Sdlc

Analysis

During the SDLC Analysis phase for the OSAS, WEB BASED STUDENT VIOLATION MONITORING SYSTEM FOR CAVITE STATE UNIVERSITY- CARMONA CAMPUS, we conducted interviews with counselors to understand their workflow challenges.the interview revealed that counselors currently rely on inefficient pen-and-paper methods to record and manage client information, leading to significant operational difficulties. The Office of Student Affairs and Services struggles with tracking ongoing cases, retrieving past records promptly, and analyzing counseling data effectively—all contributing to reduced student attention and support. Through careful documentation of existing processes, we mapped the information flow between stakeholders and identified critical bottlenecks, including time-consuming manual record creation, risks of misplaced documents, limited access to historical data, and inadequate confidentiality measures. Our requirements gathering process incorporated direct interviews, workflow observations, and reviews of current documentation formats. Based on this analysis, we recommend developing a WEB BASED STUDENT VIOLATION MONITORING SYSTEM FOR CAVITE STATE UNIVERSITY- CARMONA CAMPUS with role-based access controls, digital forms, and reporting capabilities to replace the current paper-based system and significantly improve service delivery to students in need.

Design  
  
During the Design phase of our SDLC process for the OSASWEB BASED STUDENT VIOLATION MONITORING SYSTEM FOR CAVITE STATE UNIVERSITY- CARMONA CAMPUS, we focused on creating wireframes and use cases to visualize the proposed digital solution. The Proponents developed detailed wireframes illustrating the user interface for key system functions. The wireframes incorporated user-friendly navigation elements and intuitive layouts based on counselor feedback from the analysis phase. The navigation was structured with clear hierarchical organization, featuring essential menu items: Dashboard for viewing summary statistics; Students for accessing student Information; Counseling for managing appointments and session documentation; Violation for tracking disciplinary incidents; History for reviewing past interactions and interventions; Users for managing system access and permissions; Settings for configuring system parameters; and Logout for secure session termination. Simultaneously, we developed comprehensive use cases for different user roles including AdminPC, SuperAdmin, and Admin CSD , defining their specific permissions and access levels within the system modules. Each use case specified the authorized functions and operational boundaries for these administrator types, ensuring proper system governance and data security. We also created detailed flowcharts, as illustrated in Figure 14, that mapped the complete system process flow from login,violation,counseling sessions through log out to case resolution, clearly depicting decision points, data paths, and procedural sequences across all system modules.  
  
  
Tapos palagay ako ng detaild use case dito un paliwanag  
  
  
  
  
**Implementation**

In this phase, the proponents translated the design specifications into a functional software system through coordinated development activities. The development team wrote code for the WEB BASED STUDENT VIOLATION MONITORING SYSTEM according to the approved specifications, implementing the core functionality using PHP as the primary programming language and JavaScript for client-side interactions. Database developers constructed(figure 15) the MySQL database structure, creating tables to store student records, violation data, counseling sessions, and user accounts with appropriate relationships and constraints to maintain data integrity. The user interface development team implemented the wireframe designs using HTML5, CSS, and bootstrap ensuring a responsive design that functions well on both desktop and mobile devices, while maintaining the approved color scheme and navigation structure from the design phase. Throughout implementation, the proponents conducted regular code reviews and facilitate collaboration. Integration testing occurred progressively, connecting front-end components with back-end services and ensuring proper data flow between the user interface and database. The proponents implemented security measures including input validation, password hashing, and authentication protocols to protect sensitive student information. As development progressed, the proponents documented all implementation details, including code structure, database schemas, and configuration settings, to facilitate future maintenance and system enhancements.

Testing  
  
The testing phase of the Web-Based Student Violation Monitoring System for Cavite State University - Carmona Campus was conducted systematically to verify its functionality, reliability, usability, and overall performance before implementation. This phase followed a structured approach, including unit testing, system testing, user acceptance testing (UAT), and compatibility testing, each designed to assess different aspects of the system’s effectiveness. The primary goal was to ensure that the system met user expectations and operated seamlessly across various environments.

The proponents began with unit testing, which focused on evaluating individual modules and components before they were integrated into the full system. Each core function, including student record management, violation tracking, counseling session scheduling, and report generation, was tested separately to detect any defects or inconsistencies. This process helped pinpoint and resolve issues early, reducing the likelihood of major errors in later testing stages. Once the modules passed unit testing, they were integrated into a fully functional system.

Following unit testing, system testing was conducted by IT experts to assess how well all system components worked together. This phase ensured that data flowed correctly between features, that different user roles (such as administrators, counselors, and staff) could interact with the system properly, and that all intended functionalities performed as expected. Additionally, compatibility testing was carried out to confirm that the system operated efficiently across various devices, operating systems, RAM capacities, and screen resolutions. This was essential in ensuring that users could access the system without experiencing technical difficulties, regardless of their device specifications.For user acceptance testing (UAT), a structured survey was conducted among 65 students from Cavite State University - Carmona Campus to gather feedback on the system’s usability, efficiency, and effectiveness in managing student violations and counseling records. Additionally, five counselors from the Office of Student Affairs and Services (OSAS) evaluated how well the system supported their administrative tasks, particularly in managing student violations and counseling sessions. To ensure compliance with academic policies and counseling processes, five domain experts from the Eulogio "Amang" Rodriguez Institute of Science and Technology (EARIST) provided an in-depth assessment of the system’s structure and implementation. Furthermore, five IT experts reviewed the system’s security, performance, and overall technical functionality to ensure that it met industry standards.The system was evaluated using the ISO 25010 standard, which measures both product quality and quality in use. The product quality evaluation focused on functional suitability, usability, performance efficiency, maintainability, and portability, ensuring that the system delivered its intended functions accurately and efficiently. Meanwhile, the quality in use assessment examined effectiveness, efficiency, user satisfaction, and security, validating that the system was user-friendly, reliable, and protected sensitive student information.After gathering feedback from all respondents, the results were carefully analyzed, and necessary modifications were made to address concerns and enhance system performance. The development team refined the system based on user input, improving navigation, responsiveness, and security to ensure a user experience.  
  
  
  
  
Maintenance  
  
The maintenance phase of the Web-Based Student Violation Monitoring System for Cavite State University - Carmona Campus ensures that the software remains functional, efficient, and up to date after its successful deployment. This phase began with deployment planning, where a detailed schedule was created to determine when and how the system would be implemented. Necessary preparations were made, including, configuring databases, and ensuring that all required hardware and software components were ready for smooth operation. Once everything was in place, the system was installed and configured on the designated platforms, ensuring that all files were properly set up and aligned with system requirements.

After deployment, the system underwent post-deployment testing in a real environment to verify that all features functioned correctly under actual usage conditions. Users, including OSAS staff, administrators, and counselors, were trained on how to navigate the system and utilize its features effectively. A gradual rollout was conducted, allowing users to adapt to the system while monitoring its stability and performance. During this period, the development team provided continuous support to address any technical issues, bugs, or usability concerns that arose.

To further enhance the system, user feedback was collected to identify areas for improvement. Based on this input, updates and modifications were made to refine the system’s functionality and address emerging user needs. Regular maintenance was carried out to ensure that the system remained secure, optimized, and free of critical errors. Additionally, the system was monitored for compatibility with new technological advancements, ensuring that it continued to operate efficiently across different devices and platforms.

This phase also involved troubleshooting and performance monitoring to prevent potential issues that could disrupt operations. If necessary, modifications were implemented to enhance system speed, improve the user interface, or introduce new features that would better serve OSAS staff and students. Through ongoing maintenance and timely updates, the system remained reliable, secure, and fully functional, effectively supporting Cavite State University - Carmona Campus in managing student violations and counseling records