

**EFFICIENT TUTORING SERVICES: ENHANCING COMMUNICATION AND
SCHEDULING WITH A CROSS-MATCHING PLATFORM FOR PSU-ACC**

A Project Study Presented to the Faculty of
Information Technology Department
Pangasinan State University
Alaminos City Campus

In Partial Fulfillment
of the Requirements of the Degree
BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

ARTHUR BONSILAO CERVANIA
EUNIQUE ALAMAR JAVILLO

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ABSTRACT

EFFICIENT TUTORING SERVICES: ENHANCING COMMUNICATION AND SCHEDULING WITH A CROSS-MATCHING PLATFORM FOR PSU-ACC

A. B. Cervania, E. A. Javillo, Bachelor of Science in Information Technology, Pangasinan State University Alaminos City Campus, Bolaney, City of Alaminos, Pangasinan.

This study was conducted to address the challenges typically associated with tutoring services, with a focus on creating a system that optimizes the tutoring process and is specifically tailored to meet the individual needs of students. The primary goal was to elevate the overall effectiveness of tutoring services, fostering a more supportive and collaborative learning environment at PSU-ACC. The findings of this study provide valuable insights for institutions interested in optimizing tutoring systems through the integration of technology-driven solutions.

The Pangasinan State University-Alaminos City Campus ICTMO coordinator, instructors, IT faculty members, and college students residing in the City of Alaminos were the respondents of the study. The proponents gathered information through a series of interviews, observations, and survey questionnaires.

Based on the conducted acceptability test, the cross-matching platform yielded highly positive results, highlighting excellence in functionality, reliability, usability, efficiency, maintainability, and portability. Users expressed satisfaction with the system's appropriateness, accuracy, and robust security. The system demonstrated consistent operation, fault tolerance, exceptional recoverability, and efficient time and resource behavior. Maintainability received an excellent rating for ease of analysis, modification, and maintenance. The system's adaptability, installability, and compliance with standards were excellent. Overall, the test affirmed outstanding performance, with adherence to ISO 9126-1 guidelines fostering continual enhancement of the system's quality and user experience.

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To their parents and guardians, who always give their love, guidance, financial support, and kindness to complete their project.

To their friends and classmates who shared their knowledge regarding our study.

The Proponents

DEDICATION

This study is devoted to our ever-loving parents and guardians, who never fail to support, sacrifice, and love us unconditionally. To our brothers, sisters, and friends, who never failed to encourage us and believed in our ability to complete this study. To our instructors, who selflessly contributed their expertise and abilities to help us reach this point of achievement. Also, to our classmates who fraught the same battle. Most importantly, to our Almighty God, the source of all wisdom and understanding, for his direction and provision of the glorious life. This study is devoted to you all.

Arthur B. Cervania

Eunique A. Javillo

APPROVAL SHEET

This project study entitled EFFICIENT TUTORING SERVICES: ENHANCING COMMUNICATION AND SCHEDULING WITH A CROSS-MATCHING PLATFORM FOR PSU-ACC prepared and submitted by ARTHUR B. CERVANIA and EUNIQUE A. JAVILLO in partial fulfillment of the requirements for the degree of BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY, has been examined and is recommended for acceptance and approval for oral examination.

RAYCHARD D. PLATON, MIT
Adviser

Project Study Committee

CHRISTIAN PAUL O. CRUZ
Member

RUISSAN A. RAMOS, MIT
Member

ROSEL L. DELA CRUZ, MIT
Chairman

PANEL EXAMINERS

APPROVED by the Committee on Oral Examination on _____ with a grade of _____.

ROSEL L. DELA CRUZ, MIT
Chairman

CHRISTIAN PAUL O. CRUZ
Member

RUISSAN A. RAMOS, MIT
Member

ACCEPTED AND APPROVED in partial fulfillment of the requirements for the degree of BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY.

RUISSAN A. RAMOS, MIT
Department Chairperson
Information Technology

CHARLAINE P. LOPEZ, PhD
College Dean
Management & Technology

ROSARIO DL. VALENCERINA, Ed.D.
Campus Executive Director
Alaminos City Campus

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Chapter 1

INTRODUCTION

Situation Analysis

The demand for tutoring services in educational institutions has been on the rise due to the increasing complexity of academic subjects and the need for individualized attention to address learning gaps. However, the traditional tutoring systems in most universities and colleges are often characterized by disorganized communication and scheduling processes, leading to an inefficient use of resources and a suboptimal learning experience for students.

In the study conducted by Mavrikis et al. (2021)^[1], it presents an innovative online tutoring platform that caters to the individual learning styles of students. This platform uses a cross-matching algorithm that matches students with tutors who share a similar learning style. In addition to this, the platform includes a communication system that enables students and tutors to interact through text, audio, and video, as well as a scheduling system that generates personalized timetables for each student automatically. The study evaluates the effectiveness of this platform through a series of experiments, and the results indicate that it can enhance the learning outcomes

and satisfaction levels of students. This study, therefore, highlights the importance of personalized and adaptive approaches in online tutoring and their potential impact on students' academic performance.

The Journal of Educational Technology & Society published a study in 2020^[2] by Kim and Lee entitled "The Effects of a Mobile Tutoring App on College Students' Academic Performance and Satisfaction" that aimed to explore the impact of a mobile tutoring app on college students' academic performance and satisfaction with tutoring services. The app utilized a cross-matching platform that identified appropriate courses for students based on their academic needs and preferences. To test its efficacy, the proponents conducted a randomized controlled trial involving a group of college students. The study findings revealed that the mobile tutoring app was effective in improving students' academic performance and satisfaction with tutoring services compared to the control group who did not use the app.

The study of M. B. Magturo and J. A. Oliva (2021)^[3] focused on the development of a web-based tutoring platform for language learning that uses a cross-matching algorithm to match students with suitable tutors based on their language proficiency and learning needs. The researchers

conducted usability testing and evaluated the system's effectiveness through surveys and interviews with students and tutors. The results showed that the platform was effective in facilitating online language tutoring sessions, and both students and tutors found it helpful in improving their language skills.

Pangasinan State University, also known as PSU, is a province-wide state university system established in 1979 that provides quality education. PSU has nine campuses located in the City of Alaminos, San Carlos, Urdaneta, Infanta, Bayambang, Binmaley, Sta. Maria, Asingan, and Lingayen.

Pangasinan State University-Alaminos City Campus, known as PSU-ACC, is the youngest campus of PSU. It is located in Barangay Bolaney, City of Alaminos, Pangasinan. It started its operation in June 2009 with a population of 100 students. At present, PSU-ACC offers nine courses, such as the Bachelor of Science in Information Technology major in Web and Mobile Technologies, Bachelor of Science in Hospitality Management, Bachelor of Science in Business Administration (major in Financial Management and Operations Management), Bachelor of Science in Tourism Management, Bachelor of Science in Elementary Education (major in Enhanced General Education), and Bachelor of

Secondary Education (major in English, Filipino, and Mathematics). PSU Alaminos provides guidance and counseling, registrar, library, medical, and student affairs services. The campus has offices such as Admission Guidance and Testing, Accountant Office, Registrar, College of Teacher Education, College of Business and Technology, College of Hospitality Management, Management Information System, Cashier, Student Services, Campus Executive Director Office, Administrative, Planning and Quality Assurance, and Library.

Without an existing system, it can be challenging to manage scheduling conflicts and ensure that tutors are available to meet the needs of all students. This could lead to students missing out on valuable tutoring sessions, and tutors may not be able to maximize their time and resources since there is no proper scheduling mechanism.

To address these issues, this study proposes the development of an efficient tutoring services enhancing communication and scheduling with a cross-matching platform for Pangasinan State University-Alaminos City Campus. The platform serves as an efficient and centralized system that connects college students with tutors who have expertise in their areas of need and are available to provide assistance.

The ultimate goal of this study is to provide a solution to the current challenges faced by students and

tutors in tutoring services and improve the overall tutoring experience for both parties involved. By implementing a cross-matching platform, the study can enhance the quality of education at the university and increase student success rates.

Objectives of the Project

This study was aimed to develop an Efficient Tutoring Services: Enhancing Communication and Scheduling with a Cross-Matching Platform for PSU-ACC.

Specifically, it aimed to achieve the following objectives:

1. to determine the processes to be developed into the proposed cross-matching platform for PSU-ACC;
2. to develop features to be integrated into the proposed cross-matching platform for PSU-ACC; and
3. to determine the acceptability level of the proposed system.

Importance of the Project

This study, entitled "Efficient Tutoring Services: Enhancing Communication and Scheduling with a Cross-Matching Platform for PSU-ACC," could benefit the following entities:

Pangasinan State University-Alaminos City Campus. By providing an efficient platform for tutoring services, the

university could demonstrate its commitment to student success and provide a valuable resource for students. This could help improve the university's reputation and attract new students to the institution.

Faculty and Administrators. The platform could help faculty and administrators track student progress and identify areas where additional support may have been needed. This could result in improved academic outcomes for students and a greater understanding of student needs among faculty and administrators.

Tutors. The platform could provide a valuable resource for tutors who were looking for work. By creating a centralized location for tutors to advertise their services, the platform could help them connect with potential students and build their client base. This could also help to professionalize the tutoring industry and provide greater accountability for tutors.

Students. The cross-matching platform could help students who need additional support in their coursework by connecting them with tutors who specialize in the areas they are struggling with. This could result in improved academic performance, increased confidence, and a greater likelihood of success in their academic pursuits.

Proponents. This study helped proponents evaluate the

effectiveness of the platform, identified areas for improvement, and contributed to the literature on technology-mediated communication and scheduling in education.

Future Researchers. This study could provide insights into the development and implementation of a cross-matching platform that could be used to enhance communication and scheduling for tutoring services.

Scope and Limitations of the Project

The study was aimed to develop an efficient tutoring services enhancing communication and scheduling with a cross-matching platform for PSU-ACC. The platform could allow students who needed tutoring services to match with available and most suitable courses, schedule sessions, and communicate with tutors easily.

Tutors were exclusively from PSU-ACC only, while college students can come from any location residing in the City of Alaminos. The class lectures can only be created solely by the tutor on the website, and uploading external files is limited. The pre-test and post-test can only be administered by the tutor through the website and are specifically designed as an identification form. In creating or editing a course, the tutor must ensure that the course name and course code are unique and do not match

any existing records in the database. And the accepted payment methods are limited to cash-on-hand, GCash, and PayPal.

Definition of Terms

This section contains the definition of the following key concepts in Efficient Tutoring Services: Enhancing Communication and Scheduling with a Cross-Matching Platform for PSU-ACC:

Communication Enhancement. The systematic improvement of interactions between tutors and students, incorporating both technological tools and interpersonal strategies to ensure clear, timely, and effective exchange of information.

Cross-Matching. The process of matching two or more things or entities based on certain criteria. In the context of this study, it refers to matching the available and most suitable courses for students.

Enhancing Communication. The process of making it easier for two or more parties to exchange information, ideas, or messages. In the context of this study, it refers to enabling tutors and students to communicate with each other seamlessly through a digital platform.

Platform. A digital space where users can interact with each other, share information, and access services. In the context of this study, it refers to a digital platform

designed to facilitate communication and scheduling between tutors and students.

Scheduling. The act of arranging or planning activities, tasks, or appointments at specific times. In the context of this study, it refers to the process of aligning and assigning the most appropriate courses to students based on their availability and suitability.

Student-Centric Approach. A philosophy or methodology that prioritizes the individual needs, preferences, and learning styles of students, shaping tutoring services to be tailored and responsive to the unique requirements of each learner.

Technological Integration in Tutoring. The incorporation of digital tools and platforms to optimize tutoring processes, encompassing communication tools and scheduling software for continuous improvement.

Tutoring Services. Services provided by a tutor to help a student learn a particular subject or skill. In the context of this study, it refers to a range of online tutoring services, including one-on-one tutoring or group tutoring.

Virtual Synchronous Collaboration. Denotes real-time collaboration, enabling interactive sessions between students and tutors regardless of geographical distances.



Chapter 2

METHODOLOGY

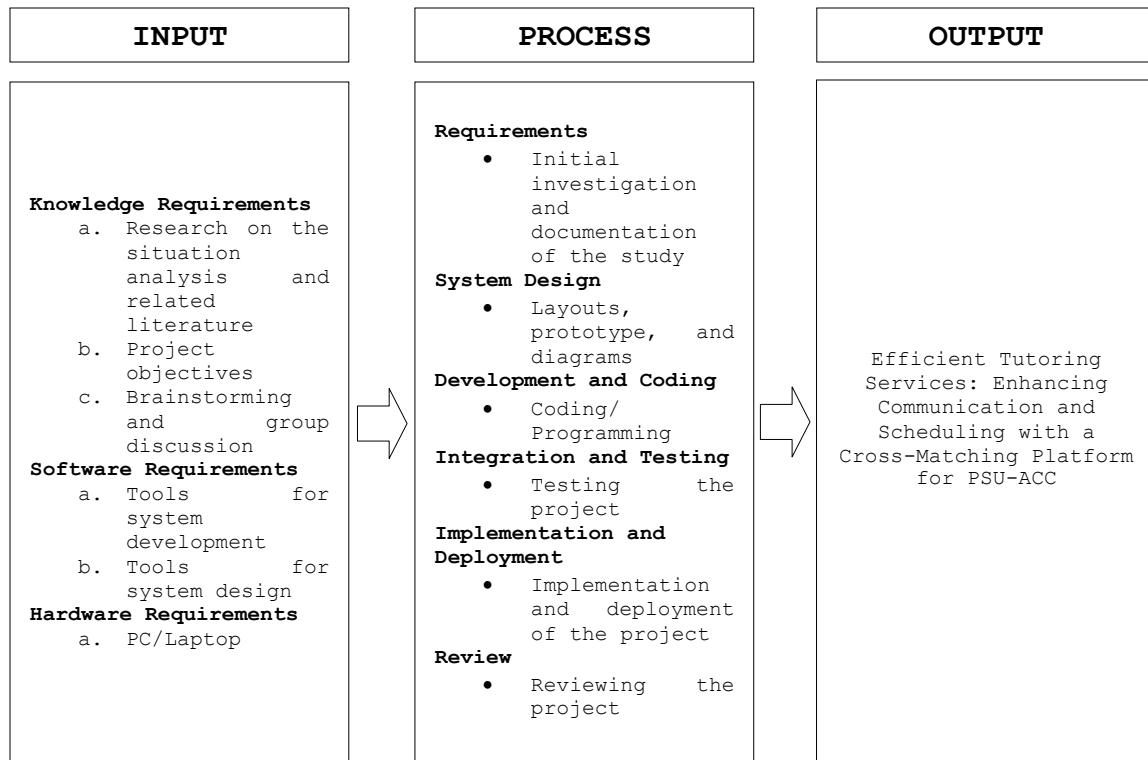
This chapter discusses the project framework, project design, population and locale of the project, data instrumentation, data analysis, tools for system development, a description of the initial prototype, and the proposed implementation plan.

Project Framework

The proponents used the project framework to understand the project's development better, as shown in Figure 1 below.

Figure 1

Input Process Output Framework Model



Project Design

Rapid Application Development (RAD) is a software development methodology that emphasizes rapid prototyping and iterative development. It is designed to enable developers to quickly create software applications by using pre-built components, reusable code, and automated tools. Rapid Application Development (RAD) is a collaborative approach that involves close interaction between developers, customers, and end-users, with an emphasis on delivering working software in a short period of time. The goal of RAD is to accelerate the development process and reduce the time to market while ensuring that the final product meets the needs of its users.

The RAD methodology was developed in the 1980s and became popular in the 1990s as a response to the slow and bureaucratic software development processes of the time. The RAD approach emphasizes close collaboration between developers, designers, and users to quickly iterate and refine software applications. One of the notable benefits of the RAD methodology is its ability to deliver software quickly and efficiently. According to a study by the Standish Group, Martin, J. (2020)^[16], RAD projects are three times more likely to be completed on time and within budget compared to traditional waterfall projects.

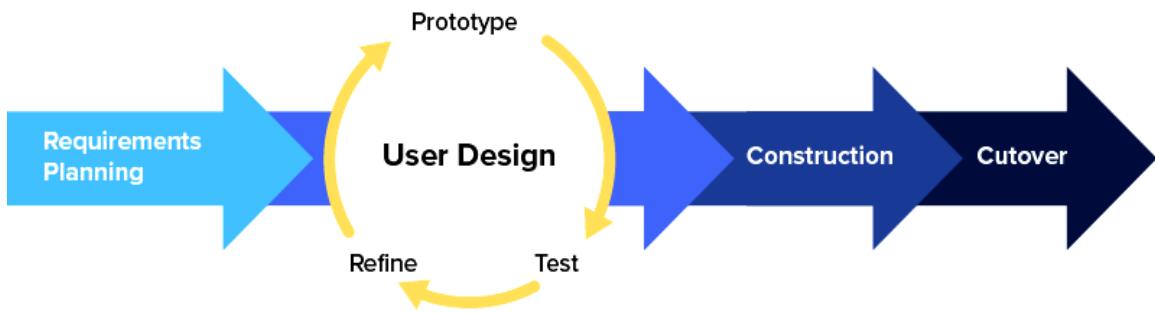
Rapid Application Development was used in this study, "Efficient Tutoring Services: Enhancing Communication and Scheduling with a Cross-Matching Platform for PSU-ACC," because it provides a flexible and efficient way to build a platform that meets the needs of both tutors and students.

By using the Rapid Application Development model, the proponents quickly create prototypes of the platform, test them with users, and incorporate feedback to improve the platform's functionality and usability. This approach allows for a faster development cycle and could result in a product that better meets the needs of the users.

Moreover, the Rapid Application Development model's iterative nature allows for continuous feedback from users, enabling swift adjustments and enhancements based on real-time requirements. This dynamic interaction ensures that the platform evolves in tandem with the evolving needs of tutors and students. Furthermore, the RAD model's emphasis on prototyping fosters a deeper understanding of user expectations, paving the way for a finely tuned end product. This collaborative approach not only enhances the efficiency of communication and scheduling but also contributes to the overall satisfaction and engagement of the platform's end-users, fostering a sense of ownership and user-driven innovation.

Figure 2

Rapid Application Development Methodology



Source: [https://kissflow.com/application-](https://kissflow.com/application-development/rad/rapid-application-development-rad-meaning/)

[development/rad/rapid-application-development-rad-meaning/](https://kissflow.com/application-development/rad/rapid-application-development-rad-meaning/)

Requirements Planning. The requirements planning phase combines elements of the system planning and systems analysis phases of the System Development Life Cycle (SDLC). Users, managers, and IT staff members discuss and agree on business needs, project scope, constraints, and system requirements. It ends when the team agrees on the issues and other management authorizations to continue.

In this phase, the proponents identified the requirements for the cross-matching platform. This involved identifying the target audience, understanding their needs and preferences, and determining the features and functionalities that were integrated. The proponents also identified the timeframe, specific requirements, limitations, and technical specifications as crucial aspects for the study.

User Design. During this phase, users interact with system analysts and develop models and prototypes that present all system processes, inputs, and outputs. User design is a continuous interactive process that allows users to understand, modify, and eventually approve a working model of the system that meets their needs.

In this phase, the proponents designed the user interface of the platform. This involved creating prototypes to visualize the platform's layout, navigation, and functionality. The proponents also conducted usability testing to ensure that the platform is user-friendly and meets the needs of the target audience.

Construction. The construction phase focuses on program application development tasks similar to those in the SDLC. In RAD, however, users continue to participate and can still change or improve as actual screens or reports are developed.

In this phase, the proponents developed the platform's features and functionalities. The proponents used an iterative development process where they could continually test and refine the platform based on user feedback. The proponents also ensured that the platform was stable, secure, and scalable.

Cutover. The cutover phase resembles the final tasks

in the SDLC implementation phase, including data conversion, testing, the changeover to the new system, and user training. The new system is built, delivered, and placed into operation much sooner.

In this phase, the proponents deployed the platform into the production environment. This involved configuring the platform for live use and training users on how to use the platform. The proponents also conducted pilot testing to ensure that the platform is functioning as expected and that users are able to use it without any issues.

Data Instrumentation

This study, "Efficient Tutoring Services: Enhancing Communication and Scheduling with a Cross-Matching Platform for PSU-ACC," requires various instrumentation and data collection to achieve its objectives. Some of these are the following:

Internet Research. This is a tool used to gather or collect relevant information from the World Wide Web or internet-based resources.

The proponents used internet research to gather data about the development and other inputs for the proposed study.

Observation. It is the process of collecting and recording data by observing events, behaviors, or phenomena.

The proponents conducted an observation to uncover and gain a deeper understanding of the difficulties involved in the tutoring services at PSU-ACC.

Survey. A survey is a procedure that is designed to gather information from a pool of respondents by asking multiple survey questions.

The proponents distributed surveys among college students residing in the City of Alaminos to identify the difficulties and in-demand subjects for the cross-matching platform.

Unstructured Interview. It is an interview that does not use any set of questions. Instead, the interviewer asks an open-ended question that suits the candidate's experience.

To gather information about the tutoring services of PSU-ACC, the proponents conducted an interview with the Student Services Coordinator, Mrs. Shella Marie I. Diocares, to gather some insights and suggestions for the system's features. The proponents also spoke to the Dean of the College of Teacher Education (CTE), Mrs. Ellen Grace B. Ugalde, to seek her approval and inform her that if the institution decides to continue with the developed system, she would be one of the administrators, together with the ICTMO Coordinator, Mr. Marino B. Bartolome Jr.

Population and Locale of the Project

The primary sources of data in this study are the information gathered from the unstructured interview with the Student Services Coordinator, Mrs. Shella Marie I. Diocares, the Dean of the College of Teacher Education (CTE), Mrs. Ellen Grace B. Ugalde, and the ICTMO Coordinator, Mr. Marino B. Bartolome Jr. Aside from conducting an interview, the proponents also conducted a survey among college students coming from different schools located in the City of Alaminos to identify the difficulties and in-demand subjects for the cross-matching platform. The proponents conducted an interview and survey to collect the necessary information for the cross-matching platform as well as to determine the necessary system specifications and features for the developed system.

The proponents used a purposive sampling method to identify and select other respondents who could actively contribute and help in the completion of the study. These were the faculty members of the Information Technology Department of the Pangasinan State University-Alaminos City Campus. The identified respondents helped the proponents do the system validation for acceptability.

Table 1 on Page 29 shows the respondents to the acceptability test survey:

Table 1

Respondents of the Project

Respondents	Number of Respondents
College Students	40
PSU-ACC Instructors/	9
IT Faculty Members	1
ICTMO Coordinator	1
Total	50

On the other hand, the secondary sources of data came from various reference materials, including online research, publications, journals, articles sourced from the internet, literature reviews, and other relevant studies. These sources were utilized by the proponents for the development of the proposed study.

Tools for Data Analysis

The proponents used the following tools for data analysis in developing the cross-matching platform:

User Requirements. User requirements describe the needs, goals, and expectations of users for a particular product or system. It outlines the functionality, features, and constraints that the product or system must meet to satisfy user needs.

The proponents used user requirements to understand and define the needs, expectations, and desired functionality of the users in the system. User requirements

provide a clear understanding of what the software should accomplish, how it should behave, and what features or functionalities are essential to meet user needs. [See Appendix F]

Data Flow Diagram (DFD). A DFD shows how data moves through a system or a process. DFDs are frequently used in software engineering and business process modeling to define and evaluate complicated system data flows. It shows data flow from external sources into the system and shows how the data moved from one process to another (Aleryani, A. 2020) ^[17].

The proponents used a graphical representation of the DFD, or data flow diagram, to show the movement of the data between input and output and data processes within the system. [See Appendix G]

Database Schema. A database schema describes the tables and fields that make up a database.

The proponents used database schema to identify the relationships between objects and information in the database. [See Appendix H]

Data Dictionary. A data dictionary is a central repository that contains detailed information about the structure, organization, and characteristics of data within a database or information system. This is a list containing

all files in the database, the number of records in each file, and the names and types of each field.

The proponents used a data dictionary to show the data structure implemented in constructing tables for the database. [See Appendix I]

Entity Relationship Diagram. It is a visual representation of the relationships between entities (or objects) in a database. It is a data-modeling technique that graphically illustrates an information system's entities and their relationships.

The proponents used the entity relationship diagram to illustrate how entities, such as people or objects, relate to each other within the developed system. [See Appendix J]

Use-Case Diagram. A use-case diagram is a graphic depiction of the interactions among the elements of a system. It is also a methodology used in a system analysis to identify, clarify, and organize system requirements.

The proponents used the use-case diagram to determine how users used the platform and organize the system requirements. [See Appendix K]

Survey Questionnaire. It is a tool used to collect data and information from individuals or groups of people. This technique helped gather statistical information about the development and acceptability of the proposed platform.

The proponents used ISO 9126-1 by McCall to determine the development and acceptability level of the proposed cross-matching platform for PSU-ACC. [See Appendix L]

Flowchart. It is a type of diagram that uses an algorithm, workflow, or process, showing the steps as boxes or various kinds and their order by connecting them with arrows. This diagrammatic representation illustrates a solution model for a given problem. Flowcharts were used in analyzing, designing, documenting, or managing a process or program in various fields.

The proponents used a flowchart to identify the step-by-step process of the cross-matching platform for PSU-ACC. [See Chapter 3 from pages 52 to 62]

Purposive Sampling. Purposive sampling is a non-probability sampling method where researchers choose a sample according to a particular goal or criterion. It is often employed when researchers seek a particular expertise, diversity, or representation in their sample to address specific research questions effectively. In other words, units are selected "on purpose" in purposive sampling, as noted by Kassiani Nikolopoulou (2022)^[18].

The proponents used purposive sampling to select participants who have particular qualities, experiences, or perspectives that align with the project's objectives.

Formula: $n = N / (1 + Ne^2)$

Where:

n = sample size

N = population size

e = margin of error

Scale of Measurement. A classification describes the nature of the information within the values that were assigned to the variable.

The proponents used a scale of measurement to measure the acceptability level of the developed system.

Table 2

Scale of Measurement

Point Score	Statistical Range	Descriptive Equivalent	Descriptive Interpretation
5	4.21 – 5.00	Excellent	Very Accepted
4	3.41 – 4.20	Very Good	Accepted
3	2.61 – 3.40	Good	Fairly Accepted
2	1.81 – 2.60	Fair	Not Accepted
1	1.00 – 1.80	Poor	Not Accepted

Tools for System Development

These are the tools used in system development, which are precisely discussed in this section:

AJAX. It reads data from a web server; after a web page has loaded, it also updates a web page without

reloading the page and sends data to a web server in the background (Data, R. 2023)^[19].

The proponents used AJAX in all forms for the real-time validation of data.

Bootstrap 4 and 5. It is an open-source framework that can serve as a library for website design (Bootstrap, 2020)^[20].

The proponents used Bootstrap 4 and 5 to serve as the library for the system's design.

jQuery. It is a fast, small, and feature-rich JavaScript library that is used to create custom animations (jQuery Foundation, 2022)^[21].

The proponents used jQuery to create the animations and hover effects of the elements for the system.

Laravel Framework. Laravel is an open-source PHP web application framework. This is used to create extensible PHP-based websites and web applications at scale (Taylor, T. 2020)^[22].

The proponents used the Laravel Framework to create and enhance the efficiency and functionality of the developed system.

Microsoft Visual Studio Code. It is software used to develop computer programs such as websites, web apps, web services, and mobile applications. It supports various

programming languages and offers features like syntax highlighting, debugging, extensions, etc.

The proponents used Microsoft Visual Studio Code to develop and code the system.

PHP. This is used to provide features, validation, and system security (PHP, 2020)^[24].

The proponents used PHP as a programming language to develop the system to create interactive features.

MySQL. It is a relational database management system that is most often associated with web applications and online publishing (MySQL, 2020)^[25].

The proponents used MySQL to add, access, and process data that is stored in the database of the system.

Description of Initial Prototype

Any mock-up or demonstration of how a website looks when it goes live is referred to as a prototype. Anything from a pencil sketch to an interactive HTML prototype can be used. When people talk about a prototype, they usually mean an interactive prototype of some kind that allows users to go from page to page and use features like drop-down menus.

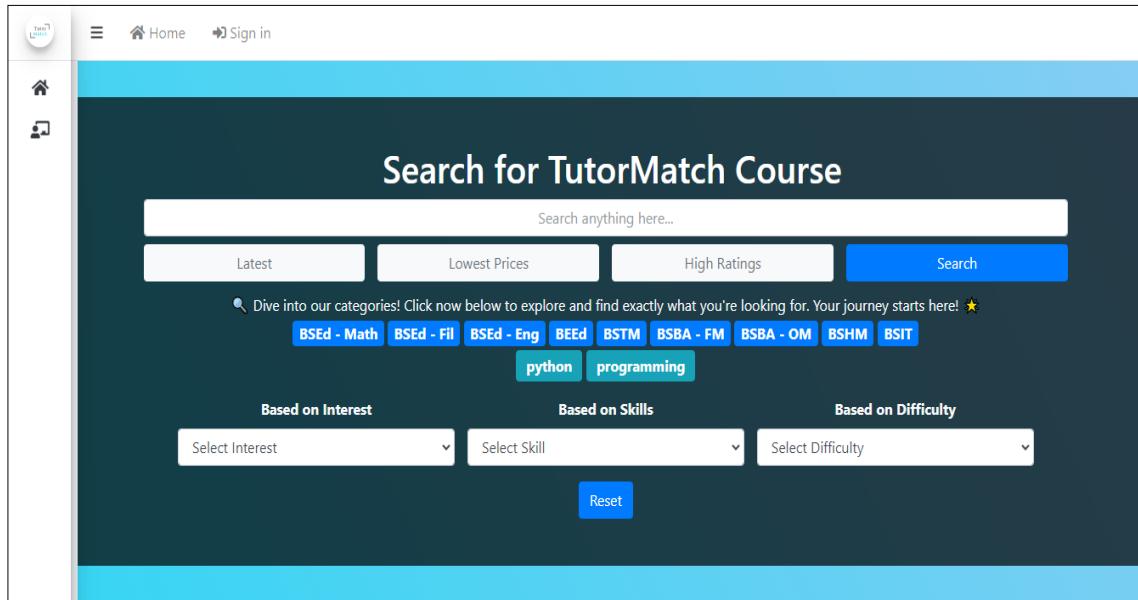
A prototype allows project stakeholders to see what the final product looks like. There are a variety of reasons for doing so, including gaining consensus on what

is in and out of scope, generating support or even investment for the project, and testing theories and ideas about the website's layout and structure. Ultimately, the utilization of prototypes contributes to the refinement of design elements, fostering enhanced collaboration among stakeholders and leading to the creation of more effective, user-friendly, and ultimately successful final products.

The following figures show the initial prototype of the developed system.

Figure 3

Landing Page

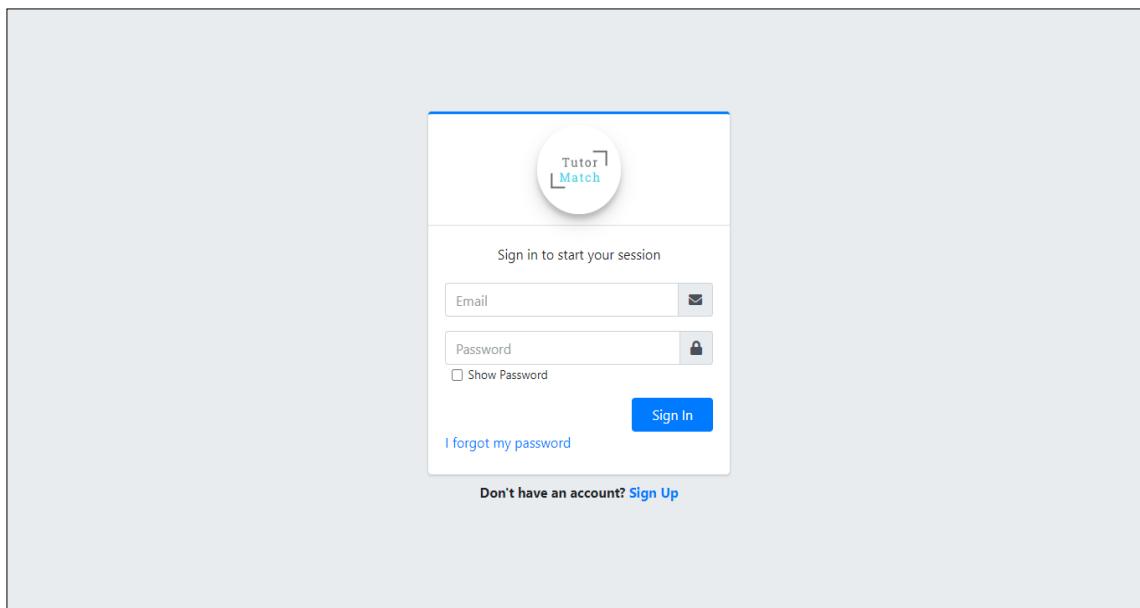


This is the landing page of the website, where users can find various navigations. Users can search for specific courses based on their difficulties and can view the latest courses, the lowest-priced courses, and the course with the

highest rating. Users can also click and view the various courses offered by the PSU Alaminos City Campus and search based on their interests, skills, and difficulty level.

Figure 4

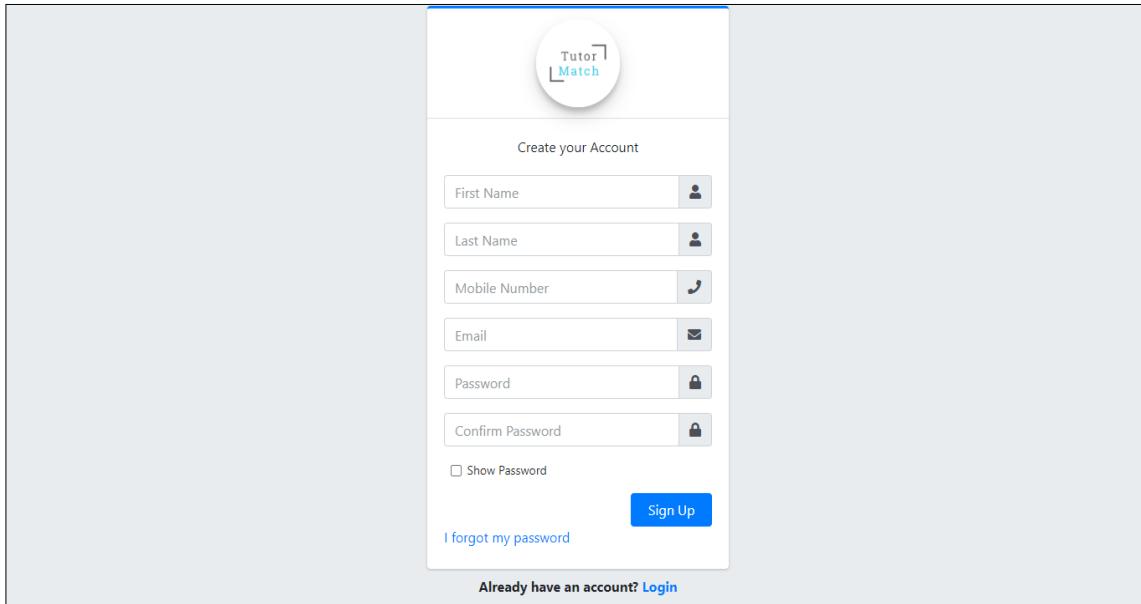
Login Page



This is the website's login page that caters to students, tutors, and administrators, providing access to its features. To log in, individuals from these three user categories must input their respective email addresses and passwords. This ensures secure authentication before gaining entry to the website's functionalities. Once the login credentials are verified, users can seamlessly navigate and explore the site's content. Overall, the login process serves as a gateway for students, tutors, and administrators to engage with the website's offerings.

Figure 5

Signup Page

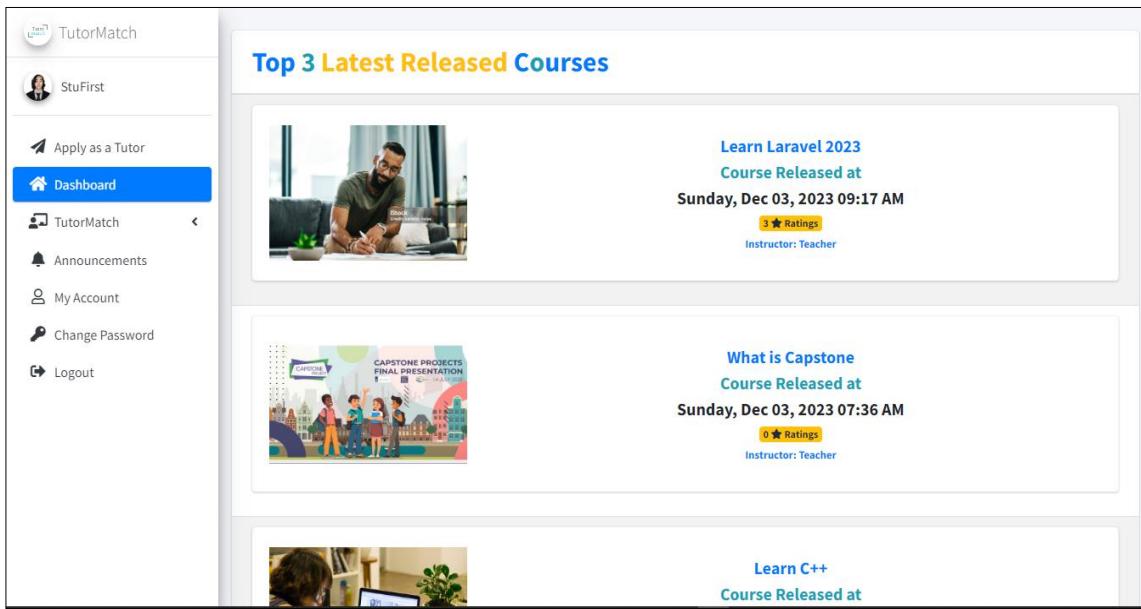


The screenshot shows a sign-up form titled "Create your Account". It features six input fields: "First Name" (with a person icon), "Last Name" (with a person icon), "Mobile Number" (with a phone icon), "Email" (with an envelope icon), "Password" (with a lock icon), and "Confirm Password" (with a lock icon). Below the fields is a "Show Password" checkbox. A "Sign Up" button is at the bottom right, and a "I forgot my password" link is just below it. At the very bottom, there's a link "Already have an account? Login". The background of the form is white, and the overall design is clean and modern.

This is the sign-up page of the website, where students and tutors need to fill out the information to create an account. Students and tutors need to enter their first name, last name, mobile number, email address, and password to sign up. Additionally, a secure and unique password is mandatory for account authentication. The comprehensive nature of the information ensures that the platform can tailor its services effectively to the individual needs of both students and tutors. This thoughtful approach underscores the commitment to a secure, personalized, and efficient onboarding process for users. It signifies a strategy aimed at ensuring user satisfaction through a seamless introduction to the platform.

Figure 6

Latest Courses Page



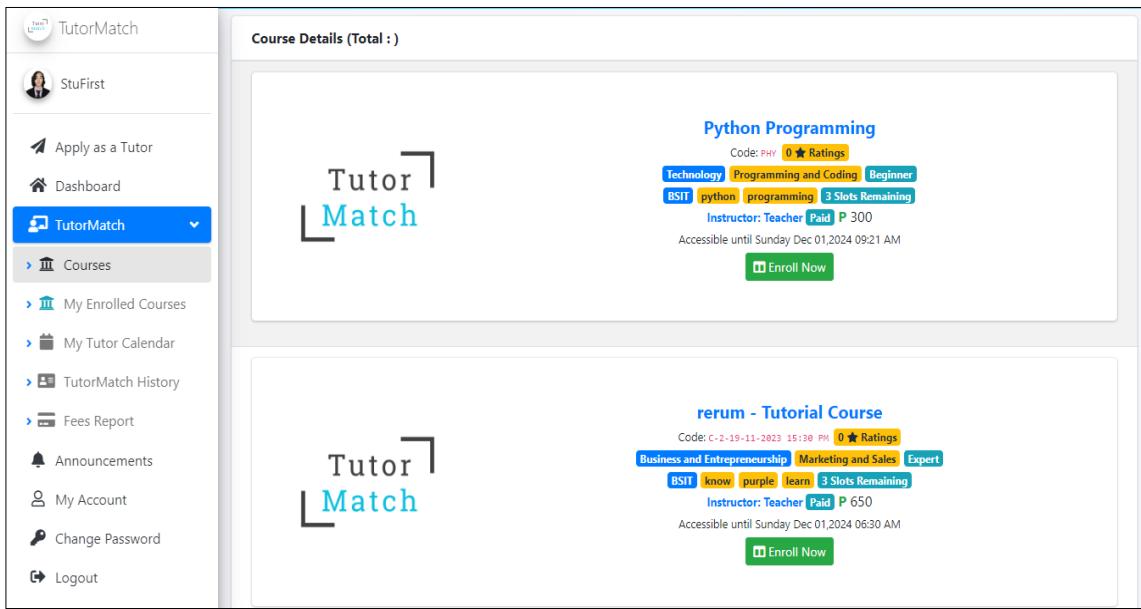
The screenshot shows a user interface for a website titled "TutorMatch". On the left, there is a sidebar with a profile picture labeled "StuFirst" and a list of navigation items: "Apply as a Tutor" (with a pencil icon), "Dashboard" (highlighted in blue), "TutorMatch", "Announcements", "My Account", "Change Password", and "Logout". The main content area is titled "Top 3 Latest Released Courses". It displays three course cards:

- Learn Laravel 2023**
Course Released at **Sunday, Dec 03, 2023 09:17 AM**
3 ★ Ratings
Instructor: Teacher
- What is Capstone**
Course Released at **Sunday, Dec 03, 2023 07:36 AM**
0 ★ Ratings
Instructor: Teacher
- Learn C++**
Course Released at [partially cut off]

On the latest courses page of the website, students are provided with an overview of the most recently offered courses. The user-friendly interface allows students to easily access crucial details, including the title of the course lecture, the specific date and time of its release, the respective ratings, and information about the tutor of the course. This organized presentation ensures that students can make decisions about their course selections based on various key factors. By incorporating these elements, the webpage can enhance the user experience, providing students with valuable insights into the courses available on the website and could create an engaging platform for users seeking educational opportunities.

Figure 7

Student's Courses Page

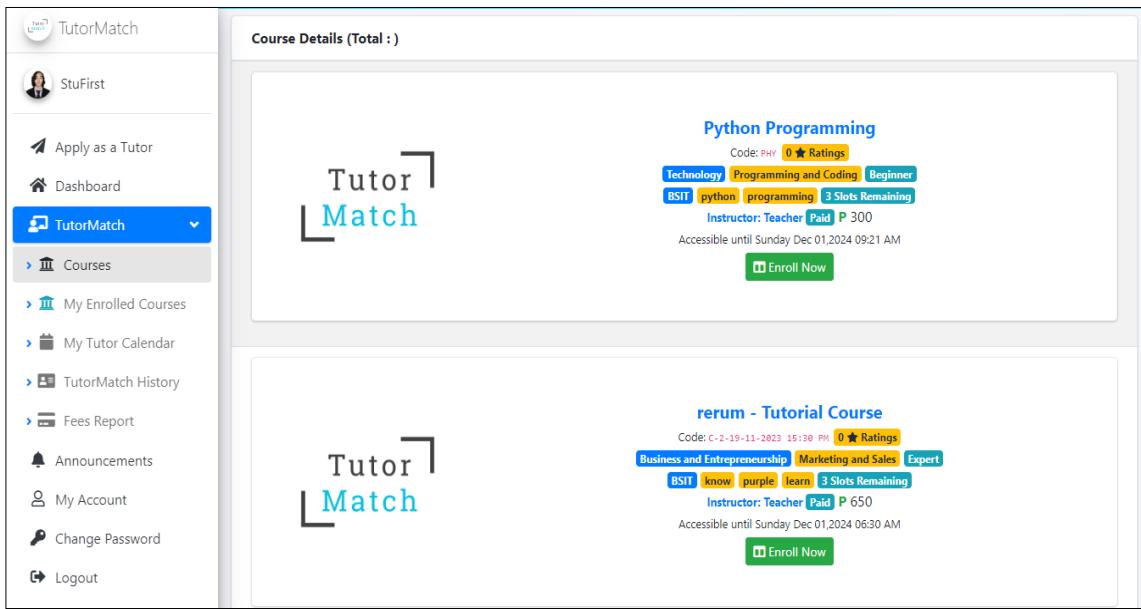


The screenshot displays the 'Student's Courses Page' on the TutorMatch platform. On the left, a sidebar menu includes options like 'Apply as a Tutor', 'Dashboard', 'TutorMatch' (selected), 'Courses', 'My Enrolled Courses', 'My Tutor Calendar', 'TutorMatch History', 'Fees Report', 'Announcements', 'My Account', 'Change Password', and 'Logout'. The main content area shows 'Course Details (Total : 2)'. The first course is 'Python Programming' (Code: PHY, 0 Ratings, Beginner, BSIT python programming, 3 Slots Remaining, Instructor: Teacher Paid P 300). The second course is 'rerum - Tutorial Course' (Code: C-2-19-11-2023 15:38 PM, 0 Ratings, Expert, BSIT know purple learn, 3 Slots Remaining, Instructor: Teacher Paid P 650). Both courses have an 'Enroll Now' button.

This dedicated webpage serves as a platform for students to explore available courses for enrollment, showcasing essential details including lecture title, course code, ratings, tutor information, and associated course fees. The user-friendly design of the platform ensures that students can effortlessly navigate the interface and enroll in their desired courses by simply clicking the "Enroll Now" button. Beyond enrollment functionality, the webpage also functions as a valuable resource for students seeking information and registration for a diverse range of courses, consolidating pertinent details in one accessible location and simplifying the process of engaging with various educational offerings.

Figure 8

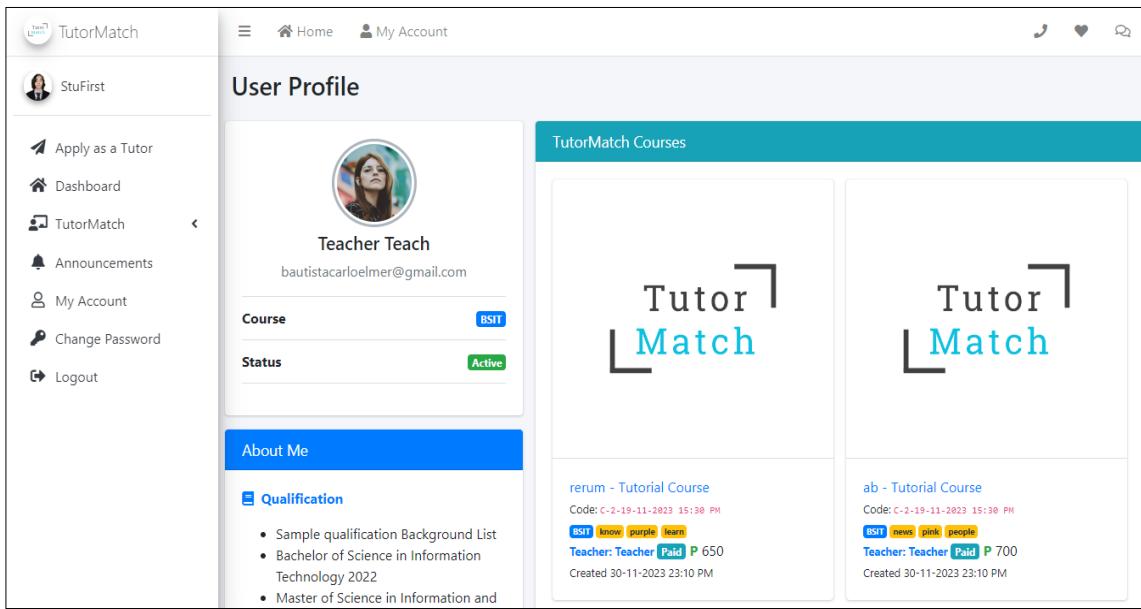
Student's Single Course Page



This is the student's single course page, allowing students to access details about a specific course. On this page, students can view information such as the tutor of the course, the creation date of the course, the course overview, the enrollment tab, and course reviews. Additionally, students have access to valuable details like course ratings, the level of difficulty, remaining slots for enrollment, and the progress of class lectures. This user-friendly interface provides students with a holistic understanding of the course and facilitates a smooth navigation experience. Through its intuitive design, it not only ensures smooth navigation but also enhances the overall educational journey for users.

Figure 9

Student's Tutors Page

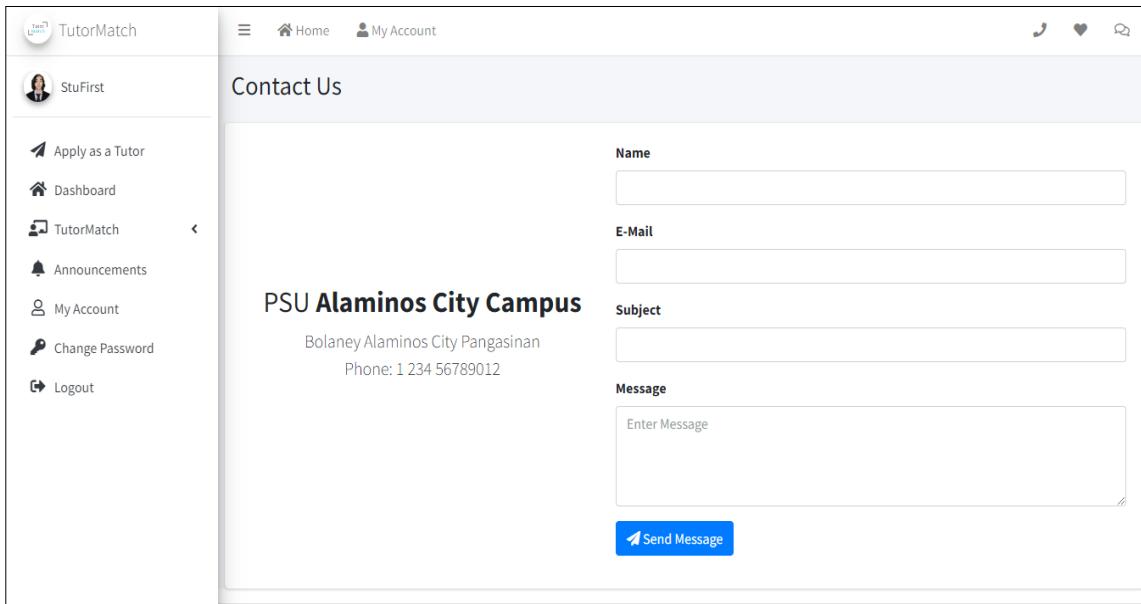


The screenshot displays the 'User Profile' section of the TutorMatch platform. On the left, a sidebar menu for 'StuFirst' lists options: Apply as a Tutor, Dashboard, TutorMatch, Announcements, My Account, Change Password, and Logout. The main content area shows a circular profile picture of a woman, the name 'Teacher Teach', and the email 'bautistacarloelmer@gmail.com'. Below this, under 'Course', it says 'rerum - Tutorial Course' with a blue 'BSIT' tag. Under 'Status', it says 'Active' with a green tag. A section titled 'About Me' contains a 'Qualification' list: Sample qualification Background List, Bachelor of Science in Information Technology 2022, and Master of Science in Information and. To the right, there are two large boxes with the 'Tutor Match' logo. The first box for 'rerum - Tutorial Course' has a pink 'news' tag, a purple 'pink' tag, a green 'learn' tag, and a blue 'BSIT' tag. It also shows 'Teacher: Teacher Paid P 650' and 'Created 30-11-2023 23:10 PM'. The second box for 'ab - Tutorial Course' has a pink 'news' tag, a green 'pink' tag, a blue 'people' tag, and a blue 'BSIT' tag. It shows 'Teacher: Teacher Paid P 700' and 'Created 30-11-2023 23:10 PM'.

This webpage is dedicated to the student's tutors on the website. Within this page, students can explore details such as the status of each course, specific information about each course, and the qualifications of the tutor. It serves as a valuable resource, empowering students to make well-informed decisions regarding their educational pursuits. The platform provides an overview, allowing students to gain insights into the expertise and offerings of their tutors. Through this page, students can enhance their understanding of available courses and select tutors that align with their academic needs. It serves as a valuable resource for students to tailor their educational experience and optimize their learning journey.

Figure 10

Students and Tutors Contact Page

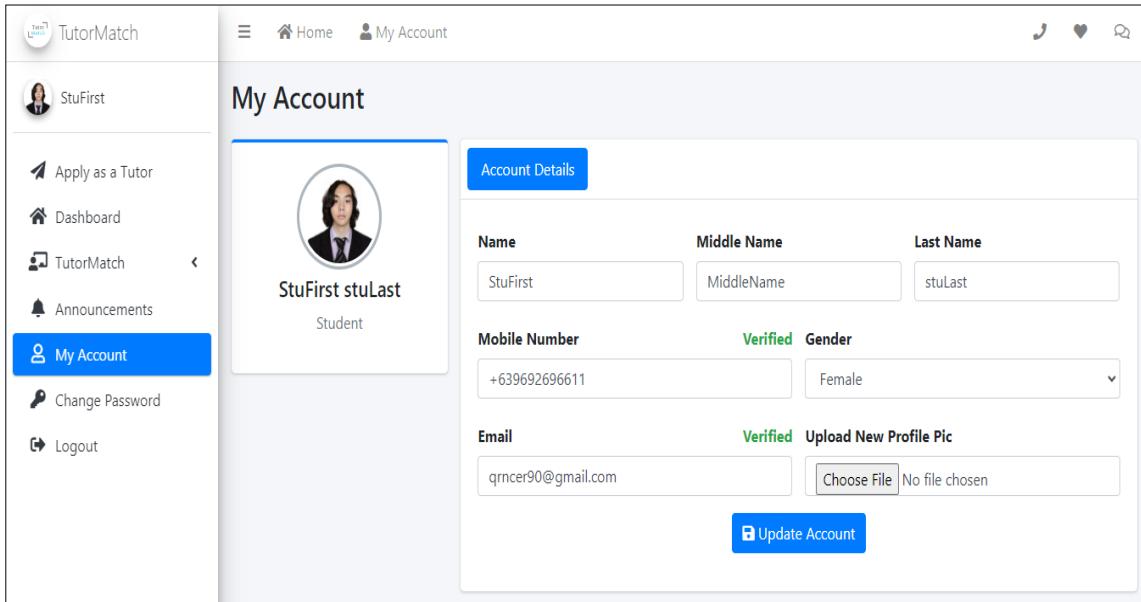


The screenshot shows a contact form titled "Contact Us" on the "TutorMatch" website. The left sidebar includes links for "Apply as a Tutor", "Dashboard", "TutorMatch", "Announcements", "My Account", "Change Password", and "Logout". The main content area displays the university's name, address, and phone number. The contact form has fields for "Name", "E-Mail", "Subject", and "Message", each with a corresponding input box. A "Send Message" button is located at the bottom right of the form.

This serves as the contact page for students and tutors on the website, allowing them to reach out to the administrator. To contact the administrator, students and tutors simply need to fill out the required information before submitting their responses. In addition to the contact page, students and tutors have the option to click the "Message Icon" located at the top-right corner of the website, enabling direct communication with the administrator. This dual approach provides students and tutors with a convenient and efficient means to connect and seek assistance. Finally, the integration of these features enhances effective communication and support within the educational environment.

Figure 11

Students and Tutors Account Page



This serves as the student and tutor account page on the website to view and access their personal information. Within this page, students and tutors have the capability to update details such as their complete name, mobile number, email address, and profile picture. Furthermore, it is mandatory for students and tutors to verify their mobile number and email address to unlock access to additional features on the website. The platform provides a robust capability to manage and authenticate personal details, allowing for a flexible approach to ensure and prioritize the privacy and security of both students and tutors. This feature not only enhances user confidence but also establishes a reliable educational environment.

The Proposed Implementation Plan

The proponents proposed an implementation plan for the system to be implemented once it is deployed. Table 3 shows the implementation plan for the system.

Table 3

Implementation Plan

STRATEGY	ACTIVITIES	PERSON INVOLVED	DURATION
• Approval from the Campus Executive Director	• Letter for the Campus Executive Director	• Proponents • Campus Executive Director	• 4 Days
• System Installation	• Installation of the system and needed computer and laptop requirements	• Proponents	• 1 Day
• Information Distribution	• Training manuals	• Proponents • Students • Instructors • ICTMO Coordinator	• 1 Day
• Training	• Hands on training and lecture	• Proponents • Students • Instructors • ICTMO Coordinator	• 1 Day

The proponents presented the tested and developed system to the users. Beyond a mere introduction, the proponents provided an in-depth overview of the inner workings of the developed system. To complement this, the proponents supplied users with a training package, including a training manual, hands-on training sessions, and a detailed lecture, ensuring that users gained a thorough understanding of the system's operation.

The proponents not only shared a step-by-step guideline but also highlighted the significance of each step in the deployment procedure. The details of deploying the system using web hosting and domains were explained in a user-friendly manner. Additionally, the proponents underscored the importance of following the outlined guidelines to ensure a seamless deployment process. This approach was designed to empower users with the knowledge and skills necessary for effective utilization of the cross-matching platform.

Upon completion of the deployment, the cross-matching platform was uploaded online through web hosting, domains, and internet connectivity. Emphasizing the accessibility aspect, users were informed that the platform could be conveniently accessed through any standard web browser. Furthermore, the proponents elucidated that a stable

internet connection and a compatible browser served as the primary mediums for utilizing the system. It was emphasized that for optimal performance, users' computers or laptops needed to remain connected to the internet, as the system couldn't be accessed without an active internet connection. This emphasis on connectivity underscored the seamless integration of the cross-matching platform into users' online learning environments.

These are the computer and laptop requirements needed to implement the system:

- **Processor:** A dual-core processor with a clock speed of 1.6 GHz or higher is generally sufficient.
 - **RAM:** 4 GB of RAM is recommended for smooth web browsing.
 - **Storage:** A minimum of 128 GB of SSD or 500 GB of HDD should be ample for basic use.
 - **Operating System:** Any modern operating system, such as Windows 10, macOS, or a recent version of a Linux distribution.
 - **Internet Connection:** A reliable internet connection with at least a few Mbps download speed.
 - **Web Browser:** The latest version of popular browsers like Google Chrome, Mozilla Firefox, or Microsoft Edge.
-

Chapter 3

RESULTS AND DISCUSSION

This chapter contains a discussion about the developed processes in the cross-matching platform for PSU-ACC, the features of the developed system, and the acceptability level of the developed system in terms of functionality, reliability, usability, efficiency, maintainability, and portability.

Developed Processes of the Cross-Matching Platform

This section delves into the processes developed for the cross-matching platform designed specifically for PSU-ACC. The primary goal of this study is to evaluate the effectiveness and functionality of the platform in addressing the challenges faced by both students and tutors in accessing tutoring services.

Based on the conducted interview with the Student Services Coordinator, Mrs. Shella Marie I. Diocares, the proponents have learned that there have been no tutoring sessions held on campus before. Moreover, the coordinator acknowledges that all students experienced difficulties in their subjects, making a case for the necessity of academic support. Additionally, the coordinator emphasized the importance of focusing on subjects that are in demand for tutoring. Furthermore, the Student Services Coordinator

expresses support for the introduction of the cross-matching platform, highlighting its potential benefits for academic support and encouraging a collaboration among students and tutors.

With the gathered information from the Student Services Coordinator, the proponents also conducted a survey among college students residing in the City of Alaminos to identify the difficulties and in-demand subjects for the cross-matching platform.

Using a purposive sampling method, the proponents gathered insights from 70 college students. The respondents spanned various academic years, with the 1st year comprising 26 responses, the 2nd year with 10, the 3rd year with 16, and the 4th year with 18. Additionally, diverse academic programs were represented, with BSIT having the highest response count at 27. Subjects perceived as the top three challenging/difficult and highly recommended by the students include calculus with analytics 1, capstone project 1 and 2, and foreign language 1 and 2. Respondents cited struggles with understanding concepts, research and information gathering, and grasping advanced topics.

The CHED sets all the program outcomes outlined in the CHED Memorandum Order series of 2015. These outcomes must be attained at the end of the semester, which the teachers

must indicate in their syllabus. However, there are students who can't grasp these outcomes. As per the conducted interviews with students, Calculus with Analytic 1 is difficult because it demands students to exhibit proficiency in mathematical concepts and apply them across various fields, emphasizing pedagogical content knowledge, diverse assessments, and mastery of problem-solving skills.

Similarly, Foreign Language 1 and 2 pose challenges because students need to understand global language and literature, which requires a lot of reading, good communication skills, and creative teaching methods.

Finally, Capstone Project 1 and 2 also present difficulties and challenges due to its comprehensive nature, requiring students to integrate knowledge across various disciplines and demonstrate originality, innovation, advanced research, critical thinking, and problem-solving skills.

Amidst the various difficulties and challenges encountered by students across different subjects, this study, "Efficient Tutoring Services: Enhancing Communication and Scheduling with a Cross-Matching Platform for PSU-ACC," seeks to address these issues. The proposed platform serves as a comprehensive solution to alleviate academic struggles by providing efficient tutoring services.

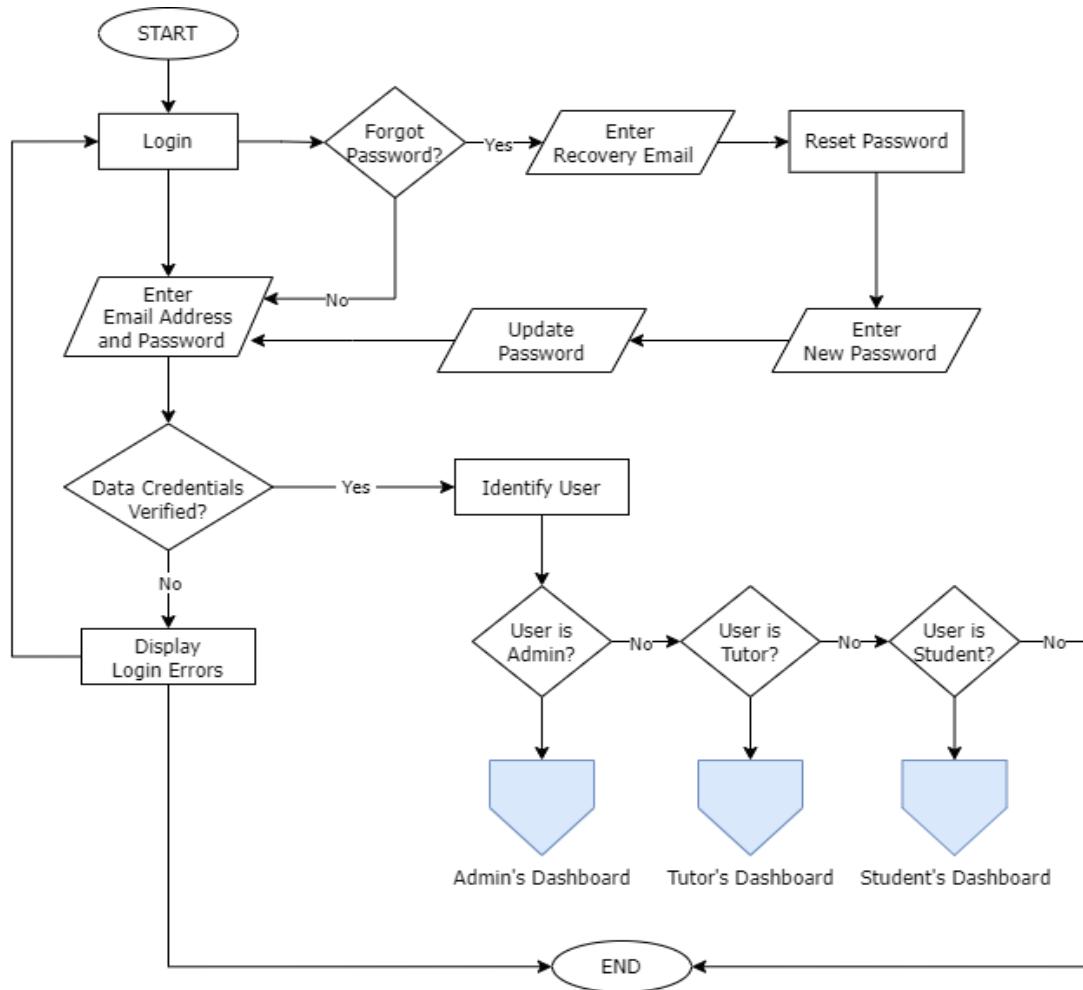
Additionally, the platform offers an efficient scheduling system, allowing students to easily book tutoring sessions tailored to their needs. This innovative approach aims to enhance the overall learning experience for students and provide a supportive framework to overcome academic challenges.

The cross-matching platform provides a wide range of well-crafted tutorial courses that are meant to empower students in a variety of tough disciplines that are frequently hard to work through on their own. These classes are priceless resources that provide students with a thorough comprehension of the subject matter and practical methods for mastering it. Each course includes lectures that explore the nuances of the subject, providing a thorough and interesting learning environment. By engaging directly with course developers, this interactive approach not only ensures students' understanding of the subject matter but also cultivates a more dynamic and effective learning experience. The emphasis on direct interaction contributes to a richer educational environment, fostering deeper engagement and knowledge retention among students.

The following figures, starting on Page 52 up to Page 62, show the developed processes of the cross-matching platform:

Figure 12

Login

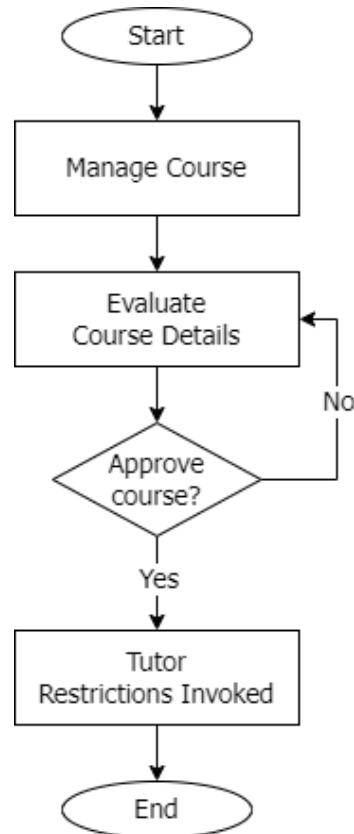


In Figure 12, users can access the website's login page by providing their email address and password. The system will then verify the entered credentials, granting access if valid. Otherwise, error messages will prompt the users to re-enter their credentials. The system has three access levels: administrator, student, and tutor. After identifying the access level, users will be redirected to their corresponding dashboard. If a user, including the

administrator, forgets the password, users can use the recovery email option to receive a password reset link for recovery. After clicking the link, users can update their login credentials, with the new password securely stored in the database.

Figure 13

Admin: Managing Courses



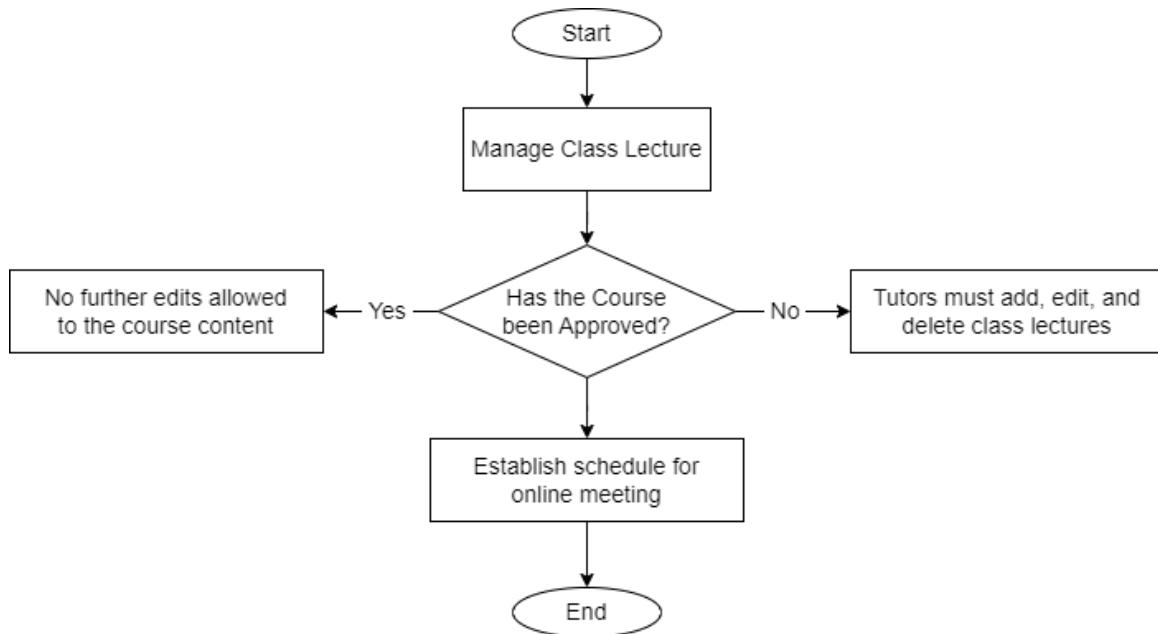
The administrator takes charge of course management, thoroughly examining and understanding the details associated with each course. Following this, the administrator undertakes a basic evaluation of the course details that can be easily viewed alongside the course.

This includes viewing basic course information like the course name, overview, requirements, list of expected lectures, Google meeting schedules together with the overall lecture count, course image, course tutor name, and course introduction video if the tutor provided that for the course. After viewing the course details, the administrator can then approve or disapprove of the course.

Upon approval, a crucial transition occurs, limiting the tutor's ability to make further edits to both the course and class lecture details. This step ensures the preservation of the approved course content, maintaining consistency and reliability in the learning materials provided to students.

Figure 14

Admin: Managing Class and Class Schedule



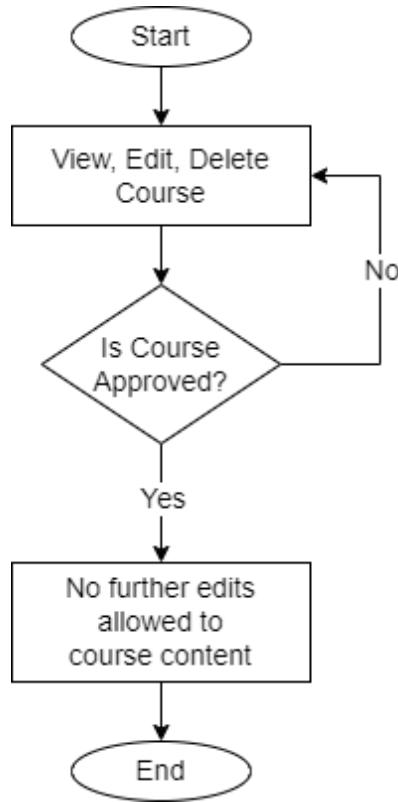
As shown in Figure 14, the administrator can only view classes and assess its contents. Once a course is approved, the tutor cannot edit the connected class lecture schedules. The exclusive capability to edit the tutor's class lecture schedule relies on the administrator.

Admin: Viewing of Enrolled Students. The administrator commences the task by accessing the "Course Students" section. Within this functionality, the administrator can view the list of students currently enrolled in a specific course. This feature provides a convenient way for the administrator to track and manage student enrollments. Additionally, the administrator can access individual student profiles from the list, obtaining detailed information about each student's course participation.

Private Messaging. Within the website's chatting system, the administrator possesses the capability to engage in one-on-one conversations. This specific functionality enables the administrator to send personalized messages directly to any user. This feature empowers the administrator to convey information, provide assistance, or address inquiries in a direct and efficient manner. The utilization of the messaging system serves as a valuable tool for establishing personalized connections within the platform.

Figure 15

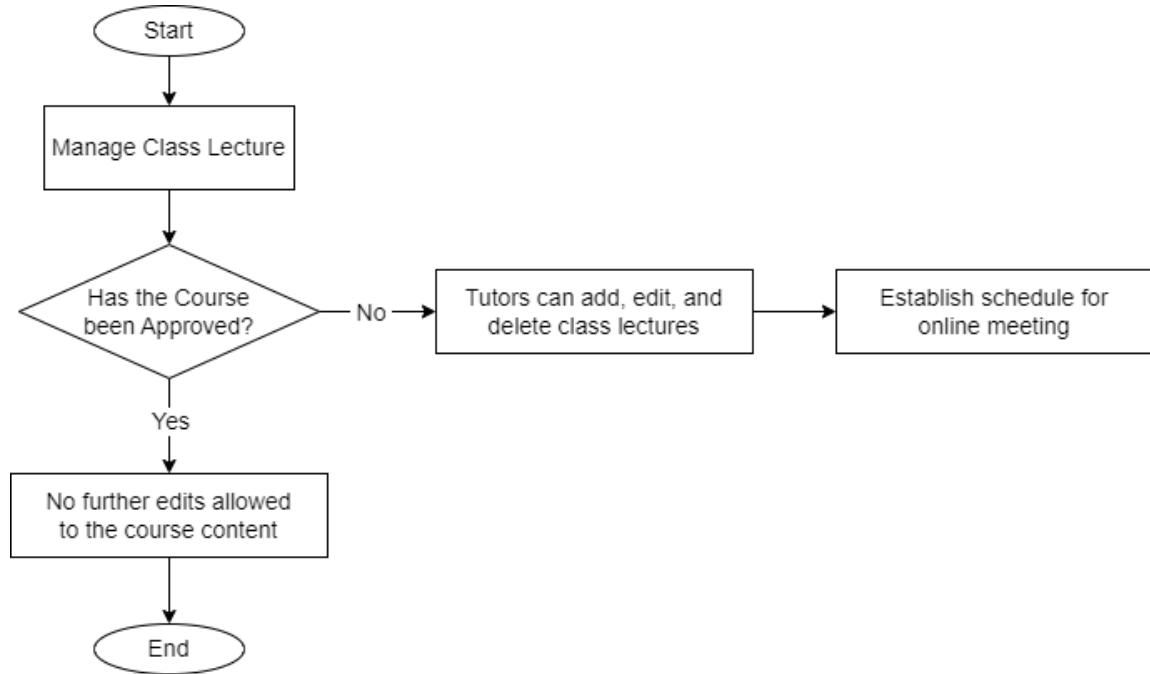
Tutor: Managing Courses



Tutors have the ability to view, edit, and delete courses. However, it's crucial to note that once a course is approved, a significant transition occurs. At this point, the tutor loses the capability to make any further edits to the details and schedules associated with the approved course. The assurance of maintaining the approved course's integrity and consistency is crucial, as it prevents any unauthorized modifications by the tutor that could compromise the quality and reliability of the educational content. This commitment emphasizes upholding standards for a reliable student learning experience.

Figure 16

Tutor: Managing Class and Class Schedule



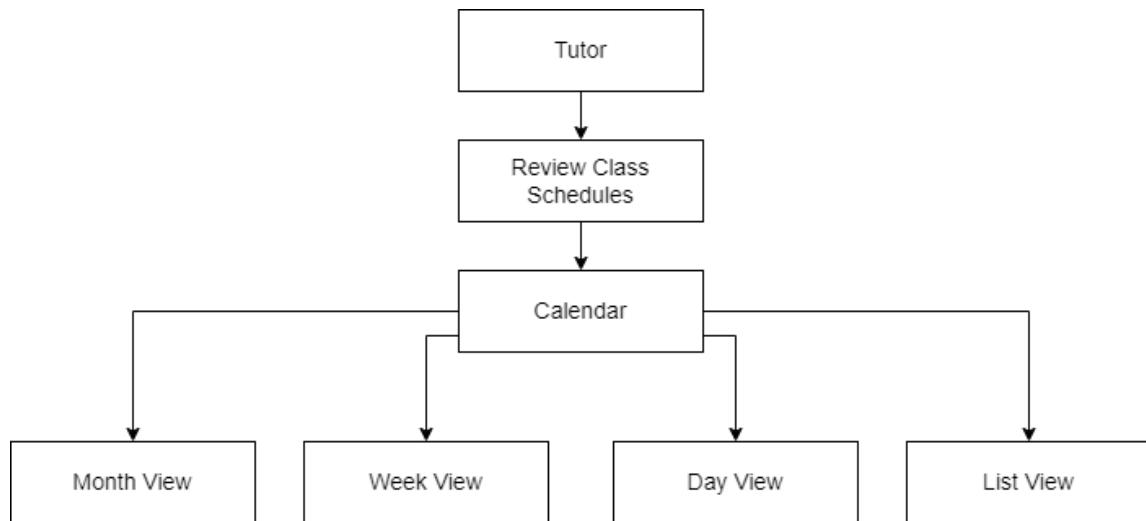
Tutors have the capability to adjust class lectures by adding, editing, and deleting them. Additionally, tutors can establish the schedule for the online meetings associated with the class. However, it is important to note that once the course pertaining to the class is approved, a significant restriction is imposed. The tutor loses the ability to make further edits to any details previously set for the course. This ensures the stability and consistency of the approved course content.

Tutor: Viewing of Enrolled Students. Tutors have the ability to view enrolled students in the course. This involves accessing the list of enrolled students, allowing

tutors to view both the names and information of the students currently enrolled in the specific course. Through this process, tutors can gain insights into the composition of the student and can review individual student details, contributing to effective course management.

Figure 17

Tutor: Viewing of Calendar



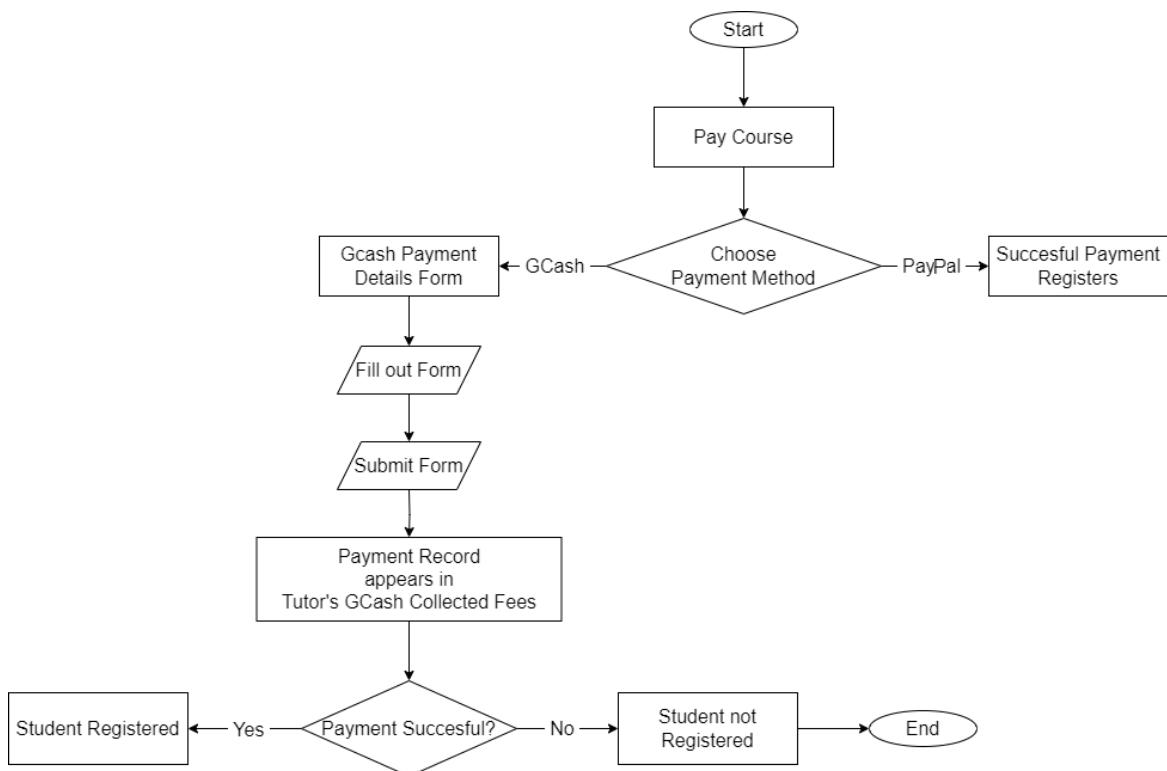
Tutors can access and review the class schedules they have created on the calendar. The calendar provides flexibility, allowing tutors to display schedules in month, week, day, or list view. This functionality enhances the tutor's ability to efficiently manage and track class schedules based on their preferred time frame, contributing to effective organization and planning.

Student: Viewing List of Courses. Students have the ability to explore the list of approved courses registered

on the website. By selecting a specific course, the student can delve into its details by clicking on it, prompting the display of course information. This process empowers students to easily navigate through the available courses and make decisions about their educational pursuits on the platform.

Figure 18

Student: Process of Paying Course

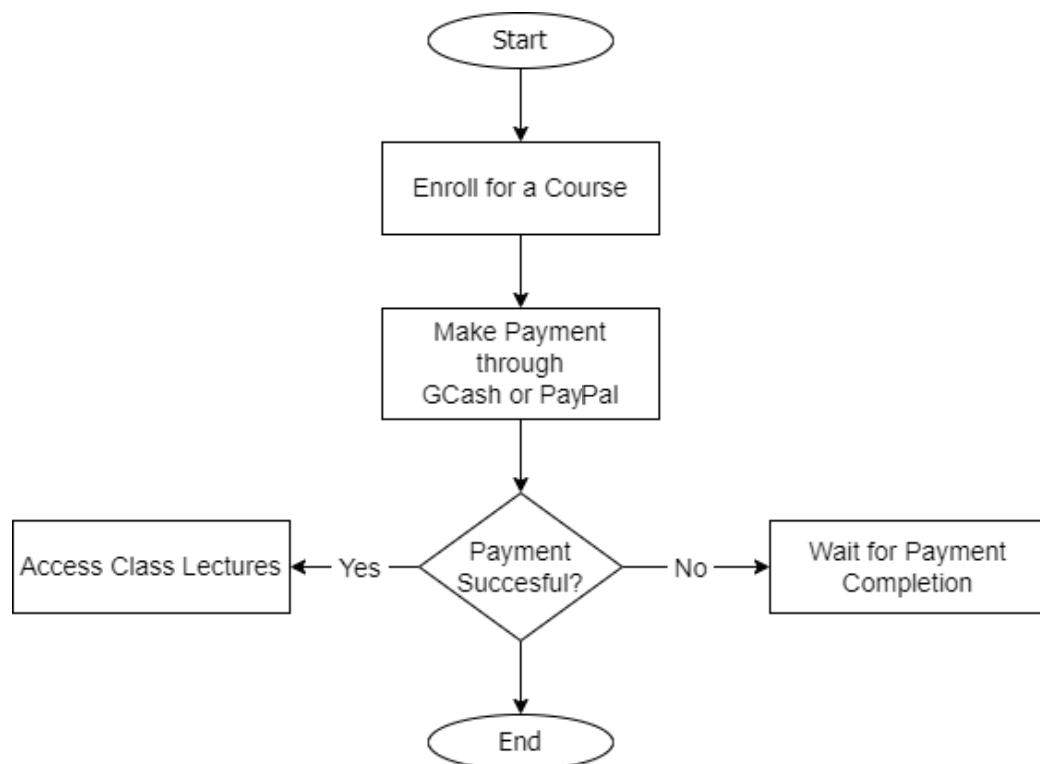


The student's enrollment begins with the prerequisite of paying the course fee, after which they are officially registered as a course student. The payment process takes place on the payment details platform, where students can choose between two payment methods: GCash and PayPal. For

PayPal transactions, a successful payment automatically registers the payment. For GCash transactions, the student completes a payment form with GCash details. After submission, the payment records appear in the tutor's GCash collected fees, providing the tutor with the option to either confirm or decline the payment.

Figure 19

Student: Accessing Class Lectures

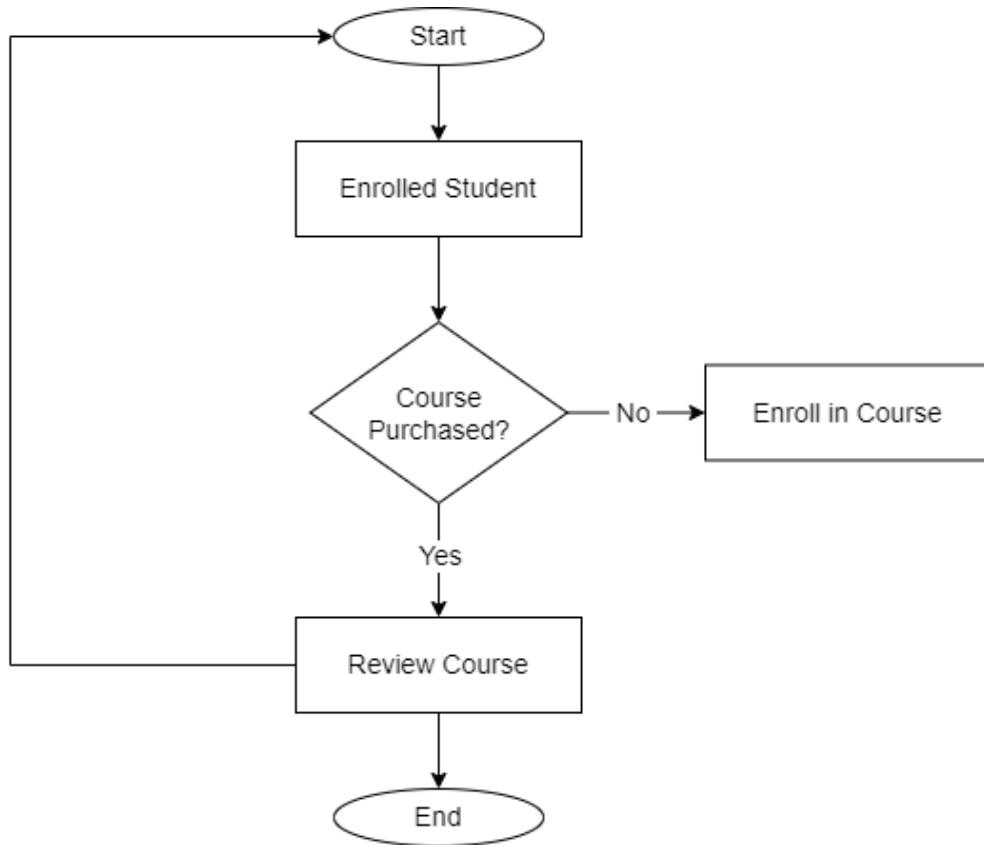


Students can gain access to class lectures upon successful payment of the full course fee. The sequence involves the student making the required payment, and upon completion of the transaction, the course's class lectures become available for viewing. This process ensures that

students who have fulfilled the necessary financial obligations promptly receive access to the educational content associated with the course they have enrolled in.

Figure 20

Student: Viewing of Enrolled Courses

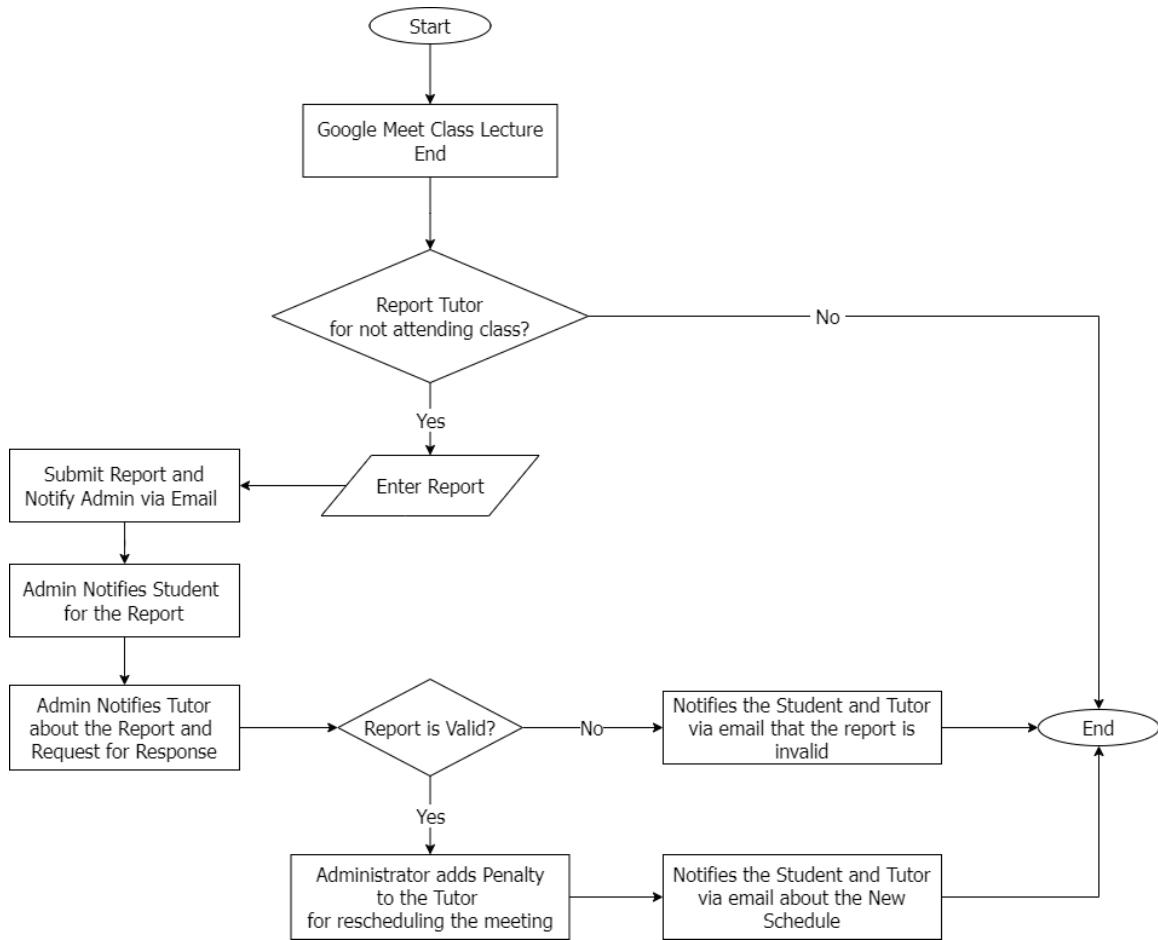


Students have the capability to review the courses in which they are currently enrolled. This status is achieved once the student successfully completes the purchase of the course. Through this, students can conveniently access information about the courses they have acquired, facilitating a clear overview of their enrolled educational offerings.

Student: Accessing the Tutor Calendar. Students can access the class lecture schedule created by the tutor for a particular course. This schedule is presented and synchronized with the student's calendar, allowing for seamless integration and easy reference. This ensures that students have convenient access to the planned class lectures, promoting effective time management and engagement with the course material.

Figure 21

Student: Reporting of Tutor



In Figure 21, after the Google meeting schedule, the student can report the tutor for not attending the scheduled online class lecture. The student is required to fill out a form and submit it, notifying the administrator about the incident. The administrator then reviews the report and responds to the student, confirming that the report has been received and is under verification.

Upon verification, the administrator notifies the tutor mentioned in the report and requests a response. If the report is deemed valid, the administrator imposes a penalty on the tutor and reschedules the Google meeting class lecture schedule. If the report is invalid, both the tutor and the student receive notification of the report's invalidity.

Features Integrated into the Proposed Cross-Matching Platform

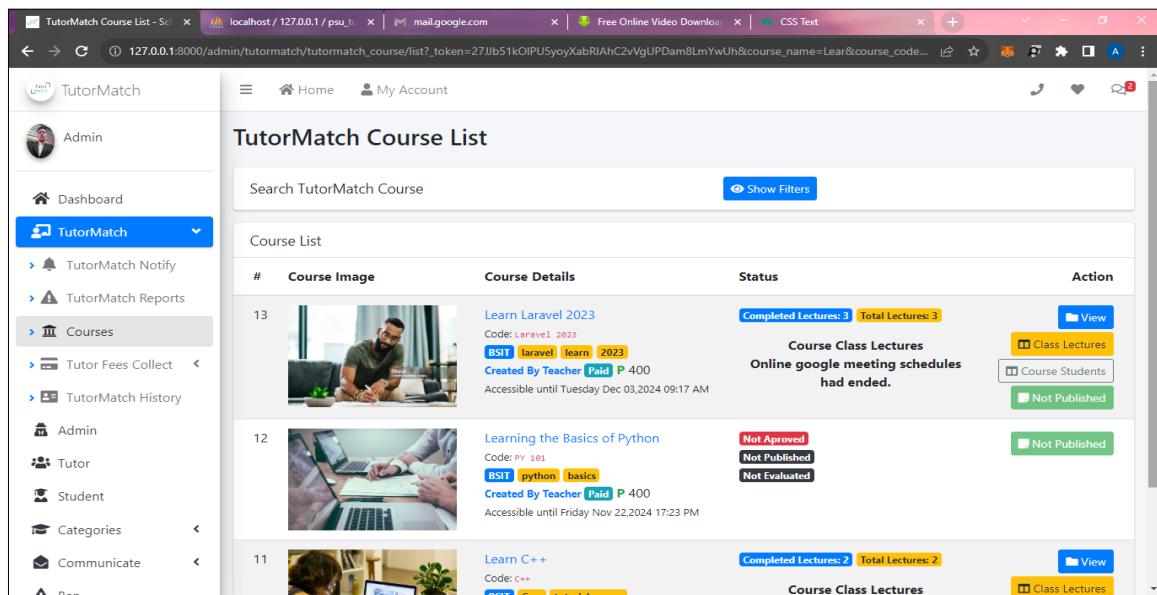
The developed cross-matching platform for Pangasinan State University-Alaminos City Campus was designed to provide the following features:

Match the Student with the Preferred Course. The cross-matching algorithm relies on user preferences determined by chosen interests and categories. The system analyzes the data, matching it with courses aligned with the user's preferences. Historical user actions and search

queries are given importance in the matchmaking process, with this information recorded and utilized in subsequent logins. The courses recommended are tailored based on the user preferences stored in the database.

Figure 22

Admin: View Course List

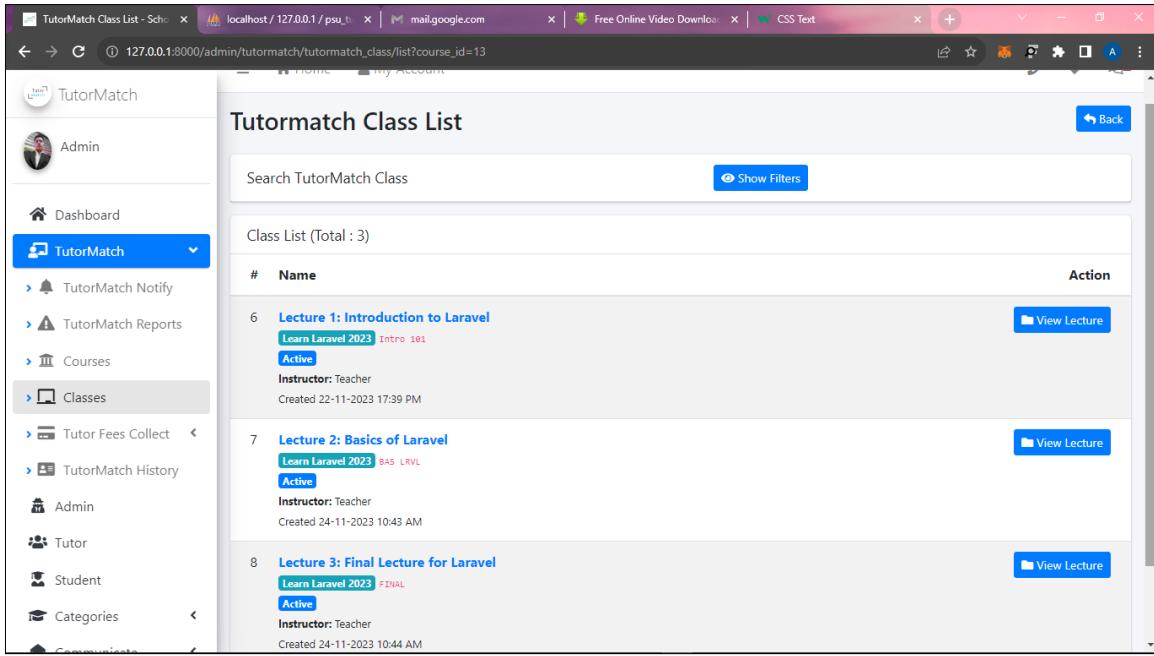


The screenshot shows a web-based application titled "TutorMatch Course List". On the left, there is a sidebar with a user profile picture labeled "Admin" and a navigation menu under "TutorMatch" which includes "Courses" (selected), "Tutor Fees Collect", "TutorMatch History", "Admin", "Tutor", "Student", "Categories", and "Communicate". The main content area has a header "TutorMatch Course List" with a search bar and a "Show Filters" button. Below the header is a table titled "Course List" with columns: "#", "Course Image", "Course Details", "Status", and "Action". There are three rows of course data:

#	Course Image	Course Details	Status	Action
13		Learn Laravel 2023 Code: Laravel 2023 BSIT Laravel Learn 2023 Created By Teacher Paid P 400 Accessible until Tuesday Dec 03, 2024 09:17 AM	Completed Lectures: 3 Total Lectures: 3 Course Class Lectures Online google meeting schedules had ended.	<input type="button" value="View"/> <input type="button" value="Class Lectures"/> <input type="button" value="Course Students"/> <input type="button" value="Not Published"/>
12		Learning the Basics of Python Code: PY 101 BSIT python basics Created By Teacher Paid P 400 Accessible until Friday Nov 22, 2024 17:23 PM	Not Approved Not Published Not Evaluated	<input type="button" value="Not Published"/>
11		Learn C++ Code: C++ BSIT C++ Learn 2023	Completed Lectures: 2 Total Lectures: 2 Course Class Lectures	<input type="button" value="View"/> <input type="button" value="Class Lectures"/>

This designated area allows the administrator to view and approve TutorMatch courses. Within this section, the administrator has the capability to manage the full spectrum of actions related to these courses. In general, the administrator can handle various aspects of course management, improving the overall control and supervision of the TutorMatch courses. The enhanced capabilities provided by this designated area contribute to a more efficient and streamlined course approval process.

Figure 23

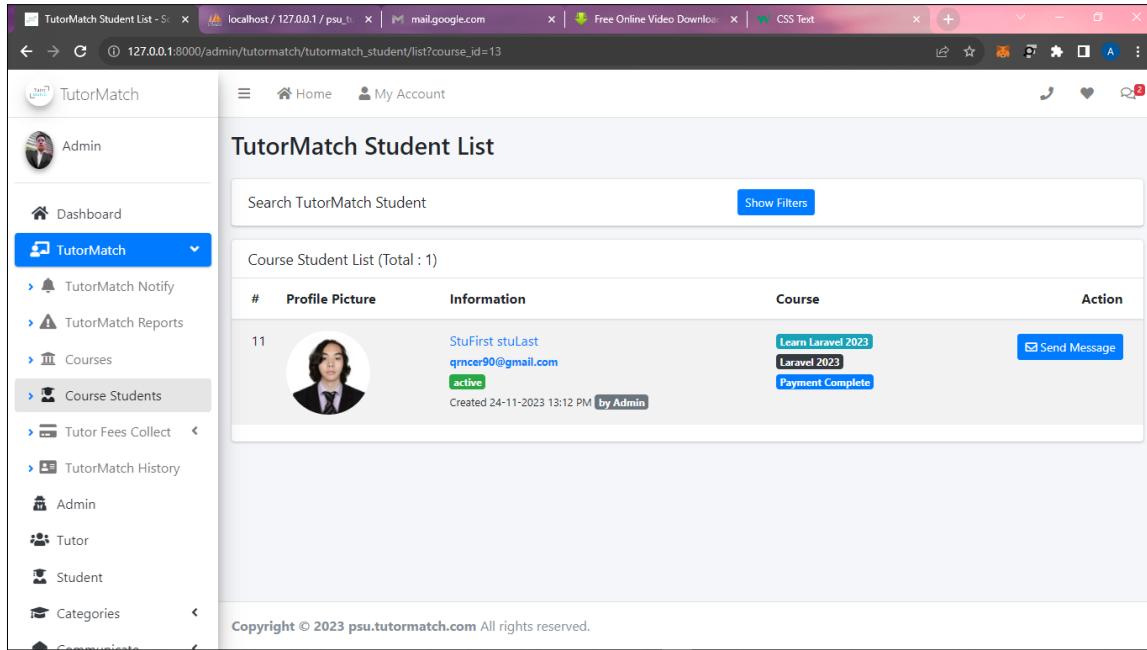
Admin: View Class List


The screenshot shows a web-based administration interface for a TutorMatch system. The left sidebar has a navigation menu with options like Dashboard, TutorMatch (selected), Courses, Classes (selected), Tutor Fees Collect, TutorMatch History, Admin, Tutor, Student, Categories, and Communications. The main content area is titled "Tutormatch Class List" and displays a table of three entries:

#	Name	Action
6	Lecture 1: Introduction to Laravel <small>Learn Laravel 2023 Intro 101 Active</small> <small>Instructor: Teacher Created 22-11-2023 17:39 PM</small>	View Lecture
7	Lecture 2: Basics of Laravel <small>Learn Laravel 2023 BAS_LVL Active</small> <small>Instructor: Teacher Created 24-11-2023 10:43 AM</small>	View Lecture
8	Lecture 3: Final Lecture for Laravel <small>Learn Laravel 2023 FINAL Active</small> <small>Instructor: Teacher Created 24-11-2023 10:44 AM</small>	View Lecture

Within this section, the administrator can review TutorMatch classes created by the tutor and access class lectures and content. The interface grants the administrator the ability to view and check classes along with their associated learning materials. This functionality allows the administrator to efficiently inspect the classes and associated content. The administrator can review class details and learning materials seamlessly through this interface. Overall, this section provides a convenient platform for the administrator to review TutorMatch classes and related content.

Figure 24

Admin: View Course Student List


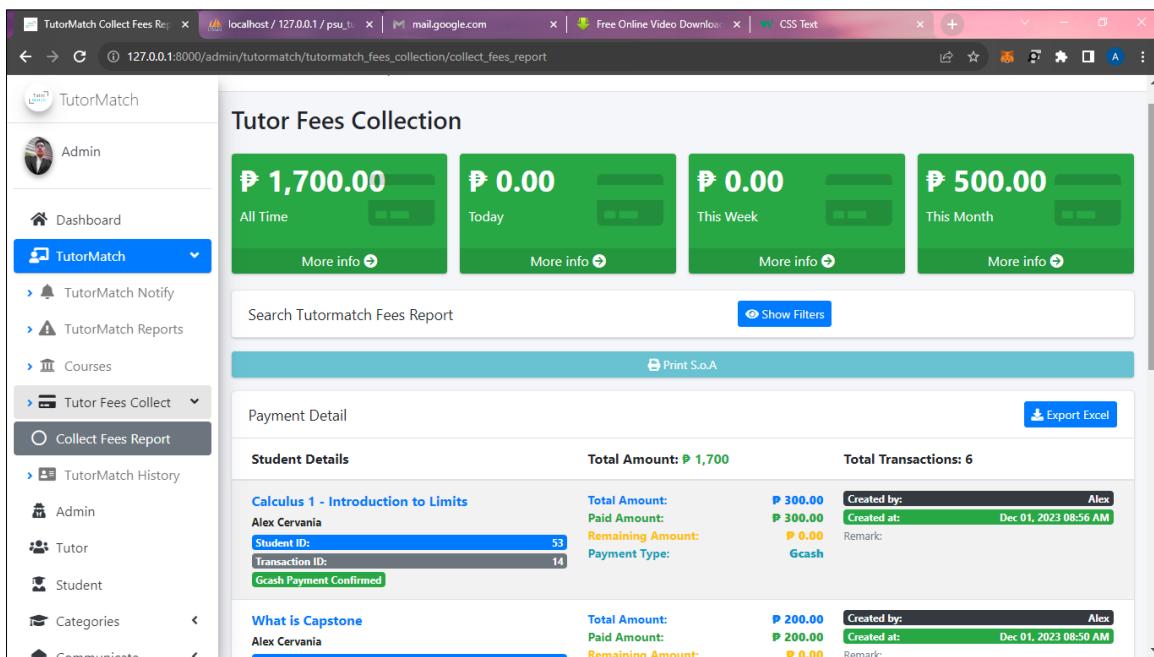
The screenshot shows a web browser window with multiple tabs open. The active tab is titled "TutorMatch Student List" and has the URL "localhost / 127.0.0.1 / psu_tutormatch / admin / tutormatch / tutormatch_student / list?course_id=13". The page itself is titled "TutorMatch Student List" and displays a search bar and a table of course student records. The table has columns for #, Profile Picture, Information, Course, and Action. One student record is listed:

#	Profile Picture	Information	Course	Action
11		StuFirst stuLast qmcer90@gmail.com <small>active</small>	Learn Laravel 2023 Laravel 2023 <small>Payment Complete</small>	Send Message

At the bottom of the page, there is a copyright notice: "Copyright © 2023 psu.tutormatch.com All rights reserved."

This page enables the administrator to monitor enrolled students in the TutorMatch courses. It allows the administrator to review the current registrations, providing a toolset for managing student enrollment within the TutorMatch website. The page serves as a valuable resource for administering and handling student enrollment in various courses. It empowers the administrator with the necessary tools to efficiently manage and track student registrations. Overall, this feature enhances the administrator's ability to organize the student enrollment process within the TutorMatch platform, providing a robust toolkit for enhanced organizational control.

Figure 25

Admin: View Tutor Fees Collection Report


Within this page, the administrator can view tutors' collected fees, enabling financial record analysis. The feature provides valuable insights into the financial aspects of the tutoring platform, allowing administrators to efficiently check transaction details. The administrator can easily monitor and analyze the transactions, contributing to effective financial oversight. In summary, this feature serves as a key tool in maintaining financial transparency and efficiency on the tutoring platform and helps administrators effectively manage and maintain clear financial records, contributing to the overall smooth operation of the system.

Figure 26

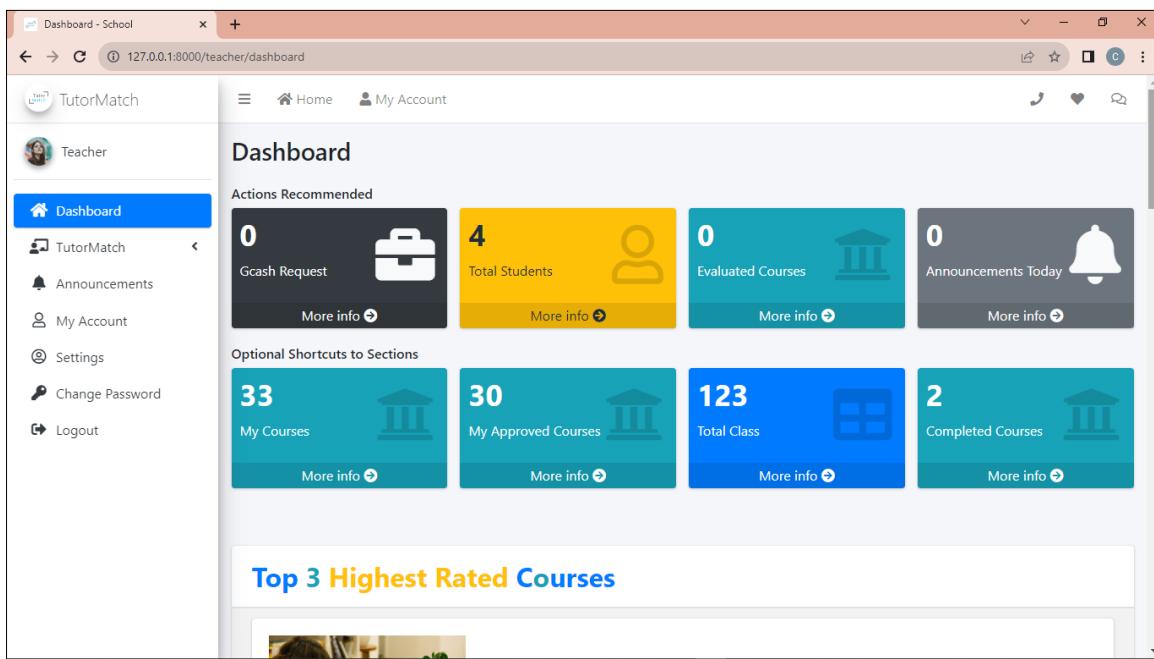
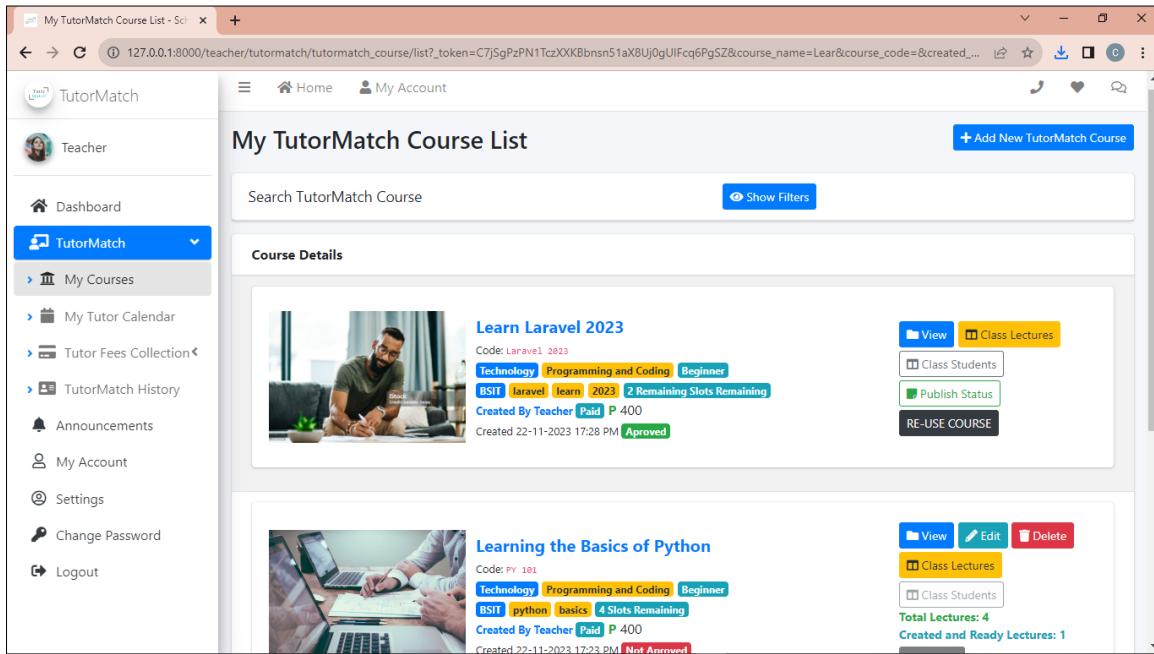
Tutor's Dashboard


Figure 26 serves as the initial dashboard for tutors, providing a seamless pathway to diverse activities and tasks on the website. This enhances their user experience and streamlines the fulfillment of their responsibilities. Serving as a central hub, the dashboard offers easy access to essential features. It optimizes the user interface, allowing tutors to efficiently carry out their duties. In summary, Figure 26 significantly contributes to enhancing the tutors overall experiences and easing their responsibilities. Its role as a central hub and user-friendly interface ensures a smooth and efficient platform for tutors to carry out their duties.

Figure 27

Tutor's Course List



The screenshot shows the 'My TutorMatch Course List' page. On the left, there is a sidebar with the 'TutorMatch' logo and navigation links: Home, My Account, Dashboard, TutorMatch (selected), My Courses, My Tutor Calendar, Tutor Fees Collection, TutorMatch History, Announcements, My Account, Settings, Change Password, and Logout.

The main content area displays two course entries:

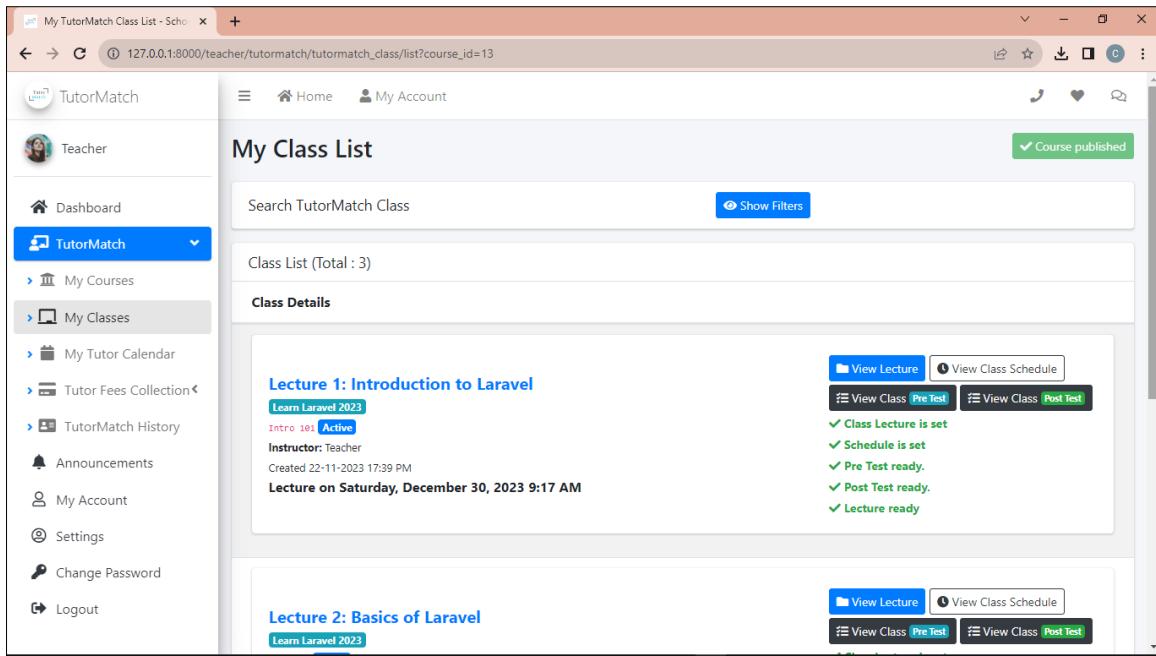
- Learn Laravel 2023**
Code: Laravel 2023
Technology: Programming and Coding, Beginner
BSIT: Laravel, learn 2023, 2 Remaining Slots Remaining
Created By Teacher Paid P 400
Created 22-11-2023 17:28 PM Approved!
- Learning the Basics of Python**
Code: PY 101
Technology: Programming and Coding, Beginner
BSIT: python, basics, 4 Slots Remaining
Created By Teacher Paid P 400
Created 22-11-2023 17:23 PM Not Approved!

Each course entry includes a thumbnail image, course name, code, technology, level, creator information, creation date, approval status, and several action buttons: View, Class Lectures, Class Students, Publish Status, RE-USE COURSE, Edit, Delete, and Class Lectures.

In this area, tutors can view, create, modify, and delete TutorMatch courses. The platform's versatility empowers tutors to manage their course-related actions effectively. Tutors can seamlessly navigate the webpage, possessing the capability to generate, adjust, and remove courses as needed. This versatility enhances the efficiency of tutors in handling various aspects of their courses. Overall, TutorMatch provides tutors with a user-friendly toolset that simplifies course administration, ensuring an effortless and efficient experience. Additionally, the platform's user-friendly features contribute to a seamless experience for managing courses effectively.

Figure 28

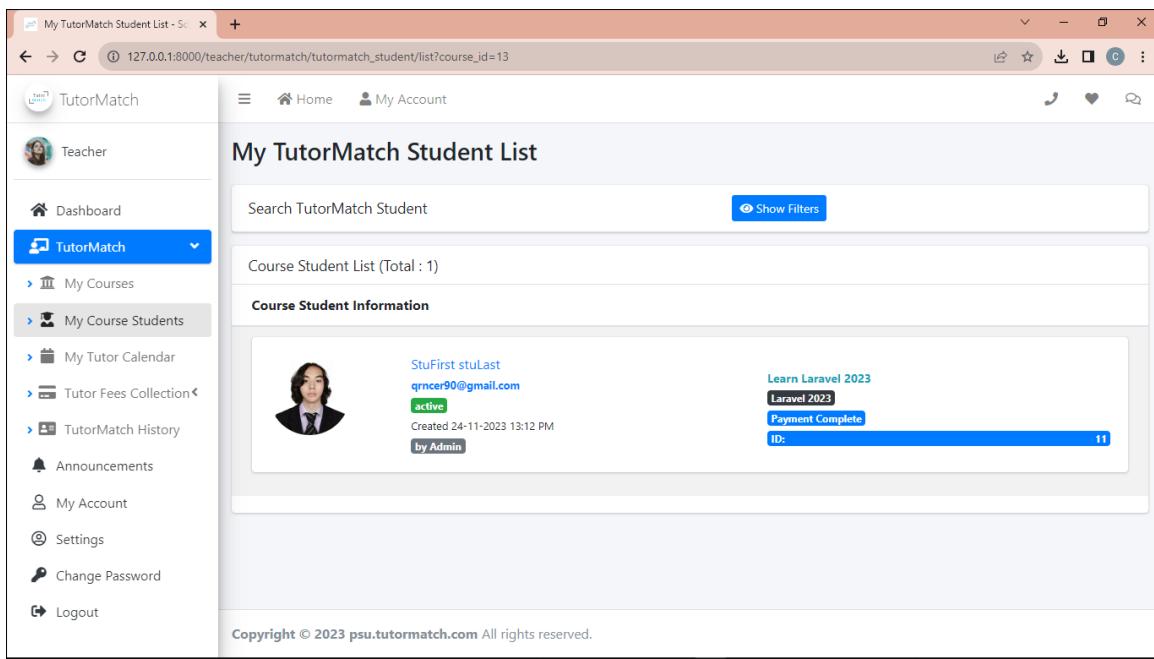
Tutor's Classes



As shown in Figure 28, tutors can review, edit, and delete TutorMatch classes, utilizing a user-friendly interface for efficient management of course class details. This interface provides an accessible platform for tutors to modify class information as needed, ensuring the seamless operation of TutorMatch classes. The webpage grants tutors the ability to make necessary adjustments, enhancing their control over the specifics of each class. In summary, this feature plays a crucial role in making the process smooth and effective, enabling tutors to effortlessly keep their class information accurate and relevant.

Figure 29

Tutor's Course Student List



The screenshot shows a web browser window titled "My TutorMatch Student List - Sc" with the URL "127.0.0.1:8000/teacher/tutormatch/tutormatch_student/list?course_id=13". The page is titled "My TutorMatch Student List" and features a search bar and a "Show Filters" button. Below the search bar, it says "Course Student List (Total : 1)". A table displays one student record:

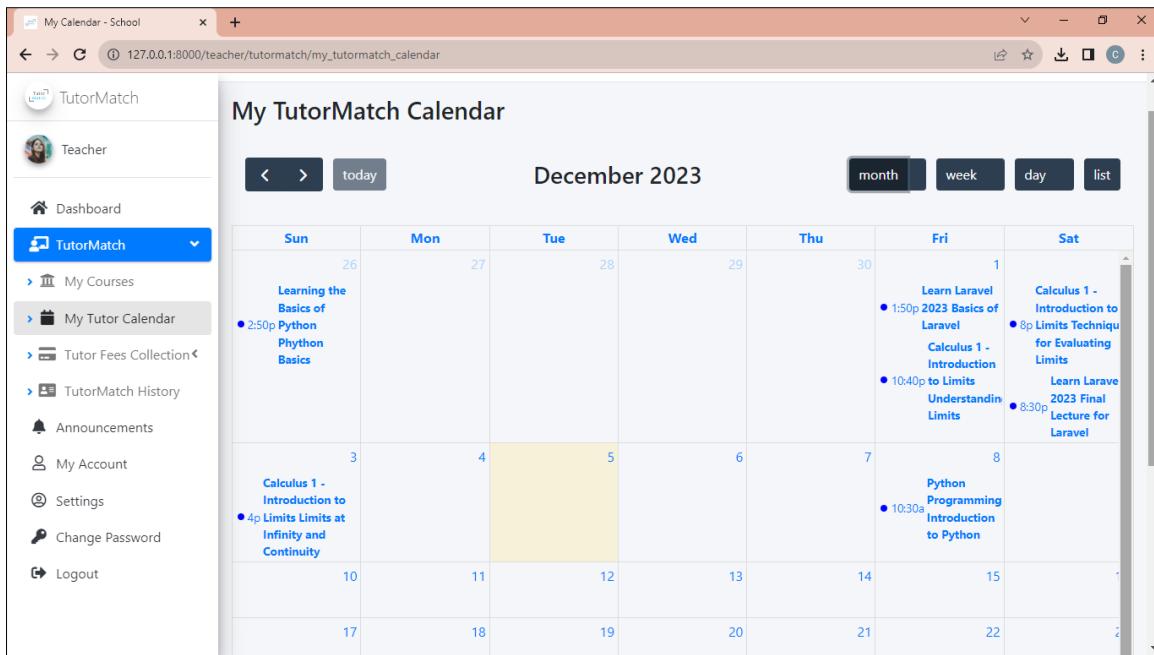
Course Student Information	
	<p>StuFirst stuLast qrncer90@gmail.com active Created 24-11-2023 13:12 PM by Admin</p>
<p>Learn Laravel 2023 Laravel 2023 Payment Complete ID: 11</p>	

At the bottom of the page, it says "Copyright © 2023 psu.tutormatch.com All rights reserved."

On this page, tutors can access a list of students currently enrolled in a course. The list provides a clear view of the enrolled students, making it easier for tutors to manage and interact with the student roster. This specific feature optimizes the process of tracking student participation across different courses, simplifying the administrative aspects of tutoring. Tutors can efficiently use this view to monitor and engage with their students, thereby enhancing the overall tutoring experience. The feature streamlines the tracking of student participation, contributing to a more organized and effective tutoring process.

Figure 30

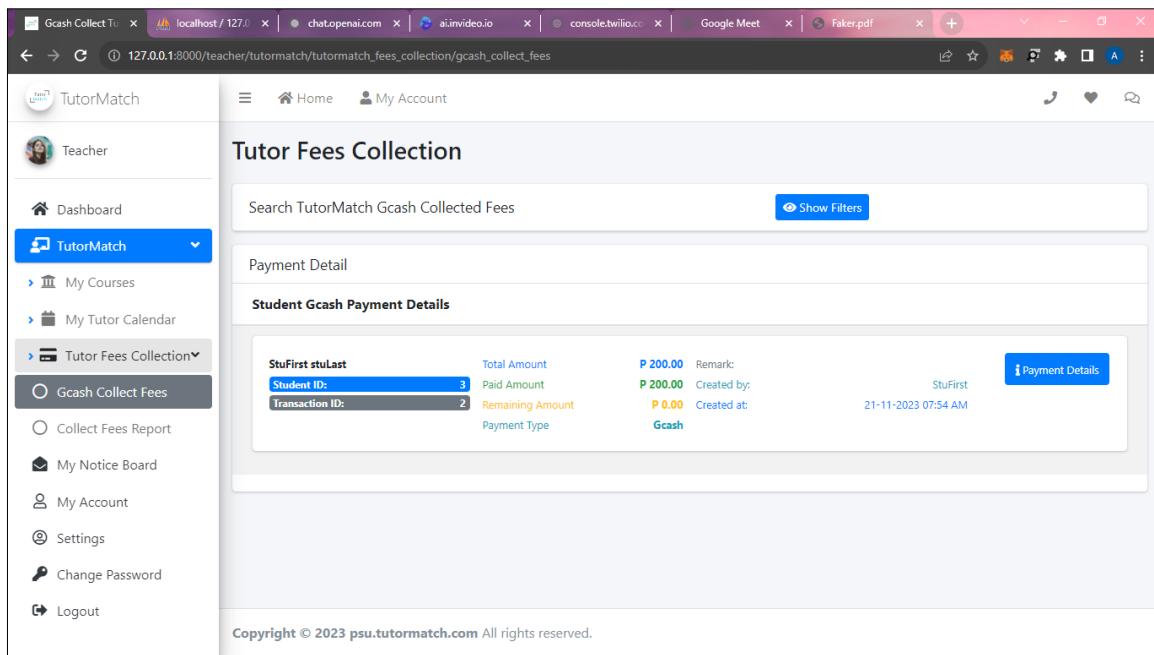
Tutor's Calendar



Sun	Mon	Tue	Wed	Thu	Fri	Sat	
26	27	28	29	30	1	Calculus 1 - Introduction to Limits ● 8:30p Learn Laravel 2023 Final Lecture for Laravel	
Learning the Basics of Python ● 2:50p Python Basics					Learn Laravel ● 1:50p 2023 Basics of Laravel Calculus 1 - Introduction ● 10:40p to Limits Understanding Limits		
	Calculus 1 - Introduction to Limits ● 4p Limits at Infinity and Continuity	4	5	6	7	Python Programming Introduction to Python ● 10:30a	
	3				8		
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23

This designated area presents tutors with a calendar display that highlights the synchronized values of the course class time schedules. This feature provides a clear and organized view of the timetable, enabling tutors to plan and manage their class sessions effectively. The calendar harmonizes the course and class time schedules to ensure seamless coordination. Tutors can rely on these synchronized values for accurate scheduling and avoid conflicts in their tutoring commitments. Overall, the calendar feature enhances the efficiency of class planning and coordination, allowing tutors to better manage their schedules and provide a productive tutoring experience.

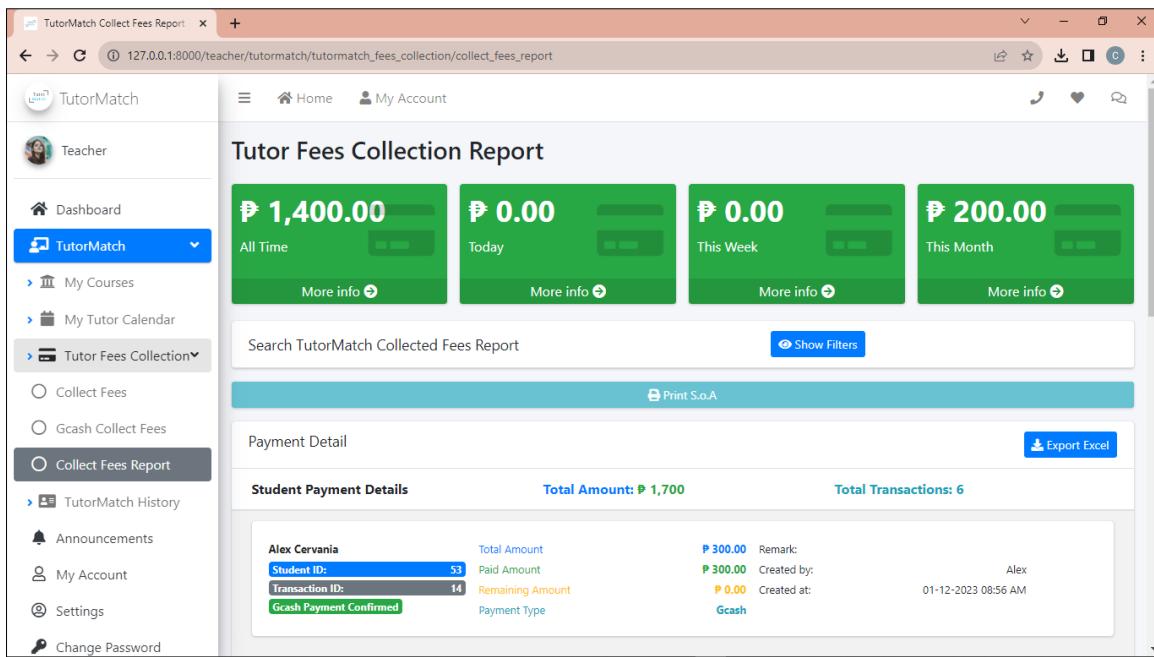
Figure 31

Tutor's Fees Collection


StuFirst stuLast	Total Amount	Remark:
Student ID: 3	P 200.00	Created by: StuFirst
Transaction ID: 2	P 200.00	Created at: 21-11-2023 07:54 AM
	P 0.00	
	Payment Type	Cash

On this page, tutors have the capability to observe, approve, or reject fee requests, providing them a tool for managing financial transactions associated with the payment method. The interface offers a convenient process for tutors to handle fee requests efficiently. Within this interface, tutors can review fee requests and take prompt actions, contributing to a smoother financial management experience. The functionality enhances the tutors' ability to administer and respond to financial matters seamlessly. Overall, this page functions as a highly useful tool for tutors to easily handle and respond to inquiries related to fees.

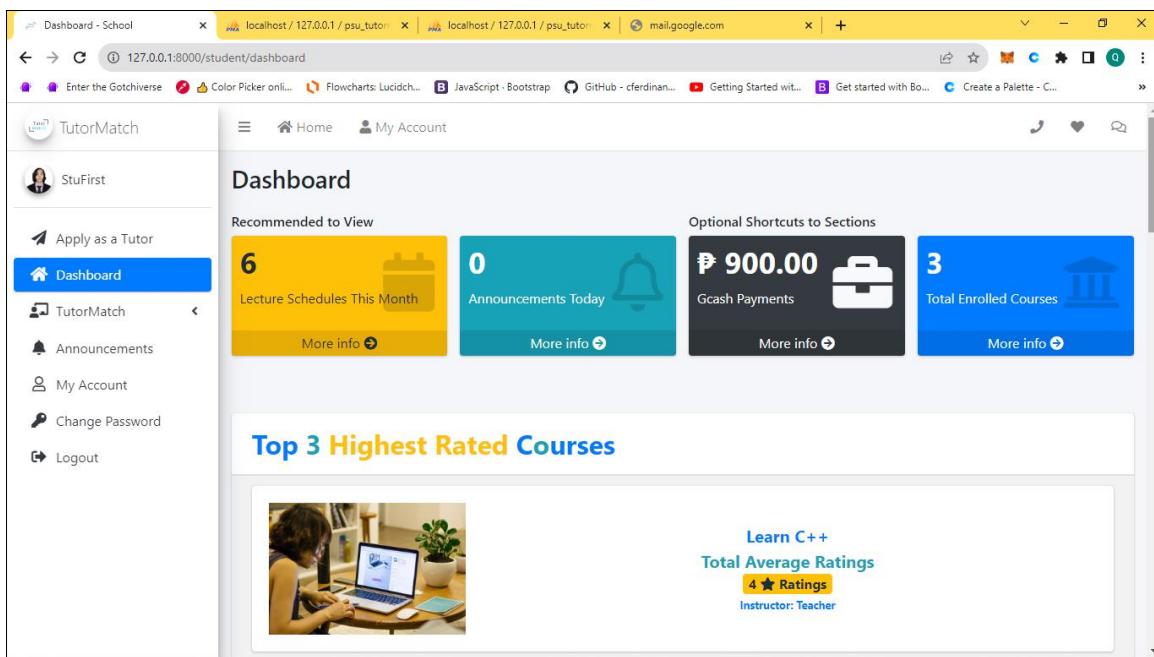
Figure 32

Tutor's Fees Collection Report


As shown in Figure 32, tutors have the ability to access an overview of the fees collected from students currently enrolled in their courses. This feature offers a snapshot of the financial transactions associated with the tutor's courses. Tutors can conveniently review the total fees collected from their enrolled students, which greatly aids in financial management. This functionality provides tutors with a valuable tool for monitoring and analyzing their course-related finances. Overall, The webpage boosts tutors' proficiency in effectively managing their financial aspects, providing a valuable tool for smooth financial control.

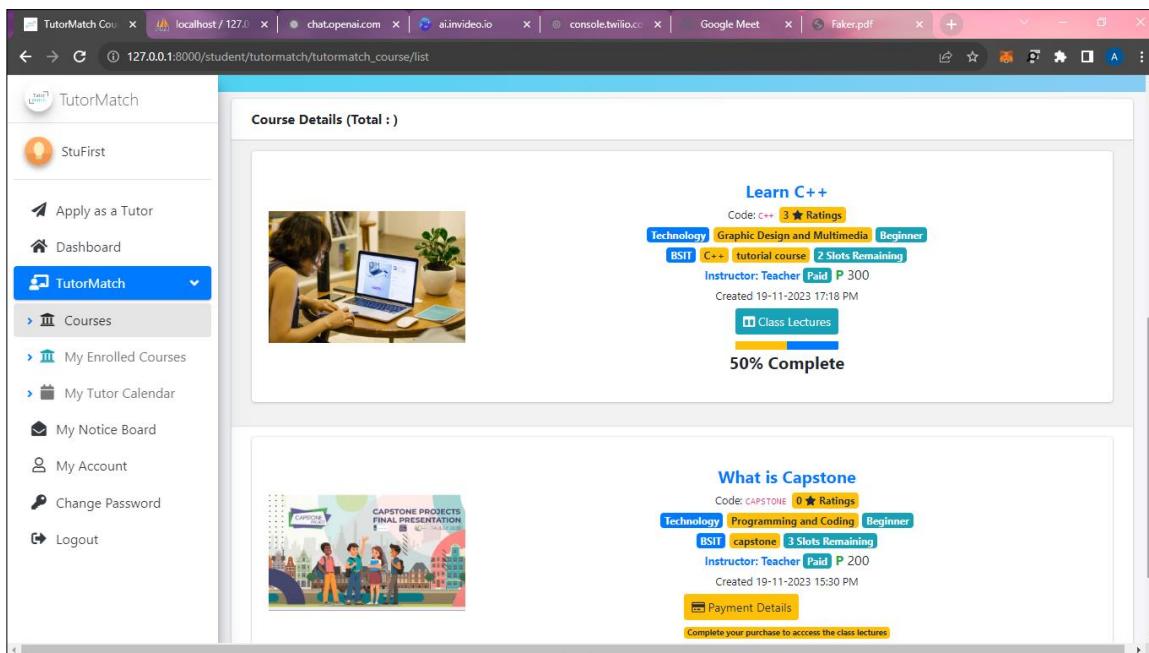
Figure 33

Student's Dashboard



The student's dashboard page serves as the starting point for their user experience, allowing them to effortlessly explore the platform and engage in various activities. It acts as the gateway to a range of educational opportunities and interactive features designed to enhance the overall learning experience. The dashboard page provides easy access to resources, and with its user-friendly interface, students can navigate seamlessly, making the most of the educational offerings available to them. The well-designed dashboard encourages a positive and efficient learning experience for students, allowing them to easily access essential information and tools.

Figure 34

Student's Course List


The screenshot shows a web browser window with multiple tabs open. The active tab is titled "TutorMatch" and displays the URL "127.0.0.1:8000/student/tutormatch/tutormatch_course/list". The page content is titled "Course Details (Total :)". It lists two courses:

- Learn C++**
 - Code: C++ 3 ★ Ratings
 - Technology: Graphic Design and Multimedia Beginner
 - BSIT C++ tutorial course 2 Slots Remaining
 - Instructor: Teacher Paid P 300
 - Created 19-11-2023 17:18 PM
 - Class Lectures
 - 50% Complete
- What is Capstone**
 - Code: CAPSTONE 0 ★ Ratings
 - Technology: Programming and Coding Beginner
 - BSIT capstone 3 Slots Remaining
 - Instructor: Teacher Paid P 200
 - Created 19-11-2023 15:30 PM
 - Payment Details
 - Complete your purchase to access the class lectures

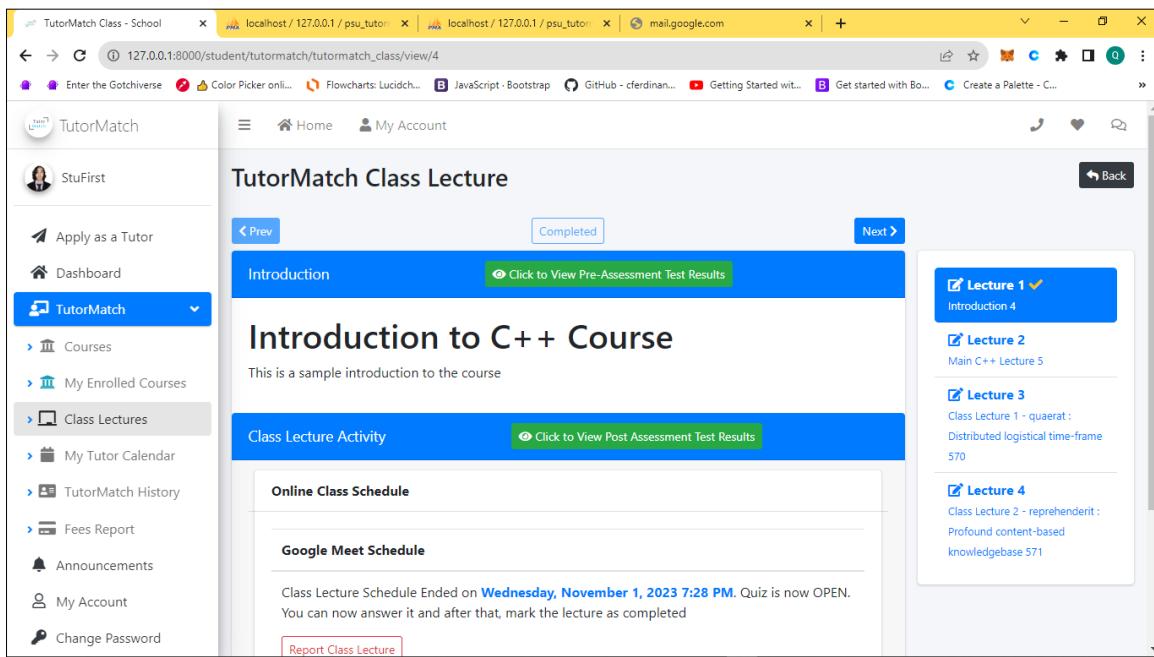
The left sidebar contains a navigation menu with the following items:

- TutorMatch
- StuFirst
- Apply as a Tutor
- Dashboard
- Courses** (selected)
- My Enrolled Courses
- My Tutor Calendar
- My Notice Board
- My Account
- Change Password
- Logout

As illustrated in Figure 34, students can access and manage a variety of course-related duties, allowing them to effortlessly explore courses and assess the qualifications of their particular tutors. This page acts as an empowering tool, allowing students to make decisions about their course enrollment and payment options. The user-friendly design guarantees a smooth navigation experience, allowing for more efficient choices along the educational journey. Students may confidently use the platform to evaluate courses and make decisions. The page's intuitive design enhances usability, allowing students to easily use the platform.

Figure 35

Student's Class Lectures

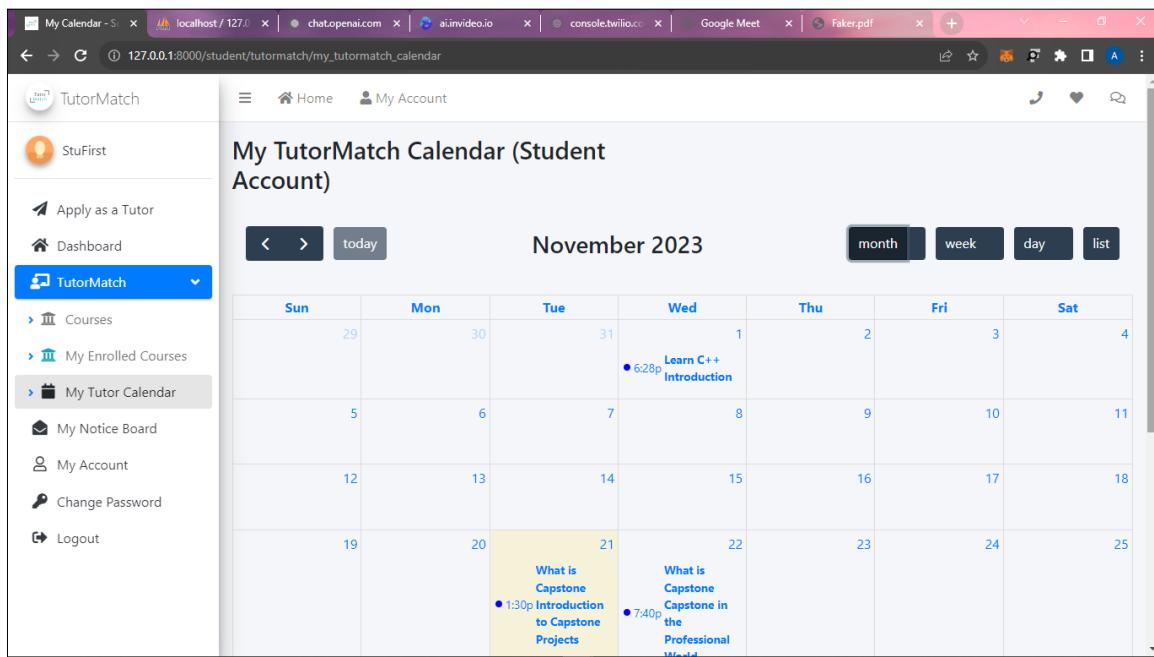


The screenshot shows a web browser window with multiple tabs open. The main content area displays the 'TutorMatch Class Lecture' interface. On the left, there is a sidebar with a user profile for 'StuFirst' and a navigation menu under 'TutorMatch' which includes 'Courses', 'My Enrolled Courses', 'Class Lectures' (which is currently selected), 'My Tutor Calendar', 'TutorMatch History', 'Fees Report', 'Announcements', 'My Account', and 'Change Password'. The main content area has a blue header bar with 'Completed' status. Below it, the title 'Introduction to C++ Course' is displayed, followed by a sample introduction text. There are two blue buttons: 'Click to View Pre-Assessment Test Results' and 'Click to View Post Assessment Test Results'. To the right, there is a sidebar titled 'Lecture 1' with 'Introduction 4' and a checkmark. Below it are sections for 'Lecture 2' (Main C++ Lecture 5) and 'Lecture 3' (Class Lecture 1 - querat : Distributed logistical time-frame 570). At the bottom of the sidebar, there is a section for 'Lecture 4' (Class Lecture 2 - reprehenderit : Profound content-based knowledgebase 571).

Within the student's class lectures, students have the capability to access and review the lectures corresponding to the course they have selected and enrolled in. The platform provides a user-friendly interface, enabling students to easily navigate and explore their course materials, thereby enhancing their overall learning experience. This user-centric design facilitates convenient viewing and active engagement with the class lectures, providing valuable support for the students throughout their academic journey. The webpage aims to foster a seamless and effective learning environment, ensuring that students can make the most of their educational resources.

Figure 36

Student's Calendar



Within this page, students have the ability to access a calendar that displays synchronized time schedules derived from the course class timetables of all their enrolled courses. This feature provides a consolidated and organized view of their class schedules, contributing to effective time management. The calendar assists students in systematizing their class timetables, enabling them to plan and coordinate course activities efficiently. This indispensable tool not only assists students in effectively managing their time but also plays a crucial role in fostering organizational skills, enabling them to navigate seamlessly through their academic commitments with ease.

Acceptability Test of the Cross-Matching Platform

In fulfillment of the developed cross-matching platform for PSU-ACC, the proponents conducted a survey to evaluate the acceptability of the developed system. Purposive sampling was used by the proponents to determine the respondents who were purposefully located and had the willingness to participate in assessing the acceptance of the developed system. The college students residing in the City of Alaminos, PSU-ACC instructors/IT faculty members, and the ICTMO coordinator evaluated the developed system.

The system testing was adapted from ISO 9126-1 by McCall in terms of functionality, reliability, usability, efficiency, maintainability, and portability.

Functionality. Table 4 on page 80 shows the perception of evaluators of the system for its functionality. The respondents rated the functionality of the system with an overall mean of 4.4, which is interpreted as excellent. The functions of the system are appropriate. A total average weighted mean of 4.4 translated to excellent in terms of suitability. Regarding accuracy, cross-matching platform for PSU-ACC has a total average weighted mean of 4.4, which is excellent. The platform adheres to existing standards and policies. For security, the system prevented unauthorized access with an average weighted mean of 4.4,

which was considered excellent. The developed system can provide security to authorized personnel, such as usernames and passwords, when accessing the system.

Table 4

System Evaluation According to Functionality

Functionality	WM	Description
1. Suitability - The function of the system is appropriate.	4.4	Excellent
2. Accuracy - The system's results are accurate.	4.4	Excellent
3. Security - It prevents unauthorized access.	4.4	Excellent
Overall Weighted Mean	4.4	Excellent

Reliability. Table 5 of page 81, shows the perception of evaluators of the system's reliability. The respondents rated the systems as very good, with an average weighted mean of 4.08 indicating that the system performs consistently. In maturity, there was a minimum frequency of fault or failures in the system with an average weighted mean of 4, which translated as very good; the system was capable of handling changes in its environment. In terms of fault tolerance, the system can handle system errors with an average weighted mean of 4, which adheres to the fact that the system could continue its normal operation. In recoverability, the developed system performance is re-establishing from failure with an average weighted mean of

4.24, which is excellent. The system continuously receives data from the internet.

Table 5

System Evaluation According to Reliability

Reliability	WM	Description
1. Maturity - there is a minimum frequency of software faults/failures.	4	Very Good
2. Fault Tolerance - The system has the capability of handling system errors.	4	Very Good
3. Recoverability - System's performance is re-establishing from failure.	4.24	Excellent
Overall Weighted Mean	4.08	Very Good

Usability. Table 6 on page 82 shows the perception of evaluators of the system for its usability. The respondents rated the system's usability with an average weighted mean of 4.66, which was excellent; thus, the system was ready and usable. In terms of understandability, the cross-matching platform for PSU-ACC concepts is easily recognized, with an average weighted mean of 4.7 interpreted as excellent. The respondents clearly understood the concept of the system. In learnability, effort in learning the system was reduced with an average weighted mean of 4.7, which translated excellently. This reflected that the system was easy to learn. And in terms of inoperability,

the system in the computer device was easy to use or operate with an average weighted mean of 4.6, which was interpreted as excellent. This showed that the system can be operated on a computer.

Table 6

System Evaluation According to Usability

Usability	WM	Description
1. Understandability - Concepts are easily recognized.	4.7	Excellent
2. Learnability - Effort in learning the system is reduced.	4.7	Excellent
3. Operability - The system is easy to use or operate.	4.6	Excellent
Overall Weighted Mean	4.66	Excellent

Efficiency. Table 7 on page 83 shows the perception of evaluators of the system with respect to its efficiency. The respondents rated the efficiency of the application as reflected with an overall weighted mean of 4.42, which was interpreted as excellent. The efficiency of the system was great. In time behavior, there was a fast response time of the system with an average weighted mean of 4.24, which translated as excellent; thus, the system's response was relatable good. And in resource behavior, resources used for system performance are accessible, with an average weighted mean of 4.6, which was interpreted as excellent; the system's resources are accessible.

Table 7

System Evaluation According to Efficiency

Efficiency	WM	Description
1. Time Behavior - There is a fast response time in the system.	4.24	Excellent
2. Resource Behavior - Resources used base for the system performance are accessible.	4.6	Excellent
Overall Weighted Mean	4.42	Excellent

Maintainability. Table 8 on page 84 shows the perception of evaluators of the system with respect to its maintainability. The respondents rated the application's maintainability with an overall weighted mean of 4.5, which was excellent. The system was capable of being maintained. There was less effort in the identifying system in analyzability, and device failure was caused by an average weighted mean of 4, which was interpreted as very good, which means that the system is easy to analyze for what was wrong. In terms of changeability, effort in modifying the system was reflected with an average weighted mean of 4.76, which translated as excellent; thus, the system has provided resistance to change. In terms of stability, the system's sensitivity to modification was reflected with an average weighted mean of 4.76, which was interpreted as excellent; thus, the system was easily modified by other users, showcasing its user-friendly nature.

Table 8

System Evaluation According to Maintainability

Maintainability	WM	Description
1. Analyzability - There is less effort in identifying system failure causes.	4	Very Good
2. Changeability - Effort to modify the system.	4.76	Excellent
3. Stability - Sensitivity to modification.	4.76	Excellent
Overall Weighted Mean	4.5	Excellent

Portability. Table 9 on page 85 shows the perception of evaluators of the application with respect to portability. The respondents portability rate of the system is reflected with an overall weighted mean of 4.66, which was interpreted as excellent. Therefore, the system was easily carried and moved. In adaptability, specification changes in the system were done quickly with an average weighted mean of 4.8, which was interpreted as excellent; thus, the plan was great at adapting. In terms of installability, there was an effortless process of installing the application on the computer with an average weighted mean of 4.6, which is interpreted as an excellent. In accordance with the result, the system is ready to be implemented. In conformance, the device is compliant with portability standards with an average weighted mean of 4.6,

which was interpreted as excellent and was compatible with the computer.

Table 9

System Evaluation According to Portability

Portability	WM	Description
1. Adaptability - Specification changes are done efficiently.	4.8	Excellent
2. Installability - There is effortless to install the system.	4.6	Excellent
3. Conformance - The system is compliant with portability standards.	4.6	Excellent
Overall Weighted Mean	4.66	Excellent

Overall Acceptability Test

Table 10 shows the results of the overall acceptability test of the cross-matching platform that was evaluated by the respondents in different aspects of the test, ranging from functionality to portability.

Table 10

Overall Acceptability Test Result

Acceptability	WM	Description
Functionality	4.4	Excellent
Reliability	4.08	Very Good
Usability	4.66	Excellent
Efficiency	4.42	Excellent
Maintainability	4.5	Excellent
Portability	4.66	Excellent
Overall Weighted Mean	4.45	Excellent

In the analysis presented in Table 10 on Page 85, the results of the overall acceptability test evaluation conducted among the respondents revealed a notable achievement for the system. The aggregated data, reflected in the impressive overall weighted mean of 4.45, underscored the system's high acceptability among the user base.

Furthermore, the detailed breakdown of the evaluation encompassed various crucial aspects, such as functionality, reliability, usability, efficiency, maintainability, and portability. Each of these components garnered individual assessments that collectively contributed to the system's overall success. Remarkably, all these constituent parts received a commendable "very good" rating, emphasizing the consistent excellence across diverse dimensions. This nuanced evaluation not only highlighted the system's outstanding performance but also provided a granular understanding of its strengths in meeting user expectations and requirements.

Chapter 4

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter summarizes the findings of the project, the conclusions to the problems concerned with the developed system, and provides recommendations on its proper implementation for the cross-matching platform for PSU-ACC.

Summary

This study was aimed to develop an Efficient Tutoring Services: Enhancing Communication and Scheduling with a Cross-Matching Platform for PSU-ACC. It sought to achieve the following objectives:

1. to determine the processes to be developed into the proposed cross-matching platform for PSU-ACC;
2. to develop features to be integrated into the proposed cross-matching platform for PSU-ACC; and
3. to determine the acceptance level of the proposed system in terms of (a) functionality, (b) reliability, (c) usability, (d) efficiency, (e) maintainability; and (f) portability.

This project study utilized AJAX, Bootstrap 4 and 5, jQuery, the Laravel Framework, Microsoft Visual Studio Code, PHP, and MySQL to develop the different features of the developed system. Different series of prototypes were

developed using the Rapid Application Development (RAD) model. The Rapid Application Development (RAD) model has the following phases: (a) requirements planning, (b) user design, (c) construction, and (d) cutover.

The Pangasinan State University-Alaminos City Campus instructors, IT faculty members, ICTMO coordinator, and college students residing in the City of Alaminos were the project's respondents. The proponents utilized survey questionnaires to gather data.

Findings

Based on the gathered data, the project's findings were as follows:

1. Students can effortlessly log in or sign up with enhanced security through email and mobile number verification. Students can explore and view course details while tutors efficiently manage courses and classes. Enrollment and transactions are optimized, allowing students to enroll and make purchases, while tutors handle on-hand payment fees, GCash verifications, and fee reports. Access to the student tutor calendar and announcements is facilitated for both students and tutors. Account management is user-friendly, with students checking their accounts and changing passwords, and tutors and administrator having the ability to edit accounts and

manage passwords. Administrative tasks are seamlessly executed by the administrator, encompassing logging in, viewing courses, managing classes, viewing course students, and handling additional responsibilities such as monitoring fee reports, managing accounts, course categories, announcements, sending emails, banning accounts, and adjusting website and account settings. The administrator also possesses the capability to change passwords within the system.

2. For the features of the developed system, it was observed that students can view and enroll in courses, access class lectures, and participate in Google meetings integrated into the lecture sessions. System users, both students and tutors, can log in or sign up, but account verification is mandatory to unlock all TutorMatch features. Tutors have the ability to create, edit, and delete courses and class lectures, schedule Google meetings, and generate tests for lectures. Administrative oversight is crucial, with the administrator responsible for verifying published courses, managing accounts (adding, editing, and viewing), and facilitating communication through direct emails, chats, and announcements. The administrator also has the authority to ban accounts and adjust website settings.

3. Based on the survey conducted by the proponents, the weighted mean in terms of functionality, reliability, usability, efficiency, maintainability, and portability was 4.45667, which falls under the excellent category.

Conclusions

Based on the findings, the following conclusions were drawn:

1. The system is user-friendly and secure for both students and tutors. Students easily log in, explore courses, and make transactions, while tutors efficiently manage courses and handle payments. Access to important features like the student tutor calendar and announcements is convenient. Account management is straightforward for students, tutors, and the administrator can easily edit accounts. The administrator smoothly handles tasks, ensuring the system's effective operation. Importantly, the administrator can change passwords, highlighting the system's simplicity, security, and functionality.

2. The system makes it easy for students and tutors to navigate. Students can view courses, attend lectures, and join Google meetings. Account verification is important for accessing all TutorMatch features. Tutors can perform various tasks, like creating courses, scheduling meetings, and generating tests. The administrator verifies courses,

manages accounts, and facilitates communication. The administrator also has control over account actions like banning and adjusting settings.

3. The developed system improved in terms of functionality, reliability, usability, efficiency, maintainability, and portability. That has an overall weighted mean of 4.45667, which falls under the excellent category.

Recommendations

The following are the recommendations for the developed system:

1. For further enhancement of the developed system, future researchers may integrate the ability to upload learning materials of varying file types, such as PDFs, Excel, Word, PowerPoint, etc.

2. It is advisable that, even though the tutor has consultation time during which students can approach them, there is a government rule that permits earning extra income beyond regular working hours. Consultations are brief, typically lasting only a few minutes, and are limited to answering student inquiries.

3. It is recommended to establish a clear and transparent pricing structure to inform students that the courses involve payment and are not free. The suggested

approach includes allocating a percentage for the school and a percentage for the tutor, creating a mutually beneficial model. With the full deployment of the system, it has the potential to serve as an income-generating project for the school. The specific recommendation is to discuss and seek approval from the administration or formulate a memorandum of agreement.

4. Future researchers may enhance the mobile version by implementing robust encryption for data protection, integrating a stand-alone Learning Management System (LMS) for improved resource management, and incorporating video conferencing capabilities to facilitate seamless virtual collaboration.

5. Future researchers may enhance the user interface of the system and add features to enhance its functionality, reliability, usability, efficiency, maintainability, and portability based on future users preferences.

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APPENDICES

Appendix A

Letter of Permission for Conducting Study

REPUBLIC OF THE PHILIPPINES
PANGASINAN STATE UNIVERSITY
ALAMINOS CITY CAMPUS
Bolaney, Alaminos City, Pangasinan

April 18, 2023
DR. JENLYN V. OBOZA
Campus Executive Director
Pangasinan State University - Alaminos City Campus

THRU:

CHARLAINE P. LOPEZ, PhD *[Signature]*,
Dean, College of Management and Technology

ELLEN GRACE B. UGALDE, PhD *[Signature]*,
Dean, College of Teacher Education

MADAM:
Greetings

We, the 3rd year students of Bachelor of Science in Information Technology at this Campus are currently conducting a capstone project entitled "Efficient Tutoring Services: Enhancing Communication and Scheduling with a Cross-Matching Platform for PSU-ACC", as part of our academic requirements of our program. Our study aims to develop a cross-matching platform that will facilitate communication and scheduling for tutoring services for Pangasinan State University - Alaminos City Campus.

In this regard, we humbly request for your good office for the approval of data gathering phase of our study, which will be in the form of a survey. The respondents will be bonafide students and instructors of our campus who are willing to give valuable insights and preferences related to tutoring services, communication methods, and scheduling preferences.

Your support in this endeavor will be very helpful, and we are eager to collaborate closely with your office to guarantee the triumph of this venture.

Thank you very much for your unwavering support. God Bless!

Respectfully yours,

Arthur M. Cervania
Proponent

Eunice A. Javillo
Proponent

Noted by:
[Signature]
Kurt Philip P. Danlog
Technical Adviser

PANGASINAN STATE UNIVERSITY
Alaminos City Campus
Office of the Campus
Executive Director

RECEIVED
DATE *4/18/2023*
BY *PD. Secy.*

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QUALITY ASSURANCE UNIT PERIOD
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Appendix B

Request Letter for the ICTMO Coordinator

PANGASINAN STATE UNIVERSITY
ALAMINOS CITY CAMPUS
BOLANEY, ALAMINOS CITY, PANGASINAN

Request Letter for the Administrator

RUISSAN A. RAMOS
Department Chairperson Information Technology
Pangasinan State University-Alaminos City Campus

SIR:

Greetings

We are writing to inform you about the successful development of our capstone project entitled "**Efficient Tutoring Services: Enhancing Communication and Scheduling with a Cross-Matching Platform for PSU-ACC**," which has proven to be valuable for our institution. After careful consideration, we believe that having a dedicated and knowledgeable administrator is crucial for the continued success and smooth functioning of this system.

Given your esteemed position on our campus, we believe that you possess the leadership and organizational skills necessary to administer this system effectively. Your involvement would not only ensure the system's stability but also align it more closely with the strategic goals of our institution.

We would like to propose that you take on the role of administrator for the developed system. Your acceptance of this responsibility would not only be an asset to the system but also a testament to your commitment to the advancement of our institution's technological infrastructure.

We are confident that your guidance and expertise will contribute significantly to the sustained success of this system.

Thank you very much for your unwavering support. God Bless!

Respectfully yours,

Arthur B. Cervania
Arthur B. Cervania
Proponent

Eunice A. Javillo
Eunice A. Javillo
Proponent

www.psu.edu.ph
www.facebook.com/psualaminas
alaminoscampus@psu.edu.ph



Appendix C

Gantt Chart and Work Plan









48	Manuscript Hard Binding	Hard Bound Manuscript	Unique, Arthur,
49	CD Burning of Manuscript and System	CD of Manuscript and System	Unique, Arthur,
50	Submit Project Study	Manuscript and CD	Unique, Arthur



Work Plan								PropONENTS:	
Title:		Efficient Tutoring Services: Enhancing Communication and Scheduling with a Cross-Matching Platform for PSU-ACC						Arthur B. Cervania	
Adviser:								Eunice A. Javille	
No.	Activity / Task	Anticipated Result(s)	Responsible Person(s)	Duration	Estimated Start	End	Duration	Start	Actual End
1	Write Situation Analysis	Situation Analysis	Chapter 1	Unique	2 Days	April 1	April 2	2 Days	April 3 April 4
2	Write Objectives of the Project	Objectives of the Study	Chapter 1	Unique	3 Days	April 3	April 5	3 Days	April 5 April 7
3	Identify Importance of the Project	Importance of the Project	Chapter 1	Unique	2 Days	April 6	April 7	2 Days	April 9 April 10
4	Identify Scope and Limitations of the Project	Scope and Limitations of the Project	Chapter 1	Unique	1 Day	April 8	April 8	1 Day	April 11 April 11
5	Write Definition of Terms	Definition of Terms	Chapter 1	Unique	1 Day	April 9	April 9	1 Day	April 12 April 12
6	Consultation to Adviser	Edited Chapter 1 Documents	Chapter 2	Unique	4 Days	April 10	April 13	4 Days	April 10 April 13
7	Write Introduction for Review of Related Literature and System	Introduction for Review of Related Literature and System	Chapter 2	Unique	1 Day	April 14	April 14	1 Day	April 14 April 14
8	Write Foreign Literature	Foreign Literature	Chapter 2	Unique	2 Days	April 16	April 17	2 Days	April 16 April 17
9	Write Local Literature	Local Literature	Chapter 2	Unique	2 Days	April 18	April 19	2 Days	April 18 April 19
10	Identify the Synthesis of Related Literature and System	Synthesis of Review of Related Literature and System	Chapter 2	Unique	2 Days	April 20	April 21	2 Days	April 20 April 21
11	Consultation to Adviser	Edited Chapter 2 Documents	Chapter 3	Unique	5 Days	April 24	April 28	5 Days	April 24 April 28
12	Write Introduction for Methodology	Introduction for Methodology	Chapter 3	Unique	1 Day	May 1	May 1	1 Day	May 1 May 1
13	Identify Software Development Methodology	Software Development Methodology	Chapter 3	Unique	2 Days	May 2	May 3	2 Days	May 2 May 3
14	Identify Data Gathering Techniques	Data Gathering Techniques	Chapter 3	Unique	2 Days	May 4	May 5	2 Days	May 4 May 5
15	Identify the Sources of Data	Sources of Data	Chapter 3	Unique	2 Days	May 7	May 8	2 Days	May 7 May 8
16	Identify Tools for Data Analysis	Tools for Data Analysis	Chapter 3	Unique	2 Days	May 9	May 10	2 Days	May 9 May 10
17	Identify Tools for System Development	Tools for System Development	Chapter 3	Unique, Arthur	2 Days	May 11	May 12	2 Days	May 11 May 12
18	Consultation to Adviser	Edited Chapter 3 Documents	Chapter 3	Unique, Arthur	5 Days	May 15	May 19	5 Days	May 15 May 19
19	Submit Chapter 1 to 3 Documents with Prototype	Chapter 1 to 3 Documents with Prototype	Chapter 3	Unique, Arthur	1 Day	May 22	May 22	1 Day	May 22 May 22



20	Proposal Defense	Recommendations	Unique,	1 Day	June 2	June 2	1 Day	June 2	June 2
21	Edit Chapter 1 to 3 based on Panel's Recommendations and Critics	Edited Chapter 1 to 3 Documents	Arthur, Unique,	4 Days	June 5	June 8	4 Days	June 5	June 8
22	Draft Interview Guide	Interview Guide	Unique, Arthur,	3 Days	September 12	September 15	3 Days	September 12	September 15
23	Conduct Interview and Observation	Minutes of Meeting	Unique, Arthur,	1 Day	September 26	September 26	1 Day	September 26	September 26
24	Identify User Requirements	User Requirements	Unique, Arthur,	1 Day	September 22	September 22	1 Day	September 22	September 22
25	Create Flowchart	Flowchart	Arthur	15 Days	September 10	September 25	15 Days	September 10	September 25
26	Create Entity Relationship Diagram	Entity Relationship Diagram	Arthur	1 Day	October 20	October 20	1 Day	October 20	October 20
27	Create Database Schema	Database Schema	Arthur	1 Day	October 20	October 20	1 Day	October 20	October 20
28	Create Data Flow Diagram	Data Flow Diagram	Arthur, Arthur,	1 Day	October 9	October 9	1 Day	October 9	October 9
29	Create Use-Case Diagram	Use-Case Diagram	Unique	3 Days	September 22	September 25	3 Days	September 22	September 25
30	Design User Interface	User Interface	Arthur	133 Days	July 15	November 25	133 Days	July 15	November 25
31	Write Code of the System	Test and Debug the System	Arthur	133 Days	July 15	November 25	133 Days	July 15	November 25
32	Consultation to Adviser	Integrated Features/Functionality	Arthur	7 Days	November 10	November 17	7 Days	November 10	November 17
33	Conduct Survey for the Acceptability of the System	Conducted Acceptability of the System	Unique, Arthur	3 Days	November 14	November 16	3 Days	November 14	November 16
Chapter 4									
34	Write Chapter 4 Documents	Chapter 4 Documents	Unique	10 Days	November 10	November 20	77 Days	November 10	November 20
35	Consultation to Adviser	Edited Chapter 4 Documents	Unique	4 Days	November 20	November 24	4 Days	November 20	November 24
Chapter 5									
36	Write Chapter 5 Documents	Chapter 5 Documents	Unique	1 Day	November 19	November 19	1 Day	November 19	November 19
37	Consultation to Adviser	Edited Chapter 5 Documents	Unique, Arthur	4 Days	November 20	November 24	4 Days	November 20	November 24
38	Edit and Finalize Manuscript Copy	Bind Manuscript	Unique, Arthur	4 Days	November 13	November 16	4 Days	November 13	November 16
39	Submit Manuscript copy	Endorsed Manuscript	Unique, Arthur	1 Day	November 23	November 23	1 Day	November 23	November 23
40	Brainstorming with the Group	PowerPoint Presentation	Unique, Arthur	1 Day	November 29	November 29	1 Day	November 29	November 29
41	Final Defense	Collected Recommendations	Arthur	1 Day	December 1	December 1	1 Day	December 1	December 1



42	Edit Manuscript based on Panel's Critic	Edited Manuscript	Eunice, Arthur	5 Days 5 Days	December December	5 Days 5 Days	December December	December December	December December
43	Develop Functions based on Panel's Critic	System Version 2	Arthur	5 Days 2 Days	December December	5 Days 5 Days	December December	6 Days 6 Days	December December
44	Present Edited Manuscript and System	Manuscript and System	Eunice, Arthur	1 Day 7 Days	December December	1 Day 1 Day	December December	7 Days 7 Days	December December
45	Write and Do All the Documents Needed	Bind Documents	Eunice, Arthur	2 Days 8 Days	December December	2 Days 2 Days	December December	9 Days 9 Days	December December
46	Consult Adviser and Panel	Consulted Documents	Eunice, Arthur	3 Days 10 Days	December December	3 Days 3 Days	December December	10 Days 13 Days	December December
47	Edit and Finalize Documents	Completed Documents	Eunice, Arthur	7 Days 14 Days	December December	7 Days 7 Days	December December	14 Days 20 Days	December December
48	Manuscript Hard Bounding	Hard Bound Manuscript	Eunice, Arthur	1 Day 15 Days	January January	1 Day 1 Day	January January	15 Days 15 Days	January January
49	CD Burning of Manuscript and System	CD of Manuscript and System	Eunice, Arthur	1 Day 16 Days	January January	1 Day 1 Day	January January	16 Days 16 Days	January January
50	Submit Project Study	Manuscript and CD	Eunice, Arthur	1 Day 17 Days	January January	1 Day 1 Day	January January	17 Days 17 Days	January January

Appendix D

Interview Guide

1. Has there been any tutoring sessions held here on our campus before?
 2. Is it applicable to develop a system for tutoring? Are there no rules that can be violated in the administration?
 3. Are many students experiencing difficulties in their subjects?
 4. What courses are they experiencing difficulties with?
 5. What is the estimated average number of students failing their subjects?
 6. Since you mentioned the courses where students are having difficulties, what do you think has the highest demand for tutoring among students?
 7. When the system is developed, what subjects do you prefer to offer?
 8. What potential benefits do you expect from introducing the Cross-Matching Platform to our campus in terms of academic support and fostering a sense of collaboration among students and instructors?
-

Appendix E

Minutes of Meeting

1. **Question #1:** Has there been any tutoring sessions held here on our campus before?

Answer by the Student Services Coordinator: As far as I know, there have been no tutoring sessions held on the campus before.

2. **Question #2:** Is it applicable to develop a system for tutoring? Are there no rules that can be violated in the administration?

Answer by the Student Services Coordinator: Once your proposed study has been approved, both by the Campus Executive Director and the Dean of each department, it will be automatically permitted to proceed.

3. **Question #3:** Are many students experiencing difficulties in their subjects?

Answer by the Student Services Coordinator: Yes, for sure, all students indeed experience difficulties in their subjects, and that's just part of being a student and part of the learning process.

4. **Question #4:** What courses are they experiencing difficulties with?

Answer by the Student Services Coordinator: I can't specifically pinpoint which courses students struggle with

because every course is challenging and students inevitably face difficulties with the subjects they are taking, and that's normal.

5. Question #5: What is the estimated average number of students failing their subjects?

Answer by the Student Services Coordinator: I can't provide the exact average of students failing in their subjects because I don't have access to or control over all the students' records. In such cases, the respective department programs handle and manage the records of students. Therefore, I also can't determine whether the average of failing students is high or low.

6. Question #6: Since you mentioned the courses where students are having difficulties, what do you think has the highest demand for tutoring among students?

Answer by the Student Services Coordinator: When it comes to the demand for subjects or courses to be offered, I suggest conducting a survey or gathering data from students across different departments. This way, you can gather insights into which subjects or courses students often struggle with.

7. Question #7: When the system is developed, what subjects do you prefer to offer?

Answer by the Student Services Coordinator: Perhaps,

for me, I would focus on what is in demand and where students tend to struggle the most because, when it comes to tutoring, the key is to address a student's weaknesses and areas of difficulty.

8. Question #8: What potential benefits do you expect from introducing the Cross-Matching Platform to our campus in terms of academic support and fostering a sense of collaboration among students and instructors?

Answer by the Student Services Coordinator: Actually, as of now, since I haven't seen the actual flow of your system, I can't provide my impressions yet. However, I do support your initiative, and your proposal seems promising as it can be beneficial for our students here on campus.

Appendix F

User Requirements

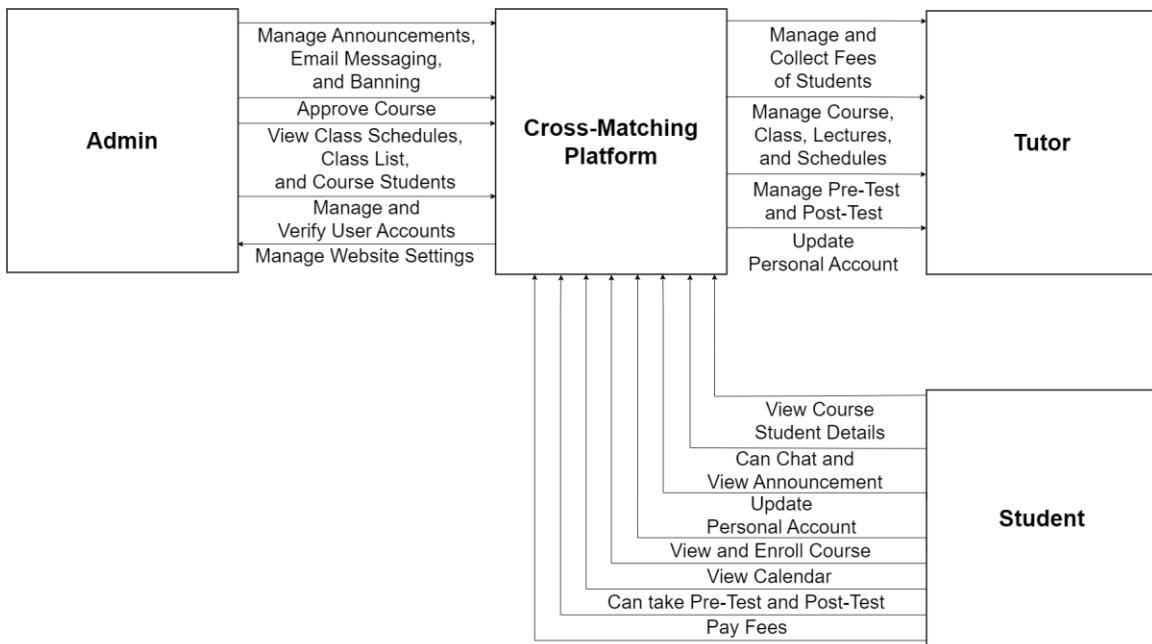
Functional Requirements
The system should allow users to create accounts with unique usernames and passwords.
Users should be able to log in and log out of their accounts securely.
There should be different user roles (e.g., tutors, students, administrator) with specific access privileges.
Users should be able to create and update their profiles with relevant information (e.g., name, contact details, areas of expertise for tutors, subjects of interest for students).
The platform should offer real-time messaging functionality between tutors and students.
Tutors and students should be able to view each other's availability and schedule tutoring sessions.
The system should integrate calendar to send reminders and updates.
The platform should allow users to schedule, reschedule, or cancel tutoring sessions.
There should be a mechanism to track completed sessions and provide feedback.
After each session, both tutors and students should be able to provide feedback and ratings to each other.
The system should display an average rating of the tutor.
Administrators should have access to a dashboard for managing user accounts, resolving disputes, and monitoring system performance.

Non-Functional Requirements
<p>Security: The system should implement robust security measures, including encryption of sensitive data, protection against SQL injection, and secure password storage.</p>
<p>Performance: The platform should be able to handle a large number of concurrent users without significant performance degradation.</p> <p>Response times for critical actions (e.g., searching, messaging) should be within acceptable limits.</p>
<p>Usability and User Experience: The user interface should be intuitive and user-friendly, with clear navigation and informative prompts.</p>
<p>Scalability: The platform should be designed to scale easily to accommodate future growth in user base and features.</p>
<p>Reliability and Availability: The system should have a high level of uptime, with minimal downtime for maintenance or updates.</p> <p>It should have backup and recovery mechanisms in place to prevent data loss.</p>
<p>Compliance and Privacy: The platform should comply with relevant data protection and privacy regulations and have a clear privacy policy.</p>
<p>Compatibility: The platform should be compatible with a range of devices (e.g., desktops, laptops, tablets, smartphones) and major web browsers.</p>
<p>Performance Metrics and Monitoring: The system should have mechanisms in place to monitor performance, track usage patterns, and generate reports for system administrators.</p>



Appendix G

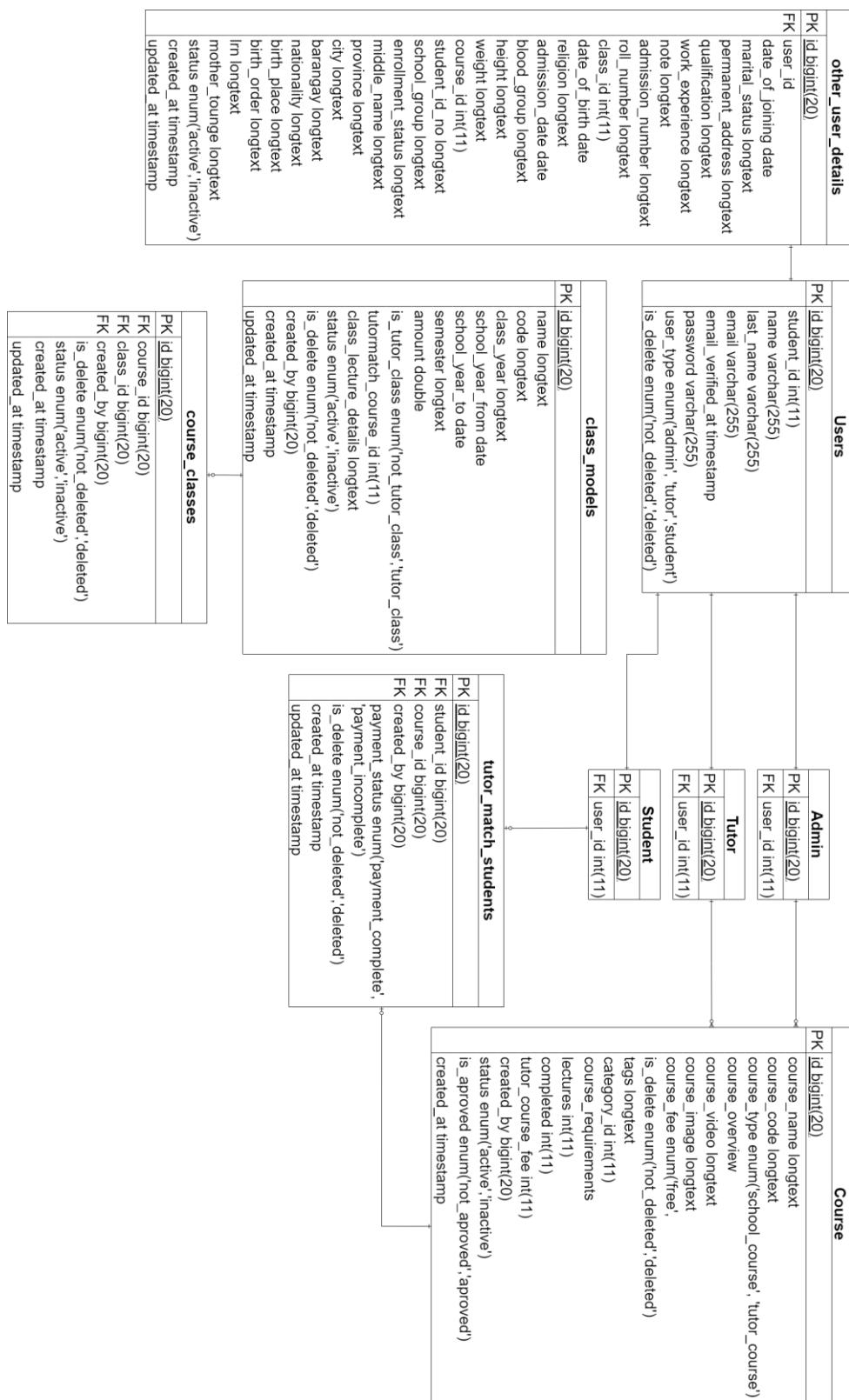
Data Flow Diagram





Appendix H

Database Schema



Appendix I

Data Dictionary

The system was described as a passive data dictionary and refers to the four following tables:

Data dictionary describing the details of the user table.

Field Name	Data Type	Field Size for Display	Description	Example
id	integer	20	Primary and unique identifier for the user	1
name	varchar	255	First name of the user	Eunique
last_name	varchar	255	Last name of the user	Javillo
email	varchar	255	Email address of the user	eunique@gmail.com
email_verified_at	Time stamp	255	To verify if the user has email verified	2023-11-19 15:30:45
password	varchar	255	To verify the account password	Art123@
user_type	enum	255	To identify the user type	student
is delete	enum	255	To identify if the record is delete	Deleted

permanent_address	varchar	255	To identify the permanent address of the user	Zone 7 Ambabaay Bani Pangasinan
qualification	varchar	255	To identify the qualifications of the user	Zone 8, Masidem Bani Pangasinan
work_experience	varchar	255	To identify the work experience of the user	3 years abroad
note	varchar	255	For additional information about the user	I am very happy
middle_name	varchar	255	The is the middle name of user	Dela Cruz
mobile_number	longText	255	To recognize the mobile number of the user	+639692696666
mobile_number_verified_at	Time stamp	255	To ensure that the mobile number is validated	2023-11-19 15:30:45
profile_pic	varchar	255	This is to view the profile picture of user	user_image.jpg
gender	varchar	255	To recognize the student gender	Male
skills	varchar	255	To identify the skills of the user	Programming
specialization	varchar	255	To know the specialization of the user	Coding C++ and Python

education	varchar	255	To recognize the education of the tutor	Masteral at UST
status	enum	255	To know the active status of the user	active
created_at	Time stamp	255	The time of creating the user	2023-11-19 15:30:46
updated_at	Time stamp	255	The time of updating the user	2023-11-19 15:30:46

Data dictionary describing the details of the course table.

Field Name	Data Type	Field Size for Display	Description	Example
id	integer	255	Unique primary identification of the course	1
course_name	integer	255	The name of the course	C++ Tutorial
course_code	varchar	255	The code of the course	C++ T
course_type	varchar	255	The type of the course	tutor_course
course_overview	varchar	255	The overview definition of the course	This is the course overview
course_video	varchar	255	This is the introduction view for the course	Tutor.mp4

course_image	varchar	255	Image banner for the course	Tutor.jpg
course_fee	enum	255	To describe the if the course is paid	paid
is_delete	enum	255	To determine if the course is deleted	deleted
tags	integer	255	To recognize the course by tag	C++
category_id	integer	255	To identify the category of the course	1
course_requirements	varchar	255	To know the requirement for students	Basic Knowledge
lectures	integer	255	To know the number of lecture of the course	3
completed	integer	255	To count the number of complete lectures	3
tutor_course_fee	integer	255	To determine the fee for the course	250
tutor_course_slots	integer	255	To mark the number of students that can be accommodated for the course	5
course_admin_message	varchar	255	Submitted by the admin in response to the decline of a course approval request	The course is not approved sorry.

course_publish_evaluation_status	enum	255	To determine if the course is evaluated by the admin	not_evaluated
course_publish_status	enum	255	To determine if the course is published by the tutor	not_published
course_publish_at	timestamp	255	To determine the time of publishing	2023-11-19 17:18:45
interests	varchar	255	To determine the interests of students connected to the course	Technology
skills	varchar	255	To determine the skills that the student can obtain from the course	Programming
difficulty	varchar	255	To determine the level of difficulty of the course	Beginner
created_by	integer	255	To recognize the creator of the course	2
status	enum	255	To determine if the course is still available	active
is_approved	enum	255	To know if the course is approved or not	not_approved
created_at	timestamp	255	The time of creating the course	2023-11-19 15:30:46
updated_at	timestamp	255	The time of updating the course	2023-11-19 15:30:46

Data dictionary describing the details of the class table.

Field Name	Data Type	Field Size for Display	Description	Example
id	integer	20	Unique identifier for the class	1
name	varchar	255	The name of the class	Introduction to C++
code	varchar	255	The code of the class	C++ INTRO
is_tutor_class	enum	255	To identify if the class is a tutor class	tutor_class
tutormatch_course_id	integer	255	To identify the course of tutor related to the class	2
class_lecture_details	varchar	255	The class lecture content of the class	This is the class lecture details
status	enum	255	To determine if the class is ready	active
is_delete	enum	255	To recognize if the class is deleted or not	deleted
created_by	integer	255	To determine the creator of the class	2

created_at	timestamp	255	The time of creating the class	2023-11-19 15:30:46
updated_at	timestamp	255	The time of updating the class	2023-11-19 15:30:46

Data dictionary describing the details of the class schedule table.

Field Name	Data Type	Field Size for Display	Description	Example
id	integer	20	Unique and primary identifier of the schedule	2
lecture_date	date	255	The date of the online class lecture	2023-11-21
class_id	integer	255	The class connected to the class schedule	2
course_id	integer	255	The course connected to the class schedule	2
start_time	varchar	255	The start time of the online class lecture	13:30
end_time	varchar	255	The end time of the online class lecture	14:30
google_meet_link	varchar	255	The google meeting link	https://meet.google.com/vaf-iozv-raj
created_by	integer	255	To determine the user that created the class schedule	2

created_at	timestamp	255	The time of creating the class schedule	2023-11-19 15:30:46
updated_at	timestamp	255	The time of updating the class schedule	2023-11-19 15:30:46

Data dictionary describing the details of the course student table.

Field Name	Data Type	Field Size for Display	Description	Example
id	integer	20	The unique identifier of the tutor match student record	2
student_id	integer	20	The id of the user that is enrolled	2
course_id	integer	20	The id of the course connected to the enrollment	2
payment_status	enum	255	The status of the payment details of the student	payment_complete
is_delete	enum	255	To determine if the tutor match student enrollment record is deleted	not_deleted
created_by	integer	255	The identification of the user that enrolled the student	2

created_at	timestamp	255	The time of creating the course student record	2023-11-19 15:30:46
updated_at	timestamp	255	The time of updating the course student record	2023-11-19 15:30:46

Data dictionary describing the details of the student's course fee table.

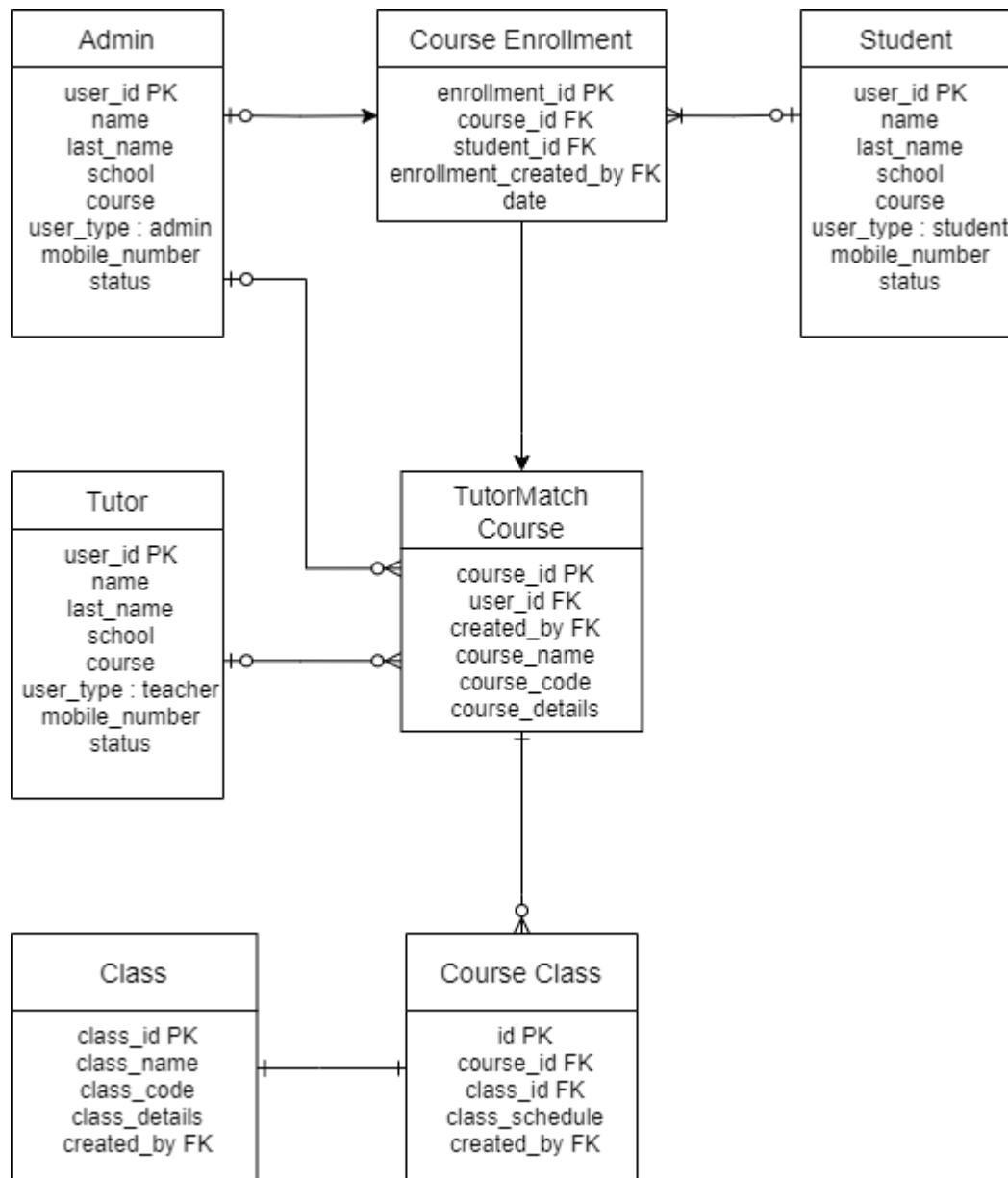
Field Name	Data Type	Field Size for Display	Description	Example
id	integer	20	The identifier for the payment record of the student	2
student_id	integer	20	The id of the student who made the payment	2
tutor_match_course_id	integer	20	The id of the course	2
total_amount	integer	255	The total amount to be paid for the course	200
paid_amount	integer	255	The paid amount of the student	200
remaining_amount	integer	255	The remaining amount of the student to pay for the course	200
payment_type	varchar	255	The type of payment that is used for the transaction	GCash

remark	varchar	255	The remark of the student that paid the course	This is a sample remark
created_by	integer	20	The id of the user that made the transaction	2
is_payment	integer	20	To determine if the user is fully paid	1
payment_data	varchar	255	Used for the backend transaction record	This is a transaction receipt
GCash_name	varchar	255	The GCash name used	Arthur Cervania
GCash_number	varchar	255	The GCash number used	09292342345
GCash_receipt	varchar	255	The GCash receipt used	GCash_receipt.jpg
GCash_ref_number	varchar	255	The GCash reference number used	0912314324823 58263
GCash_trasn_status	varchar	255	The GCash transaction status	confirmed
created_at	timestamp	255	The time of creating the student payment record	2023-11-19 15:30:46
updated_at	timestamp	255	The time of updating the student payment record	2023-11-19 15:30:46



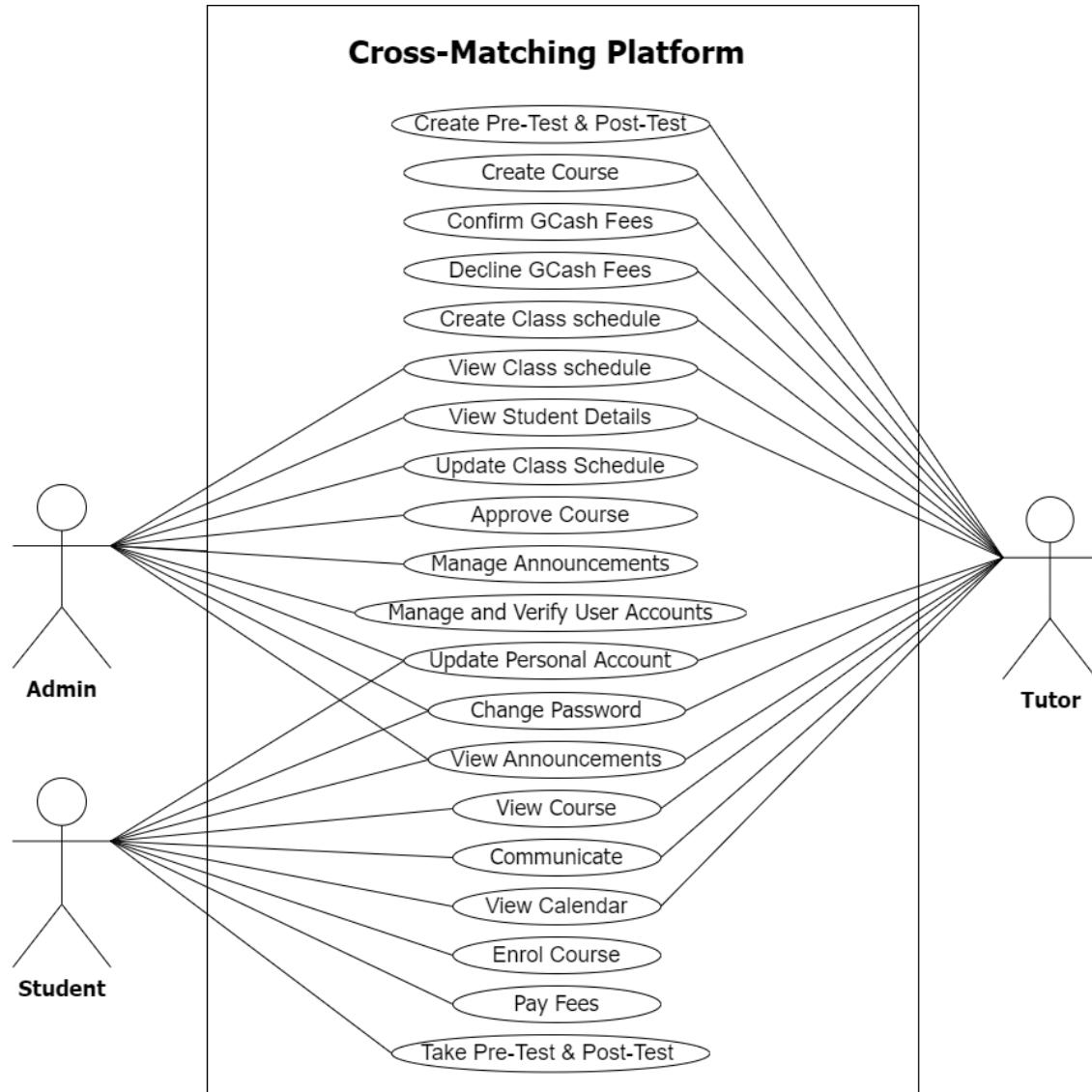
Appendix J

Entity Relationship Diagram



Appendix K

Use-Case Diagram



Appendix L

Acceptability Test Form

ACCEPTABILITY OF EFFICIENT TUTORING SERVICES:

ENHANCING COMMUNICATION AND SCHEDULING WITH A CROSS-MATCHING
PLATFORM FOR PSU-ACC

(Adapted from ISO 9126-1 by McCall (1997))

Date: _____

Name of Respondent (Optional): _____

Sex: Male Female

Position/Designation: _____

Direction: Please evaluate/rate the following items to determine the acceptability of Efficient Tutoring Services: Enhancing Communication and Scheduling with a Cross-Matching Platform for PSU-ACC by checking the corresponding box using the scale below:

5 - Excellent

4 - Very Good

3 - Good

2 - Fair

1 - Poor

Functionality		5	4	3	2	1
1	Suitability - The functions of the system are appropriate.					
2	Accuracy - The system's results are accurate.					
3	Security - It prevents unauthorized access.					
Reliability						
1	Maturity - There is minimal frequency of software faults/failures.					
2	Fault Tolerance - The system has capability of handling system errors.					
3	Recoverability - System's Performance is re-establishing from failure.					

Usability						
1	Understandability - Concepts are easily recognized.					
2	Learnability - Effort in learning the system is reduced.					
3	Operability - The system is easy to use or operate.					
Efficiency						
1	Time Behavior - There is fast response time of the system.					
2	Resource Behavior - Resources used for system performance are accessible.					
Maintainability						
1	Analyzability - There is less effort in identifying system failure causes.					
2	Stability - Sensitivity to modifications.					
Portability						
1	Adaptability - Specification changes are done easily.					
2	Installability - There is effortless process of installing the system.					
3	Conformance - System is compliant to portability standards.					

Comments:

This is the end of the survey questionnaire. Thank you very much for your time and cooperation. Please be assured that all information gathered from the survey will be strictly kept confidential and will only be used for the study. Once again, thank you for taking the time to complete the survey.

Respondent's Signature



Appendix M

Sample User Acceptability of PSU-ACC ICTMO Coordinator

ACCEPTABILITY OF EFFICIENT TUTORING SERVICES:
ENHANCING COMMUNICATION AND SCHEDULING WITH A CROSS-MATCHING
PLATFORM FOR PSU-ACC
(Adapted from ISO 9126-1 by McCall (1997))

Date: Nov. 20, 2023

Name of Respondent (Optional): Manns Yamorne

Sex: Male Female

Position/Designation: ICTMO coordinator

Direction: Please evaluate/rate the following items to determine the acceptability of Efficient Tutoring Services: Enhancing Communication and Scheduling with a Cross-Matching Platform for PSU-ACC by checking the corresponding box using the scale below:

5 - Excellent
4 - Very Good
3 - Good
2 - Fair
1 - Poor

Functionality		5	4	3	2	1
1	Suitability - The functions of the system are appropriate.	✓				
2	Accuracy - The system's results are accurate.	✓				
3	Security - It prevents unauthorized access.	✓				
Reliability						
1	Maturity - There is minimal frequency of software faults/failures.	✓				
2	Fault Tolerance - The system has capability of handling system errors.	✓				
3	Recoverability - System's Performance is re-establishing from failure.	✓				
Usability						
1	Understandability - Concepts are easily recognized.	✓	✓			



2	Learnability - Effort in learning the system is reduced.	✓		
3	Operability - The system is easy to use or operate.	✓		
Efficiency				
1	Time Behavior - There is fast response time of the system.	✓		
2	Resource Behavior - Resources used for system performance are accessible.	✓		
Maintainability				
1	Analyzability - There is less effort in identifying system failure causes.	✓		
2	Stability - Sensitivity to modifications.	✓		
Portability				
1	Adaptability - Specification changes are done easily.	✓		
2	Installability - There is effortless process of installing the system.	✓		
3	Conformance - System is compliant to portability standards.	✓		

Comments:

The system alone is ready to deploy.
Element of concept is unique. Very understandable based on the usage. And lastly first seen system that is very interesting and wait waiting to be uploaded and used as tutor.

This is the end of the survey questionnaire. Thank you very much for your time and cooperation. Please be assured that all information gathered from the survey will be strictly kept confidential and will only be used for the study. Once again, thank you for taking the time to complete the survey.


Respondent's Signature



Appendix N

Sample User Acceptability of PSU-ACC IT Faculty Member

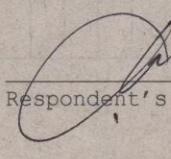
ACCEPTABILITY OF EFFICIENT TUTORING SERVICES: ENHANCING COMMUNICATION AND SCHEDULING WITH A CROSS-MATCHING PLATFORM FOR PSU-ACC (Adapted from ISO 9126-1 by McCall (1997))							
Date:	Nov. 20, 2020						
Name of Respondent (Optional):							
Sex:	<input checked="" type="checkbox"/> Male	<input type="checkbox"/> Female					
Position/Designation:	Faculty						
Direction: Please evaluate/rate the following items to determine the acceptability of Efficient Tutoring Services: Enhancing Communication and Scheduling with a Cross-Matching Platform for PSU-ACC by checking the corresponding box using the scale below:							
	5 - Excellent						
	4 - Very Good						
	3 - Good						
	2 - Fair						
	1 - Poor						
Functionality		5	4	3	2	1	
1	Suitability - The functions of the system are appropriate.	/					
2	Accuracy - The system's results are accurate.	/					
3	Security - It prevents unauthorized access.	/					
Reliability							
1	Maturity - There is minimal frequency of software faults/failures.	/					
2	Fault Tolerance - The system has capability of handling system errors.	/					
3	Recoverability - System's Performance is re-establishing from failure.	/					
Usability							
1	Understandability - Concepts are easily recognized.	/					



2	Learnability - Effort in learning the system is reduced.	/			
3	Operability - The system is easy to use or operate.	/			
Efficiency					
1	Time Behavior - There is fast response time of the system.	/			
2	Resource Behavior - Resources used for system performance are accessible.	/			
Maintainability					
1	Analyzability - There is less effort in identifying system failure causes.	/			
2	Stability - Sensitivity to modifications.	/			
Portability					
1	Adaptability - Specification changes are done easily.	/			
2	Installability - There is effortless process of installing the system.	/			
3	Conformance - System is compliant to portability standards.	/			

Comments:

This is the end of the survey questionnaire. Thank you very much for your time and cooperation. Please be assured that all information gathered from the survey will be strictly kept confidential and will only be used for the study. Once again, thank you for taking the time to complete the survey.


Respondent's Signature



Appendix O

Sample User Acceptability of PSU-ACC Instructor

ACCEPTABILITY OF EFFICIENT TUTORING SERVICES:
ENHANCING COMMUNICATION AND SCHEDULING WITH A CROSS-MATCHING
TO 980 PLATFROM FOR PSU-ACC
(Adapted from ISO 9126-1 by McCall (1997))

Date: NOVEMBER 20, 2023

Name of Respondent (Optional): DONNALYN JOY R. GOMEZ

Sex: Male Female

Position/Designation: INSTRUCTOR I

Direction: Please evaluate/rate the following items to determine the acceptability of Efficient Tutoring Services: Enhancing Communication and Scheduling with a Cross-Matching Platform for PSU-ACC by checking the corresponding box using the scale below:

5 - Excellent

4 - Very Good

3 - Good

2 - Fair

1 - Poor

Functionality		5	4	3	2	1
1	Suitability - The functions of the system are appropriate.	✓				
2	Accuracy - The system's results are accurate.	✓				
3	Security - It prevents unauthorized access.	✓				
Reliability						
1	Maturity - There is minimal frequency of software faults/failures.		✓			
2	Fault Tolerance - The system has capability of handling system errors.	✓				
3	Recoverability - System's Performance is re-establishing from failure.		✓			
Usability						
1	Understandability - Concepts are easily recognized.	✓				



2	Learnability - Effort in learning the system is reduced.	✓		
3	Operability - The system is easy to use or operate.	✓		
Efficiency				
1	Time Behavior - There is fast response time of the system.	✓		
2	Resource Behavior - Resources used for system performance are accessible.	✓		
Maintainability				
1	Analyzability - There is less effort in identifying system failure causes.	✓		
2	Stability - Sensitivity to modifications.	✓		
Portability				
1	Adaptability - Specification changes are done easily.	✓		
2	Installability - There is effortless process of installing the system.	✓		
3	Conformance - System is compliant to portability standards.	✓		

Comments:

• I think, based on the presentation, it is easy to access and can be a substitute to other platforms such as MS TEAMS. It has a very detailed specifications that even students can easily follow and access. It will make the work / task of a teacher more convenient and easier. Good ONE!

This is the end of the survey questionnaire. Thank you very much for your time and cooperation. Please be assured that all information gathered from the survey will be strictly kept confidential and will only be used for the study. Once again, thank you for taking the time to complete the survey.

Respondent's Signature



Appendix P

Sample User Acceptability of College Student

ACCEPTABILITY OF EFFICIENT TUTORING SERVICES:
ENHANCING COMMUNICATION AND SCHEDULING WITH A CROSS-MATCHING
PLATFORM FOR PSU-ACC
(Adapted from ISO 9126-1 by McCall (1997))

Date: 11-14-23

Name of Respondent (Optional): _____

Sex: Male Female

Position/Designation: Student

Direction: Please evaluate/rate the following items to determine the acceptability of Efficient Tutoring Services: Enhancing Communication and Scheduling with a Cross-Matching Platform for PSU-ACC by checking the corresponding box using the scale below:

5 - Excellent

4 - Very Good

3 - Good

2 - Fair

1 - Poor

Functionality	5	4	3	2	1
1 Suitability - The functions of the system are appropriate.	/				
2 Accuracy - The system's results are accurate.	/				
3 Security - It prevents unauthorized access.	/				
Reliability					
1 Maturity - There is minimal frequency of software faults/failures.	/				
2 Fault Tolerance - The system has capability of handling system errors.	/				
3 Recoverability - System's Performance is re-establishing from failure.	/				
Usability					
1 Understandability - Concepts are easily recognized.	/				



2	Learnability - Effort in learning the system is reduced.	/			
3	Operability - The system is easy to use or operate.	/			
Efficiency					
1	Time Behavior - There is fast response time of the system.	/			
2	Resource Behavior - Resources used for system performance are accessible.	/			
Maintainability					
1	Analyzability - There is less effort in identifying system failure causes.	/			
2	Stability - Sensitivity to modifications.	/			
Portability					
1	Adaptability - Specification changes are done easily.	/			
2	Installability - There is effortless process of installing the system.	/			
3	Conformance - System is compliant to portability standards.	/			

Comments:

This is the end of the survey questionnaire. Thank you very much for your time and cooperation. Please be assured that all information gathered from the survey will be strictly kept confidential and will only be used for the study. Once again, thank you for taking the time to complete the survey.



Respondent's Signature

Appendix Q

Survey Questionnaire Tool

EFFICIENT TUTORING SERVICES: ENHANCING COMMUNICATION AND SCHEDULING WITH A CROSS-MATCHING PLATFORM FOR PSU-ACC

The purpose of this study is to identify and address the challenges and high-demand subjects among college students residing at Alaminos City. Additionally, this study aims to improve communication and scheduling in tutoring services to better meet the needs of college students, ultimately enhancing the learning experience and academic support provided.

Your honest feedback is essential in achieving the objectives of this study. Your answers will be kept confidential and will be used for research purposes only.

Instructions:

Please read each question carefully and select the appropriate response. If you feel like none of the options apply, please select "Others" and specify your answer in the space provided.

1. Respondents Name (Optional): _____

2. School Currently Enrolled In : _____

3. What is your current academic year?

- 1st year
- 2nd year
- 3rd year
- 4th year

4. What is your current academic program? _____

5. On a scale from 1 to 5, with (1 being very easy and 5 being very difficult), how challenging/difficult do you find your current courses?

- 1
- 2
- 3
- 4
- 5



5. Please list up to three subjects you find challenging/difficulties with.

- a. _____
- b. _____
- c. _____

6. What specific aspects of these subjects do you struggle with?
(Select all that apply)

- Understanding the concepts
- Problem-solving
- Time management
- Keeping up with assignments
- Test preparation
- Group collaboration and teamwork
- Grasping advanced or complex topics
- Research and information gathering
- Presentation skills
- Writing essays and reports
- Study habits and techniques
- Memorization and retention
- Technical or software-related challenges (e.g., using specific software for coursework)
- Others (Please specify): _____

7. What subjects can you suggest or recommend for TutorMatch?

This is the end of the survey questionnaire. Thank you very much for your time and cooperation. Please be assured that all information gathered from the survey will be strictly kept confidential and will only be used for the study. Once again, thank you for taking the time to complete the survey.

Respondent's Signature



Appendix R

Sample Survey Response of Great Plebeian College Student

EEFFICIENT TUTORING SERVICES: ENHANCING COMMUNICATION AND SCHEDULING WITH A CROSS-MATCHING PLATFORM FOR PSU-ACC

The purpose of this study is to identify and address the challenges and high-demand subjects among college students residing at Alaminos City. Additionally, this study aims to improve communication and scheduling in tutoring services to better meet the needs of college students, ultimately enhancing the learning experience and academic support provided.

Your honest feedback is essential in achieving the objectives of this study. Your answers will be kept confidential and will be used for research purposes only.

Instructions:
Please read each question carefully and select the appropriate response. If you feel like none of the options apply, please select "Others" and specify your answer in the space provided.

1. Respondents Name (Optional): _____

2. School Currently Enrolled In : Great Plebeian College

3. What is your current academic year?
 1st year
 2nd year
 3rd year
 4th year

4. What is your current academic program? BSED-Math

5. On a scale from 1 to 5, with (1 being very easy and 5 being very difficult), how challenging/difficult do you find your current courses?
 1
 2
 3
 4
 5

Signature _____
Respondent's Signature



5. Please list up to three subjects you find challenging/difficulties with.

- a. calculus
 - b. analytics
 - c. research

6. What specific aspects of these subjects do you struggle with?
(Select all that apply)

- Understanding the concepts

Problem-solving

Time management

Keeping up with assignments

Test preparation

Group collaboration and teamwork

Grasping advanced or complex topics

Research and information gathering

Presentation skills

Writing essays and reports

Study habits and techniques

Memorization and retention

Technical or software-related challenges (e.g., using specific software for coursework)

Others (Please specify): _____

7. What subjects can you suggest or recommend for Tutormatch?

calculus 1 and 2

Debtors
will continue to do so long as creditors
will not accept payment in full.

This is the end of the survey questionnaire. Thank you very much for your time and cooperation. Please be assured that all information gathered from the survey will be strictly kept confidential and will only be used for the study. Once again, thank you for taking the time to complete the survey.

Respondent's Signature



Appendix S

Sample Survey Response of PSU-ACC College Student

EFFICIENT TUTORING SERVICES: ENHANCING COMMUNICATION AND SCHEDULING WITH A CROSS-MATCHING PLATFORM FOR PSU-ACC

The purpose of this study is to identify and address the challenges and high-demand subjects among college students residing at Alaminos City. Additionally, this study aims to improve communication and scheduling in tutoring services to better meet the needs of college students, ultimately enhancing the learning experience and academic support provided.

Your honest feedback is essential in achieving the objectives of this study. Your answers will be kept confidential and will be used for research purposes only.

Instructions:

Please read each question carefully and select the appropriate response. If you feel like none of the options apply, please select "Others" and specify your answer in the space provided.

1. Respondents Name (Optional): _____

2. School Currently Enrolled In : PSU-ALAMINOS

3. What is your current academic year? _____

1st year
 2nd year
 3rd year
 4th year

4. What is your current academic program? BSED-ENGLISH

5. On a scale from 1 to 5, with (1 being very easy and 5 being very difficult), how challenging/difficult do you find your current courses?

1
 2
 3
 4
 5

Responsible Signature _____



5. Please list up to three subjects you find challenging/difficulties with.

a. foreign language

b. math

c. research

6. What specific aspects of these subjects do you struggle with?
(Select all that apply)

Understanding the concepts

Problem-solving

Time management

Keeping up with assignments

Test preparation

Group collaboration and teamwork

Grasping advanced or complex topics

Research and information gathering

Presentation skills

Writing essays and reports

Study habits and techniques

Memorization and retention

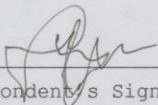
Technical or software-related challenges (e.g., using specific software for coursework)

Others (Please specify): _____

7. What subjects can you suggest or recommend for Tutormatch?

foreign language 1 and 2, research

This is the end of the survey questionnaire. Thank you very much for your time and cooperation. Please be assured that all information gathered from the survey will be strictly kept confidential and will only be used for the study. Once again, thank you for taking the time to complete the survey.


Respondent's Signature



Appendix T

Sample Survey Response of STI College Student

**EFFICIENT TUTORING SERVICES: ENHANCING COMMUNICATION AND SCHEDULING
WITH A CROSS-MATCHING PLATFORM FOR PSU-ACC**

The purpose of this study is to identify and address the challenges and high-demand subjects among college students residing at Alaminos City. Additionally, this study aims to improve communication and scheduling in tutoring services to better meet the needs of college students, ultimately enhancing the learning experience and academic support provided.

Your honest feedback is essential in achieving the objectives of this study. Your answers will be kept confidential and will be used for research purposes only.

Instructions:

Please read each question carefully and select the appropriate response. If you feel like none of the options apply, please select "Others" and specify your answer in the space provided.

1. Respondents Name (Optional): _____

2. School Currently Enrolled In : STF

3. What is your current academic year?

- 1st year
- 2nd year
- 3rd year
- 4th year

4. What is your current academic program? IT

5. On a scale from 1 to 5, with (1 being very easy and 5 being very difficult), how challenging/difficult do you find your current courses?

- 1
- 2
- 3
- 4
- 5



5. Please list up to three subjects you find challenging/difficulties with.

a. Capsone

b. specifications or elsewhere to raise issues of the product
c. specifications specific to parts and systems and subsystems and assemblies

6. What specific aspects of these subjects do you struggle with?
(Select all that apply)

- Understanding the concepts
 - Problem-solving
 - Time management
 - Keeping up with assignments
 - Test preparation
 - Group collaboration and teamwork
 - Grasping advanced or complex topics
 - Research and information gathering
 - Presentation skills
 - Writing essays and reports
 - Study habits and techniques
 - Memorization and retention
 - Technical or software-related challenges (e.g., using specific software for coursework)
 - Others (Please specify): _____

7. What subjects can you suggest or recommend for Tutormatch?

Capstone

decrease 3.0% from 2011 to 2012. The decrease was primarily driven by a 1.2% decrease in the number of passengers.

This is the end of the survey questionnaire. Thank you very much for your time and cooperation. Please be assured that all information gathered from the survey will be strictly kept confidential and will only be used for the study. Once again, thank you for taking the time to complete the survey.

Respondent's Signature



Appendix U

Tabulation

	ACCEPTABILITY					TOTAL	MEAN	DI
Functionality	5	4	3	2	1		4.4	Excellent
Suitability - The functions of the system are appropriate.	20	30	0	0	0	50	4.4	Excellent
Accuracy - The system's results are accurate.	20	30	0	0	0	50	4.4	Excellent
Security - It prevents unauthorized access.	20	30	0	0	0	50	4.4	Excellent
Reliability							4.08	Very Good
Maturity - There is minimal frequency of software faults/failures.	0	50	0	0	0	50	4	Very Good
Fault Tolerance - The system has capability of handling system errors.	0	50	0	0	0	50	4	Very Good
Recoverability - System's performance is re-establishing from failure.	12	38	0	0	0	50	4.24	Excellent
Usability							4.666667	Excellent
Understandability - Concepts are easily recognized.	35	15	0	0	0	50	4.7	Excellent
Learnability - Effort in learning the system is reduced.	35	15	0	0	0	50	4.7	Excellent
Operability - The system is easy to use or operate.	30	20	0	0	0	50	4.6	Excellent
Efficiency							4.42	Excellent
Time Behavior - There is fast response time of the system.	12	38	0	0	0	50	4.24	Excellent
Resource Behavior - Resources used for system performance are accessible.	30	20	0	0	0	50	4.6	Excellent
Maintainability							4.506667	Excellent
Analyzability - There is less effort in identifying system failure causes.	0	50	0	0	0	50	4	Very Good
Changeability - Effort in modifying the system.	38	12	0	0	0	50	4.76	Excellent
Stability - Sensitivity to modifications	38	12	0	0	0	50	4.76	Excellent
Portability							4.666667	Excellent
Adaptability - Specification changes are done easily.	40	10	0	0	0	50	4.8	Excellent
Installability - There is effortless process of installing the system.	30	20	0	0	0	50	4.6	Excellent
Conformance - System is compliant to portability standards.	30	20	0	0	0	50	4.6	Excellent
OMM	4.456667	Excellent						

Appendix V

Documentation



The proponents visited the locale, Pangasinan State University-Alaminos City Campus, Bolaney, Pangasinan, and conducted interviews with the Student Services Coordinator, Mrs. Shella Marie I. Diocares.





The proponents visited the locale, Pangasinan State University-Alaminos City Campus, Bolaney, Pangasinan, and conducted an acceptability test of the cross-matching platform with the ICTMO Coordinator, Instructors, IT Faculty members, and college students residing in the City of Alaminos.



Appendix W

Certificate of Plagiarism

Republic of the Philippines
Pangasinan State University
Lingayen, Pangasinan
Website: www.psu.edu.ph
Telephone: (075) 206-0802 Telefax: (075) 542-4261/4057



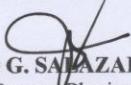
Center for Foreign Languages
C E R T I F I C A T I O N

To Whom It May Concern:

This is to certify that the undergraduate/graduate students of Pangasinan State University, Alaminos City Campus has/have submitted his/her/their manuscript to the Center for Foreign Languages for Grammarly/Plagiarism Scanning. The casptone with the title Efficient Tutoring Services: Enhancing Communication and Scheduling with a Cross-Matching Platform for PSU-ACC was scanned/checked and had obtained 85.25% Grade Report for Grammarly Checked and 5.25% SI for Plagiarism Checked.

This certification was issued on 25th of January, 2024.

Scanned/Checked by:


RICARDO G. SALAZAR JR., MEd
OIC Focal Person Plagiarism and
Grammar Checking

Official Receipt No. 3822017
Date: Nov. 23, 2023

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ARTHUR BONSILAO CERVANIA

EDUCATION

PERSONAL DATA

Age :	23
Sex :	Male
Birthdate :	August 13, 2000
Civil Status :	Single
Nationality :	Filipino
Religion :	Roman Catholic

CONTACTS

- +639692696666
- arthurcervania13@gmail.com
- Ambabaay, Bani , Pangasinan

SKILLS

- Problem solving skills and full stack website development.
- AI and machine learning with proficient understanding on the technological aspects itself.
- Collaboration and communication in team projects such as github projects or figma interactive projects.
- Continuous learning on the different and latest release programming languages such as Laravel 10 and tailwind.
- Adaptability on the latest updates on website application and new technologies.
- Self-directed learning capabilities on programming languages such as python, termux, advanced linux programming algorithms, server side scripting, asynchronous javascript programming, and network security protocols.

● TERTIARY

College 2020 – Present

Bachelor of Science in Information Technology

Pangasinan State University - Alaminos City Campus

Brgy. Bolaney, City of Alaminos, Pangasinan

● SECONDARY

Senior High School 2017 – 2019

Systems Technology Institute (STI) College

Poblacion, City of Alaminos, Pangasinan

Junior High School 2013 – 2019

Western Pangasinan Lyceum

Bani , Pangasinan

● PRIMARY

Elementary 2007 – 2013

Bani East Integrated School

Bani , Pangasinan

TRAINING, WORKSHOP, & SEMINARS

• Research Colloquium:

A Virtual Presentation of Completed Capstone Projects

December 21, 2023

On-Site at PSU-ACC

• DoIT Tech-Talk: Basics of Office 365

February 22, 2022

Via Ms Teams

• DoIT Tech-Talk: Google Workspace

December 13, 2021

Via Ms Teams

• Systems Technology Institute (STI) CodeFest

March 1, 2019

On-Site at STI Baliuag Gymnasium



EUNIQUE ALAMAR JAVILLO

PERSONAL DATA

Age : 22
Sex : Female
Birthdate : January 10, 2002
Civil Status : Single
Nationality : Filipino
Religion : Roman Catholic

CONTACTS

+639166986445
 euniquealamarj@gmail.com
 Telbang, City of Alaminos, Pangasinan

SKILLS

- Expertise in document formatting and styling for professional and polished presentations.
- Skillful in creating templates for various types of documents.
- Knowledgeable in Basic MS Office (Word, Publisher, Excel, PowerPoint)
- Knowledgeable in Basic Adobe (Light Room)
- Knowledgeable in Basic Video Editing (CapCut, ProShow Producer)
- Knowledgeable in Graphic Designing (Canva)
- Knowledgeable in Google Workspace (Google Sheet, Google Docs, Google Drive, Google Forms, Gmail)
- Basic knowledge in Web Development (HTML, CSS, PHP, JavaScript)

EDUCATION

● TERTIARY

College 2020 – Present

Bachelor of Science in Information Technology

Pangasinan State University - Alaminos City Campus

Brgy. Bolaney, City of Alaminos, Pangasinan

● SECONDARY

Senior High School 2019 – 2020

Telbang National High School

Brgy. Telbang, City of Alaminos, Pangasinan

Junior High School 2014 – 2019

Telbang National High School

Brgy. Telbang, City of Alaminos, Pangasinan

● PRIMARY

Elementary 2008 – 2014

Telbang Elementary School

Brgy. Telbang, City of Alaminos, Pangasinan

TRAINING, WORKSHOP, & SEMINARS

• DoIT Tech-Talk:

2023 IT Research Colloquium

A Virtual Presentation of

Completed Capstone Projects

December 21, 2023

On-Site at Pangasinan State

University-Alaminos City Campus

• DoIT Tech-Talk:

Google Workspace

December 13, 2021

Via Ms Teams

• Eighty (80) Hours

Work Immersion

December 16, 2019 –

January 3, 2020

On-Site at the Management

Information System Section Office

• DoIT Tech-Talk:

Basics of Office 365

February 22, 2022

Via Ms Teams

• 2022 IT Research Colloquium: A

Virtual Presentation of Completed

Capstone Project - PSU Lingayen

March 25, 2022

NCII

December 14, 2019

On-Site at PhilCST, Calasiao,

Pangasinan

Via Ms Teams