PAMANTASAN NG LUNGSOD NG MUNTINLUPA

PAMANTASAN NG LUNGSOD NG MUNTINLUPA (PLMun) COMPUTER
LABORATORY MONITORING SYSTEM

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RATIONALE OF THE STUDY

The "Pamantasan ng Lungsod ng Muntinlupa (PLMun) Computer Laboratory Monitoring System" is a comprehensive solution designed to manage and monitor the assets within the university's computer laboratories. This system addresses the need for effective asset management, regular maintenance, and efficient usage tracking in an educational environment. Given the critical role that computer laboratories play in modern education, ensuring their optimal operation and upkeep is crucial. Here's the rationale for this study:

1. Importance of Computer Laboratories in Education
Computer laboratories serve as essential resources for teaching and learning, providing students with the technology and equipment needed to complete coursework, conduct research, and engage in collaborative projects. The availability and condition of items such as computers, chairs, tables, and projectors directly impact the quality of education and student experience.

2. Challenges in Asset Management and Monitoring
PLMun operates six computer laboratories, each containing various assets like air conditioning units, chairs, projectors, carpets, windows, light switches, power sockets, lights, tables, cabinets, whiteboards, and doors. Managing these assets requires accurate tracking, regular maintenance, and quick response to issues. Traditional asset management methods, such as manual record-keeping, are prone to errors, inefficiency, and delays in addressing problems.

3. Need for a Centralized Monitoring System
The PLMun Computer Laboratory Monitoring System provides a centralized platform for tracking the status of assets in real-time. By consolidating data related to item names, time in, time out, quantity, remarks, and the date created, the system ensures comprehensive monitoring. This centralized approach improves coordination among maintenance teams, administrators, and faculty, leading to faster resolution of issues and improved resource allocation.

4. Enhanced Accountability and Transparency
A key benefit of this monitoring system is increased accountability and transparency. By capturing detailed information about asset usage, the system allows administrators to identify patterns, detect anomalies, and take proactive measures to prevent damage or misuse. The inclusion of remarks fields provides additional context, allowing for better documentation of changes and repairs.

5. Improved Efficiency and Resource Allocation

With detailed reports on asset conditions, the system helps streamline maintenance operations and allocate resources more efficiently. By tracking time in and time out, the system can also optimize lab schedules, ensuring that assets are used efficiently and minimizing downtime. This data-driven approach can lead to cost savings and better utilization of university resources.

6. Contribution to Sustainable Practices

The monitoring system contributes to sustainability by promoting responsible use of assets and energy. For instance, tracking the usage of lights, air conditioning, and other energy-consuming equipment can help reduce unnecessary consumption, lowering the university's carbon footprint.

The "Pamantasan ng Lungsod ng Muntinlupa (PLMun) Computer Laboratory Monitoring System" is a critical tool for the effective management and monitoring of computer laboratories. It addresses the challenges of asset tracking and maintenance, improves accountability and transparency, and contributes to efficient resource allocation and sustainability. This study aims to demonstrate the system's effectiveness in enhancing the operation and maintenance of computer laboratories, ultimately leading to an improved educational experience for students and faculty at PLMun.

STATEMENT OF THE PROBLEM

The Pamantasan ng Lungsod ng Muntinlupa (PLMun) operates six computer laboratories that are crucial to providing a comprehensive educational experience for students. These laboratories contain various assets, including air conditioners, chairs, projectors, carpets, windows, light switches, power sockets, lights, tables, cabinets, whiteboards, and doors. Proper management and maintenance of these assets are essential for ensuring the laboratories are fully functional, safe, and conducive to learning.

However, the current system for monitoring these assets has several problems:

1. **Inefficient Asset Tracking:** The existing method for tracking laboratory assets is manual and decentralized, leading to inaccuracies, data loss, and difficulty in maintaining up-to-date records. This can result in delayed repairs, misplacement of items, and a lack of accountability for asset use.

2. **Lack of Real-Time Monitoring:** Without a real-time monitoring system, it is challenging to track the current status of assets. This lack of visibility hampers quick response to issues such as equipment breakdowns, maintenance needs, or unauthorized usage.
3. **Inconsistent Maintenance Schedules:** Maintenance and repair schedules are not well-organized, leading to uneven wear and tear on assets and increasing the risk of equipment failure during critical periods, such as exams or special events.
4. **Limited Transparency and Accountability:** The absence of a centralized system makes it difficult to maintain transparency in how assets are used, who uses them, and what changes are made. This can lead to discrepancies in inventory and complicate accountability when items are damaged or lost.
5. **Suboptimal Resource Allocation:** Due to the lack of comprehensive data, university administrators struggle to allocate resources efficiently for asset maintenance, replacement, or upgrades. This can result in either overuse or underuse of resources, impacting the overall efficiency of the computer laboratories.
6. **Environmental Impact and Sustainability Concerns:** The manual tracking system does not allow for effective monitoring of energy consumption and other sustainability-related factors. Without this information, it's challenging to implement energy-saving practices in the laboratories.

Given these problems, there's a clear need for a comprehensive computer laboratory monitoring system at PLMun. The system should provide efficient asset tracking, real-time monitoring, consistent maintenance schedules, enhanced transparency and accountability, optimized resource allocation, and support for sustainability initiatives. Addressing these issues will improve the overall efficiency and functionality of the computer laboratories, ensuring a better learning environment for students and faculty.

OBJECTIVE OF THE STUDY

General Objective:

The main objective of this project is to develop a Pamantasan ng Lungsod ng Muntinlupa (PLMun) Computer Laboratory Monitoring System.

Specific Objective:

1. To design a Pamantasan ng Lungsod ng Muntinlupa (PLMun) Computer Laboratory Monitoring System with the following features:

   a. **Comprehensive Asset Tracking:** Implement a centralized system to track all assets in the computer laboratories, including air conditioners, chairs, projectors, carpets, windows, light switches, power sockets, lights, tables, cabinets, whiteboards, and doors. This system should capture detailed information such as item names, time in, time out, quantity, and date created.

   b. **Real-Time Monitoring:** Develop a real-time monitoring capability that allows laboratory staff and administrators to see when assets require maintenance, are used inappropriately, or show signs of wear and tear. This feature should help reduce response times to critical issues.

   c. **Secure Access and User Roles:** Include secure user authentication and role-based access control to ensure that only authorized personnel can access sensitive information or make changes to the system. This feature should improve security and accountability within the laboratory monitoring process.

   d. **User-Friendly Interface and Integration:** Create an intuitive and user-friendly interface for the monitoring system to ensure easy adoption by laboratory staff, students, and administrators. The system should also be designed for integration with existing university systems, allowing for seamless data exchange and improved workflow efficiency.

2. To construct the system as designed.
3. To test and improve the system.

SCOPE AND LIMITATIONS

Scope

The proposed project entitled "Pamantasan ng Lungsod ng Muntinlupa (PLMun) Computer Laboratory Monitoring System" aims to provide a comprehensive solution for managing and monitoring the assets within the university's computer laboratories. The system focuses on tracking various laboratory items, including air conditioners, chairs, projectors, carpets, windows, light switches, power sockets, lights, tables, cabinets, whiteboards, and doors. It is designed to offer a centralized approach to asset management, allowing for efficient tracking of item status, usage, maintenance, and repair activities.

This computer laboratory monitoring system provides a centralized platform to record and manage essential information, including item names, time in, time out, quantity, remarks, and the date of report creation. By leveraging these features, the system reduces the manual effort required for asset management, facilitates real-time monitoring, and supports consistent maintenance scheduling. This approach helps PLMun's administrators and laboratory staff maintain a well-organized and efficient environment, leading to an enhanced learning experience for students.

The proposed system is intended to run on computers and laptops that support Windows 7, Windows 8, Windows 8.1, Windows 10 and above. This compatibility ensures that the system can be easily integrated into the university's existing infrastructure without requiring significant hardware upgrades. The user-friendly interface and secure access controls make the system accessible to a wide range of users while maintaining the necessary security and data protection standards.

Limitations

Despite its numerous benefits, the "Pamantasan ng Lungsod ng Muntinlupa (PLMun) Computer Laboratory Monitoring System" has certain limitations that may affect its functionality and scalability. First and foremost, the system relies heavily on manual input for data such as time in, time out, and item conditions. This dependency on human input can lead to errors, inconsistencies, and potential discrepancies, especially when users are not trained adequately or fail to follow proper procedures. This limitation may impact the system's accuracy and the reliability of the data it generates.

Another limitation is the system's dependency on stable hardware and software environments. The monitoring system is built using Visual Studio C# Windows Forms, which requires compatibility with specific Windows operating systems. Although it is designed to work with Windows 7, 8, and 10, users with older or less common hardware configurations may encounter issues. Additionally, reliance on local hardware infrastructure increases the risk of data loss due to system failures, hardware malfunctions, or software corruption, posing a challenge to long-term data integrity and system reliability.

Finally, the system is designed exclusively for use within the Pamantasan ng Lungsod ng Muntinlupa (PLMun) and is not intended for broader distribution or deployment in other institutions. This limitation means that the system is tailored to meet the specific needs of PLMun's computer laboratories, with no guarantees of compatibility or adaptability to other settings. Consequently, any plans for expansion or sharing with other universities would require significant modifications and potentially a new licensing agreement. This focus on PLMun also implies that system updates and support are restricted to this specific context, potentially limiting the system's longevity and scalability.
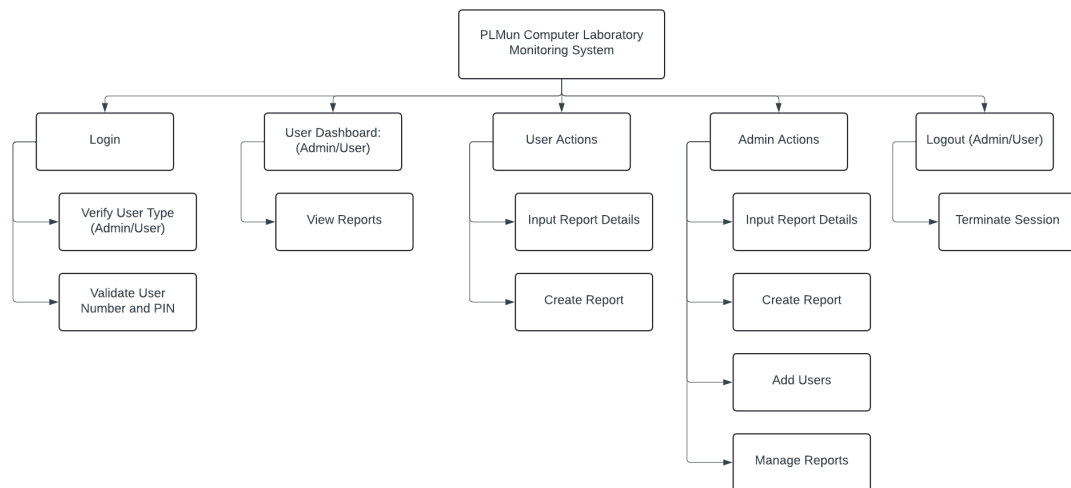
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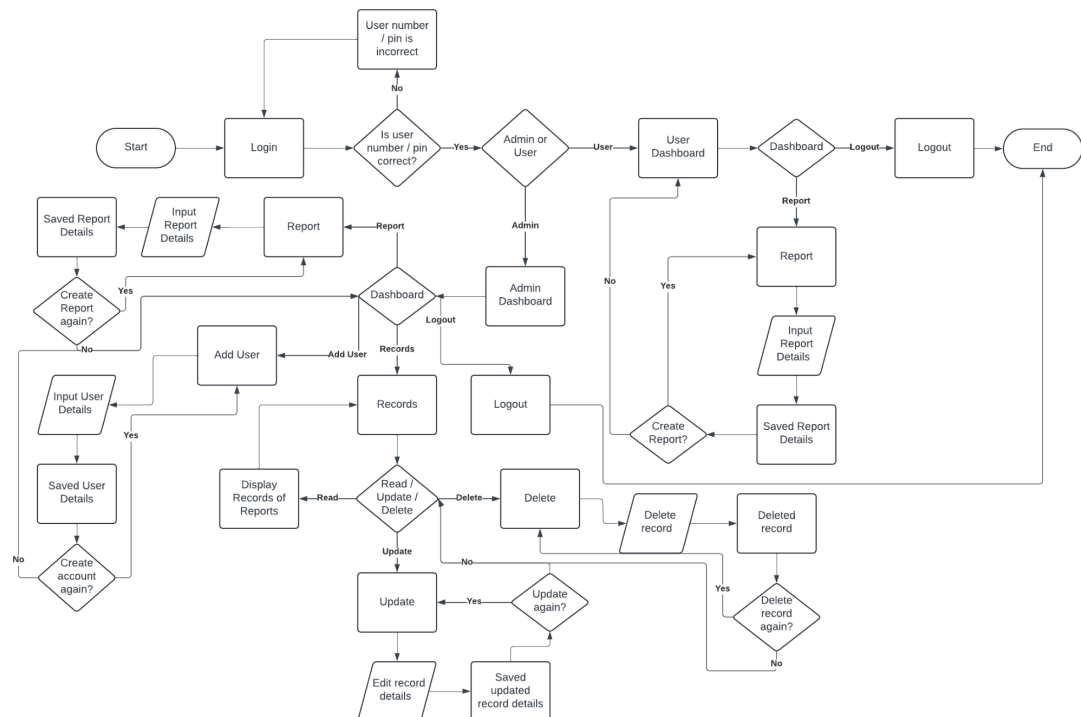
PAMANTASAN NG LUNGSOD NG MUNTINLUPA

        The system has two user types: admin and user. Both can log in using a user number and PIN. Once logged in, both user types can view a dashboard. Users can also input report details and create reports. They can then choose to create another report or logout. Admins have some additional capabilities. They can add users, view records of reports, and delete reports. They can also update or delete user details. The system also allows admins to create accounts and delete user records. Both user types can logout at any time. pen_spark tune share more_vert

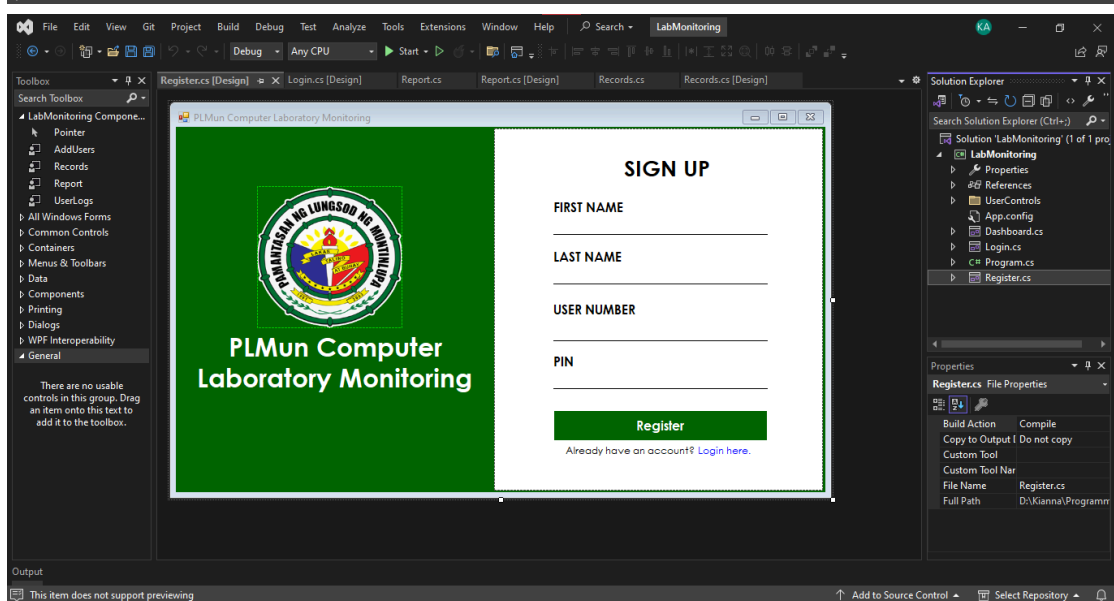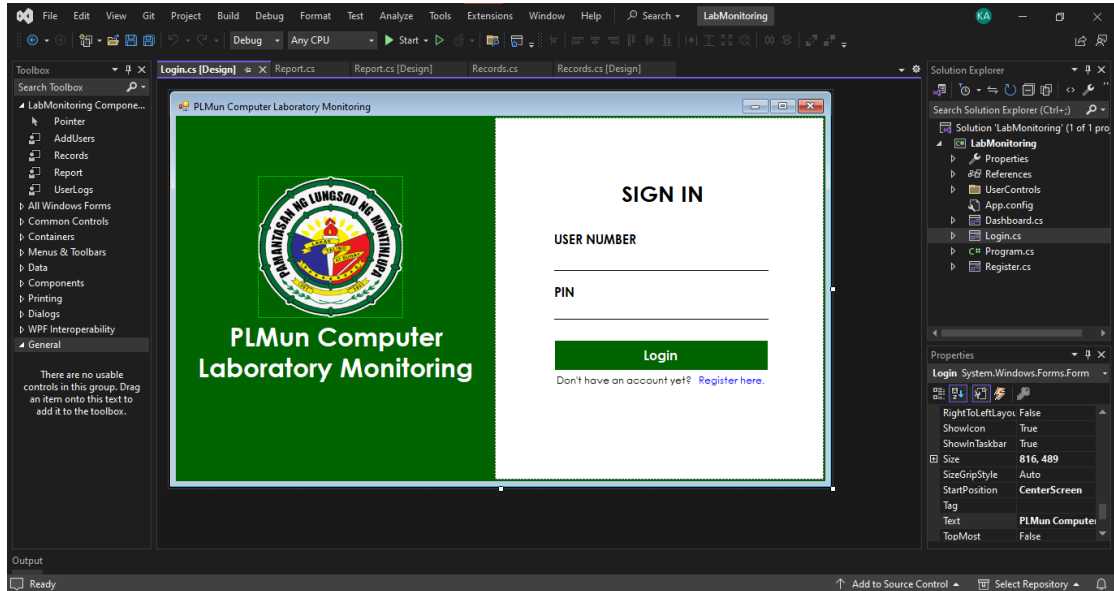## FUNCTIONAL DECOMPOSITION DIAGRAM

        The Diagram above shows how the system tracks user activity through a login system with two user types: admin and user. Both user types can log in using a user number and PIN. Once logged in, both can view a dashboard. Users can view reports and input report details, likely related to their computer lab usage. They can then choose to create another report or logout. Admins have some additional capabilities. They can add users, view reports, and manage reports. Both user types can logout at any time.

PROGRAM LAYOUT

PAMANTASAN NG LUNGSOD NG MUNTINLUPA

PLMun Computer Laboratory Monitoring

PLMun Computer
Laboratory Monitoring

Report

Records

Add Users

User Logs

Logout

User: 1

PLMun Computer Laboratory Monitoring

PLMun Computer
Laboratory Monitoring

Report

Records

Add Users

User Logs

Logout

User: 1

REPORT

User ID	1	Time In	2:02:46 PM
Section		Time Out	2:02:46 PM
Item	Select Item	Quantity	0
Com Lab	Select Computer Laboratory		
Remarks			

SAVE

CANCEL

Search | Computer Laboratory | | SEARCH

ReportID	ComLab	ItemName	TimeIn	TimeOut	Section	Quantity	Remarks	DateCreated

RECORDS

PLMun Computer Laboratory Monitoring

PLMun Computer Laboratory Monitoring

- Report
- Records
- Add Users
- User Logs
- Logout

User: 1

	Report ID		Item	Select Item
	User ID		Time In	2:03:00 PM
	Section		Time Out	2:03:00 PM
	Com Lab	Select Computer Laboratory	Quantity	0

Remarks

Search: Computer Laboratory | SEARCH | RESET | UPDATE | DELETE

ReportID	UserID	FirstName	LastName	ComLab	ItemName	TimeIn	TimeOut	Section	Quantity	Remarks	DateCreated
6	1234	Keisha	Alvarez	Computer Lab...	Power Socket	06:51:06 AM	06:53:06 AM	IT2Z	5	Changed socket	5/3/2024 6:49...
1	1234	Keisha	Alvarez	Computer Lab...	Aircon	05:24:27 AM	05:26:27 AM	IT2S	2	Changed filter	5/3/2024 5:25...

PLMun Computer Laboratory Monitoring

PLMun Computer Laboratory Monitoring

- Report
- Records
- Add Users
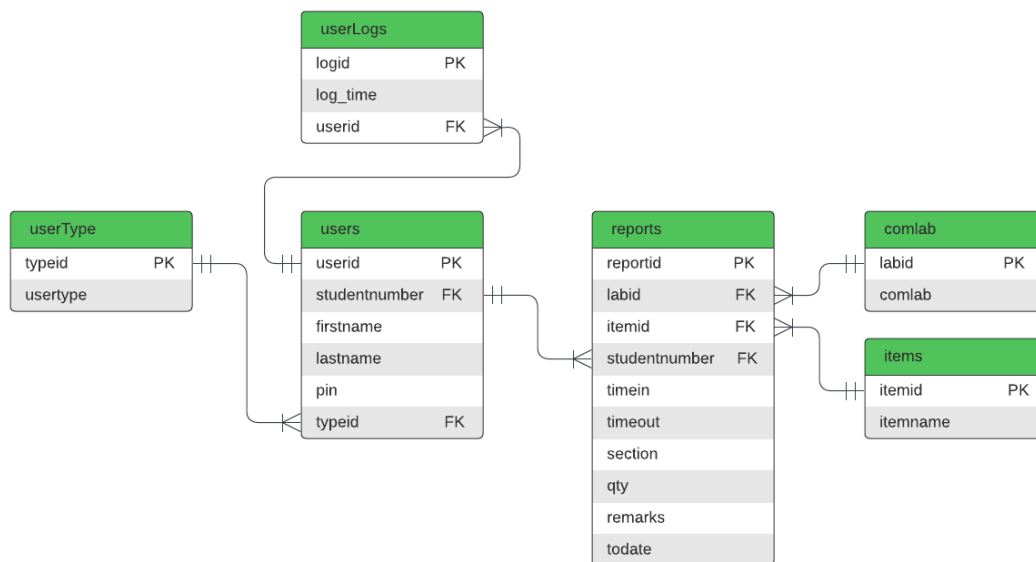- User Logs
- Logout

User: 1

ADD USER

TYPE	Select Type
FIRST NAME	
LAST NAME	
USER NUMBER	
PIN	

CREATE

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ENTITY RELATIONSHIP DIAGRAM

DATA DICTIONARY

Table Name: Users

ATTRIBUTE NAME	REQUIRED	FORMAT	MAX FIELD SIZE
userid	yes	int	11
studentnumber	yes	int	20
firstname	yes	varchar	255
lastname	yes	varchar	255
pin	yes	int	20
typeid	yes	int	11

Table Name: UserType

ATTRIBUTE NAME	REQUIRED	FORMAT	MAX FIELD SIZE
typeid	yes	int	11
userType	yes	varchar	255

Table Name: userlogs

ATTRIBUTE NAME	REQUIRED	FORMAT	MAX FIELD SIZE
logid	yes	int	11
log_time	yes	datetime	
userid	yes	int	11

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Table Name: comlab

ATTRIBUTE NAME	REQUIRED	FORMAT	MAX FIELD SIZE
labid	yes	int	11
comlab	yes	varchar	255

Table Name: items

ATTRIBUTE NAME	REQUIRED	FORMAT	MAX FIELD SIZE
itemid	yes	int	11
itemname	yes	int	255

Table Name: reports

ATTRIBUTE NAME	REQUIRED	FORMAT	MAX FIELD SIZE
reportid	yes	int	11
labid	yes	int	11
itemid	yes	int	11
studentnumber	yes	int	11
timein	yes	varchar	255
timeout	yes	varchar	255
section	yes	varchar	255
qty	yes	int	11
remarks	yes	varchar	500
todate	yes	datetime	