities and colleges, is the main function of the Accrediting Agency of Chartered Colleges and Universities in the Philippines (AACCUP). Accreditation is viewed as a process by which an institution at the tertiary level evaluates its educational activities, accreditation can be defined as granting of approval to an institution, according to the judgment of experts in the field of study that has met the predetermined requirements. Accreditation is the most widely used method of external quality assurance. It is the outcome of a process by which a governmental, parastatal, or private body (accreditation agency) evaluates the quality of a higher education institution as a whole, or a specific higher education program/course, in order to formally recognize it as having met certain predetermined criteria or standards and award a quality label [7].

With the expansion of higher education, the accreditation system has become necessary. In this regard, the establishment of an accreditation system will be very effective. Document Management System for The Accreditation of Curricular Programs of The Davao Del Norte State College, to better manage the accreditation of the program. This development will help the organization enhance security, provide better control over sensitive documents, and control access to documents that allow for better workflow monitoring.

General Objectives

The proponents aim to develop a Document Management System for The Accreditation of Curricular Programs of The Davao Del Norte State College.

Specific Objectives

Specifically, the projects aim to:

1. Provide user account management:
    - 1.1. Create a user’s account.
    - 1.2. Assign users to different accreditation areas.
2. Provide a utility for the management of the following information:
    - 2.1. Program offerings in the college.
    - 2.2. Accreditation level in each program.
    - 2.3. List of faculty and staff for each program.
    - 2.4. Accreditation areas:
        - 2.4.1. Instrument for each accreditation area.
3. Allow area members to:
    - 3.1. Upload and manage documents in the members’ assigned accreditation areas.
    - 3.2. View uploaded documents.
4. Allow area coordinators to:
    - 4.1. Assign tasks to area members.
    - 4.2. Track task progress.
    - 4.3. Validate/review documents.
    - 4.4. Leave comments.
5. Monitor and control document version:
    - 5.1. Add/edit document information:
        - 5.1.1. Title of the document.
        - 5.1.2. Description.
    - 5.2. Track document version.
    - 5.3. Upload a new version of a document.
    - 5.4. Retrieval of prior versions of a document.
    - 5.5. Generate an audit trail of how documents change over time.
6. Allow internal accreditors to give preliminary ratings.
7. Allow accreditors to:

7.1. View accreditation documents.

8. Calculate the accreditation overall score based on internal accreditor's rating.
9. Allow users to search documents.
10. Allow area coordinators to share documents with other programs.
11. Provide a messaging facility through an in-app chat box.
12. Provide notifications to users:
    12.1. Due tasks.
    12.2. Pending comments and reviews.
13. Generate reports and visualizations:
    13.1. User logs.
    13.2. Area progress report.
    13.3. Drill downs.
14. Generate areas for best practices and need improvements using clustering technique.

Significance of the Study

The system can benefit various organizations and be essential to any successful event by taking the appropriate action to meet the client's and the organization's needs. The beneficiaries and stakeholders of the proposed project are as follows:

Quality Assurance Office. This system will help the Office administrator lessen the time they consume in facilitating the client and the affiliated transactions, execute the paperless processes, increase productivity, and keep everyone on the same page throughout the management of documents they will handle in the future.

Clients. The importance of this project to the clients is to provide easy access to the interaction between the proposed system and the office admin and its collaborators.

Organization Partners. The significance of organization partners or the affiliated coordinators and collaborators of the Quality Assurance Office is to fulfill the organization's objectives and interact with the proposed system and the administrator. Organization partners are aligned with and work closely with organization and system executives to improve workforce performance.

Future Developers. The project will benefit future developers as the project will serve as the foundation for future enhancements and utilization in the evolution of the document management system for accreditation.

Scope and Limitation

The project's goal and focus were to create a document management system for the accreditation of curricular programs at Davao del Norte State College with a responsive web design approach to help boost dedicated user experiences.

This project aims to manage the user account for the accreditation of curricular programs and provide a utility for the management of such things as program offerings in college, accreditation, and a list of faculty and staff for each program. The system allows area coordinators to share documents with other users, assign tasks to area members, track task progress, validate documents, and leave comments, The system allows users to upload links. The system allows users to share the shared documents with other programs. The system allows internal accreditors to view and rate the accreditation survey but will limit external accreditors to viewing only.

In addition, there are features in the system that will be implemented to make the system easy to use and focus on user expectations. The developers provide users with a chat box and notification features, as well as generate reports and drill-downs. One limitation of the work-in-progress is that users cannot send videos and graphic files in the chat box, but only text messages, and users do not have access to editing Word files such as MS Word unless they download it first and reupload the file to update it. The system generates areas for best practices and those needing improvement from internal accreditors using K-means clustering; however, it will not generate data mining unless all ratings are completed. The system only covers the Level 1 to Level 4 accreditation of the curricular programs at Davao del Norte State College. The accreditors cannot manage the system but can only view the accreditation survey. Also, accreditors must download the uploaded documents that are unsupported by the browser for viewing. The administrator and QAO have the same access to the system, but QAO is cannot view survey rates. The Dean and Program Chairperson have limited access to other parts of the system, such as managing only their programs. The user other than the admin and QAO do not have access to managing the users' accreditation levels. The developers created the system to address the challenges and inconveniences encountered, and they explained to organizational partners how valuable and beneficial it is for both users and developers.

Operational Definition of Terms

Archiving. The records created or received and accumulated by a person or organization. To be efficiently utilized, this data must be meticulously controlled and monitored. Only authorized users can access the papers if they are archived according to the accessibility principle. Organizing and structuring professional papers in a methodical manner is aided by archiving them.

Accreditation. The official evidence of a conformity assessment body's impartiality and capacity to carry out certain conformity assessment activities by an independent third-party examination against recognized standards. Accreditation is a review process to determine if educational programs meet defined standards of quality. Once achieved, accreditation is not permanent—it is renewed periodically to ensure that the quality of the educational program is maintained.

Client. A user can also be referred to as a client. A client is either the recipient or the requestor of a service. Everything in a web application that is visible or occurs on the client is referred to as client-side (end-user device). This comprises what the user sees, such as text, graphics, and the rest of the user interface, as well as any actions taken by the program.

The phrase "end user" is used in information technology to separate the individual for whom a hardware or software product is developed from the product's developers, installers, and servicers.

The terminal user of the web-based document management system for the accreditation of curricular programs that the developers created.

Organization Partners. It is defined as an association of two or more persons to carry on as co-owners of a business. The one who works with the planned system and the administrator to achieve the organization's goals. To improve workforce performance, organization partners coordinate with and collaborate with organization and system executives. The success of a partnership depends upon mutual confidence, understanding, cooperation & adjustment of the members to accommodate & appreciate each other’s views.

Quality Assurance Office. The one who serves as the main organization partner that the developer in the capstone project applies to. The Quality Assurance Office (QAO) plays a key role in the development, monitoring, and reporting of quality across the university. The office has the responsibility to support the achievement of the university’s strategic goals towards quality, excellence, and continuous improvement locally and internationally. The office works closely with the campuses, colleges, and support units of the university in the conduct of regular quality assurance audits, assessments, evaluations, and accreditation.

CHAPTER 2

METHODOLOGY

The approaches and strategies utilized in designing and analyzing the Document Management System for the Accreditation of Curricular Programs of The Davao Del Norte State College. The project team opts for a modified waterfall model. It allows you to go back to a prior phase for verification or validation, and it is best if it is just for connecting steps. If there were complications along the route, we would not be able to return to the previous level in a straight waterfall. This discussion defines the Software Development Life Cycle (SDLC) method, systems planning and selection, work plan, schedule feasibility, systems design, systems implementation, operation, and maintenance.

System Planning

Project Team Organization

Designing the project team's organizational chart throughout the project phases to adapt the various activities and obligations that the developers must carry out toward a shared goal while fulfilling their tasks in order to emphasize problem-solving, decision-making, and teamwork. The people listed in Figure 1 are involved in system implementation and are in charge of system execution.

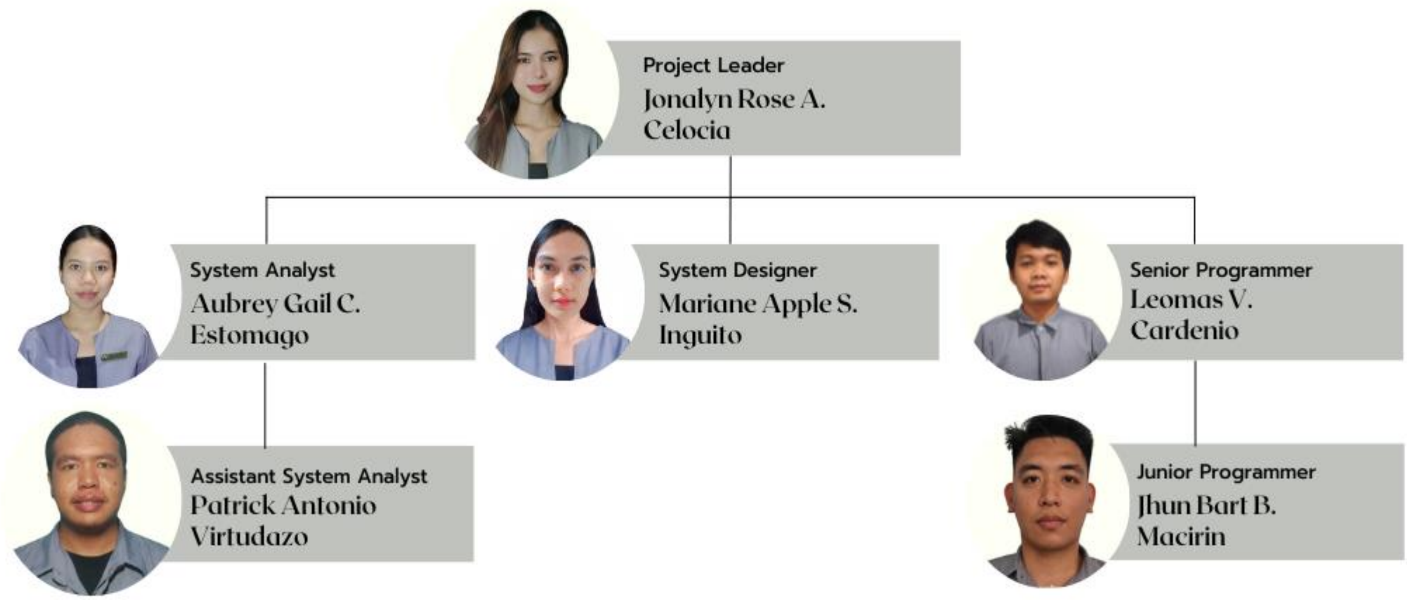


Figure 1: Capstone Project Organization Structure

All project administration is the responsibility of the Project Manager. All work, including traceability, reporting, communication, performance assessments, staffing, and internal coordination with functional managers, is managed by the Project Manager. The System Analyst is in charge of data and analysis that help project managers plan and budget initiatives. The information provided by the analyst aids in the evaluation and prioritization of new projects, as well as ensuring smooth delivery and promoting objective project review. The System Designer's job is to draw out a precise blueprint and instructions for programmers to follow. The most significant input document that the System Designer will need is the Requirements Specification, which was developed by the System / Business Analyst. Senior and junior programmers specialize in or work on the development of client-server Web applications.

The roles of each member of the project team are assigned depending on their strengths and skills. Allocating duties evenly among team members, and utilizing team strengths or areas in need of development, aids project success, on-time completion, and increased efficiency.

Work Breakdown Structure (WBS)

A work breakdown structure (WBS) is a tool that can be used to comprehend the work that has to be done to successfully generate deliverables (s) for projects, programs, and even initiatives. It is used for planning and budgeting, scheduling, and resource assignments. A work breakdown structure (WBS) is a hierarchical breakdown of project work into smaller, more manageable components. A well-designed WBS assists the project team in efficiently planning, executing, and controlling the project.

The team chose WBS because it organizes the work and gives a visual representation of the entire scope. It speeds up schedule development by allocating effort estimates to individual portions. It can also be used to display and assign responsibility and tasks, as well as ensure that no essential deliverables are missed. It allows all team members to participate in the planning process and feel invested.

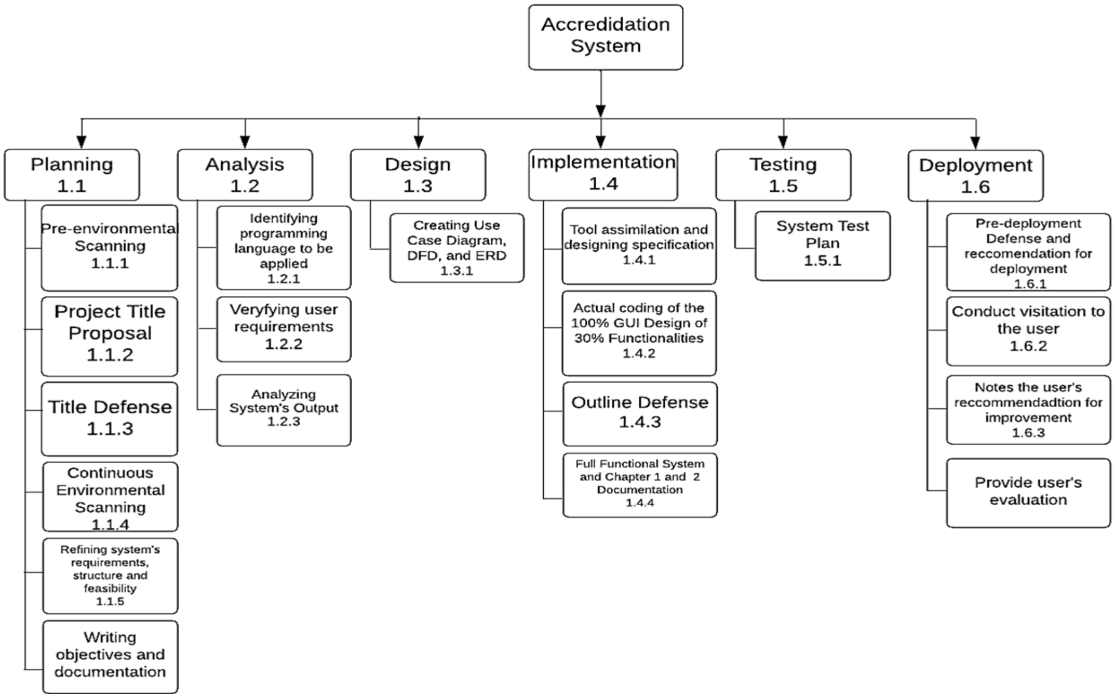

Accredidation System
Planning 1.1
Pre-environmental Scanning 1.1.1
Project Title Proposal 1.1.2
Title Defense 1.1.3
Continuous Environmental Scanning 1.1.4
Refining system's requirements, structure and feasibility 1.1.5
Writing objectives and documentation
Analysis 1.2
Identifying programming language to be applied 1.2.1
Veryfying user requirements 1.2.2
Analyzing System's Output 1.2.3
Design 1.3
Creating Use Case Diagram, DFD, and ERD 1.3.1
Implementation 1.4
Tool assimilation and designing specification 1.4.1
Actual coding of the 100% GUI Design of 30% Functionalities 1.4.2
Outline Defense 1.4.3
Full Functional System and Chapter 1 and 2 Documentation 1.4.4
Testing 1.5
System Test Plan 1.5.1
Deployment 1.6
Pre-deployment Defense and reccomendation for deployment 1.6.1
Conduct visitation to the user 1.6.2
Notes the user's reccommendadtion for improvement 1.6.3
Provide user's evaluation

Figure 2: Work Breakdown Structure

Gantt Chart

A Gantt chart is a project management tool that helps the accreditation project team with planning and scheduling, but they are especially beneficial for simplifying complex tasks. It is a diagram that shows the progress of the project. When a project is broken down into smaller, more manageable chunks, more becomes more doable.

Figure 3 shows the task name, dates of various project parts, and durations of each task and subtasks. The table does not include weekends and holidays; it serves as resting days for the project team.

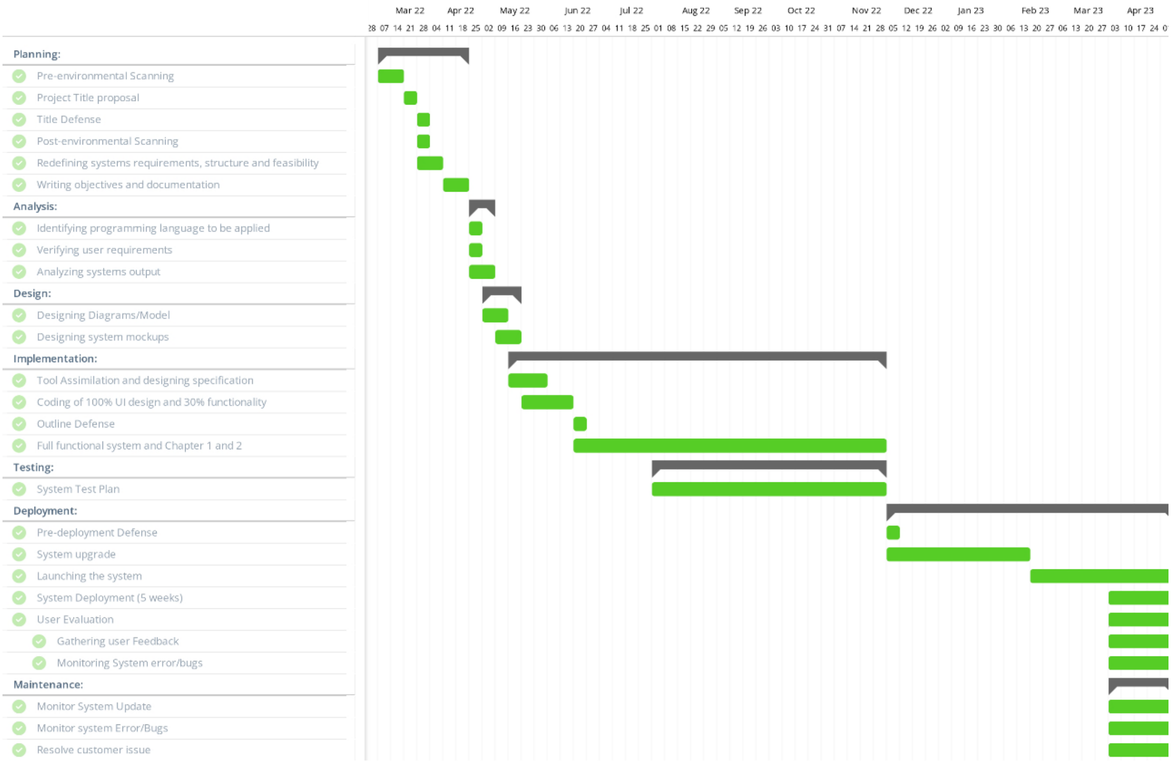


Figure 3: Gantt Chart

System Analysis

System analysis, more correctly referred to as information systems analysis, is the process by which an individual (s) studies a system such that an information system can be analyzed, modeled, and a logical alternative (independent of technology) can be chosen. The basic systems analysis project consists of two basic steps: (1) analysis (study of the system) and (2) modeling the system and choosing the logical alternative. The world is complicated, and there are many difficulties to solve [8]. As a result, it is not a surprise that problem-solving is one of the most in-demand abilities. Your abilities to break down an issue and come up with a solution will always be in demand. Systems analysis is one method of problem-solving. Systems analysis is a problem-solving strategy that entails looking at the larger system, breaking it down into its constituent elements, and determining how it functions to achieve a certain purpose.

Business Process: Activity Diagram

Figure 4 shows the existing business process of Quality Assurance Office of the Davao del Norte State College, wherein the admin will manage the accreditation level in each program and create a Google Drive link to share with the authorized personnel. The area coordinator will assign tasks to area members, and the area member will upload and manage the documents and store them in Google Drive.

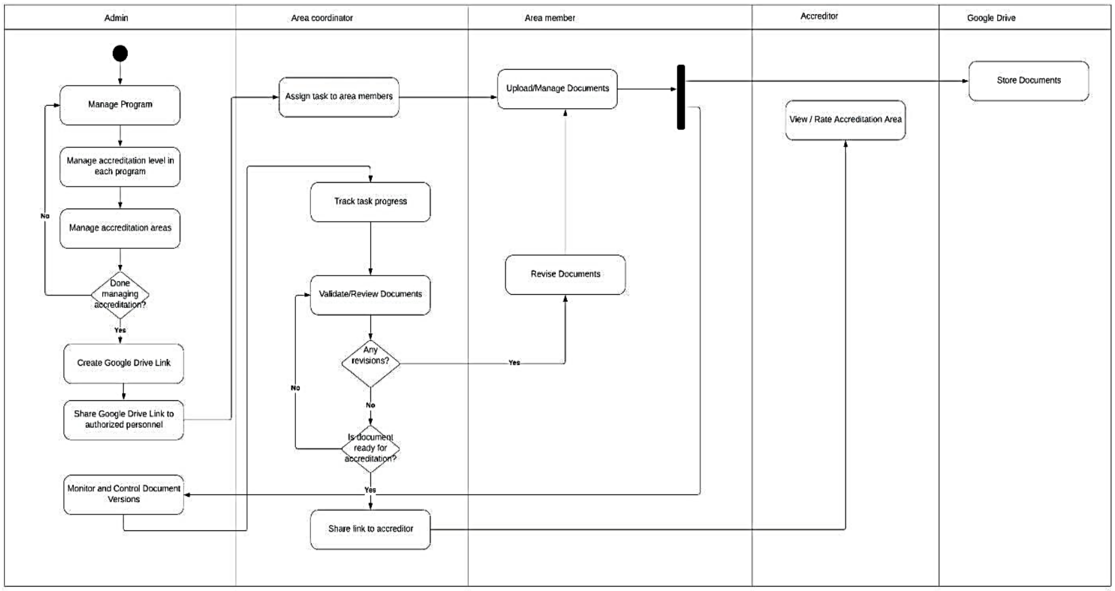

Admin
Area coordinator
Area member
Accreditor
Google Drive
Manage Program
Manage accreditation level in each program
Manage accreditation areas
No
Done managing accreditation?
Yes
Create Google Drive Link
Share Google Drive Link to authorized personnel
Monitor and Control Document Versions
Assign task to area members
Track task progress
Validate/Review Documents
Any revisions?
No
No
Is document ready for accreditation?
Yes
Share link to accreditor
Upload/Manage Documents
Revise Documents
Yes
View / Rate Accreditation Area
Store Documents

Figure 4: Activity Diagram

Use Case Diagram

Figure 5 shows the detailed use case for the area member, admin, area coordinator, internal accreditor, and external accreditor. For the area member, it shows the detailed use case of document management. It includes the monitoring of the versions of the documents. For the admin, it shows the detailed use case of monitoring and managing the documents, managing the institutes and their programs, and managing of instruments for every program. For the area coordinator, it demonstrates that the area coordinator can assign users in different parameters, share documents with other users, and provide utility management. For the internal accreditor, it shows that it can rate, view, and comment on the document from the accreditation area. The external accreditor shows that it can only view the document and accreditation areas.

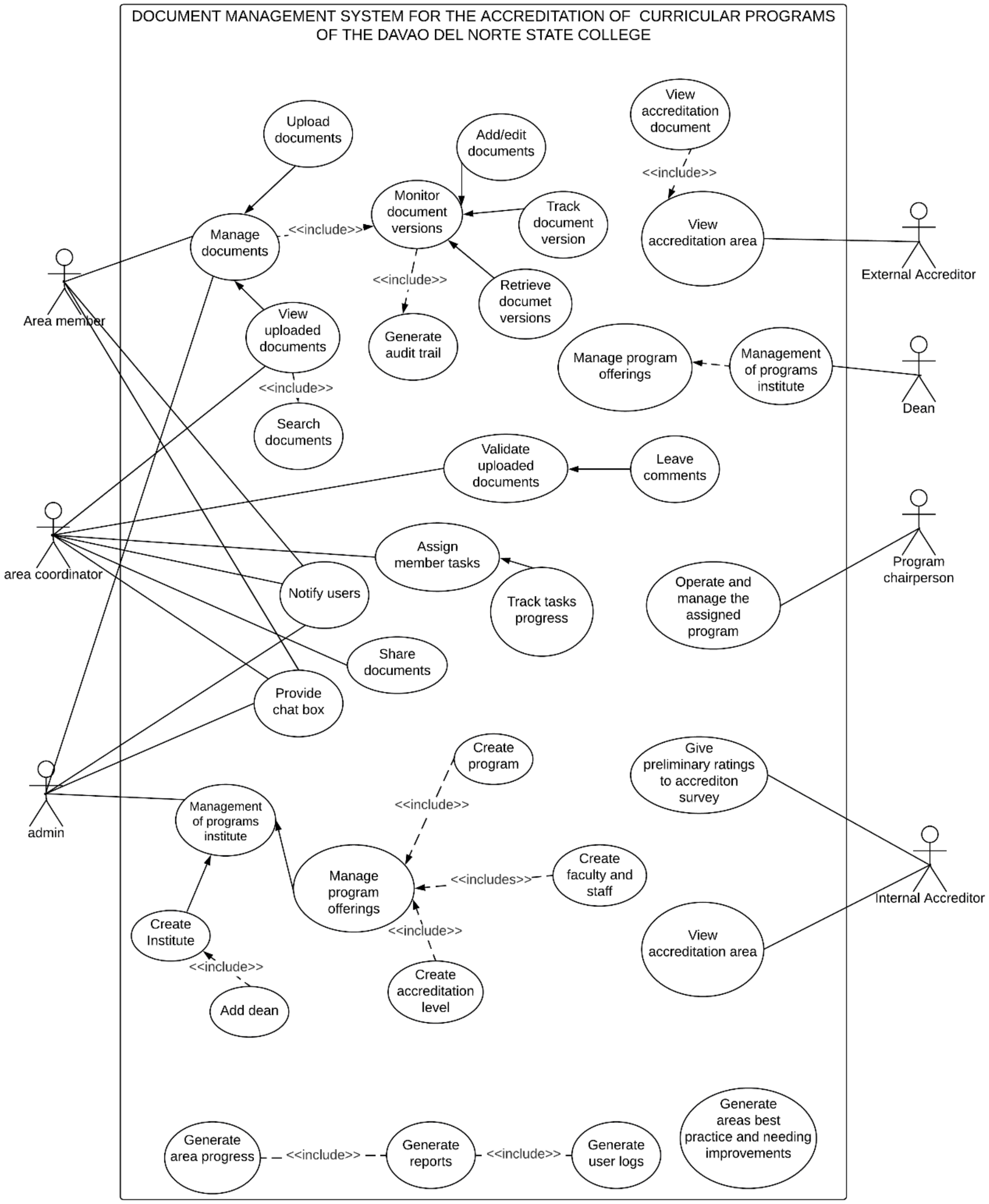


Figure 5: Use Case Diagram

Context Flow Diagram

Figure 6 shows the context flow diagram for the system. The CFD has seven external entities, the Admin, Area member, Area Coordinator, External accreditor, Internal accreditor, Program Chair, and Dean who will interact with the system. There is data flow or connectors between the process and the external entities, indicating the existence of information exchange between the entities and the system.

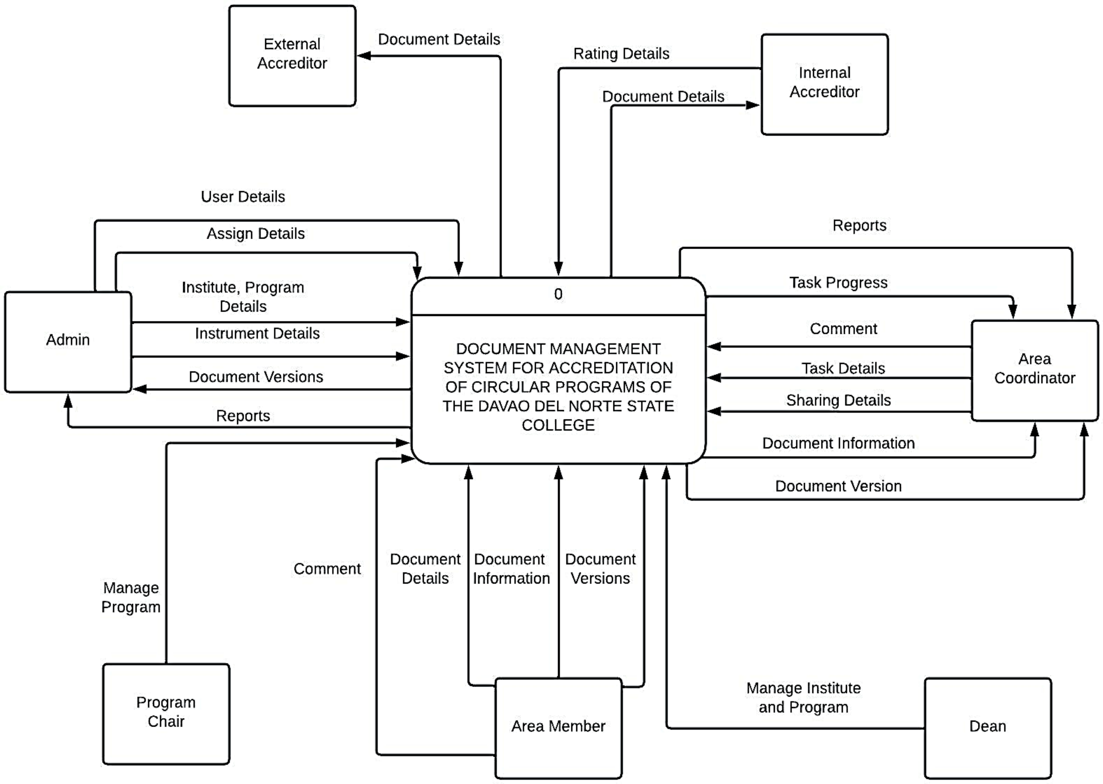


Figure 6: Context Flow Diagram

Level 1 Data Flow Diagram

Figure 7.1 and Figure 7.2 shows the level 1 data flow diagram, which is the breakdown of the level 0 DFD, which shows how data moves through a system or process. It shows data inputs, outputs, storage points, and routes between each destination using defined symbols such as rectangles, arrows, and short text labels. It contains eleven processes, four external entities, and three data stores.

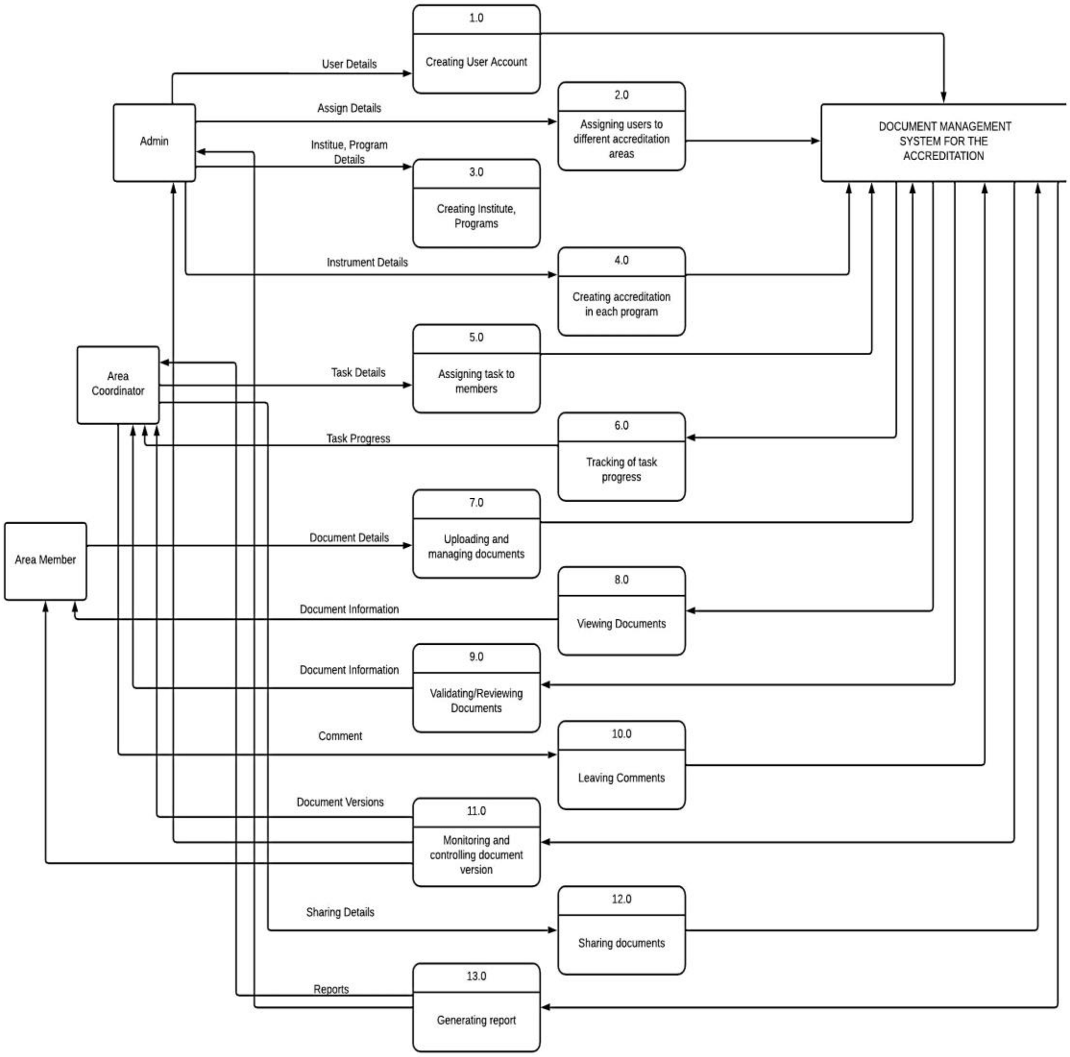

1.0
Creating User Account
User Details
2.0
Assigning users to different accreditation areas
Assign Details
Admin
Institue, Program Details
3.0
Creating Institute, Programs
DOCUMENT MANAGEMENT SYSTEM FOR THE ACCREDITATION
Instrument Details
4.0
Creating accreditation in each program
5.0
Assigning task to members
Area Coordinator
Task Details
6.0
Tracking of task progress
Task Progress
7.0
Uploading and managing documents
Area Member
Document Details
8.0
Viewing Documents
Document Information
9.0
Validating/Reviewing Documents
Document Information
10.0
Leaving Comments
Comment
11.0
Monitoring and controlling document version
Document Versions
12.0
Sharing documents
Sharing Details
13.0
Generating report
Reports

Figure 7.1: Level 1 Data Flow Diagram

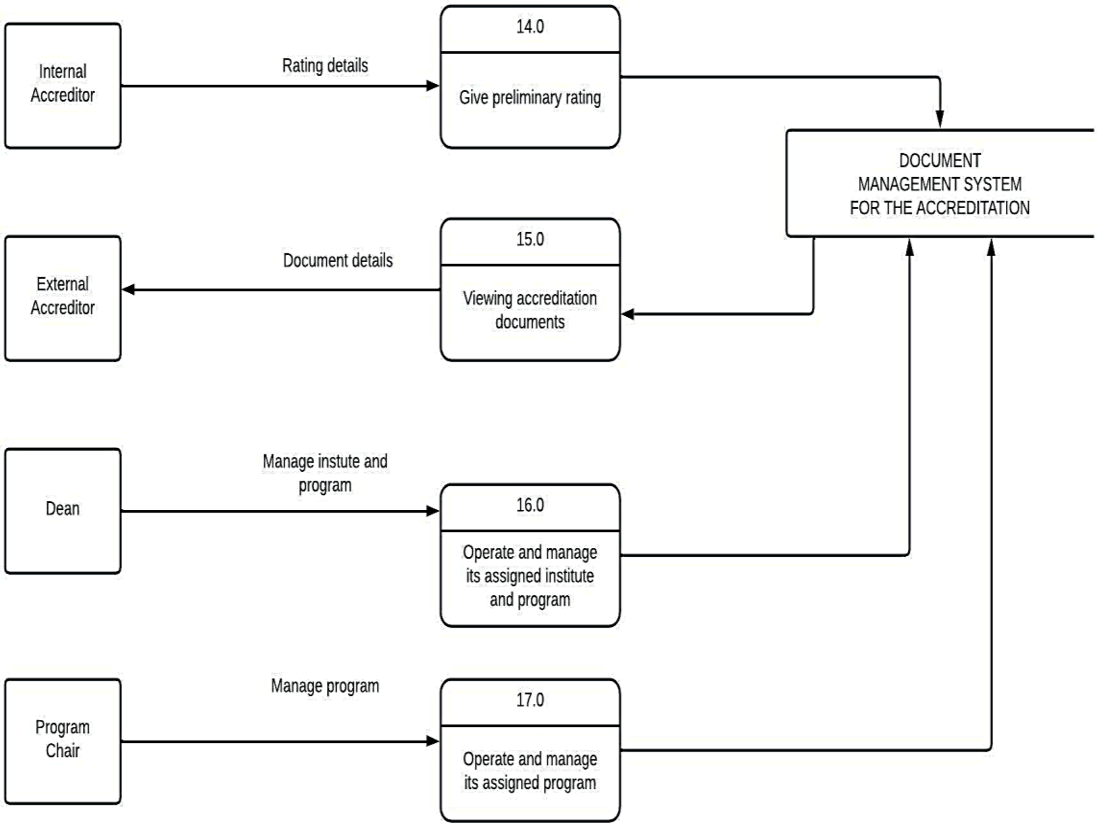

Internal Accreditor
Rating details
14.0
Give preliminary rating
DOCUMENT MANAGEMENT SYSTEM FOR THE ACCREDITATION
External Accreditor
Document details
15.0
Viewing accreditation documents
Dean
Manage instute and program
16.0
Operate and manage its assigned institute and program
Program Chair
Manage program
17.0
Operate and manage its assigned program

Figure 7.2: Level 1 Data Flow Diagram

System Design

After the gathering of user requirements and the detailed analysis, the system must be designed. In this design phase, the primary purpose is to turn all the requirements into accurate, whole system design specifications. It also considers the essential key components (hardware and software), structure, processing, and procedures to meet the system's objectives.

The entire architecture of the system was built using form schemes and how these forms are connected depends on the end-user’s capabilities. Database design, source control used, documenting and prototyping, programming languages, and the other technologies applied are determined in developing the functioned system. The programming languages that the developers used to write code are JavaScript and PHP. JavaScript is mainly utilized in web browsers to have interactive web page elements engaged both on the client side and server side. PHP language features powerful string and array-handling facilities, as well as support for object-oriented programming

The web frameworks that provide a foundation for developing the system are Laravel, a web application framework with expressive, elegant syntax that makes it simpler to develop web applications and allow developers to concentrate on the application's new components. Tailwind is a utility-first CSS framework with CSS classes and tools for the styling of the website. Vue.JS is a JavaScript front-end framework. Inertia JS a modern monolith for routing your server-side to client without building a complex API to render your client-side. Figure 8 shows the system’s entity relationship diagram showing the corresponding entity values stored in the database and their relationship with other entities.

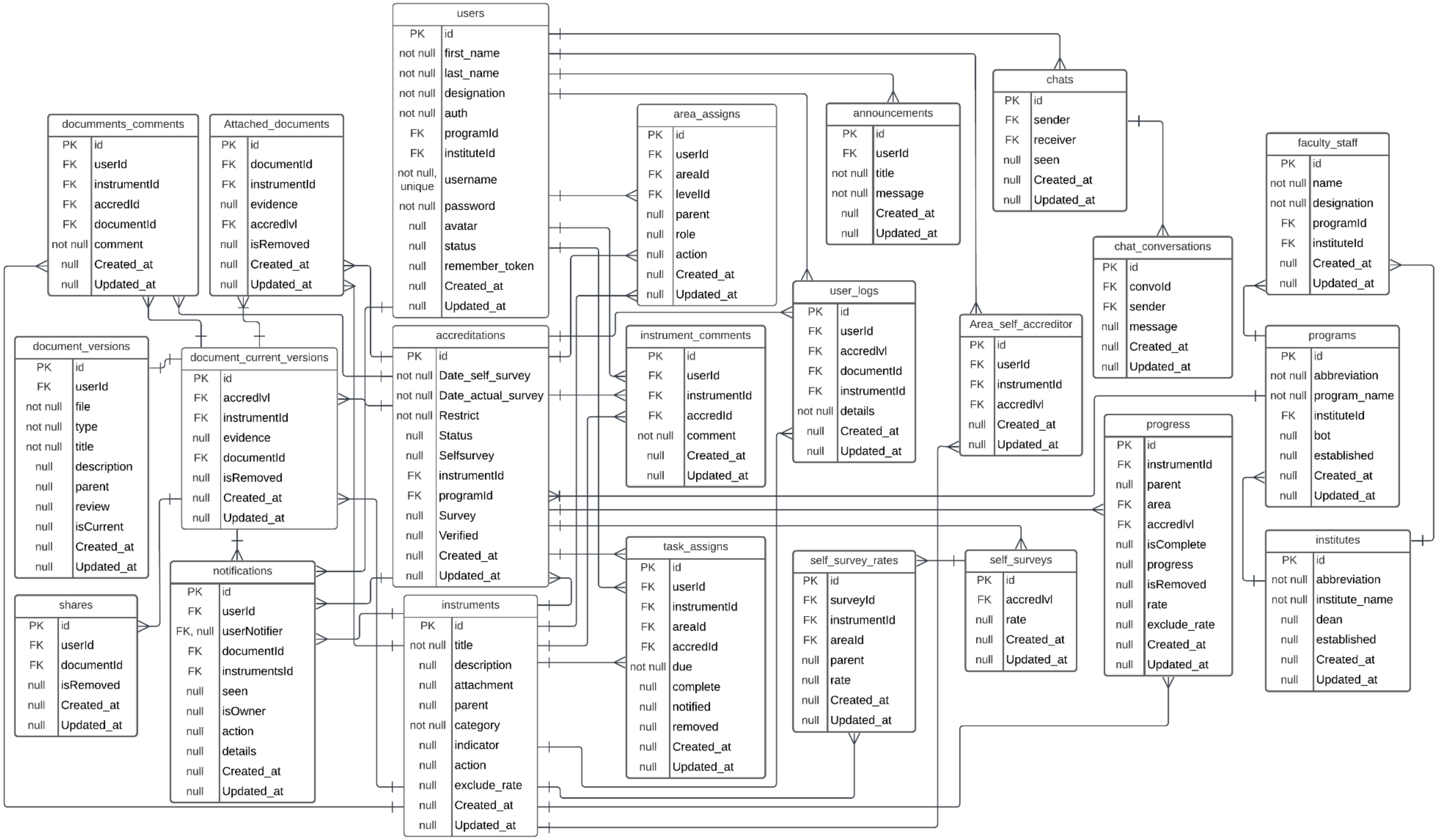


Figure 8: Entity Relationship Diagram

Data Dictionary

This section displays the lists of data dictionaries, including their attributes, data types, constraints, and descriptions used in the system's database.

Table 1: Accreditations

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	Accreditation id, auto-increment
Date_self_survey	DateTime	Not Null	Date of an internal survey
Date_actual_survey	DateTime	Not Null	Date of the actual survey
Restrict	Tinyint(1)	Not Null	Boolean for document restriction
Status	Varchar(255)	Null	Status if accredited or re-accredited
Selfsurvey	Tinyint(1)	Null	Boolean, if accreditation has finished the self-survey
instrumentId	Bigint(20)	Foreign key	Id of instruments table
programId	Bigint(20)	Foreign key	Id of programs table
Survey	Tinyint(4)	Null	If the program is currently conducting a survey
Verified	Tinyint(1)	Null	Boolean, if the internal survey rates are verified
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 2: Announcements

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	Announcement id, auto-increment
userId	Bigint(20)	Foreign Key	Id of users table
Title	Varchar(1000)	Not null	Title of the announcement
Message	Mediumtext	Not null	Message or context of the announcement
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 3: Area_assigns

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	Area_assigns id, auto-increment
userId	Bigint(20)	Foreign Key	Id of users table
areaId	Bigint(20)	Foreign key	Id of instruments table
levelId	Bigint(20)	Foreign key	Id of accreditations table
parent	Varchar(30)	Null	Id of area_assigns table as a reference of the child row
role	Varchar(15)	Null	Role of a user of the assigned area
action	Varchar(15)	Null	If the user is removed

Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 4: Area_self_accreditor

Attributes	**Data type**	**Constraint**	**Description**
id	bigint(20)	Primary Key	Area_self_accreditor id, auto-increment
userId	Bigint(20)	Foreign Key	Id of users table
instrumentsId	Bigint(20)	Foreign key	Id of instruments table
accredlvl	Bigint(20)	Foreign key	Id of accreditations table
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 5: Attached_documents

Attributes	**Data type**	**Constraint**	**Description**
id	bigint(20)	Primary Key	Attached_documents id, auto-increment
documentId	Bigint(20)	Foreign key	Id of document_current_ versions
instrumentId	Bigint(20)	Foreign key	Id of instruments table
evidence	Varchar(255)	Null	Reference for indicator’s evidence to attach
accredlvl	Bigint(20)	Foreign key	Id of accreditations table

isRemoved	Tinyint(1)	Null	Boolean, removed document
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 6: chat_conversations

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	Chat conversations id, auto-increment
convoId	Bigint(20)	Foreign Key	Id of chats table
sender	Bigint(20)	Foreign key	Id of users table
message	Mediumtext	null	Text messages
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 7: chats

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	Chats id, auto-increment
sender	Bigint(20)	Foreign Key	Id of users table
receiver	Bigint(20)	Foreign key	Id of users table
Seen	Tinyint(1)	Null	Boolean, if the chat is seen
Created_at	Timestamp	Null	Time the row is created

Updated_at	Timestamp	Null	Time the row is updated

Table 8: document_commnets

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	document_commnets id, auto-increment
userId	Bigint(20)	Foreign Key	Id of users table
instrumentId	Bigint(20)	Foreign key	Id of instruments table
accredId	Bigint(20)	Foreign key	Id of accreditations table
documentId	Bigint(20)	Foreign key	Id of document_current_ versions
Comment	Mediumtext	Not null	Comments of documents
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 9: document_current_versions

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	document_commnets id, auto-increment
accredlvl	Bigint(20)	Foreign key	Id of accreditations table
instrumentId	Bigint(20)	Foreign key	Id of instruments table
evidence	Varchar(255)	Null	Reference for indicator's evidence to attach

documentId	Bigint(20)	Foreign key	Id of document_ versions
isRemoved	Tinyint(1)	Null	Boolean, removed document
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 10: document_versions

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	document_versions id, auto-increment
userId	Bigint(20)	Foreign Key	Id of users table
file	Varchar(500)	Not null	File name or link
Type	Varchar(10)	Not null	Type of document
Title	Varchar(500)	Not null	Title of document
Description	Mediumtext	Null	Description of a document
Parent	Varchar(255)	Null	Id of a document as a reference of the child document
Review	Varchar(255)	Null	Approve, reject, or revise
IsCurrent	Tinyint(1)	Null	Boolean, documents are the current version
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 11: faculty_staff

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	Faculty_staff id, auto-increment
Name	Varchar(255)	Not null	Full name of the faculty member
Designation	Tinyint(4)	Not null	Designation Id, static id from the system
programId	Bigint(20)	Foreign key	Id of programs table
instituteId	Bigint(20)	Foreign key	Id of institutes table
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 12: Institutes

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	Institutes id, auto-increment
Abbreviation	Varchar(255)	Not null	Abbreviation of institute
Institute_name	Varchar(255)	Not null	Name of institute
Dean	Varchar(255)	Null	Id of users
Established	Date	Null	Date the institute was established
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 13: instrument_comments

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	instrument_comments id, auto-increment
userId	bigint(20)	Foreign key	Id of users table
instrumentId	bigint(20)	Foreign key	Id of instruments table
accredId	bigint(20)	Foreign key	Id of accreditations table
comment	Mediumtext	Not null	Comments of instrument
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 14: instruments

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	instrument_comments id, auto-increment
Title	Varchar(500)	Not null, index	Instrument title
Description	Text	Null	Description of instrument
Attachment	Text	Null	Evidence to attach to the instrument
Parent	Varchar(50)	Null, index	Id of instruments table as reference for child row
Category	Varchar(20)	Not null, index	Category of instruments
Indicator	Varchar(1)	Null	Type of instruments indicator
Action	Varchar(255)	Null	Action of instruments

Exclude_rate	Tinyint(1)	Null	Boolean, instruments to exclude in overall ratings
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 15: notifications

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	notifications id, auto-increment
userId	Bigint(20)	Foreign key	Id of users table
userNotifier	Bigint(20)	Foreign key, Null	Id of users table
documentId	Bigint(20)	Foreign key	Id of document_current_ Versions table
instrumentId	Bigint(20)	Foreign key	Id of instruments table
seen	Tinyint(1)	Null	Marks if notification is seen
isOwner	Tinyint(1)	Null	Boolean, if the user is an owner of a document
action	Varchar(50)	Null	Type of notification
details	Varchar(1000)	Null	More information about the notification
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 16: programs

Attributes	Data type	Constraint	Description

id	bigint(20)	Primary Key	programs id, auto-increment
Abbreviation	Varchar(255)	Not null	Program’s abbreviation
Program_name	Varchar(255)	Not null	Program name
instituteId	Bigint(20)	Foreign key	Id of institute table
Bot	Varchar(255)	Null	BOT resolution of program
Established	Date	Null	Date the program was established
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 17: progress

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	progress id, auto-increment
instrumentId	Bigint(20)	Foreign key	Id of instruments table
Parent	Varchar(255)	Null	Id of progress as a reference to child row
Area	Bigint(20)	Foreign key	Id of instruments table
accredlvlId	Bigint(20)	Foreign key	Id of accreditations table
isComplete	Tinyint(1)	Null	Boolean, if the instrument is complete
Progress	Varchar(255)	Null	Progress of instrument
isRemoved	Tinyint(1)	Null	Boolean, mark if the instrument is removed
Rate	Varchar(5)	Null	Rate of instrument

Exclude_rate	Tiny(1)	Null	Boolean, mark if the instrument is excluded from for overall ratings
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 18: registrations

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	registrations id, auto-increment
First_name	Varchar(255)	Not null	First name of the user
Last_name	Varchar(255)	Not null	Last name of the user
Username	Varchar(255)	Not null	Username of user
Password	Varchar(255)	Not null	A hashed password of a user
Removed	Tinyint(1)	Null	Boolean, mark if the user request is removed
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 19: self_survey_rates

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	self_survey_rates id, auto-increment
surveyId	Bigint(20)	Foreign key	Id of self-surveys table
instrumentId	Bigint(20)	Foreign key	Id of instruments table
areaId	Bigint(20)	Foreign key	Id of instruments table

Parent	Varchar(255)	Null	Id of self_survey_rates as a reference to child rows
Rate	Varchar(255)	Null	Instruments rates
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 20: self_surveys

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	self_surveys id, auto-increment
Accredlvl	Bigint(20)	Foreign key	Id of accreditations table
Rate	Varchar(5)	Null	Overall rating
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 21: shares

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	shares id, auto-increment
userId	Bigint(20)	Foreign key	Id of users table
documentId	Bigint(20)	Foreign key	Id of document_current_ Versions table
isRemoved	Tinyint(1)	Null	Boolean, mark if removed
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 22: task_assigns

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	task_assigns id, auto-increment
userId	Bigint(20)	Foreign key	Id of users table
instrumentId	Bigint(20)	Foreign key	Id of instruments table
areaId	Bigint(20)	Foreign key	Id of instruments table
accredId	Bigint(20)	Foreign key	Id of accreditations table
Due	DateTime	Not null	Due date of the assigned task
Complete	Tinyint(1)	Null	Boolean, mark if the task is complete
Notified	Tinyint(1)	Null	Boolean, mark if the task has been notified to user
removed	Tinyint(1)	Null	Boolean, mark if the task is removed
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 23: temporary_files

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	temporary_files id, auto-increment
folder	Varchar(255)	Not null	Folder name
file	Varchar(255)	Not null	File name
Created_at	Timestamp	Null	Time the row is created

Updated_at	Timestamp	Null	Time the row is updated

Table 24: user_logs

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	user_logs id, auto-increment
userId	Bigint(20)	Foreign key	Id of users table
accredlvl	Bigint(20)	Foreign key	Id of accreditations table
documentId	Bigint(20)	Foreign key	Id of document_versions table
instrumentId	Bigint(20)	Foreign key	Id of instruments table
Details	Varchar(255)	Not null	Information about user action to the document
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Table 25: users

Attributes	Data type	Constraint	Description
id	bigint(20)	Primary Key	users id, auto-increment
First_name	Varchar(255)	Not null	First name of a user
Last_name	Varchar(255)	Not null	Last name of a user
Designation	Tinyint(4)	Not null	Designation of user
Auth	Tinyint(4)	Not null	Authorization of user in the system
programId	Bigint(20)	Null	Id of programs table
instituteId	Bigint(20)	Null	Id of institutes table

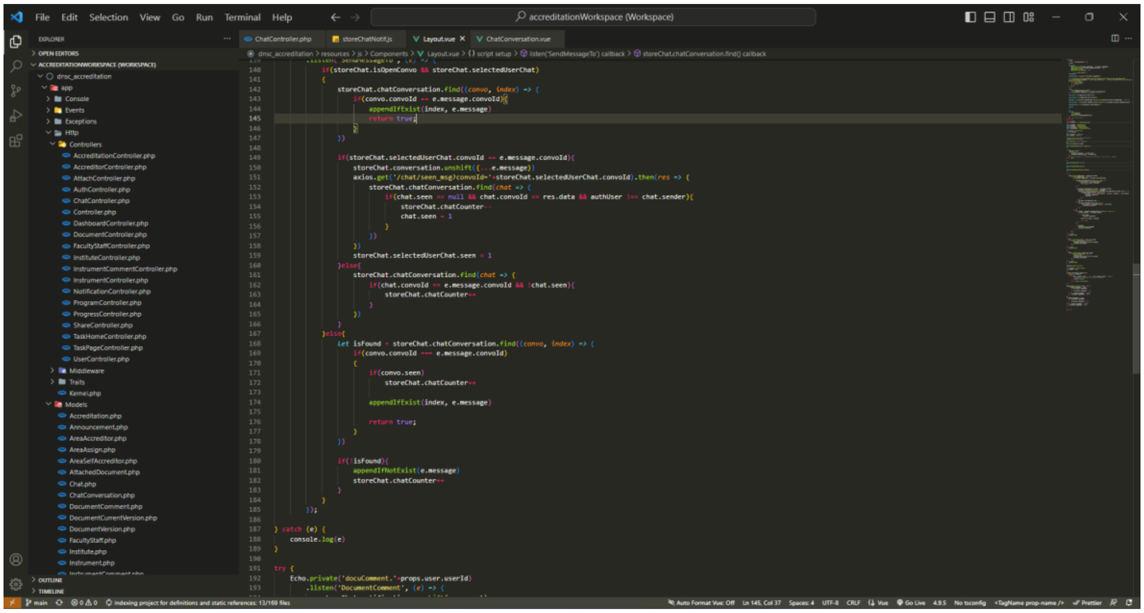
Username	Varchar(255)	Not null, unique	User's username
password	Varchar(255)	Not null	The hashed password of the user
Avatar	Varchar(255)	Null	Profile picture of the user
Status	Tinyint(1)	Null	Boolean, marks if a user is online or not
Remember_token	Varchar(100)	Null	Token for remembering user
Created_at	Timestamp	Null	Time the row is created
Updated_at	Timestamp	Null	Time the row is updated

Technologies Applied

The technologies applied and their workspaces are determined in developing the system. The following are the technologies used by the developers.

Visual Studio Code

Visual studio code is a powerful source code editor that is available for Windows, macOS, and Linux. It has built-in support for JavaScript, TypeScript, and Node.js and has a rich ecosystem of extensions for other languages. It features a lightning-fast source code editor, perfect for day-to-day use. Visual Studio Code is a streamlined code editor with support for development operations like debugging, task running, and version control. It aims to provide just the tools a developer needs for a quick code-build-debug cycle and leaves more complex workflows to fuller featured IDEs, such as Visual Studio IDE [9]. VS Code is a free open-source text editor. Developers of Document management system for accreditation used this for better development because it includes some powerful features. It allows developers to efficiently develop the system using VS code because of its awesome features and extensions. Figure 9 shows the interface of VS code workspace. It allows developers to install additional functionality extensions for the development of customized themes based on your preferred theme.

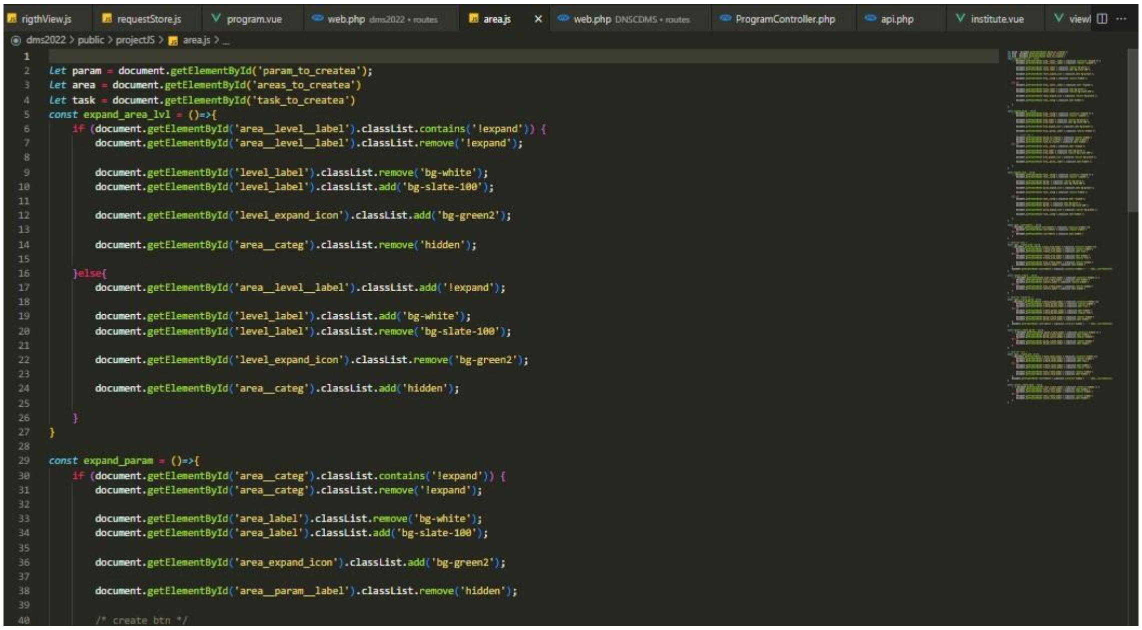

File Edit Selection View Go Run Terminal Help
accreditationWorkspace (Workspace)
ChatController.php
storeChatNotif.js
Layout.vue
ChatConversation.vue
dnsc_accreditation > resources > js > Components > Layout.vue > {} script setup > listen('SendMessageTo') callback > storeChat.chatConversation.find() callback
EXPLORER
OPEN EDITORS
ACCREDITATIONWORKSPACE (WORKSPACE)
OUTLINE
TIMELINE
Auto Format Vue: Off
Ln 145, Col 37

```
            if(storeChat.isOpenConvo && storeChat.selectedUserChat)
            {
                storeChat.chatConversation.find((convo, index) => {
                    if(convo.convoId == e.message.convoId){
                        appendIfExist(index, e.message)
                        return true;
                    }
                })

                if(storeChat.selectedUserChat.convoId == e.message.convoId){
                    storeChat.conversation.unshift({...e.message})
                    axios.get('/chat/seen_msg?convoId='+storeChat.selectedUserChat.convoId).then(res => {
                        storeChat.chatConversation.find(chat => {
                            if(chat.seen == null && chat.convoId == res.data && authUser !== chat.sender){
                                storeChat.chatCounter--
                                chat.seen = 1
                            }
                        })
                    })
                    storeChat.selectedUserChat.seen = 1
                }else{
                    storeChat.chatConversation.find(chat => {
                        if(chat.convoId == e.message.convoId && !chat.seen){
                            storeChat.chatCounter++
                        }
                    })
                }
            }else{
                let isFound = storeChat.chatConversation.find((convo, index) => {
                    if(convo.convoId === e.message.convoId)
                    {
                        if(convo.seen)
                            storeChat.chatCounter++

                        appendIfExist(index, e.message)

                        return true;
                    }
                })

                if(!isFound){
                    appendIfNotExist(e.message)
                    storeChat.chatCounter++
                }
            }
        });

} catch (e) {
    console.log(e)
}

try {
    Echo.private('docuComment.'+props.user.userId)
        .listen('DocumentComment', (e) => {
```

Figure 9: Visual Studio Code Workspace

JavaScript

JavaScript is a programming language for the web. It manipulates the behavior of HTML and CSS, and even data. JavaScript is used both on the client side and server side which allows you to make web pages interactive [10]. JavaScript improves the UX of webpages by making them interactive. It is mainly used for web-based applications and browsers, but also used outside web browsers. JavaScript improves the front-end of the web-application. JavaScript adds dynamic functionality to the web pages, such as responding to user input. It also interacts with external services and APIs. There are lots of libraries that make JavaScript a powerful language. DMS developers used JavaScript to make the system more interactive and improve the UX of the system. Figure 10 shows some of the environment of JS.

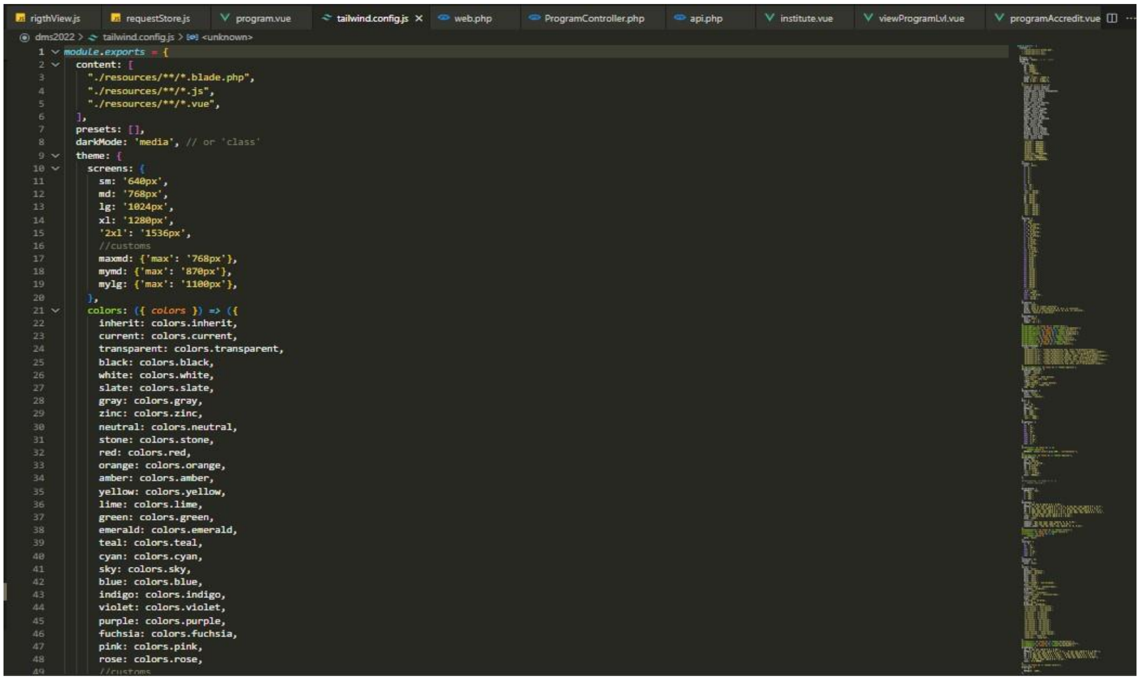


```javascript

let param = document.getElementById('param_to_createa');
let area = document.getElementById('areas_to_createa')
let task = document.getElementById('task_to_createa')
const expand_area_lvl = ()=>{
    if (document.getElementById('area__level__label').classList.contains('!expand')) {
        document.getElementById('area__level__label').classList.remove('!expand');

        document.getElementById('level_label').classList.remove('bg-white');
        document.getElementById('level_label').classList.add('bg-slate-100');

        document.getElementById('level_expand_icon').classList.add('bg-green2');

        document.getElementById('area__categ').classList.remove('hidden');

    }else{
        document.getElementById('area__level__label').classList.add('!expand');

        document.getElementById('level_label').classList.add('bg-white');
        document.getElementById('level_label').classList.remove('bg-slate-100');

        document.getElementById('level_expand_icon').classList.remove('bg-green2');

        document.getElementById('area__categ').classList.add('hidden');

    }
}

const expand_param = ()=>{
    if (document.getElementById('area__categ').classList.contains('!expand')) {
        document.getElementById('area__categ').classList.remove('!expand');

        document.getElementById('area_label').classList.remove('bg-white');
        document.getElementById('area_label').classList.add('bg-slate-100');

        document.getElementById('area_expand_icon').classList.add('bg-green2');

        document.getElementById('area__param__label').classList.remove('hidden');

        /* create btn */
```

Figure 10: JavaScript Workspace

Tailwind

Tailwind CSS is a utility-first CSS framework for rapidly building custom user interfaces. It is a highly customizable, low-level CSS framework that gives you all of the building blocks you need to build bespoke designs without any annoying opinionated styles you have to fight to override. it doesn’t impose design specifications or how your site should look, you simply bring tiny components together to construct a unique user interface [11]. Tailwind CSS is a faster UI-building process and gives a beautiful design for your web systems. It is a very popular CSS framework, and it is very easy and quick to use because of its ready-made styles. It also has responsive classes to make a responsive website. The DMS developers use Tailwind CSS in building the UI for the system because it allows the developers to focus on functionality rather than spending much time on writing custom CSS, and because of its flexibility in styling, convenient and efficient to use.

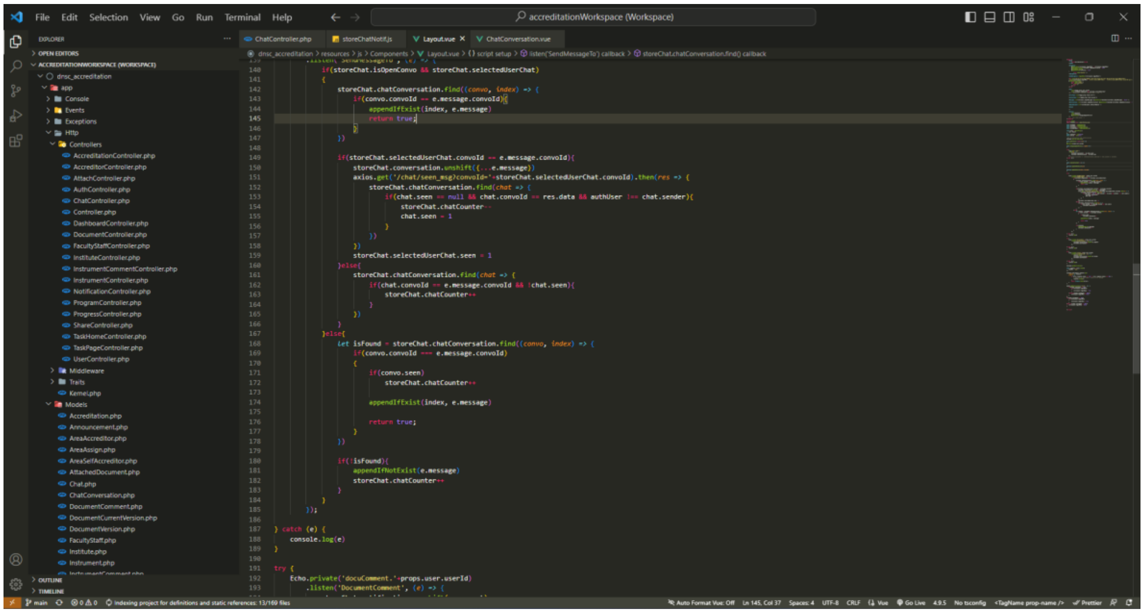


```
module.exports = {
  content: [
    "./resources/**/*.blade.php",
    "./resources/**/*.js",
    "./resources/**/*.vue",
  ],
  presets: [],
  darkMode: 'media', // or 'class'
  theme: {
    screens: {
      sm: '640px',
      md: '768px',
      lg: '1024px',
      xl: '1280px',
      '2xl': '1536px',
      //customs
      maxmd: {'max': '768px'},
      mymd: {'max': '870px'},
      mylg: {'max': '1100px'},
    },
    colors: ({ colors }) => ({
      inherit: colors.inherit,
      current: colors.current,
      transparent: colors.transparent,
      black: colors.black,
      white: colors.white,
      slate: colors.slate,
      gray: colors.gray,
      zinc: colors.zinc,
      neutral: colors.neutral,
      stone: colors.stone,
      red: colors.red,
      orange: colors.orange,
      amber: colors.amber,
      yellow: colors.yellow,
      lime: colors.lime,
      green: colors.green,
      emerald: colors.emerald,
      teal: colors.teal,
      cyan: colors.cyan,
      sky: colors.sky,
      blue: colors.blue,
      indigo: colors.indigo,
      violet: colors.violet,
      purple: colors.purple,
      fuchsia: colors.fuchsia,
      pink: colors.pink,
      rose: colors.rose,
      //customs
```

Figure 11: Tailwind CSS Workspace

Laravel

Laravel is a web application framework with expressive, elegant syntax maintained by Taylor Otwell. We’ve already laid the foundation — freeing you to create without sweating the small things. Every feature has been thoughtfully considered to provide a wonderful developer experience. It provides amazing developer experience while providing powerful features such as thorough dependency injection, an expressive database abstraction layer, and more [12]. DMS developers use Laravel for the backend of the system because of its MVC support, Built-In Authentication and Authorization, Eloquent ORM, and robust and flexible PHP framework that is best for the development of the system. It is also an open-source PHP framework which is the preferred language of the system's developer. Developers used version 9 of Laravel.



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Go
Run
Terminal
Help
accreditationWorkspace (Workspace)
ChatController.php
storeChatNotif.js
Layout.vue
ChatConversation.vue
dnsc_accreditation > resources > js > Components > Layout.vue > {} script setup > listen('SendMessageTo') callback > storeChat.chatConversation.find() callback
Auto Format Vue: Off
Ln 145, Col 37

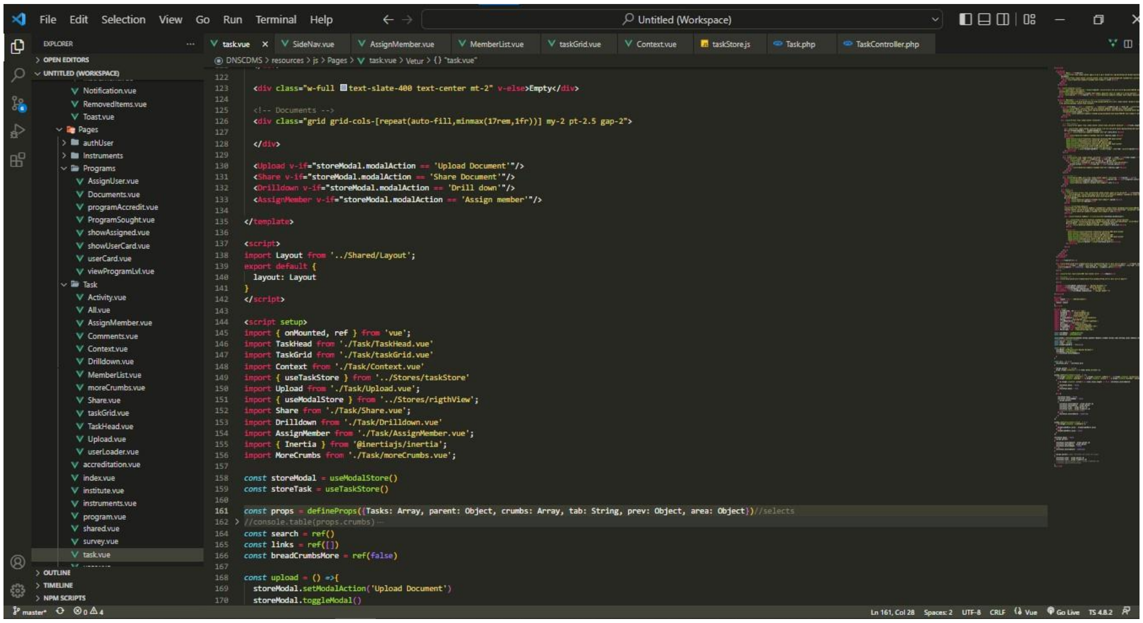
```
            if(storeChat.isOpenConvo && storeChat.selectedUserChat)
            {
                storeChat.chatConversation.find((convo, index) => {
                    if(convo.convoId == e.message.convoId){
                        appendIfExist(index, e.message)
                        return true;
                    }
                })

                if(storeChat.selectedUserChat.convoId == e.message.convoId){
                    storeChat.conversation.unshift({...e.message})
                    axios.get('/chat/seen_msg?convoId='+storeChat.selectedUserChat.convoId).then(res => {
                        storeChat.chatConversation.find(chat => {
                            if(chat.seen == null && chat.convoId == res.data && authUser !== chat.sender){
                                storeChat.chatCounter--
                                chat.seen = 1
                            }
                        })
                    })
                    storeChat.selectedUserChat.seen = 1
                }else{
                    storeChat.chatConversation.find(chat => {
                        if(chat.convoId == e.message.convoId && !chat.seen){
                            storeChat.chatCounter++
                        }
                    })
                }
            }else{
                let isFound = storeChat.chatConversation.find((convo, index) => {
                    if(convo.convoId === e.message.convoId)
                    {
                        if(convo.seen)
                            storeChat.chatCounter++

                        appendIfExist(index, e.message)

                        return true;
                    }
                })

                if(!isFound){
                    appendIfNotExist(e.message)
                    storeChat.chatCounter++
                }
            }
        });

} catch (e) {
    console.log(e)
}

try {
    Echo.private('docuComment.'+props.user.userId)
        .listen('DocumentComment', (e) => {
```

Figure 12: Laravel Workspace

Vue.Js

Vue pronounced as view, is a JavaScript framework for building user interfaces. It builds on top of standard HTML, CSS, and JavaScript and provides a declarative and component-based programming model that helps you efficiently develop user interfaces, be they simple or complex [13].

Vue is view-model is a front-end JavaScript framework. It is for building a single-page application created by Evan You. It only focuses on the view model layer. It is the best front-end framework for Laravel because it has a lot of community support. The developer of the team chooses Vue as the front-end framework because it is simple to start with, has great libraries, has an easy learning curve, and has fast rendering. Figure 13 shows the Vue workspace.



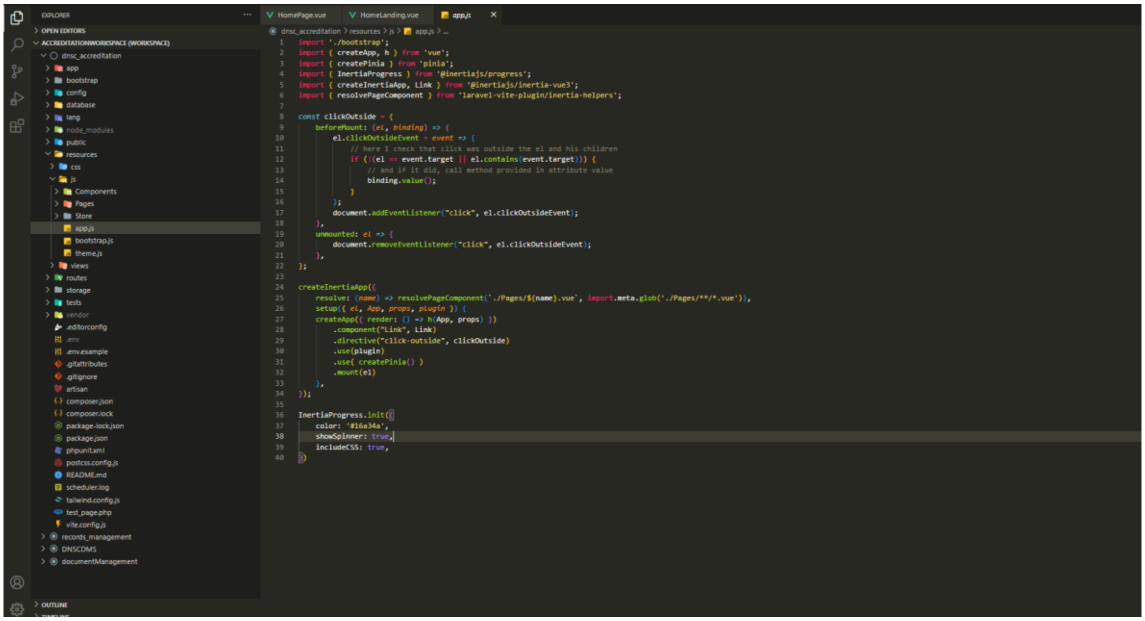
```
    <div class="w-full text-slate-400 text-center mt-2" v-else>Empty</div>

    <!-- Documents -->
    <div class="grid grid-cols-[repeat(auto-fill,minmax(17rem,1fr))] my-2 pt-2.5 gap-2">

    </div>

    <Upload v-if="storeModal.modalAction == 'Upload Document'"/>
    <Share v-if="storeModal.modalAction == 'Share Document'"/>
    <Drilldown v-if="storeModal.modalAction == 'Drill down'"/>
    <AssignMember v-if="storeModal.modalAction == 'Assign member'"/>

  </template>

  <script>
  import Layout from '../Shared/Layout';
  export default {
    layout: Layout
  }
  </script>

  <script setup>
  import { onMounted, ref } from 'vue';
  import TaskHead from './Task/TaskHead.vue'
  import TaskGrid from './Task/taskGrid.vue'
  import Context from './Task/Context.vue'
  import { useTaskStore } from '../Stores/taskStore'
  import Upload from './Task/Upload.vue';
  import { useModalStore } from '../Stores/rigthView';
  import Share from './Task/Share.vue';
  import Drilldown from './Task/Drilldown.vue'
  import AssignMember from './Task/AssignMember.vue';
  import { Inertia } from '@inertiajs/inertia';
  import MoreCrumbs from './Task/moreCrumbs.vue';

  const storeModal = useModalStore()
  const storeTask = useTaskStore()

  const props = defineProps({Tasks: Array, parent: Object, crumbs: Array, tab: String, prev: Object, area: Object})//selects
> //console.table(props.crumbs)···
  const search = ref()
  const links = ref([])
  const breadCrumbsMore = ref(false)

  const upload = () =>{
    storeModal.setModalAction('Upload Document')
    storeModal.toggleModal()
```

Figure 13: Vue.JS Workspace

Inertia Js

Inertia is a new approach to building classic server-driven web apps. We call it the modern monolith. Inertia allows you to create fully client-side rendered, single-page apps, without the complexity that comes with modern SPAs. It does this by leveraging existing server-side patterns that you already love [14]. Inertia is not a framework but acts as API for a single-page application for Laravel. it allows the user to develop an application without building any API to communicate with the server and client-side. It provides a seamless experience for building SPA, like Vue, React, and Svelt.

Developers used Inertia in building the application because you can build a single-page application with the familiarity of using the server-side frameworks. It creates seamless integration with the Vue framework that the developer also used for development. Figure 14 shows the Inertia workspace.



```javascript
import './bootstrap';
import { createApp, h } from 'vue';
import { createPinia } from 'pinia';
import { InertiaProgress } from '@inertiajs/progress';
import { createInertiaApp, Link } from '@inertiajs/inertia-vue3';
import { resolvePageComponent } from 'laravel-vite-plugin/inertia-helpers';

const clickOutside = {
    beforeMount: (el, binding) => {
        el.clickOutsideEvent = event => {
            // here I check that click was outside the el and his children
            if (!(el == event.target || el.contains(event.target))) {
                // and if it did, call method provided in attribute value
                binding.value();
            }
        };
        document.addEventListener("click", el.clickOutsideEvent);
    },
    unmounted: el => {
        document.removeEventListener("click", el.clickOutsideEvent);
    },
};

createInertiaApp({
    resolve: (name) => resolvePageComponent(`./Pages/${name}.vue`, import.meta.glob('./Pages/**/*.vue')),
    setup({ el, App, props, plugin }) {
    createApp({ render: () => h(App, props) })
        .component("Link", Link)
        .directive("click-outside", clickOutside)
        .use(plugin)
        .use( createPinia() )
        .mount(el)
    },
});

InertiaProgress.init({
    color: '#16a34a',
    showSpinner: true,
    includeCSS: true,
})
```

Figure 14: Inertia JS Workspace

Figma

Figma is a vector graphics editor and prototyping tool. It has a desktop and mobile application. You can use it to do all kinds of graphic design work from wireframing websites, designing mobile app interfaces, prototyping designs, crafting social media posts, and everything in between [15]. Figma works in a browser that allows you to share your work with the team. It is a very popular tool used for designing that has a powerful design tool that let you do whatever you like. You can add plugins for better designing like material icons etc.

The developers use Figma in designing and prototyping the system because it is easy to use, a great tool for collaborative design, and allow the developers to work anywhere. That is why it is very ideal to use. Figure 14 shows the Figma workspace.

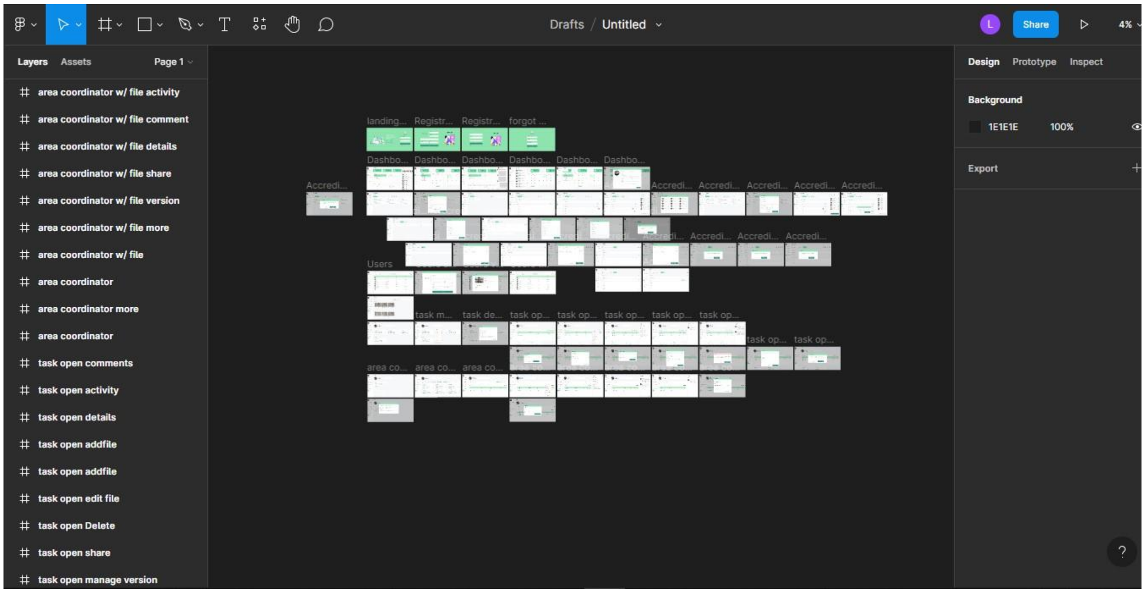


Figure 15: Figma Workspace

Lucidchart

Lucidchart is a web-based proprietary platform that allows developers to collaborate on drawing, revising, and sharing charts and diagrams [16]. The intelligent diagramming application brings teams together to make better decisions and build the future. Lucidchart lets you create different types of charts, and let you add different shapes to use. It is a very powerful tool for creating diagrams and any other visual documents. It allows you to use different templates and integrate with other popular tool.

The developers used Lucidchart to collaborate and work together in real-time to build flowcharts, organizational charts, website wireframes, diagrams, and models. Figure 15 shows the Lucidchart workspace of the developers.

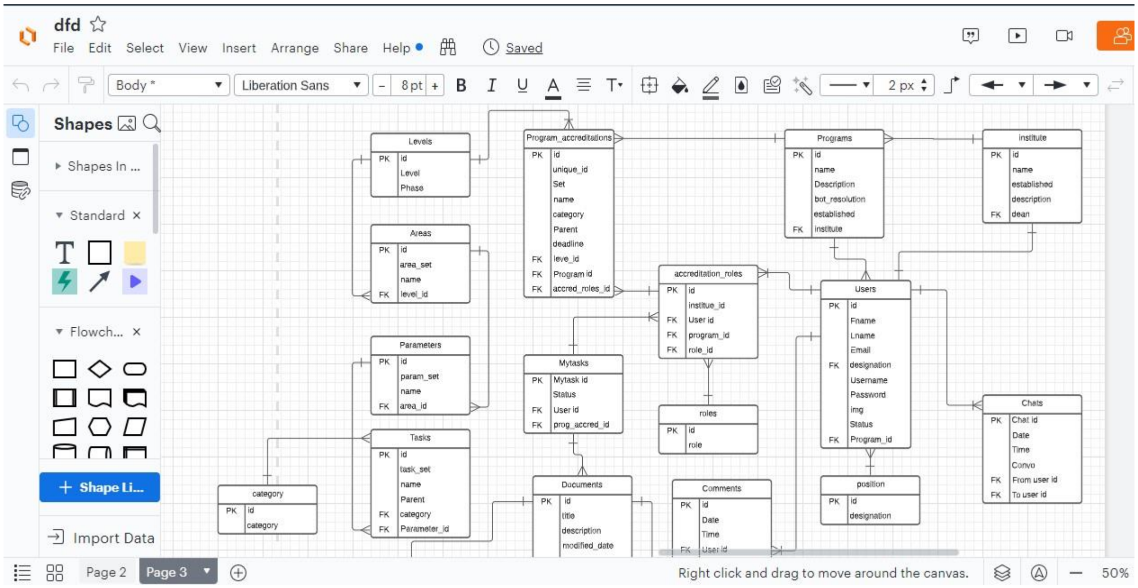


Figure 16: Lucidchart Workspace

System Implementation

As part of the phase of implementation, the proponents will present the system to the stakeholders, and users and the approved decision of the panelists before going to the actual deployment. After getting the final approval, the proponents will then prepare to deploy the system to the said organization. The proponents must execute a dry-run of the project before proceeding to the final deployment to the organization providing the demonstration of the system to the users of the system created in order to familiarize the functionalities and design of the project.

Table 1: Systems test plan

Name	Technical Description
Development	The proponents will provide the necessary software, API, and partial domain for the System testing.
Unit testing	Test the specific parts of the system on what kind of operation it processes
Functional Testing	Test each individual function of the software application by giving it the correct input and then comparing the application’s output to the Functional requirements.
User Acceptance Testing	The user or customer will test the software to establish acceptability. Functional, system, and regression testing are accomplished before this.

Defect Tracking and Resolution Approach:

The users and others involved in the project should be discussing how problems discovered during testing will be identified, monitored, and fixed by the proponents.

Table 2: Systems Implementation Plan

Action Plan	Plan Description	Target Completion Date
System Configuration	Implements the user interface design and enables all the designed functionality.	9/15/2022
Deploy the system to the domain	The system must be accessible to the web browser for the target users.	02/28/2023
Launch system with database	The system must have the data and information (Documents) for the implementation.	02/28/2023
Collect Information	Collect the data and Information uploaded for the system documentation.	05/05/23
Analyze Data	Applying a systematic approach to the data gathered during the process of the system.	05/06/23
Review Results	The review gathered information and data for system documentation.	05/08/23

System Maintenance

One of the system's phases wherein, the system will be regularly observed and updated from time to time. The system developers will be the ones who are responsible for the maintenance to ensure the efficiency of the system. Also, they are the ones who will do the database backups once to ensure that the data will be recovered if there will be any technical issues in the future. If there will be any bugs and errors that will result in the system's deficiency, the developers will be responsible for fixing the system and will handle the needed modifications to ensure its effectiveness and to be more useful in the market and will enhance its ability to adapt to the environment. The maintenance will only undergo once and after that, the developer will no longer manage the maintenance of the system.

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