



มหาวิทยาลัยอัสสัมชัญ[†]
ASSUMPTION UNIVERSITY
of THAILAND



VINCENT MARY
SCHOOL of SCIENCE and
TECHNOLOGY

Senior Project II Report

AU Academic Work Report

Sakar Karmacharya,
Saranya Sangsuk-iem

A. Suparwat Charoenvikrom (Advisor)

CSX 3011 Senior Project ll (2/2022)

Senior Project Approval

Project title: AU Academic Work Report

Academic Year: 2/2022

Authors: Sakar Karmacharya (6218332)

Saranya Sangsuk-iem (6237407)

Project Advisor: A. Suparwat Charoenvikrom

The Senior Project committee's cooperation between the Department of Computer Science and Information Technology, Vincent Mary School of Science and Technology, Assumption University had approved this Senior Project. The Senior Project in partial fulfillment of the requirement for the degree of Bachelor of Science in Computer Science and Information technology.

Approval Committee:

.....
(A. Suparwat Charoenvikrom)

Project Advisor

.....
(Asst. Prof. Dr. Paitoon Porntrakoon)

Committee Member

.....
(Asst. Prof. Dr. Benjawan Srisura)

Committee Member

Abstract

In this report, we discuss the purpose behind the project we have chosen, the methods used, the implications applied and the results we have acquired for our senior project ll. Throughout the years, we have seen a lot of administrative procedures on ABAC turn digital, but not all of them have been turned yet. There are still many procedures that are being done manually in a traditional way, so we saw this as an opportunity to build something that would help the university further in transforming digitally.

The system we took upon consideration for the project is a remuneration form filling system for lecturers of the university which has been done manually for many years but could be simplified if a system is created properly. For this we took an approach by creating a web application using tools such as Apache, PHP, Maria DB and Microsoft login.

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Chapter 1: Introduction

1.1 Problem Statement

Throughout the years, ABAC has endeavored to improve its system by digitally transforming as many administrative products as possible. Despite the fact that a large number of projects that have been of great benefit to the university have been completed, there are still a large number of sites where digital transformation has not been completed, but it is possible. This presented us with an opportunity, so we decided to investigate the submission procedure for compensation forms. Currently, the procedure of lecturers filling out the form for their compensation is still performed manually, in accordance with tradition. The lecturer then manually completes the paper form, and after completion, the form is distributed to the various departments for clearance. In order to simplify this process, we came up with the idea of developing a web application that would allow different users to fill out the forms and also verify the forms for approval in a series of stages.

1.2 Scope of the project

We viewed this senior assignment as an opportunity to streamline the ongoing process of compensation form completion by creating a web application that permits multiple users to complete the forms. Keeping in mind the issues that were previously discussed, we seized this opportunity. This application would be utilized by university instructors and other academic title holders, school deans, the Human Resources department, the Academic Affairs department, the IRAS department, and the university committee. Briefly talking about how the system works:

- i. First, a digital platform is provided to the lecturer, which allows them to join in to a website using the user's Microsoft ID and complete the remuneration form there.
- ii. The form is then submitted to the department's Dean for approval. The Dean can view the completed form by using their Microsoft ID.

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iii. After approval, the form is forwarded to three departments for additional review and editing:

- a. Human Resource Department
- b. Academic Affair Department
- c. IRAS Department

Using their respective Microsoft IDs, the various departments are able to verify the completed form, make any necessary modifications to the form, and then either approve or reject the form as appropriate.

iv. After receiving approval from the aforementioned organizations, the proposal is forwarded to the University Committee for final approval.

Nota: If the form is not approved for any reason, it is returned to the user for additional editing.

Chapter 2: Related Work

There are a number of websites that enable the creation of forms and workflows that can be sent to various departments for approval. Here are some possibilities to consider:

2.1 JotForm

JotForm is an online form builder that allows you to create custom forms and workflows. You can choose from a wide range of pre-built templates or create your own form from scratch. JotForm offers a drag-and-drop interface that makes it easy to add fields to your form and customize its appearance.

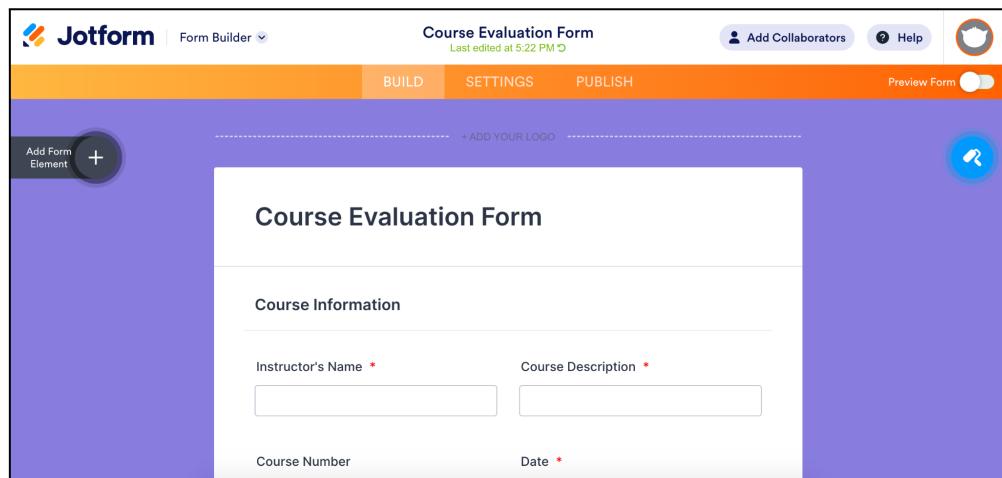


Figure 2.1: Jot Form Interface

Once you've created your form, you can set up workflow rules to route the form to different departments for approval. For example, you might set up a rule that sends the form to the HR department first, then to the finance department, and so on. You can also set up email notifications and reminders to keep everyone informed throughout the process. JotForm integrates with a wide range of other tools and services, including Dropbox, Google Sheets, and Zapier, making it a versatile option for businesses of all sizes.

2.2 Google Forms

Google Forms is a free tool that lets you create custom forms and surveys. You can choose from a range of question types, including multiple choice, short answer, and more. You can also customize the look and feel of your form by adding images and changing the color scheme.

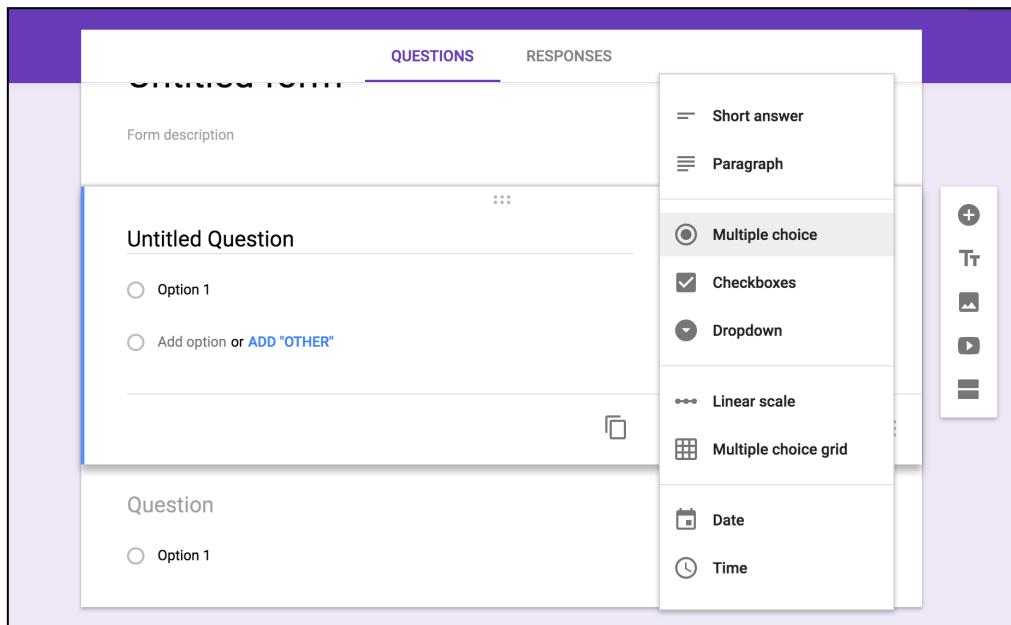


Figure 2.2: Google Form Interface

While Google Forms doesn't offer the same advanced workflow capabilities as some other options, you can still share your form with others and track responses in real-time. You can also set up automatic email notifications to alert you when someone completes your form. Google Forms is a good option if you're already using other Google products like Gmail and Google Drive, as it integrates seamlessly with these tools.

2.3 Microsoft Forms

Microsoft Forms is a free tool that lets you create custom forms and surveys. You can choose from a range of question types, including multiple choice, rating scales, and more. You can also customize the look and feel of your form by adding images and changing the color scheme.

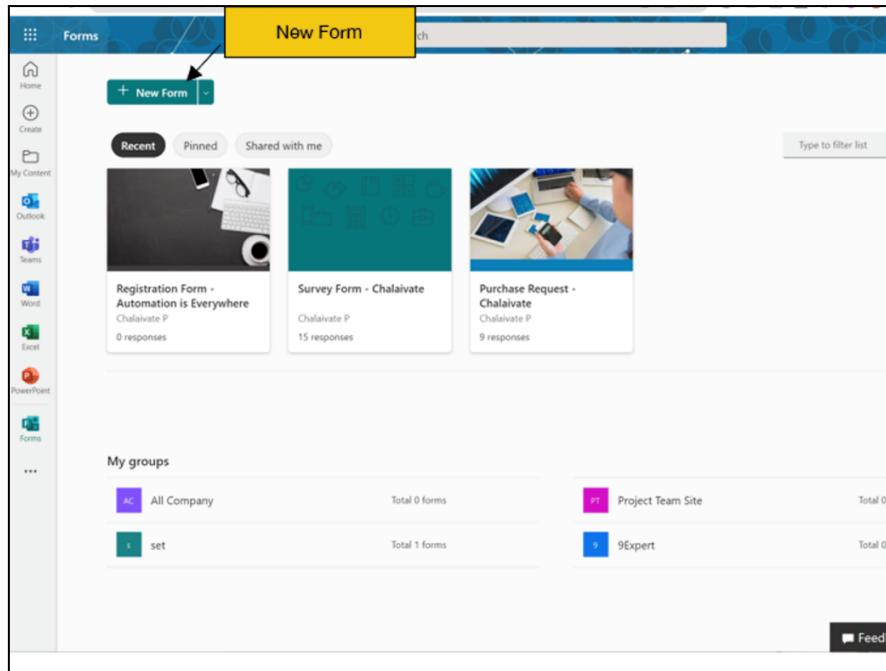


Figure 2.3: Microsoft Form Interface

Microsoft Forms integrates with other Microsoft products like Teams and SharePoint, making it a good option if you're already using these tools. You can also export your form data to Excel or Power BI for further analysis. While Microsoft Forms doesn't offer the same advanced workflow capabilities as some other options, you can still share your form with others and track responses in real-time. You can also set up automatic email notifications to alert you when someone completes your form.

2.4 Formstack

Formstack is an online form builder that offers advanced workflow capabilities. You can create custom forms and workflows that route the form to different departments for approval. You can also set up conditional logic and branching to ensure that each department only sees the relevant parts of the form.

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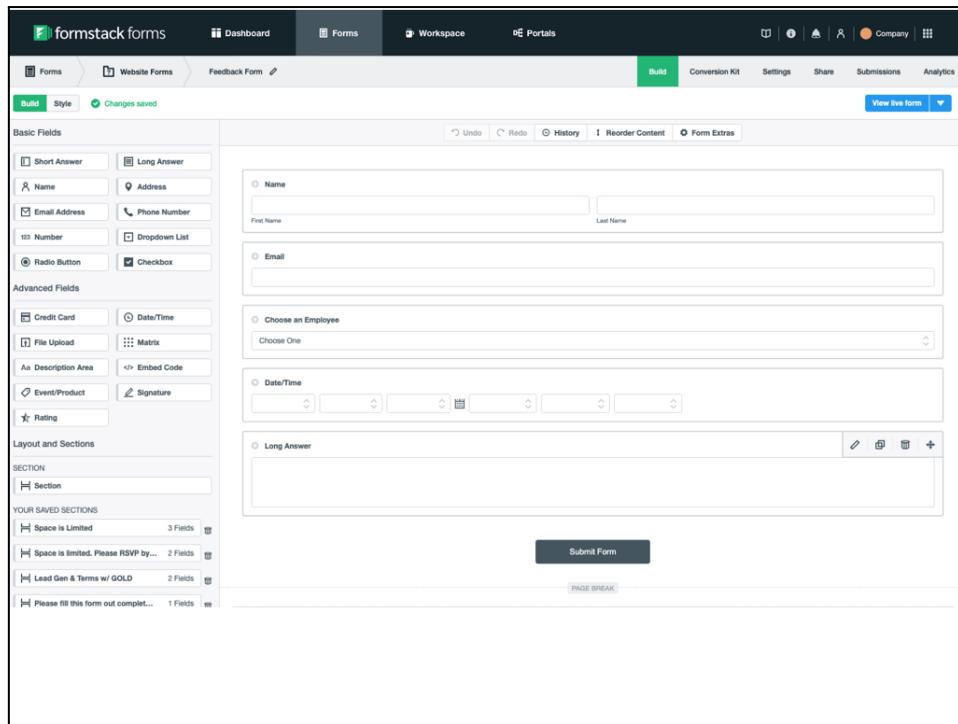


Figure 2.4: Formstack Interface

Formstack integrates with a wide range of other tools and services, including Salesforce, HubSpot, and Zapier, making it a versatile option for businesses of all sizes. You can also set up automatic email notifications and reminders to keep everyone informed throughout the process. Formstack offers a range of pricing plans, starting at \$19 per month, depending on your needs and requirements.

2.5 Wufoo

Wufoo is an online form builder that lets you create custom forms and workflows. You can choose from a range of pre-built templates or create your own form from scratch. Wufoo offers a drag-and-drop interface that makes it easy to add fields to your form and customize its appearance.

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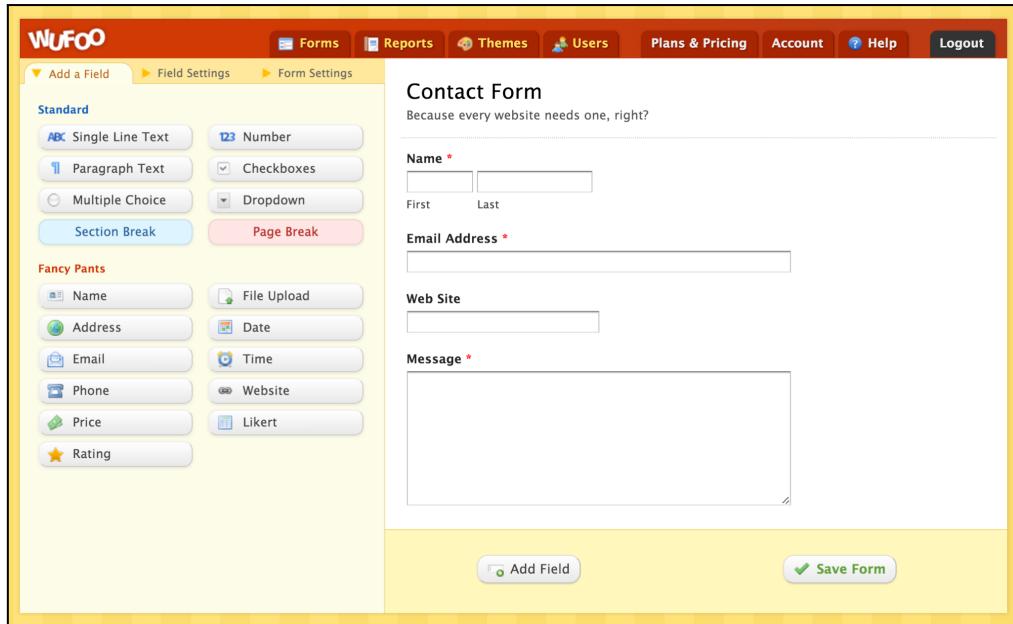


Figure 2.5: Wufoo Interface

Once you've created your form, you can set up workflow rules to route the form to different departments for approval. You can also set up conditional logic and branching to ensure that each department only sees the relevant parts of the form. Wufoo integrates with a wide range of other tools and services, including Mailchimp, Salesforce, and PayPal, making it a versatile option for businesses of all sizes. You can also set up automatic email notifications and reminders to keep everyone informed throughout the process.

Chapter 3: Proposed Methodology

3.1 Methodology

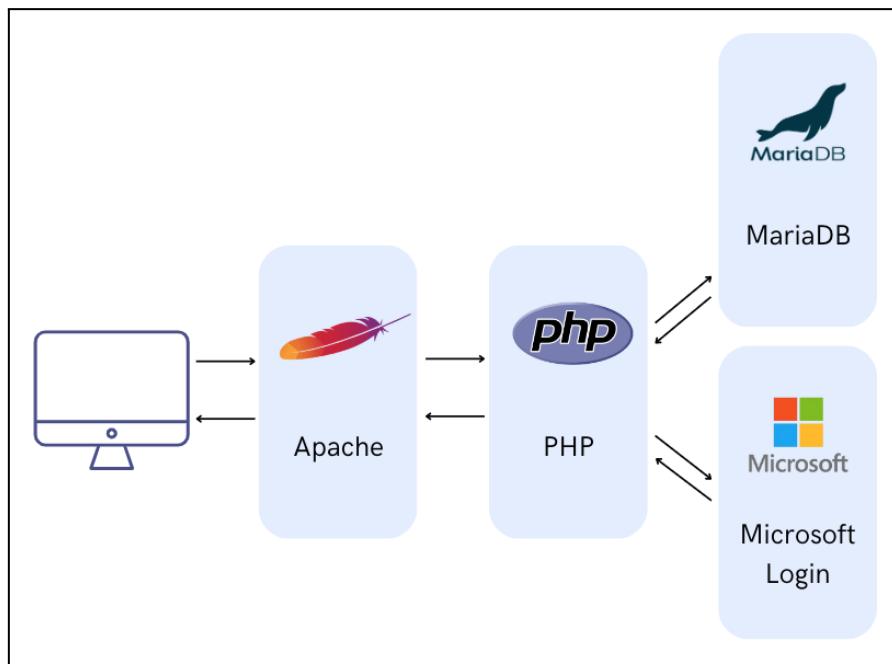


Figure 3.1: Architecture of AU Academic Work Report website

3.1.1 Apache

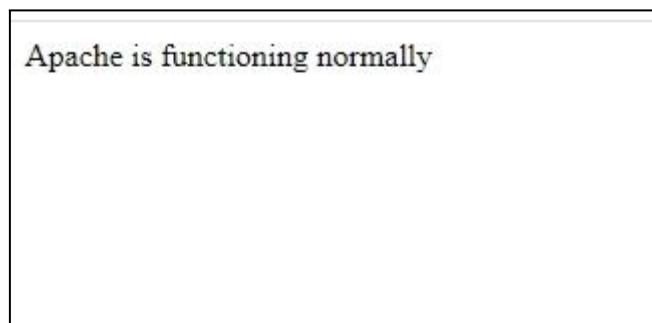


Figure 3.1.1: Apache web server

In its capacity as a Web server, Apache is responsible for handling requests for directories sent in via the HTTP protocol from users of the Internet and delivering the requested information

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to those users in the form of files and Web pages. The majority of the software and code that powers the Web is created with Apache's features and functionality in mind.

3.1.2 PHP



Figure 3.1.2: PHP version used

It is possible to create dynamic and interactive web pages with the help of a scripting language known as PHP (Hypertext Preprocessor). PHP is a general-purpose scripting language. It was one of the first server-side languages that could be embedded into HTML, which made it simpler to add functionality to web sites without the need to call external files for data. Since it was one of the first server-side languages that could be embedded into HTML. As a result, the backend programming of this project was carried out using PHP, version 7.4.33. Here is additional information regarding PHP, which was utilized by us:

<https://www.auworkreport.info/info.php>

3.1.3 MariaDB

The screenshot shows the phpMyAdmin interface for the database 'kamobak.au'. The top navigation bar includes tabs for Structure, SQL, Search, Query, Export, Import, Operations, Routines, Events, Triggers, and Designer. Below the tabs, there is a 'Filters' section with a search input field. The main area displays a table of tables with columns: Table, Action, Rows, Type, Collation, Size, and Overhead. The table lists four tables: 'tblAuthSessions', 'tb_fm1', 'tb_member', and 'tb_school'. The 'tblAuthSessions' table has 16 rows, while the others have fewer. All tables are MyISAM type with utf8mb3_unicode_ci collation. The total size is 59 Kib and overhead is 0 B.

Table	Action	Rows	Type	Collation	Size	Overhead
tblAuthSessions		16	MyISAM	utf8mb3_unicode_ci	29.3 Kib	-
tb_fm1		6	MyISAM	utf8mb4_general_ci	5.8 Kib	-
tb_member		130	MyISAM	utf8mb4_general_ci	22.4 Kib	-
tb_school		10	MyISAM	utf8mb4_general_ci	1.5 Kib	-
4 table(s)	Sum				162	MyISAM utf8mb3_unicode_ci 59 Kib 0 B

Figure 3.1.3: MariaDB used in AU Academic Work Report website

MariaDB is a database management system that is a fork of MySQL. It is very comparable to MySQL, which is a database management system. Several different applications, including

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data warehousing, e-commerce, enterprise-level features, and recording programs, all make use of the MariaDB database. MariaDB will enable you to handle all workloads in an effective manner; it can function in any cloud database and can function at any scale, whether it be small or large.

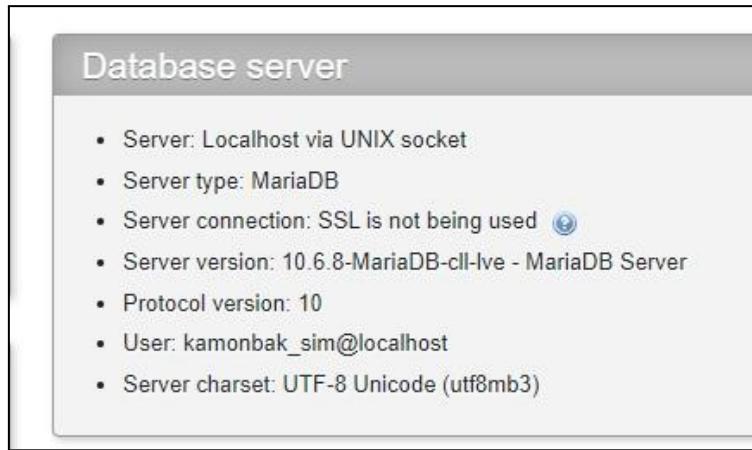


Figure 3.1.4: MariaDB database server

3.1.4 Microsoft Login (Azure)

We used Microsoft Azure to do Microsoft Login. Microsoft Azure is a cloud computing platform that provides access, administration, and development of applications and services through globally distributed data centers. Microsoft Azure supports a variety of programming languages, tools, and frameworks, including Microsoft-specific and third-party software and systems.

The screenshot shows the Azure Active Directory Overview page for 'Assumption University'. The left sidebar includes links for Overview, Preview features, Diagnose and solve problems, Manage (Users, Groups, External Identities, Roles and administrators, Administrative units, Delegated admin partners, Enterprise applications, Devices, App registrations), and Help & support. The main content area displays basic information:

Name	Assumption University	Users	92,273
Tenant ID	c13dc23-b7f8-48d3-9b5d-2b12f158f01f	Groups	36,386
Primary domain	microsoft.au.edu	Applications	80
License	Azure AD Basic for EDU	Devices	16,297
Alerts			

Figure 3.1.5: Microsoft Azure Interface

Chapter 4: Design of The System (or Work)

4.1 System Design

4.1.1. Sequence Diagram

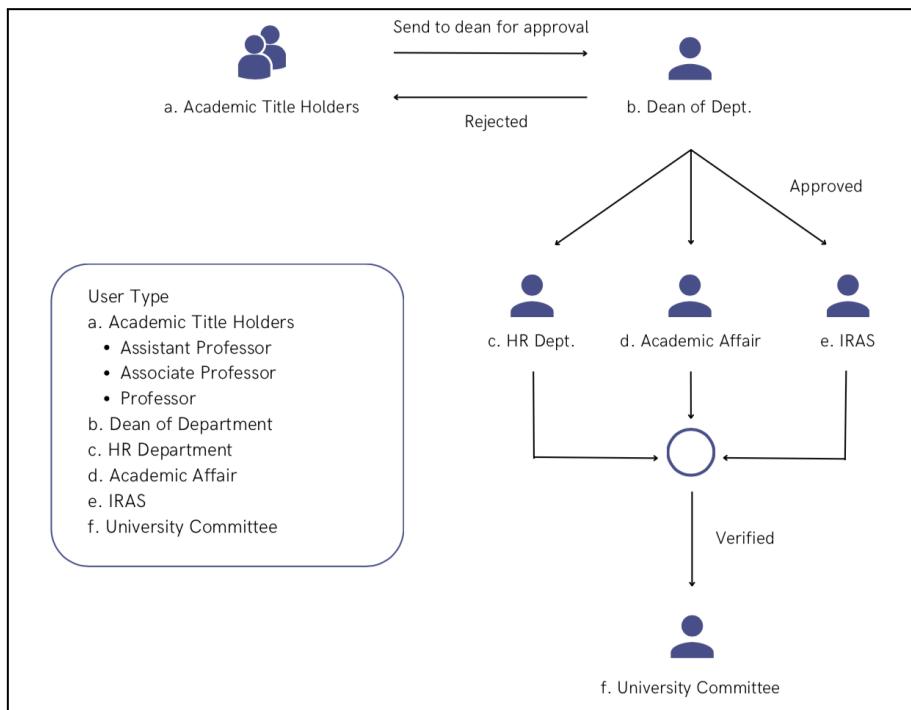


Figure 4.1.1: Sequence Diagram of AU Academic Work Report

4.1.2. System Architecture

- Use Apache as web server
- Use PHP as front end
- Use MariaDB as database
- Use Microsoft Azure as Microsoft Login

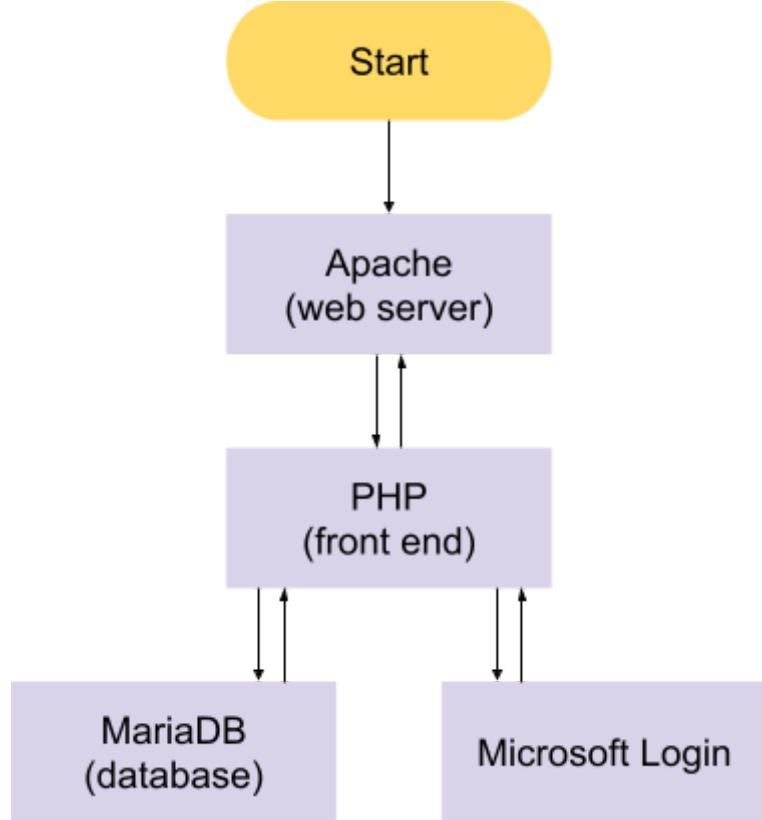


Figure 4.1.2: System Architecture Workflow

Chapter 5: Result

We aim our project to be easily accessible as it needs to be demonstrated to users. Keeping this into consideration, the decision to make the User Interfaces simple with less number of pages was made. The website consists of a few pages as demonstrated below.

5.1 Home Page



Figure 5.1: Home Page of AU Academic Work Report website

The first page of the website is the home page. There is a “Login with Microsoft” button for all users to login. The inspiration of the interface is from AU Spark.

5.2 Academic Title Holders

A screenshot of the "Academic Title Holders" landing page. It shows a user profile for "SARANYA SANGSUK-IEM" with a yellow circular profile picture, the letters "AU", and the email "u6237407@au.edu". To the right is a red "Logout" button. Below the profile is a table with one row showing data for the year 2023, status "INCOMPLETE", and a "VIEW" link.

Figure 5.2: Landing page of Academic Title Holders

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The number of years that have elapsed and the present year will be displayed on the landing page for Academic Title Holders. Because the picture was created using the most recent version of the software, it will only show the year 2023. However, when the year 2024 arrives, you will still be able to view the year 2023, but you will no longer be able to make any changes to the years that came before. The status ‘incomplete’ means that one of your forms has not been approved by the dean or verified by the committee and staff.

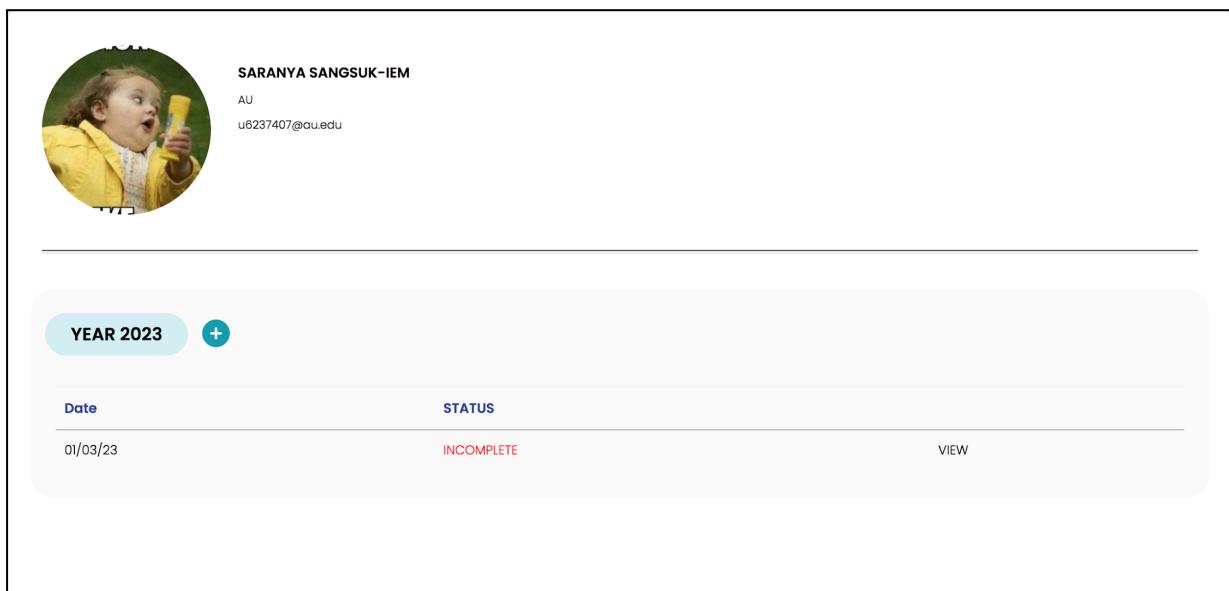


Figure 5.3: View the specific year to see list of forms

When you have finished creating your forms, you can examine a list of them along with the date you were made by clicking on the button labeled "view." In addition to this, there is a button labeled "+" that will allow you to construct the form. This button will allow you to create the Academic Work Report of Academic Title Holders Form as well as the Certification of Co-Author's Contribution Form.

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The screenshot shows a user profile at the top left with a circular profile picture of a child, the name 'SARANYA SANGSUK-IEM', and the email 'u6237407@au.edu'. To the right are 'Logout' and 'Create' buttons. Below is a table listing academic forms:

ID	Name	Academic Title	Create At	Status	Action
99999999	Academic Work Report of Academic Title Holders Form	Assistant Professor	2023-03-16 11:08:02		
99999999	Certification of Co-Author's Contribution Form	III	2023-03-16 02:13:07	INCOMPLETE	Edit
99999999	Certification of Co-Author's Contribution Form		2023-03-16 02:12:47	INCOMPLETE	Edit
99999999	Certification of Co-Author's Contribution Form	III	2023-03-16 02:12:59	INCOMPLETE	Edit
99999999	Academic Work Report of Academic Title Holders Form	Associate Professor	2023-03-16 00:52:32	COMPLETE	VIEW
99999999	Academic Work Report of Academic Title Holders Form		2023-03-16 00:51:49	INCOMPLETE	Edit

Figure 5.4: View the forms in the specific date

There is a possibility that you will have completed several documents by the end of the day. You have access to information such as your ID, the form's name, your position, the date the form was created, its status (incomplete or complete), and whether or not you have permission to view and edit the form. Also, you can create a new form from this page.

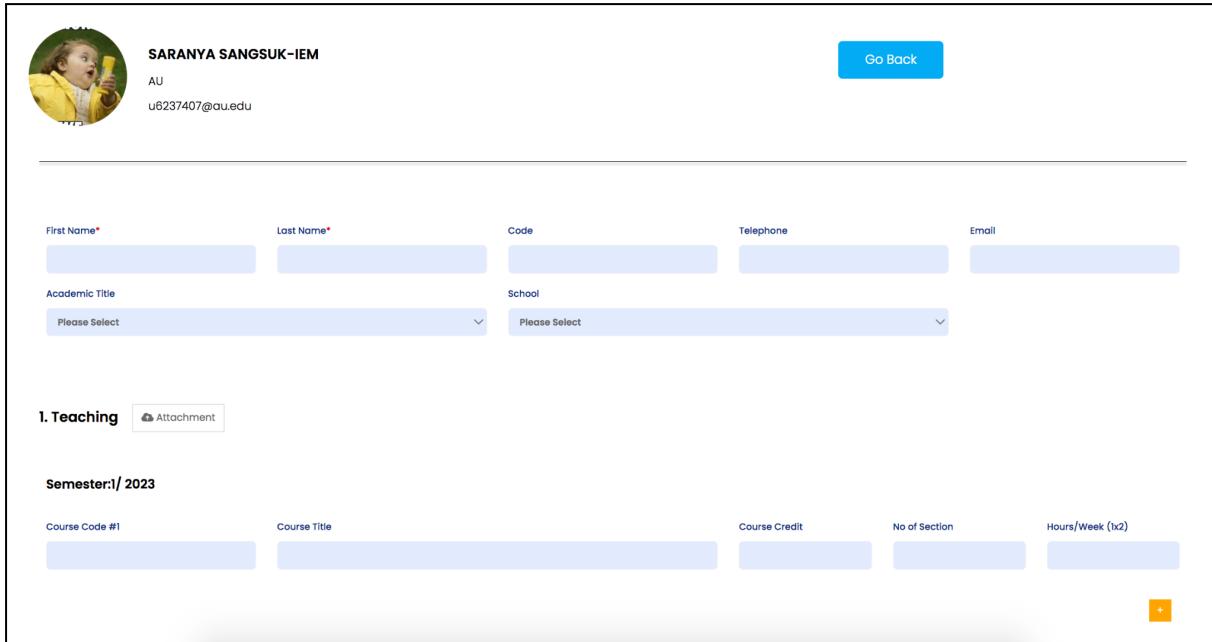
The screenshot shows a user profile at the top left with a circular profile picture of a child, the name 'Name', and the text 'Detail'. Below is a message 'Please Choose your form' followed by two blue buttons:

- Academic Work Report of Academic Title Holders Form
- Certification of Co-Author's Contribution Form

Figure 5.5: Select a form to fill

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You will be able to choose which form you want to construct after clicking either the "+" button or the "create" button.

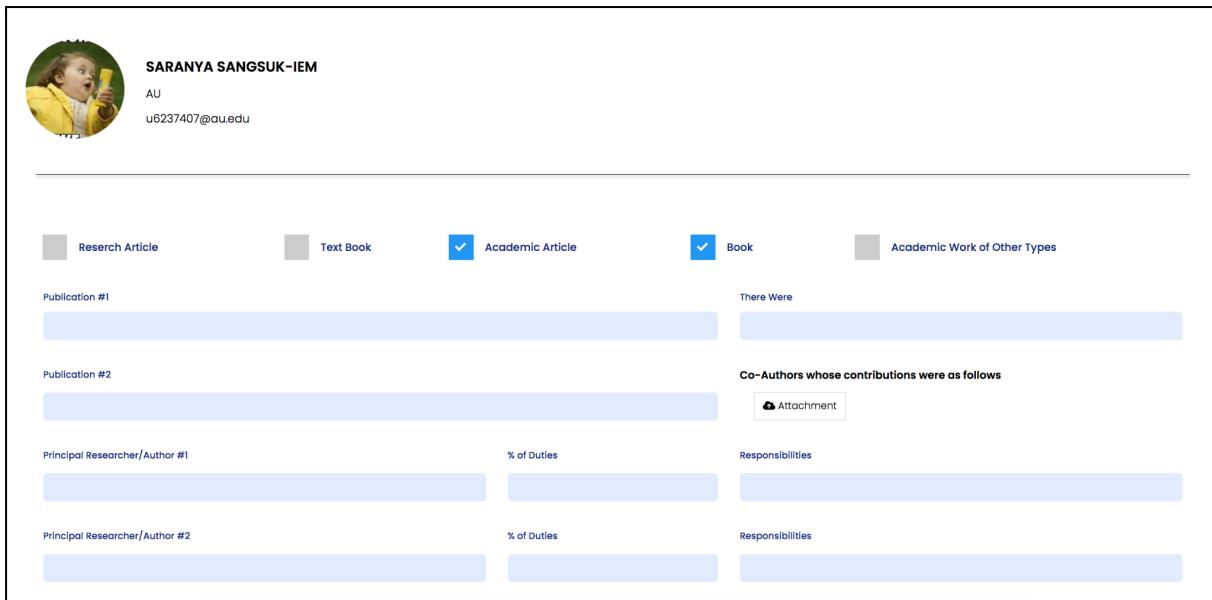


The screenshot shows a user profile at the top left with a circular profile picture of a child, the name 'SARANYA SANGSUK-IEM', 'AU', and the email 'u6237407@au.edu'. At the top right is a blue 'Go Back' button. Below the profile, there are input fields for 'First Name*', 'Last Name*', 'Code', 'Telephone', and 'Email', each with a light blue placeholder bar. Underneath these are dropdown menus for 'Academic Title' (with 'Please Select') and 'School' (with 'Please Select'). A section titled '1. Teaching' is visible, featuring a 'Attachment' button with a cloud icon. Below this is a row for 'Semester:1/ 2023' with five input fields: 'Course Code #1', 'Course Title', 'Course Credit', 'No of Section', and 'Hours/Week (x2)'. In the bottom right corner of the form area, there is a small orange square containing a white plus sign (+).

Figure 5.6: Academic Work Report of Academic Title Holders Form

This example demonstrates how to complete the Academic Work Report of Academic Title Holders Form. Academic title holders are permitted to include any and all information and are given the option to upload files as proof that your task has been completed. To add additional classes, click the "+" icon in the lower-right corner of the screen.

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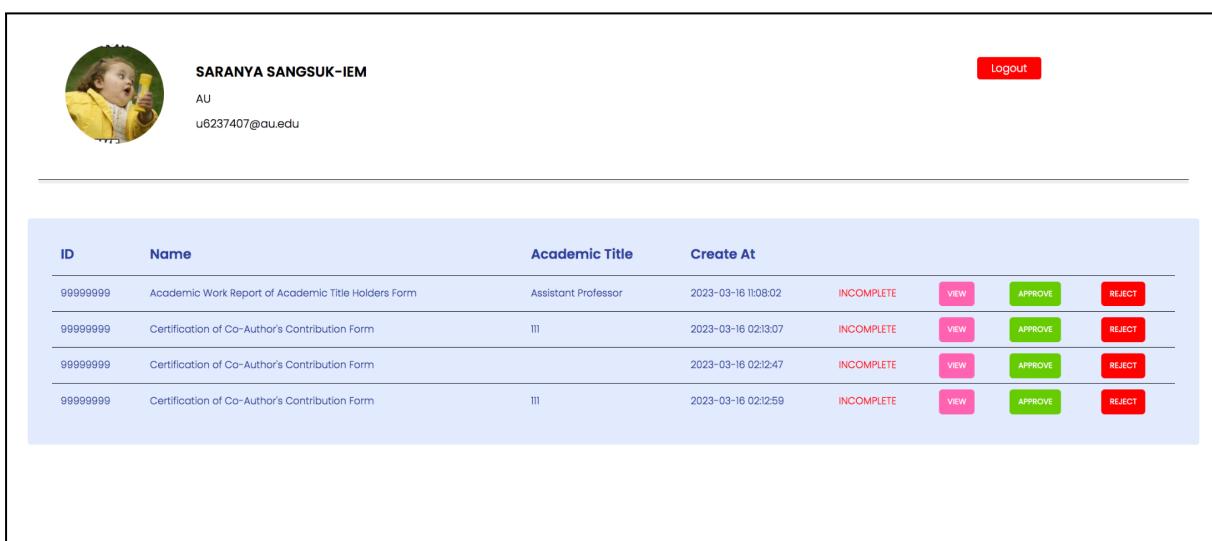


The screenshot shows a user profile for SARANYA SANGSUK-IEM from AU, with the email u6237407@au.edu. Below the profile, there are five categories for selecting academic work types: Research Article, Text Book, Academic Article, Book, and Academic Work of Other Types. The 'Academic Article' option is selected. The form then asks for 'Publication #1' and 'Publication #2', both of which have large blue redacted boxes. It also asks for 'Principal Researcher/Author #1' and 'Principal Researcher/Author #2', each with a 'Percent of Duties' dropdown and a 'Responsibilities' dropdown.

Figure 5.7: Certification of Co-Author's Contribution Form

The Certification of Co-Author's Contribution Form can be filled out similarly to how it is depicted here. Academic title holders can click on your work to determine if it is a research article, a textbook, an academic article, a book, or another type of academic work. You are permitted to select options from multiple categories. Additionally, the proportion of responsibilities can be chosen from a drop-down menu.

5.3 Dean



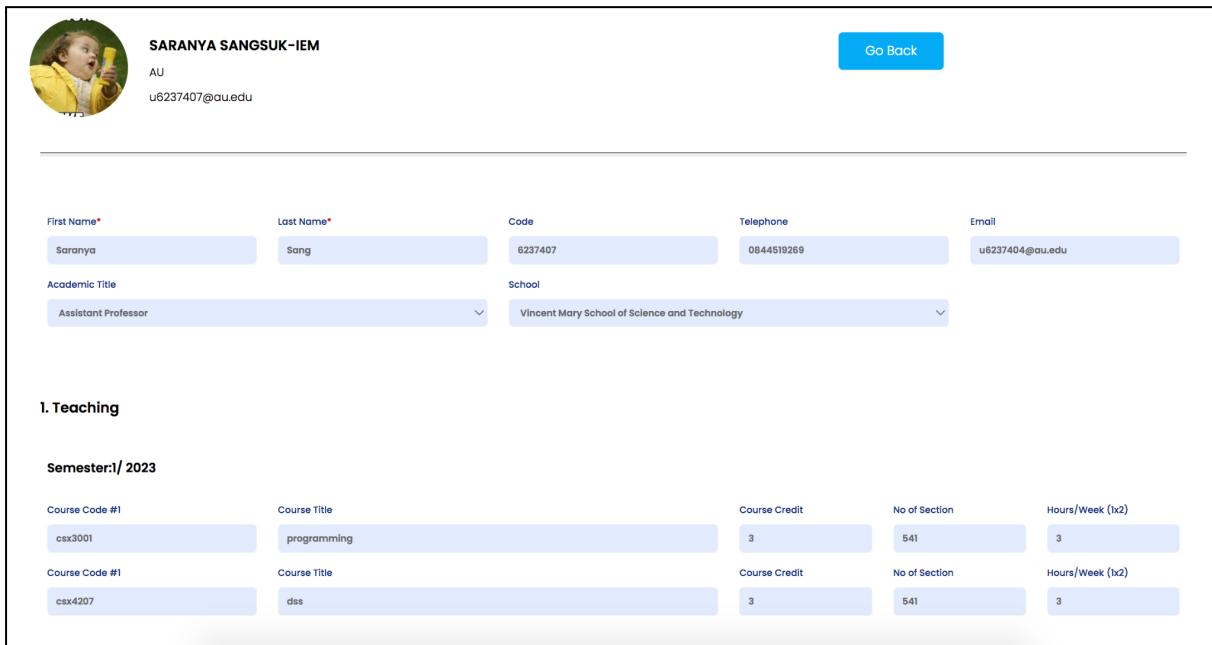
The screenshot shows a user profile for SARANYA SANGSUK-IEM from AU, with the email u6237407@au.edu. A red 'Logout' button is in the top right. Below the profile, a table lists four academic forms with columns for ID, Name, Academic Title, Create At, and actions (VIEW, APPROVE, REJECT). All forms listed are 'INCOMPLETE'.

ID	Name	Academic Title	Create At	VIEW	APPROVE	REJECT	
99999999	Academic Work Report of Academic Title Holders Form	Assistant Professor	2023-03-16 11:08:02	INCOMPLETE	<button>VIEW</button>	<button>APPROVE</button>	<button>REJECT</button>
99999999	Certification of Co-Author's Contribution Form	111	2023-03-16 02:13:07	INCOMPLETE	<button>VIEW</button>	<button>APPROVE</button>	<button>REJECT</button>
99999999	Certification of Co-Author's Contribution Form		2023-03-16 02:12:47	INCOMPLETE	<button>VIEW</button>	<button>APPROVE</button>	<button>REJECT</button>
99999999	Certification of Co-Author's Contribution Form	111	2023-03-16 02:12:59	INCOMPLETE	<button>VIEW</button>	<button>APPROVE</button>	<button>REJECT</button>

Figure 5.8: Landing page of Deans

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After successfully logging in, deans are able to view a catalog of the two types of user-submitted forms. They have the ability to review the form and either authorize or reject it.



The screenshot shows a user profile for "SARANYA SANGSUK-IEM" with the following details:

- First Name: Saranya
- Last Name: Sang
- Code: 6237407
- Telephone: 0844519269
- Email: u6237404@au.edu
- Academic Title: Assistant Professor
- School: Vincent Mary School of Science and Technology

Below the profile, there is a section titled "1. Teaching" under "Semester:1/ 2023". It lists two courses:

Course Code #1	Course Title	Course Credit	No of Section	Hours/Week (1x2)
cex3001	programming	3	541	3
Course Code #1	Course Title	Course Credit	No of Section	Hours/Week (1x2)
cex4207	dss	3	541	3

Figure 5.9: Deans view the form

The deans are only able to peruse the form and cannot make any changes or edits to it. After that, the deans will determine whether or not your papers are suitable for approval.

5.4 Committee and Staff

The screenshot shows a user profile for 'SARANYA SANGSUK-IEM' with the email 'u6237407@au.edu'. A 'Logout' button is in the top right. Below the profile is a section titled 'Academic Work Report of Academic Title Holders Form'. A table lists two forms:

ID	Name	Academic Title	Create At	Actions
99999999	Academic Work Report of Academic Title Holders Form	Associate Professor	2023-03-16 00:52:32	VERIFY VIEW VERIFY
99999999	Academic Work Report of Academic Title Holders Form		2023-03-16 00:51:49	WAITING VIEW VERIFY

Figure 5.10: Committee and Staff landing page

Everyone on the staff will have access to the documents that have been authorized and distributed by the deans. The staff is permitted to investigate and verify the accuracy of the forms.

Chapter 6: Conclusion

The university's continuing remuneration form filling system was to be converted to a digital format as part of this initiative in an effort to make it more user-friendly. By creating a web-based application with the assistance of Apache, PHP, MariaDb, and Microsoft Login, we were able to establish a system that is sustainable. This application increases the dependability and convenience of the work performed by all users in a variety of ways. The established system is adequate for the time being; however, as time progresses, there will be fewer opportunities to implement necessary system modifications.

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