PSU – USG WEB-BASED ONLINE VOTING SYSTEM

Thesis Proposal
Presented to the faculty of
Computer Studies Department
College of Sciences
Palawan State University

By

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MAY 2022

CHAPTER 1
INTRODUCTION

BACKGROUND OF THE STUDY

Voting is a means for a group to make a collective choice or express an opinion, generally after discussions, debates, or election campaigns. Democracies elect a leader of high office by voting. Since voting becomes a part of different organizations whether a large company or school-related partners, especially at the college level and mostly this system is used for a specific time. Voting in school is necessary when electing leaders for different purposes and organizations. This serves as the school-related system for the students, teachers, and staff to select trusted leaders within the university.

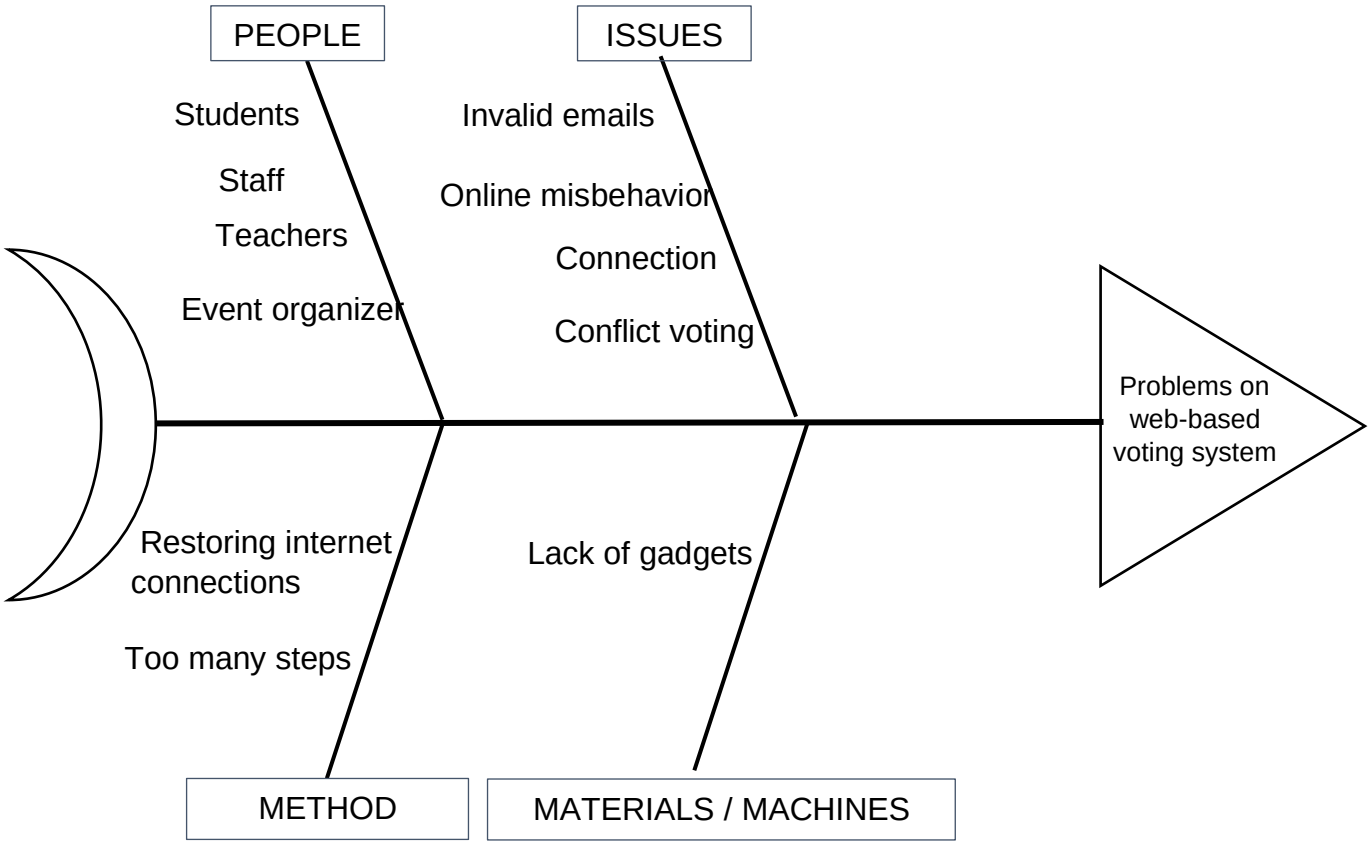
Palawan State University is a well-known university in Palawan that provides better quality education for students. This large university, it is lead to many leaders and student organizations which also pass in due process of the voting system. This university aims to provide a better service for the student through their respective capabilities.

Computerized versus manual voting systems are both methods of using the practice of voting algorithms. The rules are to help people to manage the given information and the response of the users. Computerized voting allows users to have their own choice to vote for their preferred leaders with concerns in a web-based system. The pen-and-paper method is the old way of voting for the manual voting method. This system is all about the Web-based PSU voting system for the USG election where every student of Palawan State University can access and participate online using their respective corporate email. USG office and PSU Office of Students Affairs and Services will be our partners in this system. The System users will be the students who are currently enrolled at the said university.

Integer programming, constraint programming, metaheuristics, and hybrid methods have been successfully applied to the solution of different variants of this problem. Disadvantages of computerized voting work when management and users accept repeated votes over and over again.

PROJECT CONTEXT

Ishikawa or fishbone Diagram



People- students may be concerned about the problem due to many accesses to be accepted by the system. Teachers and staff may change the rules for the	**Issues** – common problems students are experiencing difficulty and disagreement over something else. A failure of using corporate email	**Method** – problems that concern the production process and its contribution to service delivery processes.	**Materials** – Problems with systems, tools, facilities, and equipment used for production.

elections and event organizers may change the process			
Students - If they are valid enroll **Staff** - rapid change decisions **Teachers** - rapid change decisions **Event Organizer** - overlapping of response	**Invalid emails** - there is only one specific email **online misbehavior** - Not following rules **Connection** - No internet connection **Conflict Voting** - Overlapping responses	**Too many steps** - Difficulties in the login concept. **Restoring internet connection** - Lost internet in the middle of the process.	**Lack of Gadgets** - Student can't vote.

This system is designed to make vivid changes accordingly to its priorities and needs. It is designed to give more attention and provide privileges to its prioritized constituents or mainly users of the voting system. The interface should be related to the system applicable to use, Maintenance must also be planned, since this system is available only at a specific time, we should create a menu on how long this system only can access. Teachers and staff have advanced access to this system to prepare and edit the contents of the interface accordingly. This system will work for a specific day after the release of link given.

The inconsistencies of the current situation are the lack of following rules, policies, and regulations by the users of the system. Inability to access online due to processing and waiting for approval. The PSU Manual voting is currently preferred use.

Result of Preliminary investigation

In this table, it consists Five(5) questions 35 respondents

QUESTIONS				**YES**	**NO**
Have you participated in USG elections?				60%	40%
Are there any problems during the USG elections?				15%	85%
Would you suggest having a proper voting system?				65%	35%
Do you think an online voting system would handle the election immediately?				85%	15%
What do you prefer if the online voting system was implemented?	Mobile App	Website	Others		
	45%	55%	0%		

- **In question number 1. (Have you participated in USG elections?)**

According from the Data table above most of the respondents said yes with 60%, while on the other hand said no with 40%. It means that most of them has an experienced in participating USG elections

- **. In question number 2. (Are there any problems during the USG elections?)**

According from the chart above 15% of the respondents said yes, on the other hand 85% of the respondents said no which means that there no seems so many problems occurring during the USG election.

- **In question number 3. (Would you suggest having a proper voting system?)**

According from the data result above there are 65% of respondents said yes, while some respondents with 35% said no. The data show that most of the respondents willing to have a new possible proper USG voting system.

- **In question number 4. (Do you think an online voting system would handle the election immediately?)**

According from the data table above 85% of the respondents said yes while on the other hand 15% of the respondents said no, it means most of them agreed that online voting system would handle the election immediately.

- **In question number 5. (What do you prefer if the online voting system was implemented?)**

According from the chart above 45% percent of the respondents said that online voting system is preferable to be implement in the mobile application while on the other hand 55% of the respondents said that website is good for this system. In this question most of the respondents agreed to the website than mobile application.

PURPOSE AND DESCRIPTION

The concept of developing cooperative coordination is certainly not new, but it is a proven aid to the voting system used. The concept only works, however, if all people - both teachers, students, and authorities - agree to cooperate. The system goal design is to provide a voting system without existing manual trouble. In addition, it helps to do the counting immediately to the specific target area.

The method demands the number of teams in the institution as well as the event's start date. Stakeholders want the voting online application to be more accessible and transparent to users. More publicity regarding the significance of this event for the school.

Its purpose is to provide every student with easy access to the voting system if there has trouble with their school-related matters they can just quickly vote. This service can give instant reports so that no more time consume and the activity will be done as soon as possible.

SCOPE AND CONSTRAINTS

The scope of the study focuses mainly on fixing manual voting for the students of Palawan State University towards service quality for continuous improvement. The study is not conducted to calculate other matters just the result of the elections. The system is not also designed to generate rules and regulations for the people to follow policies.

The respondents were PSU USG officers, PSU Office of Students Affairs and Services staff, and students of PSU regardless of their socio-economic status, gender, and age. There are only 35 random respondents. Data is needed to gather information for the study through a survey questionnaire.

CHAPTER II

REVIEW RELATED LITERATURE AND STUDIES

Local Literature

According to Cañeda, Quiza, Pateña & Kabangon (2019), the problem with the current election in some colleges in the Philippines is that it is being conducted in a traditional manner, with votes being counted manually. This makes data tampering, fraud, and data loss more likely. Even though an electronic voting system is already in place, it is insufficient. The researchers' goal was to create a web-based electronic voting system that provides a secure and flexible voting mechanism to address the issue of voter votes, hacking, and system destruction. A Blockchain-based voting system demonstrated that a computerized solution is possible while eliminating human-related flaws. Votes should be impossible to tamper with, and illegitimate votes should not be counted. All vote counting may be done in public and in plain sight. The system will keep a public ledger record of all votes, and these votes will be verified, executed, and shared among participating parties. Once information has been entered, it cannot be deleted. The votes will never be valid if someone attempts to invalidate them. As a result, a Blockchain-based voting system can improve ballot privacy; speed up real-time processing of results, and make voting easier. It is also possible to construct an open and verifiable voting system. The study addressed security concerns while maintaining election procedures with confidentiality, integrity, and accessibility.

As stated by Naval de los Santos (2020), the university students' voting experience has progressed to a new fourth industrial revolution age. The results of the system evaluation, which were conducted using ISO 9241-11, were overwhelmingly positive among university students. The system's design and functionality have been tailored to the needs of the users, allowing them to do their activities quickly and efficiently. Overall, the approach has aided the university's resource management and offers a promising path forward for green projects. Although it achieves near perfection in the system usability evaluation, the data offered several areas for improvement as a basis for system development. To manage the system more effectively and efficiently, the system should be able to provide distinct access privileges. Provide a built-in system manual that guides users through their specific system tasks,

contributing to higher system user satisfaction. The Web app voting system offers intriguing possibilities for implementation across university campuses. The voting system will encourage higher voter turnout across the university. The voting experience can be done in a mobile location where mobility of connectivity access is possible in the future development of the voting system. Implement biometrics security for voter identification and network connectivity restrictions where the system can be accessed via a virtual private network in distant university campus locations. Furthermore, the system can be upgraded to run on cross-platform devices where software architecture is not limited to the Windows, Android, or Mac operating systems. Finally, developers should always consider ISO 9241-11 or the usability system components and plan out user requirements that will aid in the development of an effective and efficient information system for the university.

Foreign Literature

In accordance with Sarker & Akhund (2016), we carefully examined the existing literature on electronic voting systems as well as the pilot experiences of many jurisdictions. All of this suggests that both the extremely optimistic and pessimistic views on the effects of voting systems are exaggerated. We also discussed the security requirements for electronic voting and highlighted some of the contradictions in these requirements. Finally, we discussed limitations and proposed future work to address them. However, practical testing and pilot projects are the only ways to determine what will work and what will not. Trials of specific approaches will provide the best insight into what conditions must be met for modern voting to function properly, as well as the actual benefits and drawbacks of various electoral systems. Modern electronic voting will not solve the societal causes of electoral disengagement, nor will it change people's attitudes toward political institutions. However, it will expand electors' voting options and make voting easier. On the other hand, computerized voting, like the current method, will neither destroy democracy nor lead to vote buying or electoral fraud.

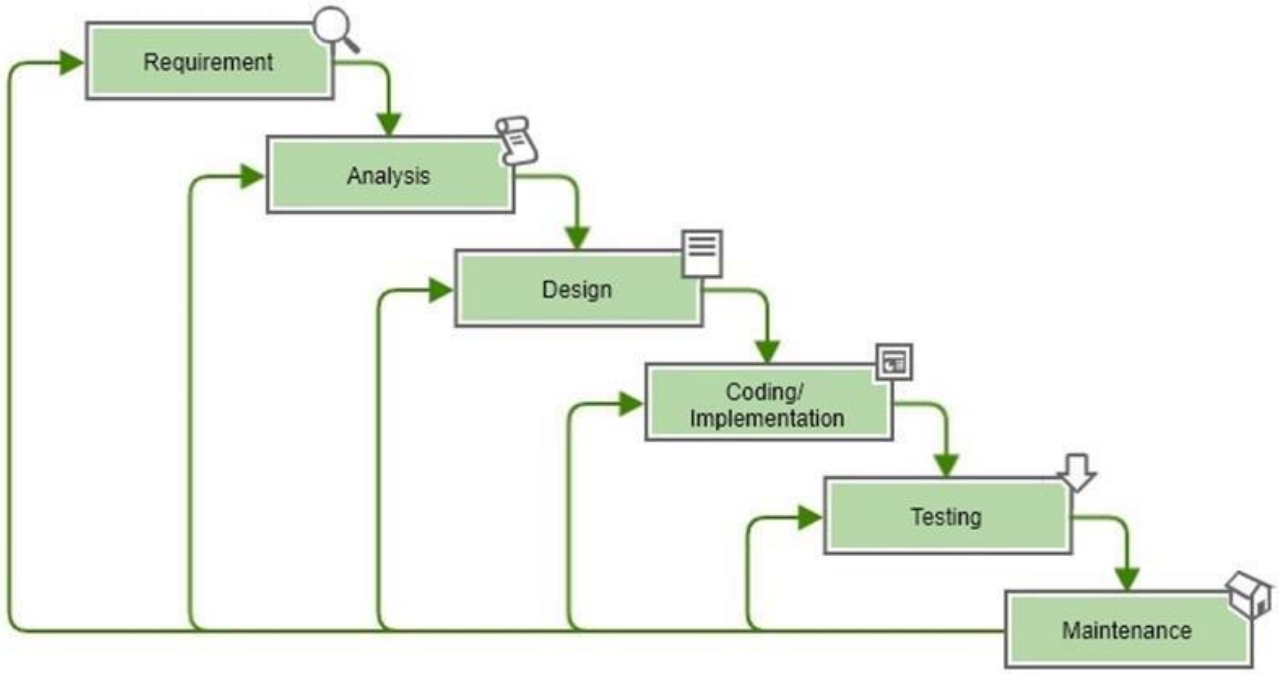
As reposrted by Delima-Omorog (2016), the purpose of this project was to create a graphical user interface (GUI) student electoral voting system and gather evidence about its software quality and acceptance. The goal of this study is to create a system that is based on ISO 9126 software quality criteria, corresponds to current hardware and software standards, and increases student engagement in decision-making. Designing an useable system in the context

of the user's perceptions (needs) and allowing these perceptions to determine the design is a huge problem. In terms of development (maintainability and portability) and execution (efficiency, functionality, dependability, and usability), a large majority of respondents said the new voting system is far superior to the old one. Usability is linked to the four software qualities, according to the study's findings. Usability is specifically linked to users' perceptions of software quality and implementation requirements. Based on the facts and issues experienced, respondents gave metrics a low priority if they were poorly represented in the interface. When the interface fails, users are more likely to take longer to vote, falling short of efficiency goals and becoming less dependable, compromising its usefulness.

CHAPTER III

SYSTEM ARCHITECTURE

SDLC (*Waterfall Model*)



Requirements- The Voting web-based application can be accessed through online activity. This requires a good internet connection on any wireless device or computer desktop.

Analysis - Verification of users is one of its features. Displaying the menus for adding teams and candidates for teachers and staff can help them easily select the specific person for a specific position. Display the name and picture and candidates can help users to decide who will be their preferred leader. Approval of the system management together with PSU staff and other related organizations to start the elections.

Design- This Web-based application is made to provide optimized flexible access for its users. To reduce conflicting voting. To gain numbers of students who are currently active in Palawan State University elections.

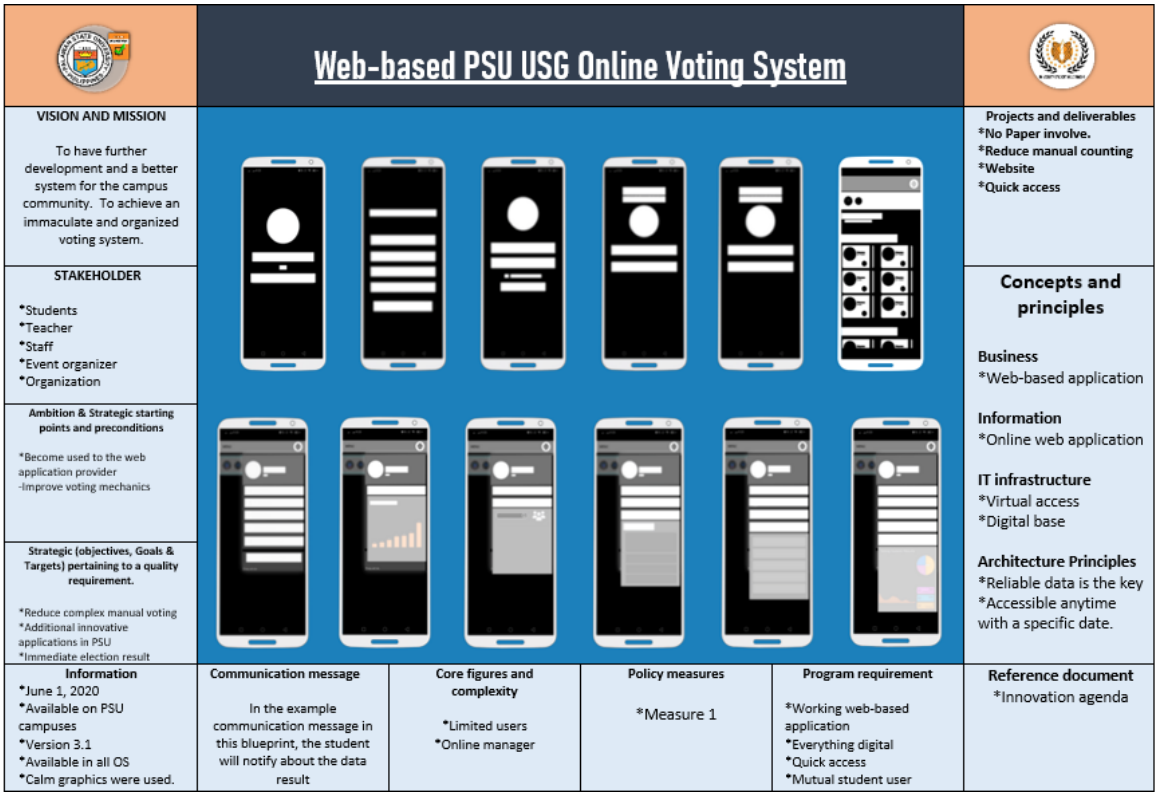
Coding - Web-based scheduling application system is powered by HTML, JavaScript, CSS, and Python.

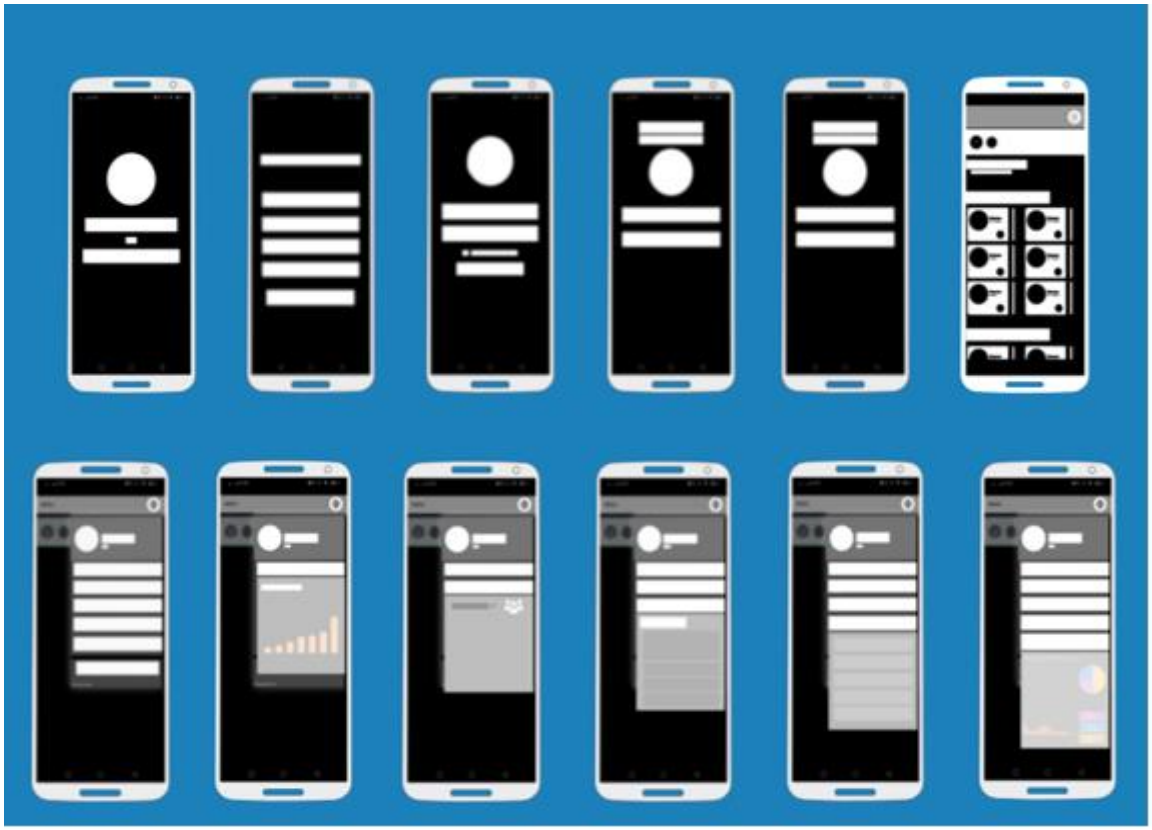
Testing - Running on any operating system, including Windows, Linux, and Mac. The entire system is checked for flaws and, if necessary, adjustments may be made in accordance with its upkeep.

Maintenance - This is a working prototype of a voting system that assists instructors in identifying a student leader eager to run for a certain position and assisting students in choosing their preferred candidates. Its consumers' data privacy and security are also top priorities. One of the fundamental goals for keeping the system in excellent shape is to maintain and update its features.

SYSTEM INTEGRATION

Enterprise Blueprint





Web-based PSU USG Online Voting System

VISION AND MISSION

To have further development and a better system for the campus community. To achieve an immaculate and organized voting system.

STAKEHOLDER

*Students
*Teacher
*Staff
*Event organizer
*Organization

Ambition & Strategic starting points and preconditions

*Become used to the web application provider
-Improve voting mechanics

Strategic (objectives, Goals & Targets) pertaining to a quality requirement.

*Reduce complex manual voting
*Additional innovative applications in PSU
*Immediate election result

Projects and deliverables
***No Paper involve.**
***Reduce manual counting**
***Website**
***Quick access**

Concepts and principles

Business
*Web-based application

Information
*Online web application

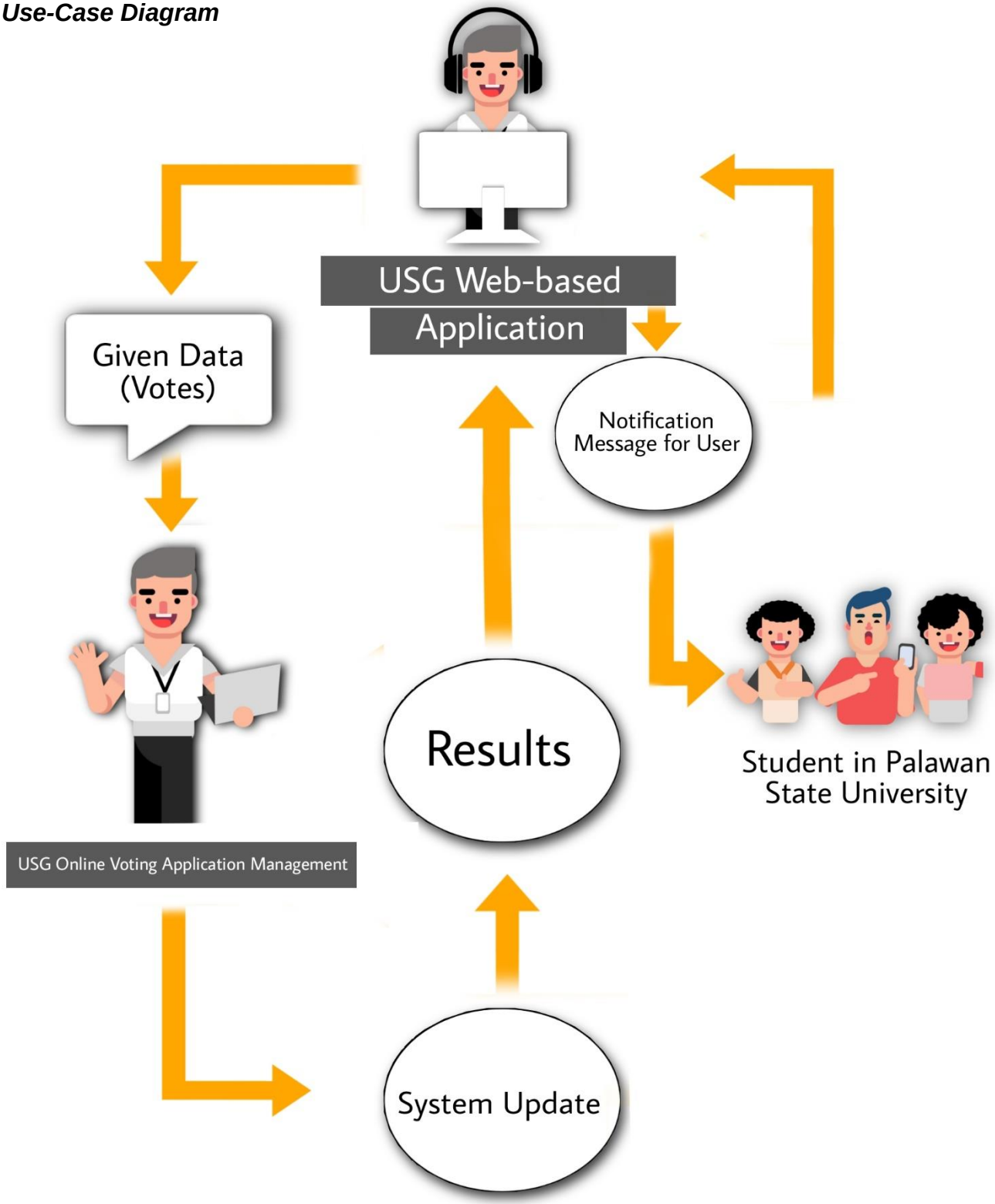
IT infrastructure
*Virtual access
*Digital base

Architecture Principles
*Reliable data is the key
*Accessible anytime with a specific date.

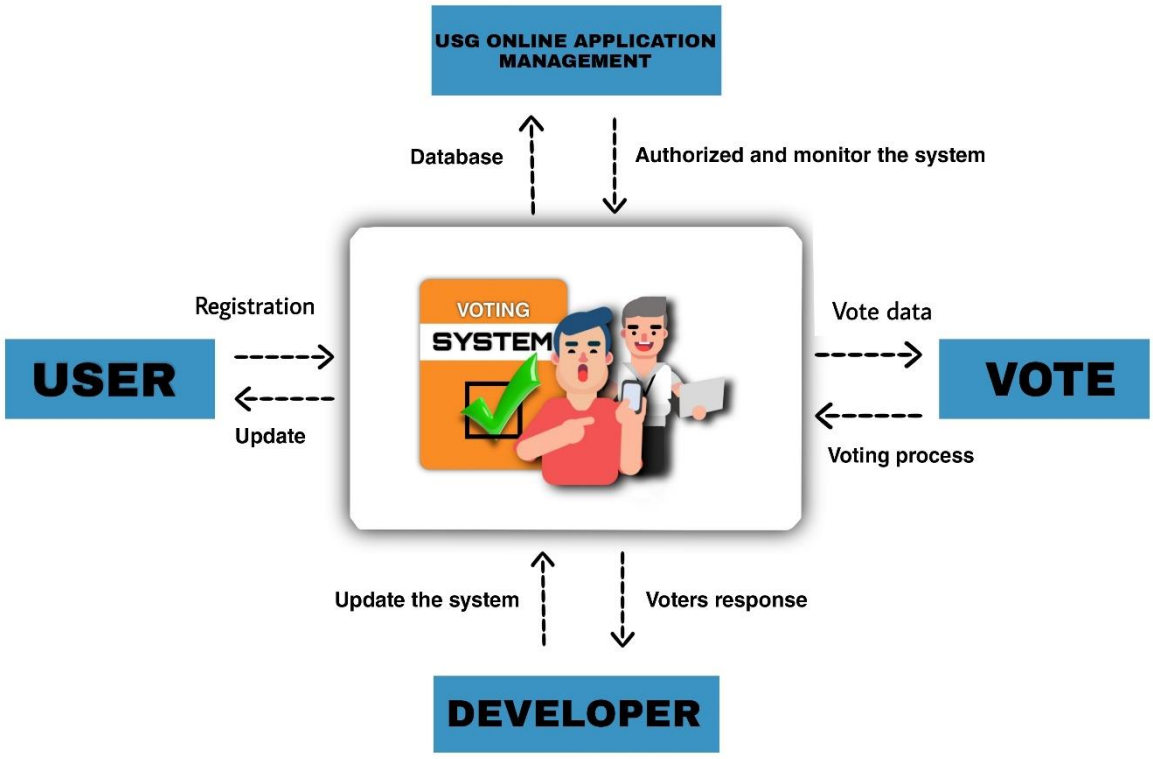
Information	Communication message	Core figures and complexity	Policy measures	Program requirement	Reference document
*June 1, 2020 *Available on PSU campuses *Version 3.1 *Available in all OS *Calm graphics were used.	In the example communication message in this blueprint, the student will notify about the data result	*Limited users *Online manager	*Measure 1	*Working web-based application *Everything digital *Quick access *Mutual student user	*Innovation agenda

SYSTEM ARCHITECTURE

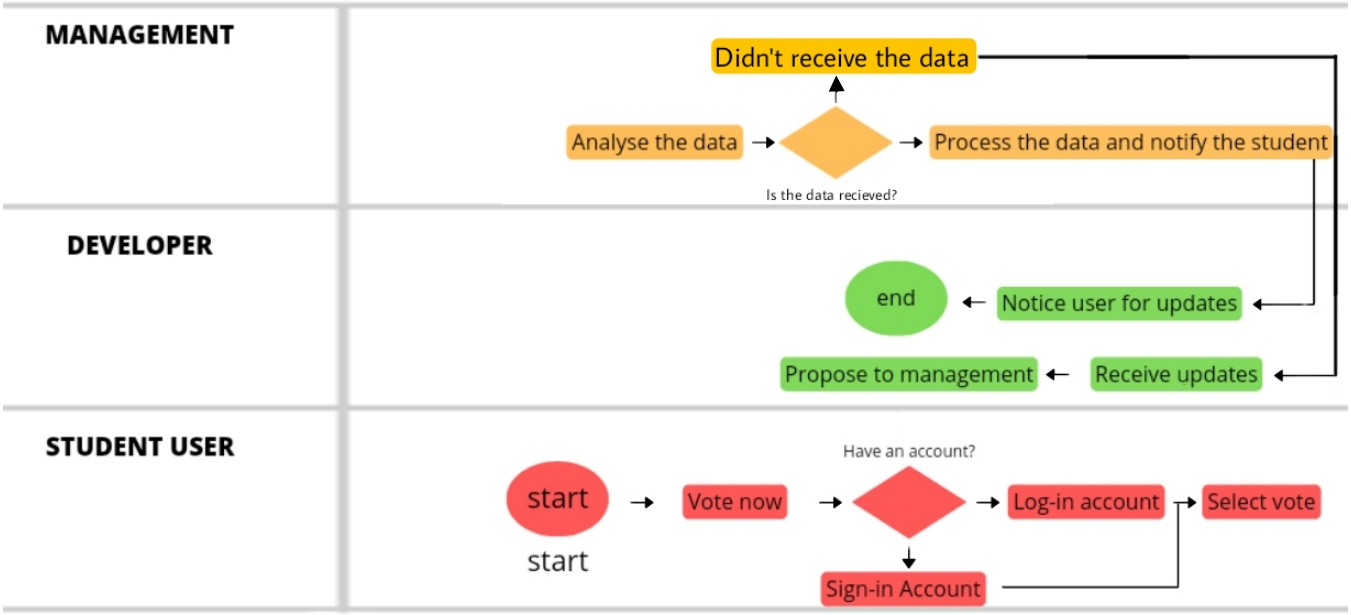
Use-Case Diagram



Context Diagram



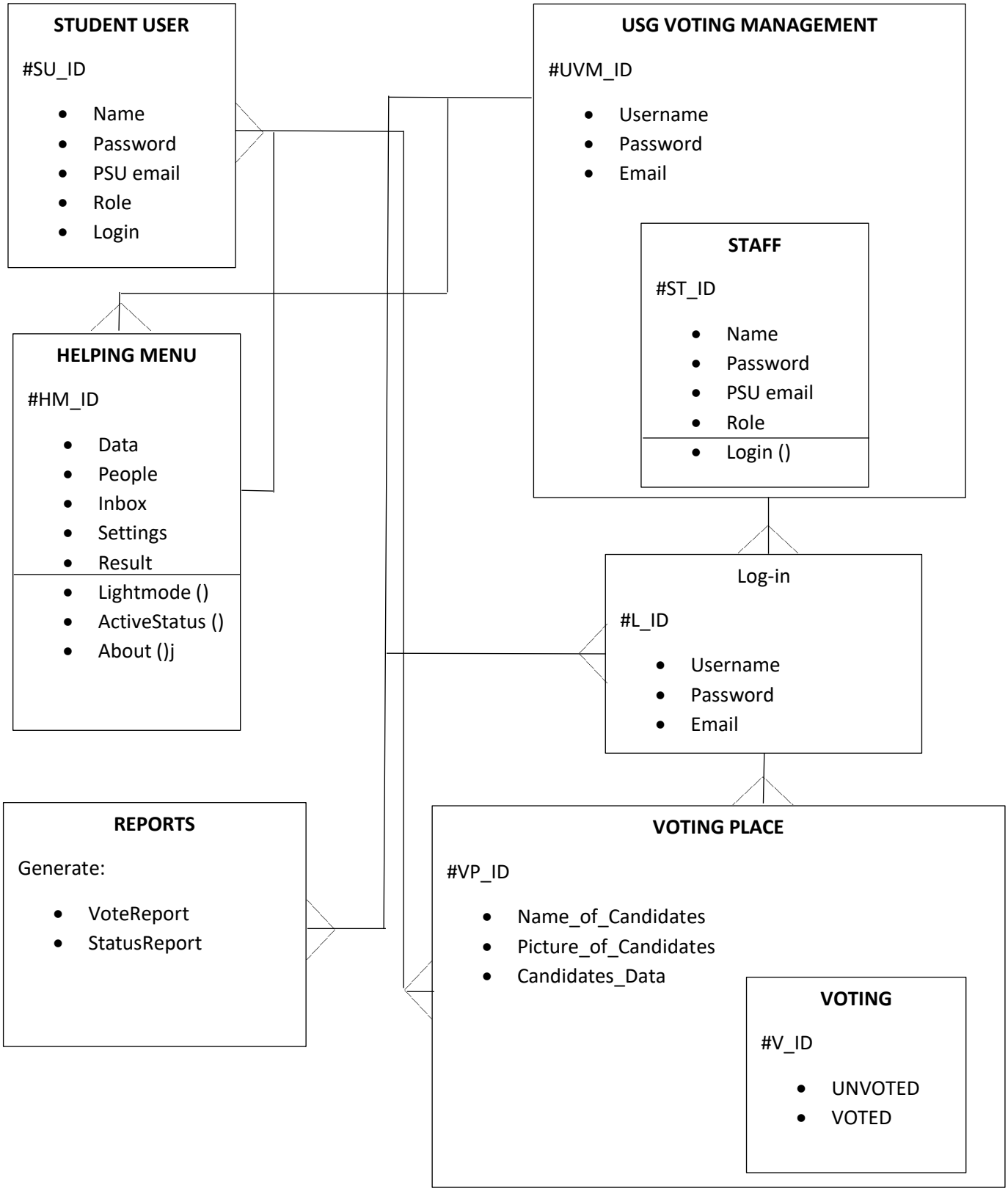
Business Process Modeling Notation



User's Roles and Privileges

Privileges	User	Management	Developer
Create an account	✓	✓	✓
Login	✓	✓	✓
Voting	✓	✓	✓
Access in application	✓	✓	✓
Set the candidates		✓	✓
View student list		✓	✓
See vote list		✓	✓
Update information	✓	✓	✓
Update the System			✓
Monitor student list			✓
Monitor the result			✓
See final result	✓	✓	✓

Entity-Relationship Diagram



Data Dictionary

Data Item	Data Type	Data Format	Field Size	Description	Example
User ID	Integer	NNNNNNNNN	9	Unique Identifier of the student	000011456
User Name	Varchar		20	Name of the student	Queanna120
First Name	String		20	First name of the user	Queanna
Surname	String		20	Last name of the student	Ibrahim
PSU Email	Varchar		50	Corporate email of the student	202070071@psu.palawan.edu.ph
Initiate of Voting	Date/Time	MM/DD/YYY	8	Time voting begins	05/26/2022
Staff	String		200	Staff services	Justine
Management	String			Management name	Anna Madrigal
Management Email	Varchar		50	Management Email	Anna34@psu.palawan.edu.ph

CHAPTER IV

SYSTEMS PROTOTYPE

PROTOTYPE

Register now if you don't have yet an account and Sign in if you have already an account. If you don't have an account, create one using PSU email and fill up the requirements above. if you have already an account continue to sign in by providing the needed requirements above. You can recover your account through forgot password once you forgot your old password by typing your email and pressing send new password button. After you received notification in forgot password, now, you can reset your password by confirming and if you already use the system application and you suddenly logout this would be the new interface.

After signing to your account, you can now interact to the USG voting interface where you can select your preferred candidate in a different position with a limited number of votes. If you tap the three lines menu above in the right corner this would be the floating submenus appear, the Profile, Data, People, Inbox, Setting, Final result and log out. if you tap the Data submenu there are horizontal bars that represent the data or current result of the event. However, if you tap the people submenu you will see some people that has already a contact on you recently, and also you can look for his/her status if she/he already voted.

If you tap the inbox submenu you will see the notification from the system that you have already voted or warn you that you are not yet voted. if you tap the setting submenu you will see another submenu such as, Light mode if you want to change the theme of interface, active status if you have already voted, terms of service, help and about the system. if you tap the final result submenu you will see the final result. The final result does not display immediately but it waits the last counting before show the whole result.

CHAPTER V

FEASIBILITY STUDY REPORT

Schedule Feasibility

This USG Voting System is a realistic project. Our organization can launch a web-based project in as little as 7 months. During this phase, we will require a project manager to take track of its progress. Setting timetables for each problem will help with project management and control. This will incorporate people's input through the use of a prototype produced to provide our customers with the satisfaction they require.

Operational Feasibility

The project will be made available to students at Palawan State University. Other technical issues in the system will be eliminated, making it easier for the user to decide. The operation's goal is to make it mandatory to register an account before voting in the USG election. Temporarily, the procedure may occur only at a specified time.

Technical Feasibility

The project may readily engage with it via a decent internet connection on many devices, whether wireless or desktop. This project is compatible with all browsers and OS systems. Because of the function that is now required at Palawan State University, it is conceivable to deploy this system.

Economic Feasibility

The development system costs less than the project's estimated cost. It does not need a large number of people, software, or hardware upgrade supplies. The system advantages reduced the user's public transportation fare. This system will use only fewer MB to download.

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APPENDICES

Republic of the Philippines
Palawan State University
College of Sciences
Computer Studies Department

May 29, 2022

Mac Kirby Lumacakang,
USG President
PSU – USG Online Voting System

Dear Sir,

Good afternoon, we are a student from Palawan State University, College of Sciences – Computer Science Department, taking up the course of Bachelor of Science in Information Technology. In connection with the subject "System Integration and Architecture", we would like to explore the research proposal of creating a PSU – USG Online Voting System. We intend to conduct data-gathering activities with the aim of streamlining the different processes of the said USG Voting Election.

Hoping for your kind and consideration. Thank you.

Yours truly,

Reodel S. Calilung

Queanna Brittany S. Ibrahim

Maurene C. Llado

Mark Justine N. Ompad

Noted by:

Larry N. Caduada jr.
Instructor

Republic of the Philippines
Palawan State University
College of Sciences
Computer Studies Department

May 29, 2022

Dr. Grace N. Abrina,
Osas Director
PSU – USG Online Voting System

Dear Sir,

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Reodel S. Calilung

Queanna Brittany S. Ibrahim

Maurene C. Llado

Mark Justine N. Ompad

Noted by:

Larry N. Caduada jr.
Instructor

Course, Block and Year *

Short answer text

SURVEY QUESTIONS *

	YES	NO
Have you participated in USG elec...	○	○
Are ther any problems during the ...	○	○
Would you suggest having a prope...	○	○
Do you think an online voting syst...	○	○

What do you prefer if the voting system was implemented? *

- ○ Mobile App
- ○ Website
- ○ Other...

CURRICULUM VITAE

Queanna Brittany S. Ibrahim

BS INFORMATION TECHNOLOGY

+639479514435 Bgy. San Pedro P.P.C, Palawan 202080061@psu.palawan.edu.ph

OBJECTIVE

I am a student at Palawan State University, and my objective is to grow and expand my knowledge and insights in my chosen field in order to be the best.

EXPERIENCE

- 2021 – 2022 Treasurer
  Society of Information Technology Enthusiast (SITE

EDUCATION

- 2014 – 2015 San Miguel National High School
  Junior High
  San Miguel P.P.C, Palawan

- 2015 – 2017 Saint Augustin Academy
  Junior High
  Bgy. 1 Coron, Palawan

- 2017 – 2020 Saint Augustin Academy
  Senior High
  Bgy. 1 Coron, Palawan

SKILLS

- Adaptability
- Attention to details
- Positivity
- HTML and CSS coder
- Proficient in using Microsoft Office

HOBBIES

- Watching
- Dancing
- Playing online games
- Cooking
- Eating

Maurene C. Llado

BS INFORMATION TECHNOLOGY

+639668394936 Bgy. Teresa Narra, Palawan 202080070@psu.palawan.edu.ph

OBJECTIVE

I am a student at Palawan State University, who has an eagerness to develop my skills higher than before. My goals are to create an innovative system that enhance PSU standard and education quality.

EXPERIENCE

- 2021 – 2022 Auditor
  Society of Information Technology Enthusiast (SITE)

EDUCATION

- 2014 – 2017 Princess Urduja Nationa High School
  Junior High
  Bgy. Princess Urduja Narra, Palawan

- 2017 – 2020 Princess Urduja Nationa High School
  Senior High
  Bgy. Princess Urduja Narra, Palawan

SKILLS

- Proficient in using Microsoft Office
- Excellent in verbal and written communication skills
- Attended various seminar and training including ITEZ
- Java Coder

HOBBIES

- Watching
- Coding
- Playing online games

Reodel S. Calilung

BS INFORMATION TECHNOLOGY

+639668307250 Matahimik POB. P.P.C, Palawan 202080027@psu.palawan.edu.ph

OBJECTIVE

I am a student at Palawan State University, and my objective is to disseminate graphics designs ideas for students of Palawan State University in able to have initial skills for the development of PSU media creativeness.

EXPERIENCE

- 2021 – 2022 Media and Creative Head
  Society of Information Technology Enthusiast (SITE)

EDUCATION

- 2014 – 2017 Palawan National High School
  Junior High
  H.Mendoza Street P.P.C, Palawan

- 2017 – 2020 Palawan National High School
  Senior High
  H.Mendoza Street P.P.C, Palawan

SKILLS

- Editor
- Graphics Designer
- Proficient in using Microsoft Office

HOBBIES

- Video and picture editing
- Playing online games
- Cooking

Mark Justine N. Ompad

BS INFORMATION TECHNOLOGY

+639102979955 Bgy. Bacao Dumaran, Palawan 202080084@psu.palawan.edu.ph

OBJECTIVE

I am a student at Palawan State University, and my objective is to improve my photography skills by adapting modern digital ideas.

EXPERIENCE

- 2019 – 2020 DICT Seminar
- 2020 – 2022 Event Photographer

EDUCATION

- 2014 – 2017 Sta. Monica National High School
  Junior High
  Bgy. Sta Monica P.P.C, Palawan

- 2017 – 2020 Sta. Monica National High School
  Junior High
  Bgy. Sta Monica P.P.C, Palawan

SKILLS

- Editor
- Photography
- Proficient in using Microsoft Office

HOBBIES

- Video and picture editing
- Playing online games
- Playing Basketball
- Cooking
- Eating