

Development of a Behavioral Monitoring System to Enhance Student and Discipline Management at Pangasinan State University Alaminos City Campus

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ABSTRACT

The effectiveness of student discipline management relies heavily on timely documentation, accurate monitoring, and efficient communication among faculty, guidance personnel, and parents. Pangasinan State University – Alaminos City Campus previously utilized a manual, paper-based system for recording behavioral violations, which led to inconsistent documentation, delayed interventions, difficulty in retrieving historical records, and limited parental involvement. This study presents the development of a Behavioral Monitoring System designed to centralize behavioral records, automate documentation processes, and improve communication within the campus community.

The system was developed using the Rapid Application Development (RAD) methodology, emphasizing continuous user participation through iterative prototyping, testing, and refinement. A total of twenty-nine (29) respondents, consisting of guidance staff, students, parents, and IT experts, participated in the system evaluation through interviews, surveys, observations, and expert validation.

Results indicate that the automated system significantly improved the accuracy, efficiency, and accessibility of behavioral records. Key features such as role-based access control, dashboards, digital student profiles, violation tracking, and automated parent notifications were rated as highly usable and effective. The system also reduced documentation errors, streamlined disciplinary interventions, and enhanced coordination among departments. Although limitations include the absence of biometric authentication and possible user adaptation challenges, the system provides a secure foundation for future enhancements. Overall, the Behavioral Monitoring System supports a more transparent, disciplined, and data-driven academic environment, with recommendations for future integration of analytics, mobile access, and cloud-based storage.

Keywords - Behavioral Monitoring System, student discipline, RAD model, automation, school management

INTRODUCTION

Building a positive campus culture is essential for student development and academic success. Behavior management, which involves systematic strategies to guide and monitor student conduct, has been shown to improve retention, engagement, and the overall learning environment (Creatrix, 2023; NASPA, 2023).

Currently, Pangasinan State University – Alaminos City Campus relies on a manual system for recording student violations in the Office of Student Services. This approach leads to inconsistent documentation, delays in intervention, difficulty accessing historical data, and limited communication with parents. The increasing volume of paper-based records also creates storage and management challenges, complicating the effective monitoring of student behavior (Angala, 2023).

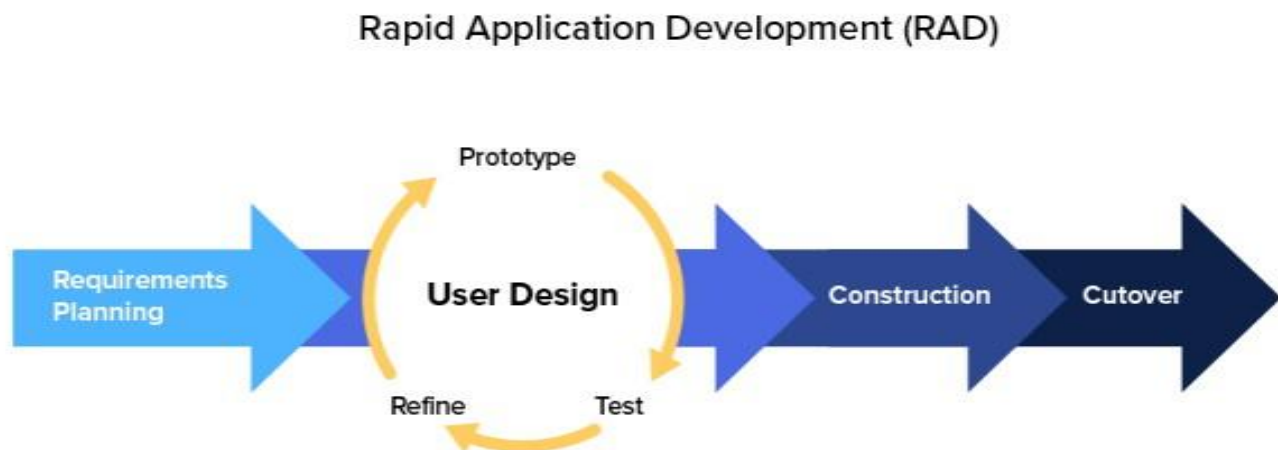
These limitations highlight the need for a Behavioral Monitoring System to centralize records, streamline processes, and enhance the accuracy and timeliness of interventions. Such a system would support a more

disciplined, efficient, and supportive campus environment, benefiting students, staff, and the wider university community.

METHODOLOGY

The development of the Behavioral Monitoring System employed the Rapid Application Development (RAD) methodology to enable rapid development and active user participation. RAD emphasizes iterative prototyping and continuous feedback, allowing the system to adapt efficiently to the evolving requirements of stakeholders.

Figure 1: Rapid Application Development Model



https://www.researchgate.net/publication/371320374_Empowering_Efficiency_A_Web-Based_Inventory_and_Sales_Information_System_for_Drinking_Water_Distributors_through_Rapid_Application_Development/figures?lo=1&utm_source=google&utm_medium=organic

Through repeated prototyping cycles and regular consultations with school guidance counselor, parents, and students, the system was continuously assessed and refined in terms of accuracy, performance, and functionality. This approach ensured that user requirements were promptly incorporated, resulting in a responsive and user-centered behavioral monitoring system.

The project framework for the Behavioral Monitoring System to Enhance Student Discipline Management at Pangasinan State University - Alaminos City Campus followed the Rapid Application Development (RAD) methodology. During the Requirements Planning phase, stakeholders were consulted to identify system objectives, scope, and high-level requirements. The User Design phase involved the development of initial prototypes that were continuously refined and evaluated through user feedback to enhance system design and usability. In the Construction phase, the refined prototypes were transformed into functional system components through coding, integration, and continuous testing. Finally, the Cutover phase focused on final system testing, user training, and deployment to ensure readiness for actual use. This framework was designed to deliver a user-friendly and accessible system that supports effective student services, guidance counselors, and parents, thereby improving coordination, monitoring, and communication in student discipline management. Additionally, the respondents of the study, as presented in Table 1, consisted of selected students, parents, guidance personnel, and IT experts who contributed to the evaluation and validation of the system.

Respondents	Number of respondents
Guidance Staff	3
Students	10
Parents	13
IT Experts	3
Total Respondents	29

Data Instrumentation: The proponents utilized various data-gathering methods to collect the necessary information required to achieve the objectives of the proposed study.

Interview: Conducting interviews with the Principal of Dasol Catholic School to understand the current challenges in managing student records and administrative processes. **Observation:** Conducting observations within Dasol Catholic School to gain firsthand insights into existing workflows. **Surveys:** Conducting a survey among selected students, teachers, and school staff to gather feedback on the current systems in place and their expectations for the proposed Web-Based Student Portal System.

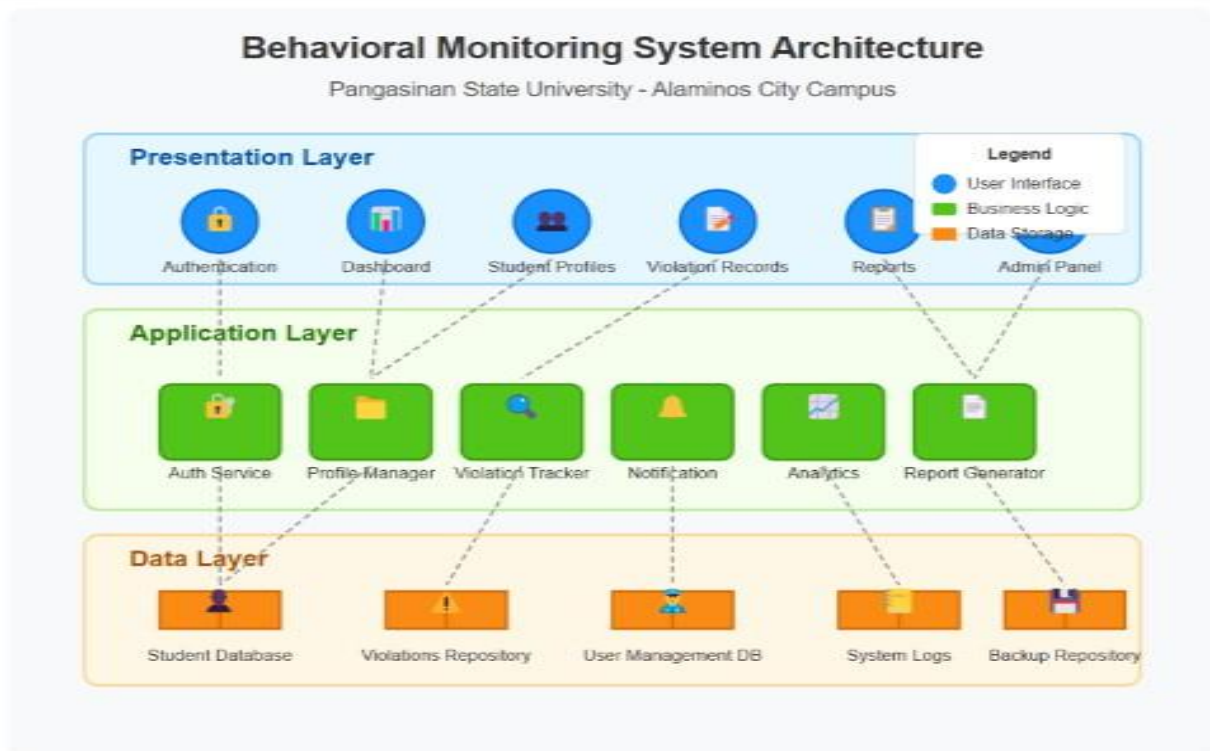
Internet Search: Utilizing online research to gather supporting information, including related articles, existing systems, and studies on school management and student portal systems. **Data Analysis:** Data analysis typically involves processing, modeling, and analyzing data to get insights that support decision-making.

Flowchart: Used to demonstrate and describe the process and flow of the proposed system.

Entity Relationship Diagram (ERD): Utilized to show and identify how entities inside the system relate to one another. **Weighted Mean:** Used to determine the average number of respondents that take the survey for the proposed system.

RESULTS AND DISCUSSION

Figure 2: 3 Tier Model



The Behavioral Monitoring System for Pangasinan State University – Alaminos City Campus is designed using

a structured three-layer architecture, which includes the Presentation Layer, Application Layer, and Data Layer. This design approach promotes efficiency, modularity, and ease of maintenance. The Presentation Layer serves as the front-end interface where users interact with the system.

It includes modules such as Authentication, Dashboard, Student Profiles, Violation Records, Reports, and an Admin Panel. These components, represented by blue icons in the architecture, are focused on providing a user-friendly experience and easy navigation.

The system successfully automated the behavioral record management process within the Office of Student Services. Core features include a login system with role-based access, dashboards for students and administrators, violation tracking modules, and automated reporting tools. Testing results indicated high usability and satisfaction among respondents, with staff noting significant time savings and improved data accuracy. The prototype effectively demonstrated secure storage, efficient retrieval, and real-time updates of student behavioral data.

The Behavioral Monitoring System developed for Pangasinan State University Alaminos City Campus successfully addressed the limitations of the existing manual process used by the Office of Student Services. The system was designed to automate the recording, tracking, and retrieval of student behavioral records, offering a centralized and secure platform for managing violations and disciplinary actions.

During testing, the system demonstrated high usability and efficiency. Guidance Office staff reported faster access to student records, reduced documentation errors, and improved coordination with other departments. Faculty members noted that the system provided clearer insights into student behavior, aiding classroom management. Parents appreciated the transparency and timely communication regarding their children's conduct.

The system also incorporated data protection measures, including access control and backup protocols, ensuring confidentiality and integrity of student records. Although biometric authentication and integration with other departments were excluded from the scope, the system provided a robust foundation for future enhancements.

Table Of Summarized of Accpetability and Usability Results

Criteria	Mean	Descript ion
Functionality	4.60	Strongly Agree
Compatibility	4.48	Strongly Agree
Reliability	4.47	Strongly Agree
Usability	4.52	Strongly Agree
Efficiency	4.31	Strongly Agree
Maintainability	4.52	Strongly Agree
Portability	4.49	Strongly Agree
Security	4.47	Strongly Agree
Average Weighted Mean	4.48	Strongly Agree

The Behavioral Monitoring System demonstrated a high level of effectiveness across eight evaluation criteria, achieving an overall average weighted mean of 4.48, interpreted as *Strongly Agree*. The system received its highest ratings in Functionality, Usability, Portability, and Maintainability, indicating that it is user-friendly, adaptable across platforms, efficient in performing core monitoring tasks, and easy to maintain. Reliability and Efficiency were also rated *Strongly Agree*, reflecting stable performance with minor opportunities for further improvement. Overall, the results confirm that the system is a highly effective tool for behavioral tracking and communication among guidance staff, students, and parents, with potential for continued enhancement to ensure long-term reliability and efficiency.

CONCLUSION

The Behavioral Monitoring System developed for Pangasinan State University– Alaminos City Campus

effectively addresses the limitations of manual behavioral tracking. The system enhances the efficiency, accuracy, and confidentiality of managing student behavioral records. Through the application of the RAD model, the system was developed iteratively with continuous user involvement, ensuring that it meets institutional needs. Future enhancements may include integrating mobile notifications, analytics dashboards, and cloud-based data storage to further improve functionality and scalability.

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