

# SYSTEM INTEGRATION & ARCHITECTURE

### **PSU – UCC SUPPLY INVENTORY SYSTEM**

College of Computing
Information Technology Department
Pangasinan State University – Urdaneta Campus
SIA 101

Submitted by:

Alapot, James Mark M. Lagnayo, John Bryan V. Rosal, July Anne Rhaemonette A. Villar, Kyra Nicole C.

Submitted to:

Leo Gabriel V. Villanueva, MIT
Instructor / Head, Data Management and Web Administrator

February 10, 2023



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#### **About Tech Tactic**



Helping ventures succeed through the power of technology. Most companies put their values into a manifesto. We put them into action. Now more than ever, we need to foster a mutually beneficial relationship through proven expertise and modern technology.

At Tech Tactic, we always keep it real and secured.

#### **Goals and Objectives**

Our main objective is to act as a link between our customers' end goals and ourselves by offering them software products that are both cost-effective and of the highest quality, giving them a competitive advantage over their rivals.

#### **Mission**

We commit to design, develop, and deliver complex smart solutions on time and on budget using a creative and result-oriented approach.

#### Vision

To be the biggest and best company in the world in combining the best techniques of technology.

#### **PSU-UCC Supply Inventory System**

#### **System Overview**

The PSU - UCC Supply Inventory System with Predictive Analysis focuses on:

- recording, monitoring, and updating supplies and asset availability
- demand forecasting

#### **System Purpose**

The purpose of this project is to convert the existing manual inventory management of PSU to an automated Inventory Management System.

#### **Features and Functionalities**

#### • Super Admin

 Ability to add new user, change login credentials and access restrictions, and remove an existing record of a user.

#### • Supply Office Personnel In-charge

- The personnel should be logged in in the system to access the following:
  - a. Supplier Management
  - b. Item Management
  - c. Transaction Management
  - d. Inventory Management
  - e. Report Generation

#### CED Account

- The employee should be logged in in the system to access the following:
  - a. Request an Item
  - b. Approval of an Item (Non-consumables only)
  - c. View History of Transactions



#### • College Dean Account

- The employee should be logged in in the system to access the following:
  - a. Request an Item
  - b. Approval of an Item (Non-consumables only)
  - c. View History of Transactions

#### • Department Chairman Account

- The employee should be logged in in the system to access the following:
  - a. Request an Item
  - b. Approval of an Item (Non-consumables only)
  - c. Submission of Project Procurement Management Plan (PPMP)
  - d. View History of Transactions

#### • Head of Non-teaching Employees Account

- The employee should be logged in in the system to access the following:
  - a. Request an Item
  - b. Approval of an Item (Non-consumables only)
  - c. View History of Transactions

#### • Teaching and/or Non-teaching Employee Account

- The employee should be logged in in the system to access the following:
  - d. Request an Item
  - e. View Status of Requested Item/s
  - f. View History of Transactions

#### **Technical Requirements**







#### EUFROCINA L. ABBRUZZESE

27 October 2022

Supply Officer 1 Pangasinan State University – Urdaneta City Campus

# INVENTORY SYSTEM WITH PREDICTIVE ANALYSIS FOR PANGASINAN STATE UNIVERSITY – URDANETA CITY CAMPUS (PSU – UCC)

#### SOFTWARE DEVELOPMENT AGREEMENT

#### **Duties and Responsibilities.**

Tech Tactic shall serve as a contractor of Client and shall design, develop, and implement applications software (the "Supply Inventory System with Predictive Analysis for PSU-UCC") according to the functional specifications and related information. Tech Tactic acknowledge that it has been contracted for this specific task, and that it shall report all findings and make all recommendations directly to the management of Client. The Software, including all versions in either source code or object code form, shall be delivered to Client not later than February 1, 2023.

#### Ownership of Structure.

Tech Tactic agree that the development of the Software is "work made for hire" within the meaning of the DOLE's Department Order No. 174, as amended, and that the Software shall be the sole property of Client. Upon request, Tech Tactic will sign all applications, assignments, instruments, and papers and perform all acts necessary or desired by Client to assign the Software fully and completely to Client and to enable Client, its successors, assigns and nominees, to secure and enjoy the full and exclusive benefits and advantages thereof.

#### Compensation.

Client shall pay Tech Tactic six-hundred-thousand pesos only (Php 600,000) through a check. Subject to Client's prior approval, Client will reimburse Tech Tactic for all reasonable outof-pocket expenses, including, but not limited to, office rentals, Internet subscription, meals and rental of automobiles incurred by Tech Tactic during the development of the Software on behalf of Client.

#### **Independent Contractor.**

Tech Tactic is acting as an independent contractor with respect to the services provided to Client. Neither Tech Tactic nor the employees of the Tech Tactic performing services for Client will be considered employees or agents of Client. Client will not be responsible for Tech Tactic's acts or the acts of Tech Tactic's employees while performing services under this Agreement. Nothing contained in this Agreement shall be construed to imply a joint venture, partnership, or principal-agent relationship between the parties, and neither party by virtue of this Agreement shall have any right, power, or authority to act or create any obligation, express or implied, on behalf of the other party.

#### **Development Staff Monitoring.**

Tech Tactic will utilize employees and/or contractors capable of designing and implementing the Software to be developed hereunder. All work shall be performed in a professional and workmanlike manner. Tech Tactic shall arrange for such employees and/or contractors, if any, to execute and deliver any document or instrument reasonably requested by Client to reflect Client's ownership of the Software or in connection with any application for patent or copyright.



#### Change in Specifications.

Client may, in its sole discretion, request that changes be made to the Specifications, or other aspects of the Agreement and tasks associated with this Agreement. If Client requests such a change, Tech Tactic will use its best efforts to implement the requested change at the client's expense to Client and without delaying delivery of the Software. In the event that the proposed change will, in the reasonable opinion of Tech Tactic, require a delay in delivery of the Software or would result in additional expense to Client, then Client and Tech Tactic shall confer, and Client shall, in its discretion, elect either to withdraw its proposed change or require Tech Tactic to deliver the Software with the proposed change and subject to the delay and/or additional expense.

#### Confidentiality.

Tech Tactic acknowledges that all material and information supplied by Buyer which has or will come into Tech Tactic's possession or knowledge of Tech Tactic in connection with its performance hereunder, is to be considered Client's confidential and proprietary information (the "Confidential Information"). By way of illustration, but not as a limitation, Confidential Information includes the Software, trade secrets, processes, data, knowhow, program codes, documentation, flowcharts, algorithms, marketing plans, forecasts, unpublished financial statements, budgets, licenses, prices, costs, and employee and customer lists. Tech Tactic acknowledges that Confidential Information is the sole property of Client. Tech Tactic agrees that disclosure of such information to, or use by, third parties, either during or after this Agreement, will cause Buyer irreparable damage. Tech Tactic acknowledges that Buyer's purpose in pursuing the development of the Software is to gain a significant competitive advantage over competitors operating without such Software and that such advantage will be jeopardized if such competitors learn of Client's negotiations with Tech Tactic or the performance by Tech Tactic of its obligations hereunder. Accordingly, Tech Tactic agrees to keep such negotiations and performance of its obligations hereunder strictly confidential and not to disclose any information to any third party or entity without the prior written permission of Client. In no event, shall Tech Tactic or any of its employees use Client as a reference in marketing Tech Tactic's services to any third party or entity without Client's prior written permission.

#### Training.

Tech Tactic shall deliver a detailed user's manual to Client on or before completion of acceptance that will enable Client's employees who are otherwise unfamiliar with the Software to become adequately informed about using the software. All training that Tech Tactic is required to provide hereunder shall be performed at such locations and at such times as are mutually agreed to by the parties hereto. Upon the expiration of the Training Period and following Client's request, Tech Tactic will provide any support services necessary to ensure Client's continued use of the Software. Such services will be performed on a time and material basis at Tech Tactic's then current hourly rates for such services.

#### Warranties.

Tech Tactic warrants that for a period of three (3) years following acceptance, the Software will operate substantially according to the Specifications.

Tech Tactic warrants that the Software will not infringe upon any copyright, patent, trade secret or other intellectual property interest of any third party. Client will indemnify and hold Client harmless from and against all such infringement claims, losses, suits, and damages including, but not limited to, attorney's fees and costs, and shall promptly following any bonafide claim of infringement correct the Software so as not to be infringing, or secure at its own expense the right of Client to use the Software without infringement.



#### **Brief Background of the Study**

Pangasinan State University – Urdaneta City Campus have hundreds, if not thousands, of assets. Including I.T. hardware, classroom furniture, teaching aids, and books. As well as consumables like stationery and cleaning equipment. Meanwhile, the university campus' supply office processes follow an existing traditional way of using spreadsheets or pen-and-paper to manage their inventory. Hence, there is a need to convert the existing manual inventory management of PSU to an automated Inventory Management System. The proponents of this study aimed to develop a web-based system of managing inventory in a university setting to purposefully provide easier but secure access of various departments of the status of their consumable and nonconsumable items.

Having a digital inventory system gives a bird's eye view of all your equipment, resources, and infrastructure. It allows the personnel in-charge to utilize assets properly and provide accurate reporting capabilities. Thus, the abovementioned system would be beneficial in the university's asset management.

#### **Scope and Delimitation**

The proposed system is a web-based system which aimed to digitalize the paper-based processes of requesting supplies of the faculty members and staff such as the Requisition and Issue Slip (RIS) and Property Acknowledgment Receipt (PAR).

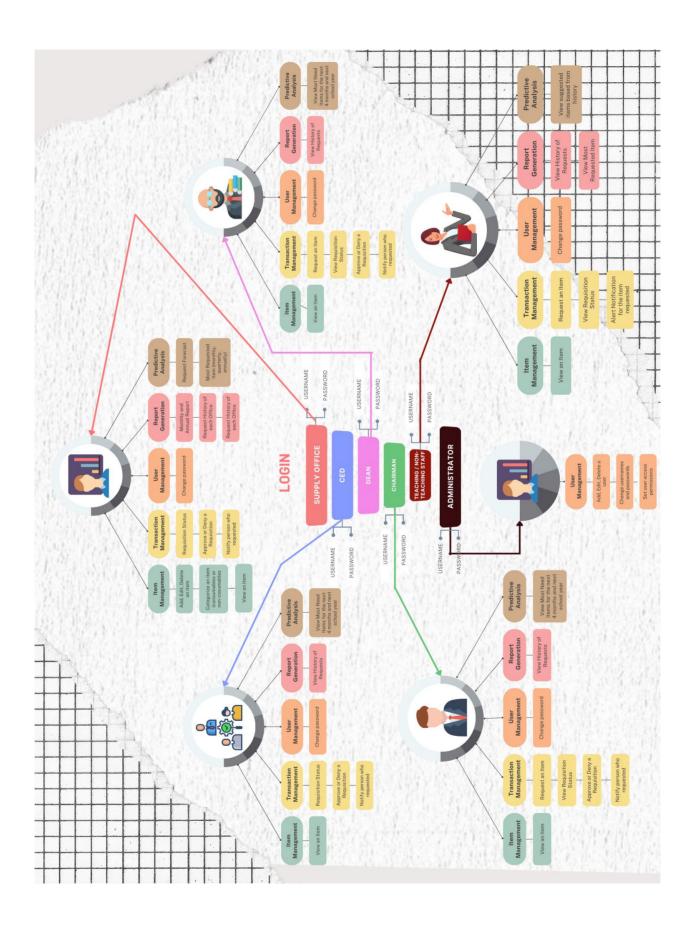
The digitalization of paper-and-pen request of supplies features the ability of teaching and non-teaching staffs to submit their requests through sending it directly to the supply office without going to the office to fill-up a form. With this process, it allows the employees to have access to the system at any time, from anywhere. Further, the monitoring of the request will save time unlike with the manual process that the employees need to visit the supply office to ask for updates. Moreover, the Chairmen of various departments could generate their Project Procurement Management Plan (PPMP) in the system and is not accessible to the teaching and non-teaching staff. The proposed system also covers sending notifications and creating logs for the successful and rejected requests of each employee.

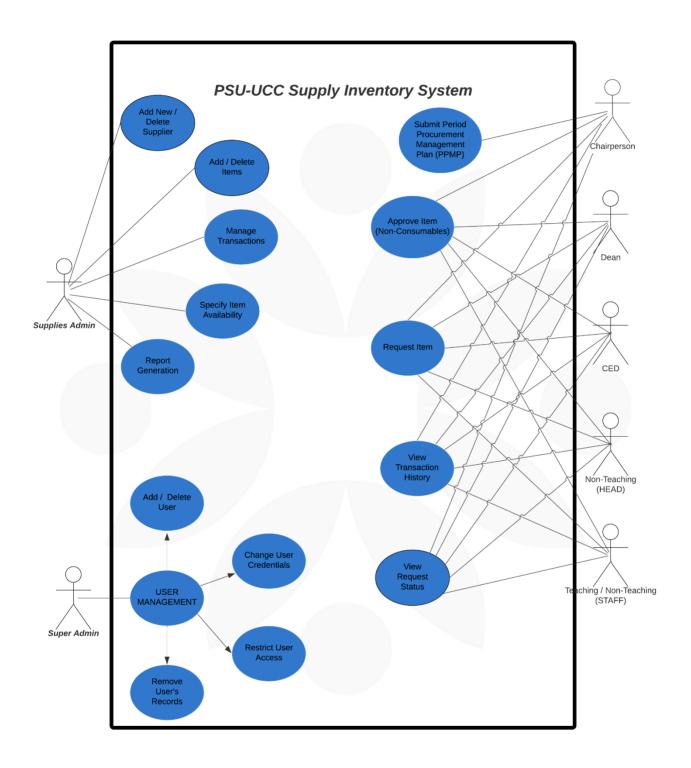
Another feature offered by the digitalization of supply inventory system would be the management of supplies as well as the suppliers by the personnel in-charge in the supply office. The system enables the personnel in-charge to add, edit, and delete available supplies. Additionally, graphical illustrations are also integrated to forecast and analyze the university's assets as well as those that are out of action and those that need updating or servicing. Having access to this data can impact future decision-making in terms of what equipment is needed. As well as what needs to be replaced.

Lastly, the proposed system also has a super admin which manages the users and to ensure security of sensitive information and process within the system. The super admin has the ability to add a new user, change details of a user, and delete an existing account.



# **Info Graphics**





#### **Data Flow Diagram**

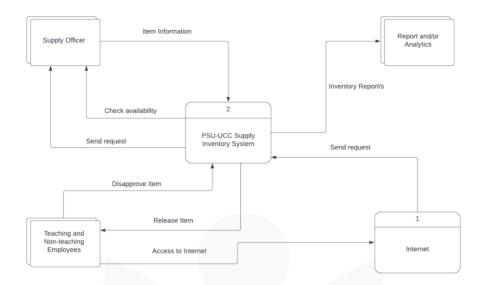


DIAGRAM 0. Context Diagram

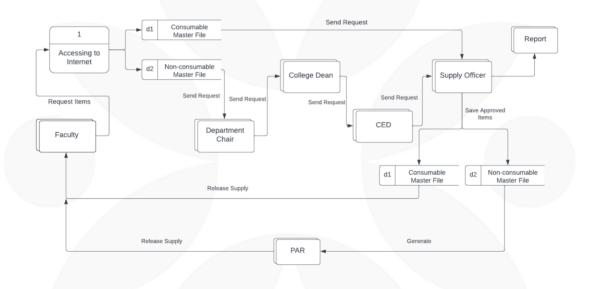


DIAGRAM 1. Faculty Request DFD

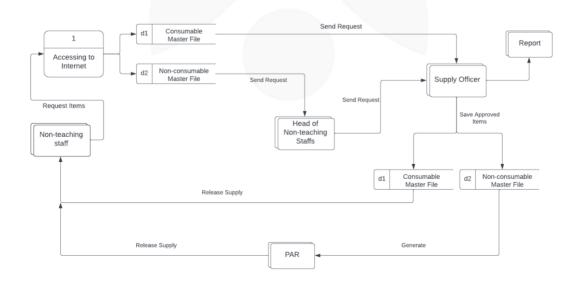


DIAGRAM 2. Non-teaching Staff Request DFD



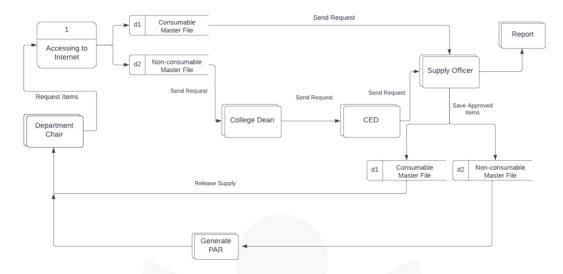


DIAGRAM 3. Department Chair Request DFD

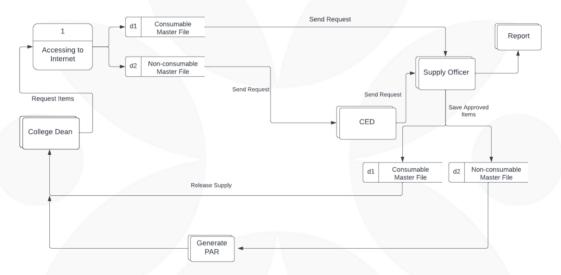


DIAGRAM 4. College Dean Request DFD

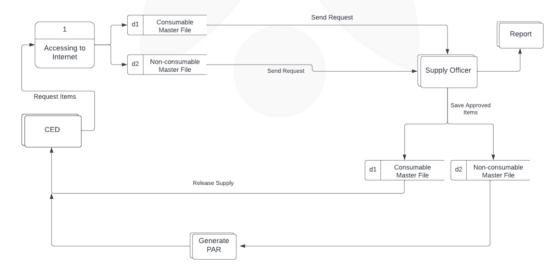


DIAGRAM 5. CED Request DFD



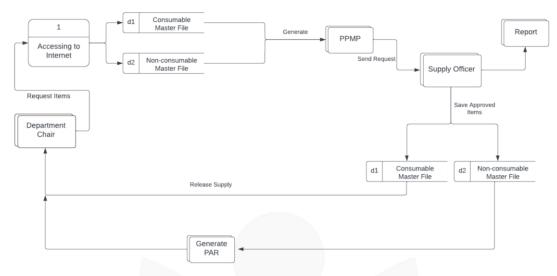


DIAGRAM 6. Department Chair PPMP DFD

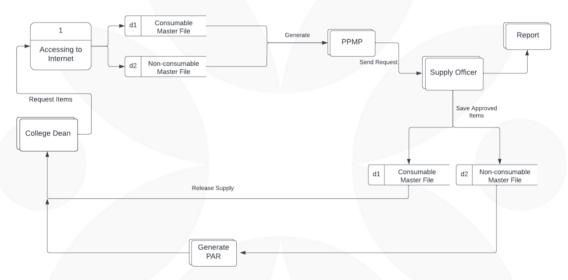


DIAGRAM 7. College Dean PPMP DFD

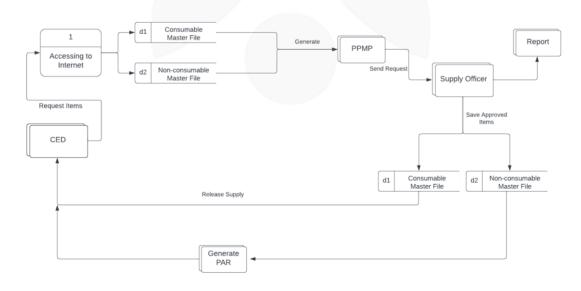


DIAGRAM 8. CED PPMP DFD



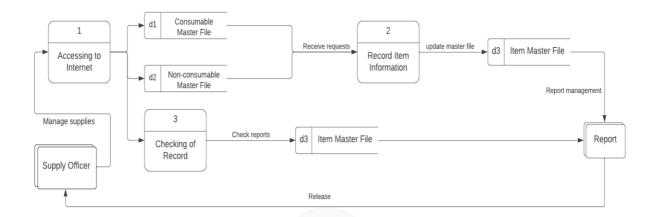


DIAGRAM 9. SUPPLY OFFICE DFD



#### **Screenshot of Main Modules with Description**



Plate 1. Login Page

Plate 1 shows the login page of the proposed system. The user should be able to input his given username and password in order to access the system.

#### TEACHING AND NON-TEACHING EMPLOYEE PANE

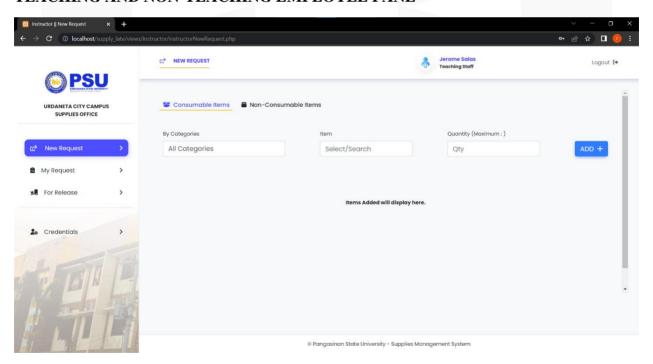


Plate 2. Request Item Page

The plate above presents the module in which the teaching and non-teaching staff could request an item (either consumables or non-consumables). Additionally, item quantity is also required in placing a request.

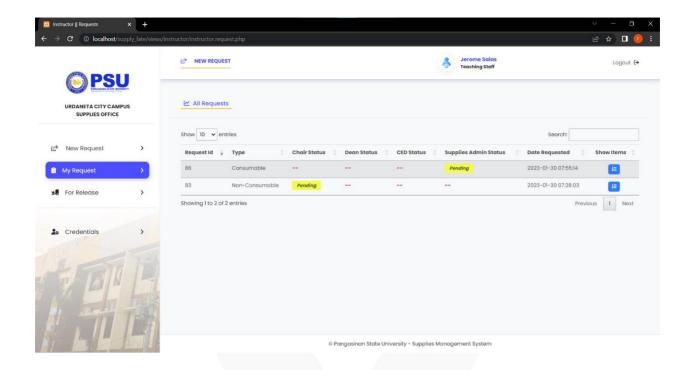


Plate 3. Transaction Page

Plate 3 shows the transaction age. The requests vary; when the item requested is consumable, the request will be directed to the supply office but if the requested item falls under non-consumable, the request follows approvals from the department chair, college dean, and campus executive director for teaching employees while for non-teaching employees, the head of the non-teaching employees will be the one to approve before it will be forwarded to the supply office.

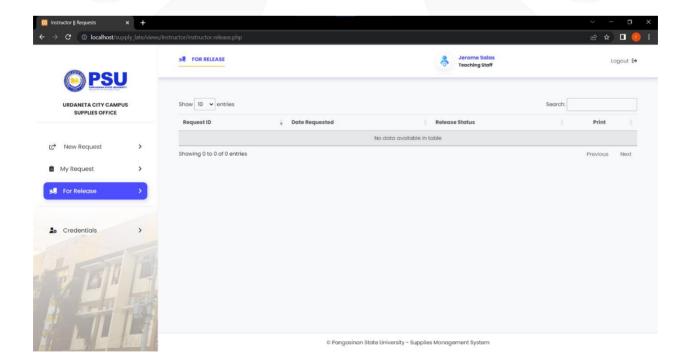


Plate 4. Release Status Page

As presented in the plate above, a tab is provided in order to view the history of released items. In this way, the employee could track his successfully requested items.



#### DEPARTMENT CHAIRMAN, COLLEGE DEAN, AND CED PANE

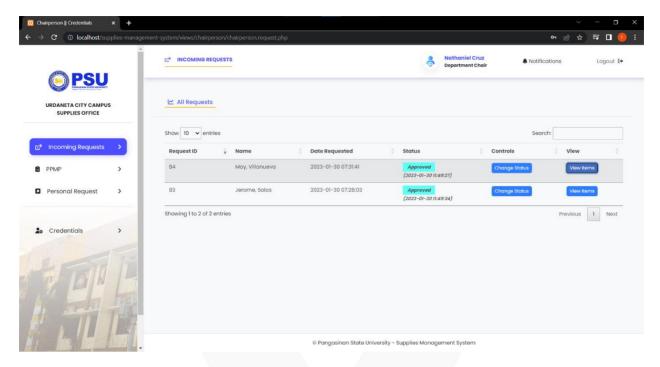


Plate 5. Approval of Non-consumable Items

Plate 5 presents list of non-consumable items requested by the instructors. As mentioned from Plate 3, non-consumable items must be approved by the department chair, college dean, and the CED before the request will be forwarded to the supply office.

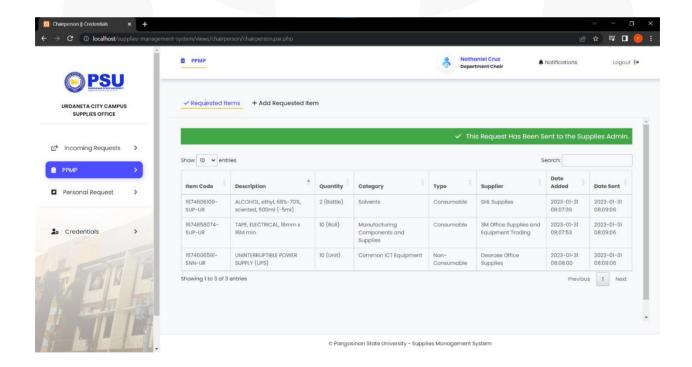


Plate 6. Project Procurement Management Plan Page

As shown in the plate above, a tab is provided for the PPMP which utilizes the items needed in the present academic year. This is submitted by the department chair, college dean, and the CED into the supply office once a year so, if the department chair already has submitted one, then, additional won't be possible.

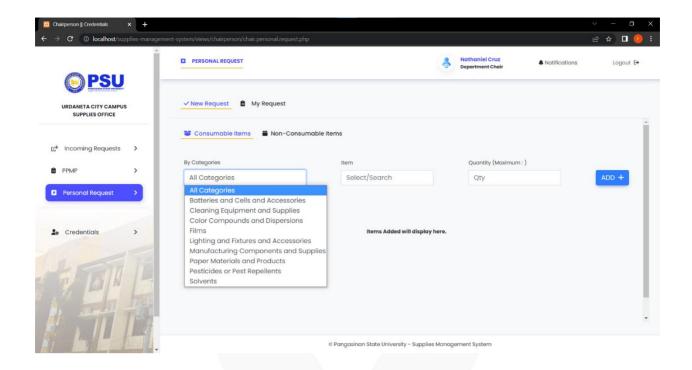


Plate 7. Department Chair, College Dean, and CED Request Page

Plate 7 shows the module in which the department chair, college dean, and the CED could request an item (either consumables or non-consumables). Additionally, item quantity is also required in placing a request.

#### SUPPLY OFFICER PANE

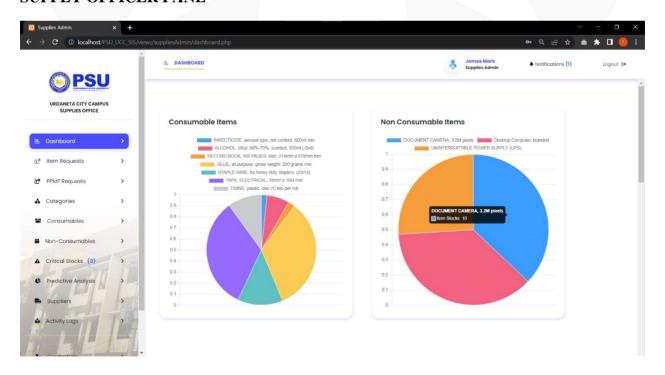


Plate 8. Supply Officer Dashboard Page

Plate 8 presents the dashboard of the supply officer account. It displays data representations using charts in order to visualize the status of the availability of items as well as in determining the most requested items.



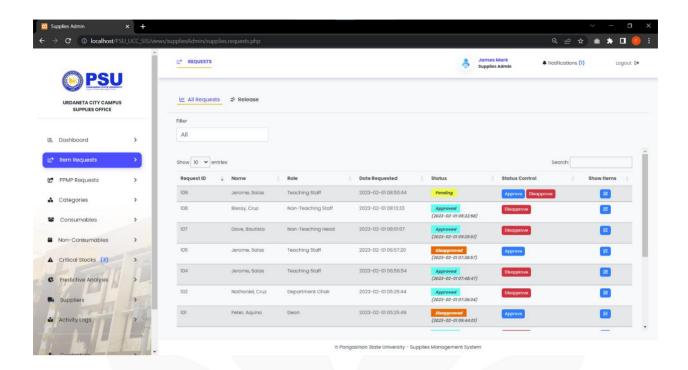


Plate 9. List of Requested Items Page

The plate above displays the list of requested items by various employees. It also shows the status of requests wherein the request may be approved, disapproved, or pending.

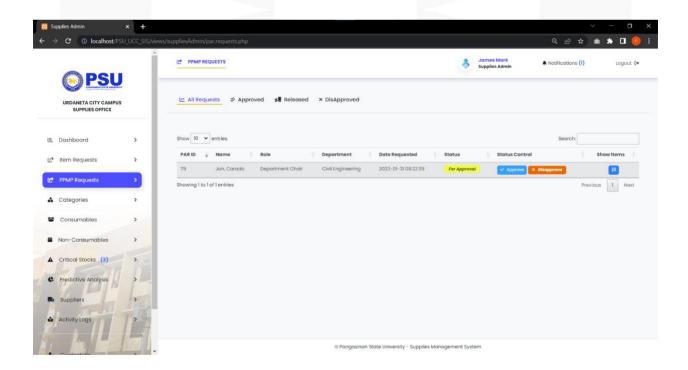


Plate 10. Submitted PPMPs Page

Once the department chair, college dean, or the CED submitted a PPMP, the supply office will now consolidate and prepare it for release such that of the plate shown above.

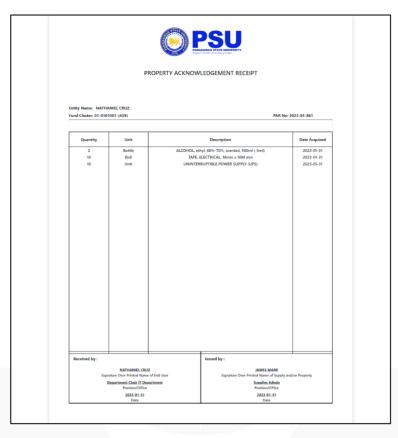


Plate 11. PAR Generation Page

When the requested items listed in the PPMP are ready for release, the supply officer will now easily generate the Property Acknowledgement Receipt (PAR) to the rightful owner of the items.

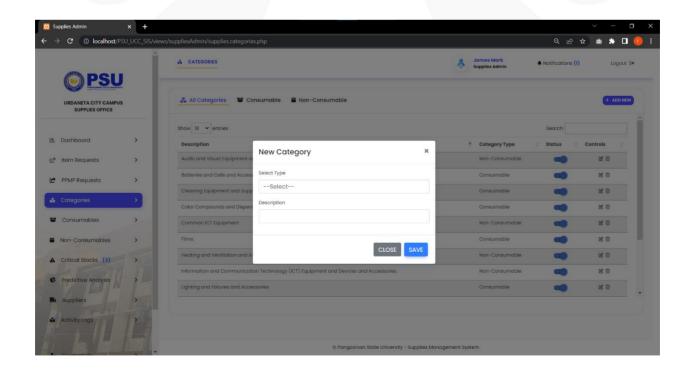


Plate 12. Item Category Management Page

Plate 12 presents the list of item categories which can be managed by the supply officer. The personnel in-charge could add, edit, and delete categories.



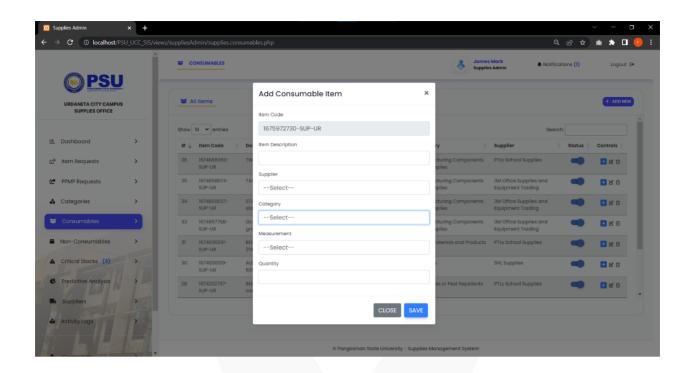


Plate 13. Consumable and Non-consumable Items Management Page

As displayed in the plate above, the supply officer could add consumable and non-consumable items. In adding an item, a predefined item code is already generated. The personnel in-charge could also update the availability of items.

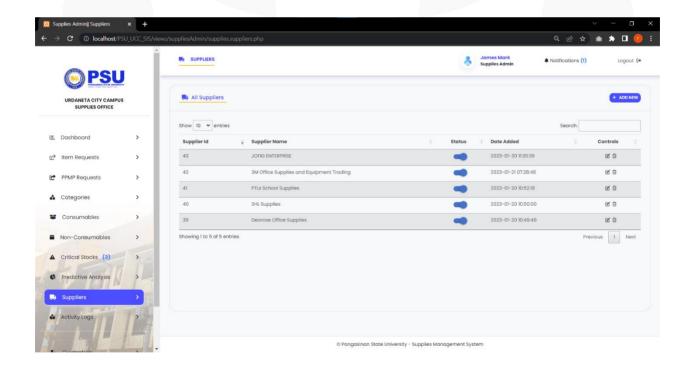


Plate 15. Supplier Management Page

As suggested from the previous presentation, a supplier management page is advisable. Thus, the supply officer will be able to determine the suppliers of each item.

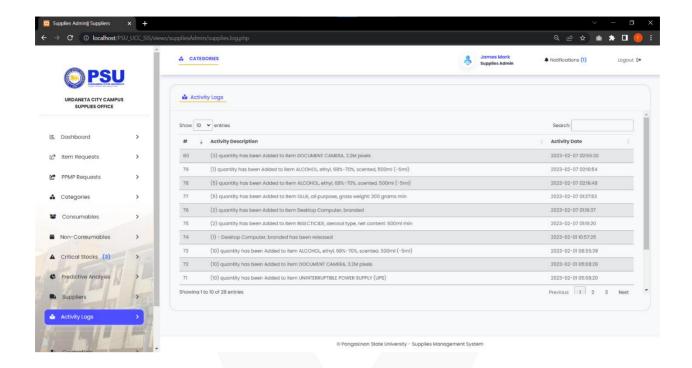


Plate 16. Logs Page

Plate 16 presents logs of activities and transactions made by the personnel in-charge in the supply office. With this, there will be tracking of in and out of items as well as manage daily records and details to get a better look of how the supply office is going.

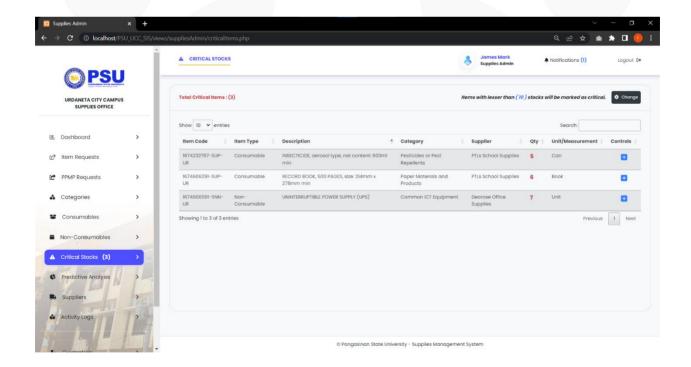


Plate 17. Critical Stocks Page

Plate 17 presents a list of item in the inventory which are nearly out of stock. It shows details about the items, most specifically, the remaining quantities.



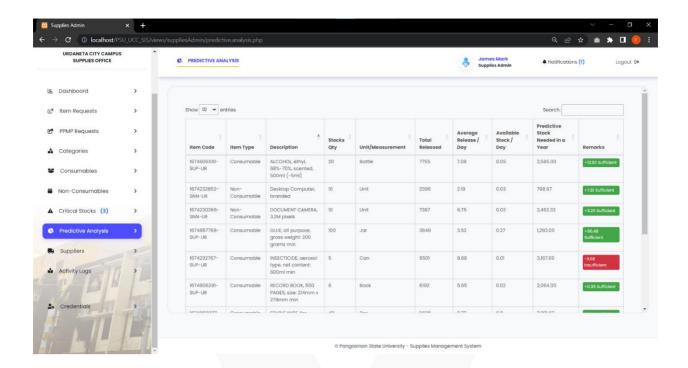


Plate 18. Predictive Analysis Page

Plate 17 displays the reports and/or analytics page of the system. It shows a table as data representation to conveniently visualize the most released items in which the supply officer could be able to get insights into the preparation of supplies in the succeeding academic years.

#### **SUPER ADMIN PANE**

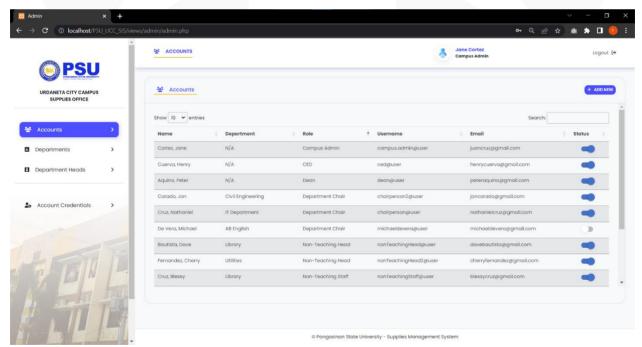
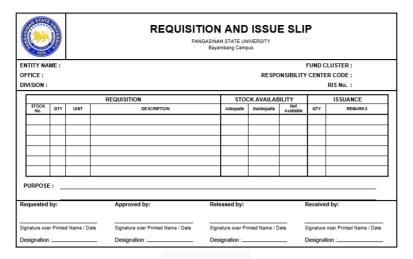


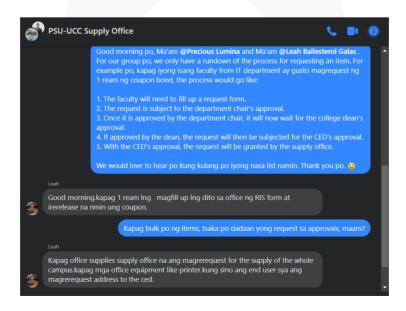
Plate 19. Accounts Management Page

Plate 19 shows the actions that could be made by the personnel in-charge in managing the accounts of users as well as adding new departments and assigning new department heads from the list of added user accounts.

#### **Proof of Study Conducted from Client**







# **Evaluation Report**

# Criteria and Rating

Aspect	Details	Weight	Grade
A. QUALITY OF CONTENT	Details	30 points	Grade
1. AUTHORITY	Identified the target market and its segmentation	30 points	
	Contact information should be clearly provided: e-mail address, snail mail address, phone number, social media account links		
	Clearly explained the purpose of the endterm requirement and properly communicating with the owner with regards to data gathering		
	Provided all the documents required before starting the development such as letter of request to conduct the study		
2. PURPOSE	Does the content support the purpose of the site?		
	Are the admin side information/content management helpful to target users?		
	Is the site organized and focused?  Are the outside links appropriate for the site?(social media links)		
3. COVERAGE	Does the site claim to be selective or comprehensive?		
	Are all the menus / sections present in the site?		
	Do the links go to outside sites rather than its own?		
	Does the site provide information with no relevant outside links?		
4. OBJECTIVITY	Links are up-to-date		
	Links provided should be reliable. Dead links or references to sites that have moved are not useful.		
	Does the site meet the main objective of the development?		
5. ACCURACY	Does the content meet all the requirements based from data gathering?		
B. PERFORMANCE, FORM A	ND LAY-OUT	50 points	1
6. Mechanics	Proper grammar, correct spelling and punctuation for all the content.		
7. Lay-out	Design and organization of the site. If branding is properly followed based from clients requirements.		
8. Performance	Does site load faster?  Does site responsive to all devices and		
9. Style	platform?  Does site format and styling consistent to		
o. o.,io	all pages?  Text/ Content is easy to understand/ readable		



C. PRESENTATION		20 points
10. Delivery	Presenter was able to present/discuss the site	
11. Visual aids	Visual aids (digital, model, sample) are appropriate, well prepared and clear	
12. Knowledge/ Mastery	Presenter is able to correctly answer questions confidently	
13. Evidence of preparation	No awkward pauses or confusion from the presenter	
	GRADE	<u>.                                      </u>



#### JULY ANNE RHAEMONETTE ALMOITE ROSAL

#221 Sitio Papallasen, Brgy. Amagbagan, Pozorrubio, Pangasinan

Email: jrosal\_19ur0206@gmail.com

Phone: +63 945 755 2819



Age : 22 years old Sex : Female Birthdate : July 14, 2000

Civil Status : Single

Religion : Roman Catholic

Height : 163 cm Weight : 40 kg Nationality : Filipino

Parents : Mr. & Mrs. Amadito V. Rosal

#### EDUCATIONAL BACKGROUND

TERTIARY Pangasinan State University

**Urdaneta City Campus** 

San Vicente East, Urdaneta City, Pangasinan

2019-2023

SENIOR HIGH SCHOOL Pangasinan State University

**Urdaneta City Campus** 

San Vicente East, Urdaneta City, Pangasinan

2016-2018

JUNIOR HIGH SCHOOL Benigno V. Aldana National High School

Cablong, Pozorrubio, Pangasinan

2012-2016

PRIMARY Mary Help of Christians Learning Center

Sison St., Pozorrubio, Pangasinan

#### JAMES MARK MIANO ALAPOT

Santo Domingo, Urdaneta, City Pangasinan

Email: jm.alapot0008@gmail.com

Phone: +63 995 793 8145



Sex : Male

Birthdate : September 8, 1999

Civil Status : Single
Religion : Christian
Height : 181 cm
Weight : 58 kg
Nationality : Filipino

Parents : Mr. & Mrs. Candido S. Alapot Jr.

#### **EDUCATIONAL BACKGROUND**

TERTIARY Pangasinan State University

**Urdaneta City Campus** 

San Vicente East, Urdaneta City, Pangasinan

2015-2023

SECONDARY Urdaneta City National Highschool

Urdaneta City, Pangasinan

2011-2015

PRIMARY Calasiao Central School

Calasiao, Pangasinan



#### JOHN BRYAN VILLENA LAGNAYO

#98 Calle Garcia Poblacion, Urdaneta City, Pangasinan

Email: bryanlagnayo911@gmail.com

Phone: +63 969 223 9067



Age : 22 years old

Sex : Male

Birthdate : April 18, 2000

Civil Status : Single
Religion : Christian
Height : 165 cm
Weight : 65 kg
Nationality : Filipino

Parents : Mr. & Mrs. Brando S. Lagnayo

#### EDUCATIONAL BACKGROUND

TERTIARY Pangasinan State University

**Urdaneta City Campus** 

San Vicente East, Urdaneta City, Pangasinan

2018-2023

SENIOR HIGH SCHOOL Urdaneta City National High School

Urdaneta City, Pangasinan

2016-2018

JUNIOR HIGH SCHOOL Urdaneta City National High School

Urdaneta City, Pangasinan

2012-2016

PRIMARY Urdaneta I Central School

Urdaneta City, Pangasinan

#### KYRA NICOLE CARIAGA VILLAR

Uminga, Pangasinan

Email: nicxxvillar@gmail.com Phone: +63 951 119 2904



Age : 21 years old Sex : Female

Birthdate : August 24, 2001

Civil Status : Single

Religion : Roman Catholic

Height : 152 cm Weight : 45 kg Nationality : Filipino

Guardian : Mrs. Myrna J. Villar

#### **EDUCATIONAL BACKGROUND**

**TERTIARY** Pangasinan State University

**Urdaneta City Campus** 

San Vicente East, Urdaneta City, Pangasinan

2018-2023

SENIOR HIGH SCHOOL Umingan Central National High School

Umingan, Pangasinan

2017-2019

JUNIOR HIGH SCHOOL Quezon Memorial Academy

Umingan, Pangasinan

2013-2017

PRIMARY Umingan Central Elementary School

Umingan, Pangasinan