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OASYS: An Online Appointment System for the Mayor's Office of Solano, Nueva Vizcaya

Albert Acangan1, Gerald R. Sunga2, Emil C. Paladin3
College of Arts, Sciences, Education and Information Technology
Aldersgate College Inc. Nueva Vizcaya, Philippines [1,2,3]
albertacangan@gmail.com1, sungagerald600@gmail.com2, Emilpaladin94@gmail.com3

ABSTRACT

The Mayor's Office of Solano, Nueva Vizcaya currently faces challenges managing appointments because of manual scheduling processes. Citizens often must visit the office in person to request appointments, while staff rely on paper-based records that can lead to scheduling conflicts, long waiting times, and difficulty monitoring appointments. To address these issues, the researchers developed OASYS (Online Appointment System), a web-based platform designed to improve appointment scheduling, queue management, and service delivery in the Mayor's Office. The study's main objective was to design and evaluate a system that allows citizens to schedule appointments online, enables staff to manage walk-in clients through a queueing system, and provides a centralized platform for appointment monitoring. The study aimed to determine whether the system meets the ISO/IEC 25010 software quality standards, particularly functional suitability, performance efficiency, interaction capability, reliability, and security. The researchers employed a developmental research design and used the Rapid Application Development (RAD) methodology to develop the system. Six (6) Mayor's Office staff and sixty-four (64) citizen respondents evaluated the system using a survey questionnaire based on ISO/IEC 25010 standards. The evaluation results showed an overall mean score of 3.75 from citizens and 3.44 from staff, both interpreted as Excellent. The findings indicate that OASYS effectively improves appointment scheduling, reduces waiting times, enhances service accessibility, and ensures secure management of appointment information. In conclusion, OASYS proved to be a reliable and efficient solution for modernizing appointment management in the Mayor's Office. The system streamlined scheduling processes, improved service transparency, and supported better coordination between citizens and office personnel. Future enhancements may include mobile application development, Progressive Web App (PWA) implementation, real-time communication features, and integration with other government systems.

Keywords— *Online appointment system; appointment scheduling; Mayor's Office; Rapid Application Development (RAD); ISO/IEC 25010; e-government services*

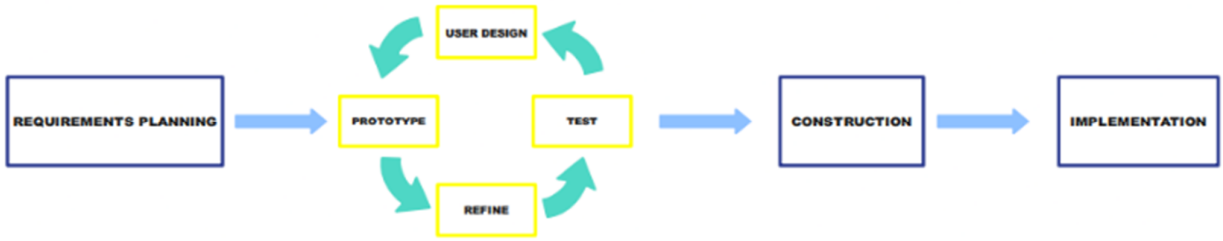
INTRODUCTION

Government offices play a vital role in delivering public services to citizens. One common challenge faced by local government units is efficiently scheduling and managing appointments. In many offices, staff still handle appointments manually through logbooks, paper forms, phone calls, or walk-in requests. These traditional methods often cause scheduling conflicts, long wait times, misplaced records, and increased administrative workload.

The Mayor's Office of Solano, Nueva Vizcaya experiences similar challenges in managing appointments. Citizens often need to visit the office in person to request appointments, while staff manually organize schedules and accommodate walk-in clients. To address these issues, this study, entitled "OASYS: An Online Appointment System for the Mayor's Office of Solano, Nueva Vizcaya," proposes a web-based platform that allows citizens to schedule appointments online, enables staff to manage appointments efficiently, and improves appointment record organization. Specifically, the study sought to (1) design and develop a web-based online appointment system for the Mayor's Office of Solano, Nueva Vizcaya; (2) implement modules for online appointment scheduling, walk-in queue management, appointment monitoring, and user administration; and (3) evaluate the acceptability of the developed system in terms of the ISO/IEC 25010 quality characteristics of functional suitability, interaction capability, compatibility, security, and reliability, as assessed by Mayor's Office staff and citizen respondents.

METHODOLOGY

The study employed a developmental research design. The system was built using the Rapid Application Development (RAD) methodology and evaluated using a descriptive survey based on the ISO/IEC 25010 software product quality model.



A. Development Process: Rapid Application Development (RAD)

Figure 1.0. Rapid Application Development (RAD) model.

Figure 1.0 illustrates the Rapid Application Development (RAD) model used in developing OASYS. RAD is a software development methodology that emphasizes rapid prototyping, iterative development, and continuous user feedback. This approach allows developers to quickly create and refine system components while ensuring that user requirements are effectively addressed throughout the development process. The researchers adopted the four RAD phases as follows.

1) Requirements Planning Phase. The researchers conducted interviews, observations, and consultations with personnel from the Mayor's Office of Solano, Nueva Vizcaya, to identify existing appointment management procedures, challenges, and system requirements.

2) User Design Phase. Based on the gathered requirements, the researchers designed the system interface, workflow, database structure, and prototypes. The researchers continuously collected user feedback to improve usability and ensure the system met the needs of both citizens and office staff.

3) Construction Phase. The researchers developed the system using modern web technologies and implemented key features such as online appointment scheduling, walk-in queue management, appointment status tracking, notification services, user management, and administrative monitoring tools.

4) Implementation Phase. The completed system was deployed and evaluated by citizens and Mayor's Office personnel. Feedback was gathered through survey questionnaires based on ISO/IEC 25010 software quality standards. The researchers analyzed the results and applied necessary improvements to enhance system performance, usability, reliability, and security.

B. Appointment Management and Monitoring Module

The appointment management and monitoring component—highlighted in the OASYS system scope—was implemented as a centralized platform designed to support efficient scheduling, queue management, and service monitoring within the Mayor's Office. The system provides several key functions: (1) online appointment scheduling that allows citizens to book appointments remotely; (2) walk-in queue management that enables front-desk staff to register and organize walk-in clients through a structured first-come, first-served process; (3) appointment status monitoring that allows users and staff to track appointment progress and schedule updates; and (4) appointment documentation through notes and photo attachments that serve as a digital record of completed appointments.

All appointment records are stored in a centralized database and are updated in real time, allowing authorized personnel to access current scheduling information without relying on paper-based records. The system also supports role-based access control to ensure that appointment information is managed securely and efficiently. This module directly addresses the challenges of manual scheduling, unorganized walk-in management, appointment conflicts, and limited record-keeping by providing a streamlined and transparent appointment management process for both citizens and office personnel.

C. System Design

The functional requirements of OASYS were modeled through use case diagrams for each of the five system roles: Citizen, Frontdesk, Super Admin, Admin, and the Mayor's Office.

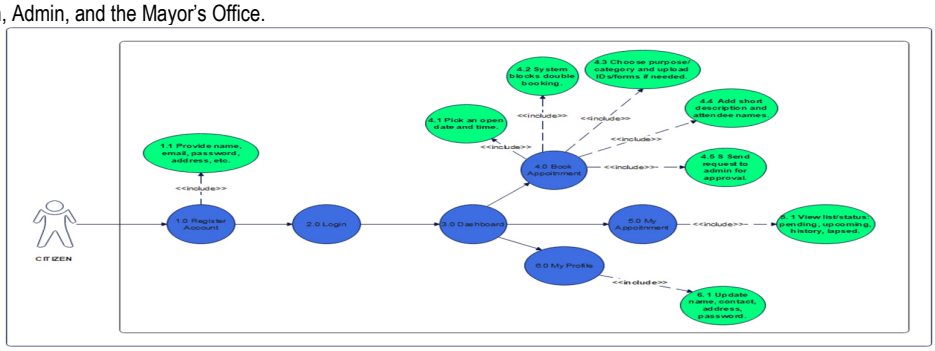


Figure 2.0. Use case diagram for the Citizen role.

The Citizen role in OASYS allows residents to schedule and manage appointments with the Mayor's Office. Users can register and log in to access the dashboard, where they can book appointments by selecting an available date and time, providing the purpose of visit, attendee details, and uploading supporting documents if needed. Citizens can also view appointment statuses, track appointment history, update personal information, and manage account security through password changes. This module provides a convenient and organized way for citizens to access government services online.

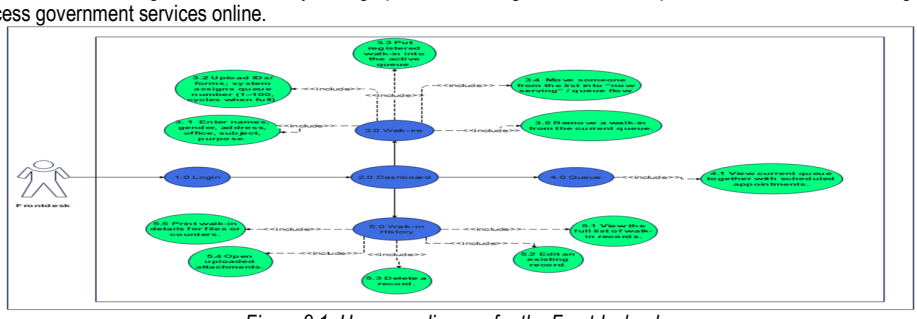


Figure 2.1. Use case diagram for the Frontdesk role.

The Frontdesk role in OASYS manages walk-in clients and queue operations. Frontdesk staff can register walk-in appointments by entering client information, uploading supporting documents, and generating queue numbers. They can manage the active queue, monitor scheduled appointments, and ensure an organized service flow. The module also provides access to walk-in history, allowing staff to view, update, print, and manage records for accurate documentation and efficient appointment processing.

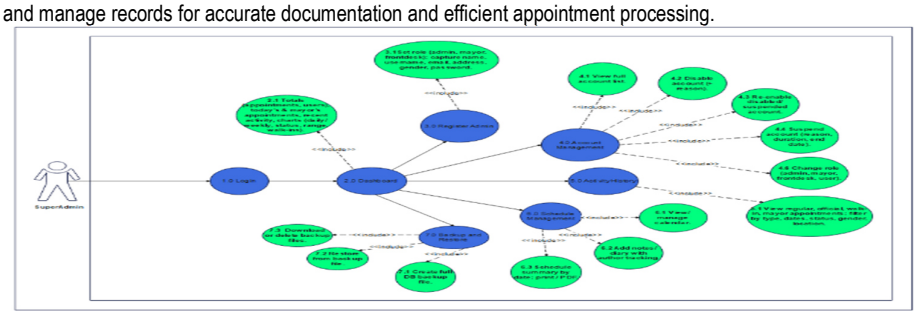


Figure 2.2. Use case diagram for the Super Admin role.

The Super Admin in OASYS has full system access and manages the entire platform. The Super Admin monitors dashboard statistics, creates and manages user accounts, and controls role assignments. The role also covers reviewing activity history, managing schedules with notes and reports, and handling system backups and restores to ensure security and reliability.

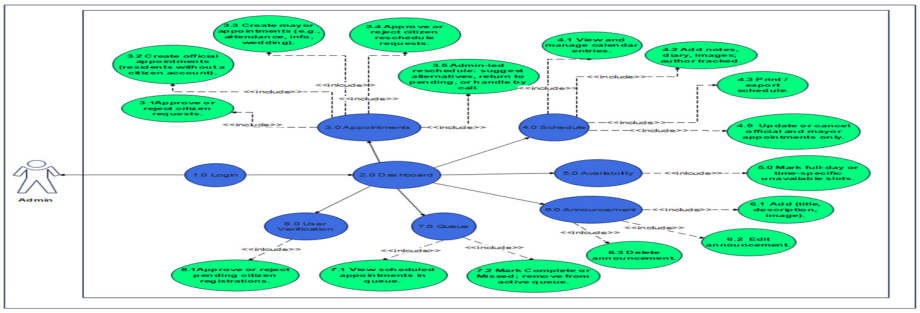


Figure 2.3. Use case diagram for the admin role.

The Admin in OASYS manages daily operations and appointment processing in the Mayor's Office. Admins approve, reject, and create appointments, handle reschedules, and manage official and mayor appointments. They also control schedule entries, set unavailable slots, and manage announcements. Additionally, they process queue statuses, verify user registrations, and ensure smooth workflow and accurate scheduling.

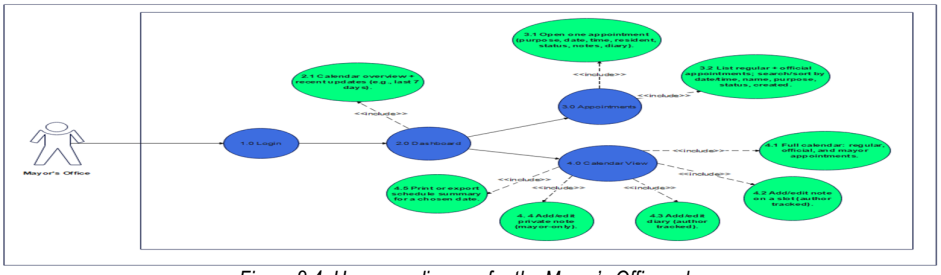


Figure 2.4. Use case diagram for the Mayor's Office role.

The Mayor in OASYS mainly views appointments and monitors schedules. After login, the Mayor accesses the dashboard for a calendar overview and recent updates, and can view appointment details, search and sort appointment lists, and review all scheduled bookings. The Mayor can also manage calendar notes, add private entries, and print or export schedule summaries.

D. Activity Diagram

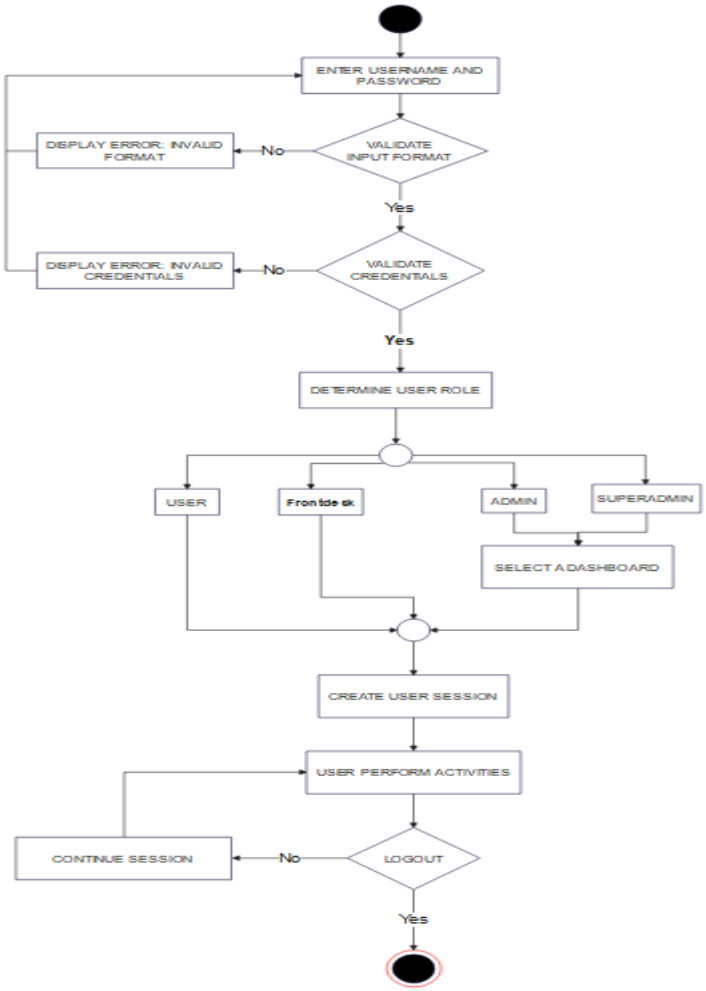


Figure 3.0. Activity diagram of the login process.

The activity diagram for the login process in OASYS illustrates the steps a user follows to access the system. The process begins when the user enters a username and password. The system validates the input and verifies the credentials. If the input is invalid or the credentials are incorrect, an error message is displayed, and the user is prompted to try again.

Once the credentials are verified, the system identifies the user's role (Citizen, Frontdesk, Admin, Mayor, or Super Admin) and redirects the user to the appropriate dashboard. The system then creates a user session, allowing access to authorized functions. The session remains active until the user logs out, which ends the session and terminates system access.

E. System Architecture

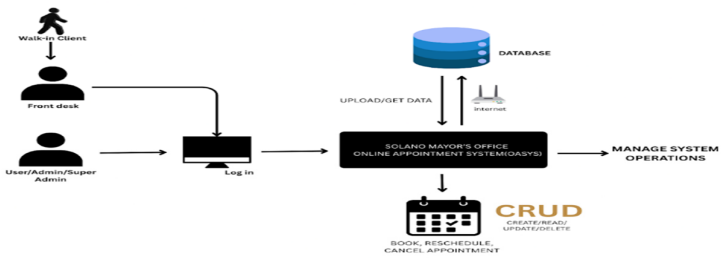


Figure 4.0. Architectural framework of OASYS.

As shown in Figure 4.0, all actors—the Citizen (User), Frontdesk, Admin, Super Admin, and the Mayor—access the Solano Mayor's Office Online Appointment System (OASYS) via computer or mobile device through a secure login. Within OASYS, citizens can book, reschedule, or cancel appointments. The Front Desk enters details for walk-in clients and manages walk-in records and queueing.

F. Research Setting

The study was focused on Solano, Nueva Vizcaya—a first-class municipality where public services, such as consultations, document requests, and program scheduling, are often done manually or via walk-in. As one of the busiest government departments, the Mayor's Office served as the primary location for data gathering, interviews, system testing, and user evaluations.

G. Respondents and Data Collection

The study selected respondents to provide both administrative and citizen perspectives essential for evaluating OASYS. They consisted of six (6) Mayor's Office personnel—including administrators, front desk personnel, and the mayor—and sixty-four (64) citizens from the Municipality of Solano who are potential users of the system.

H. Data Analysis

The weighted mean was used to determine the overall evaluation of the system and to interpret the level of acceptability of each ISO/IEC 25010 quality characteristic. The mean was computed as follows:

$$m = (\text{sum of terms}) \div (\text{number of terms})$$

The range of each interpretation was determined by computing the difference between the highest and lowest ratings on the Likert scale and dividing the result by the highest rating, that is, $(4 - 1) \div 4 = 0.75$. Table 1.0 presents the resulting interpretation guide.

Table 1.0. Interpretation guide for mean scores.

MEAN SCORE RANGE	LEVEL OF QUALITY
3.26 – 4.00	Excellent
2.51 – 3.25	Satisfactory
1.76 – 2.50	Poor
1.00 – 1.75	Very Poor

RESULTS AND DISCUSSION

A. Evaluation by the Mayor's Office Staff

Table 2.0 presents the item and category means obtained from the six Mayor's Office staff respondents across the five ISO/IEC 25010 characteristics evaluated.

Table 2.0. Summary of the evaluation by Mayor's Office staff (n = 6).

ISO/IEC 25010 Characteristic	Q1	Q2	Q3	Q4	Q5	Category Mean	Interpretation
Functional Suitability	3.33	3.66	3.50	3.50	3.33	3.46	Excellent
Interaction Capability	3.66	3.66	3.50	3.50	3.66	3.60	Excellent
Compatibility	3.50	3.33	3.16	3.33	3.50	3.36	Excellent
Security	3.33	3.50	3.33	3.33	3.33	3.36	Excellent
Reliability	3.50	3.33	3.50	3.33	3.50	3.43	Excellent
OVERALL MEAN SCORE						**3.44**	**Excellent**

As shown in Table 2.0, all five characteristics obtained category means within the Excellent range. Functional Suitability obtained a mean of 3.46, indicating that staff found the system's appointment, queueing, and monitoring functions complete and appropriate to their tasks. Interaction Capability obtained the highest category mean of 3.60, suggesting that the interface was clear and easy to operate during front-desk work. Compatibility and Security both obtained a mean of 3.36, while Reliability obtained 3.43. The Security result indicates staff confidence in the system's ability to protect personal information, ensure authorized access, prevent unauthorized modifications, provide secure authentication, and maintain confidentiality. The Reliability result demonstrates that staff perceived the system as consistently available, accurate in recording appointments, dependable in status updates, and effective in supporting schedule monitoring. The overall mean score of 3.44 confirms an Excellent quality rating from the staff perspective.

The lowest single-item mean, 3.16 under Compatibility, falls within the Satisfactory range of the interpretation guide. This suggests that integration with existing office tools and devices is the aspect of the system with the greatest room for improvement.

B. Evaluation by Citizen Respondents

Table 2.1 presents the results obtained from the sixty-four citizen respondents.

Table 2.1. Summary of the evaluation by citizen respondents (n = 64).

ISO/IEC 25010 Characteristic	Q1	Q2	Q3	Q4	Q5	Category Mean	Interpretation
Functional Suitability	3.80	3.80	3.70	3.80	3.70	3.76	Excellent
Interaction Capability	3.90	3.70	3.70	3.70	3.70	3.74	Excellent
Compatibility	3.90	3.70	3.70	3.70	3.70	3.76	Excellent
Security	3.70	3.80	3.80	3.70	3.70	3.74	Excellent
Reliability	3.80	3.80	3.70	3.80	3.80	3.78	Excellent
OVERALL MEAN SCORE						**3.75**	**Excellent**

The statements regarding the system's Functional Suitability achieved a category mean of 3.76, reflecting an Excellent quality rating. Interaction Capability obtained a mean of 3.74, likewise interpreted as Excellent. Compatibility obtained 3.76 and Security 3.74, both also rated Excellent, while Reliability garnered the highest category mean of 3.78. Overall, the citizens' evaluation of the system during deployment resulted in an average mean score of 3.75, corresponding to an Excellent quality rating.

C. Comparison of Staff and Citizen Evaluations

Table 3.0. Comparison of staff and citizen category means.

ISO/IEC 25010 Characteristic	Staff Mean (n = 6)	Citizen Mean (n = 64)	Interpretation
Functional Suitability	3.46	3.76	Excellent
Interaction Capability	3.60	3.74	Excellent
Compatibility	3.36	3.76	Excellent
Security	3.36	3.74	Excellent
Reliability	3.43	3.78	Excellent
Overall	**3.44**	**3.75**	**Excellent**

Table 3.0 shows that citizen ratings were consistently higher than staff ratings across all five characteristics, with the largest gap observed in Compatibility (3.36 versus 3.76) and the smallest in Interaction Capability (3.60 versus 3.74). A plausible explanation is that staff interact with the system far more intensively and across more administrative functions than citizens do, and therefore encounter edge cases and integration concerns that ordinary booking users do not. Both groups nevertheless rated every characteristic within the Excellent range, indicating that OASYS is acceptable to both the service providers and the service recipients it was designed for.

CONCLUSIONS AND RECOMMENDATIONS

The Online Appointment System (OASYS) successfully addressed the challenges of manual appointment scheduling in the Mayor's Office by providing a more efficient, reliable, and secure digital solution. Evaluation results based on ISO/IEC 25010 showed an overall rating of Excellent, with mean scores of 3.75 from citizen respondents and 3.44 from Mayor's Office staff. The system improved appointment management, reduced administrative workload, enhanced service delivery, and ensured the security of appointment information, making it an effective tool for modernizing public service operations.

Based on the findings, the researchers recommend developing a companion mobile application or Progressive Web App (PWA) to widen access, adding real-time communication features such as chat and push notifications, and integrating with other local government systems so a single appointment record can serve multiple offices. Further studies may also evaluate the system after a longer deployment period and with a larger and more representative sample of staff respondents, since the present staff sample was limited to six personnel.

AI DECLARATION STATEMENT

AI-supported tools helped with grammar and structure in creating this article. No AI tools were used to collect, analyze, or interpret data; all authors are credited for their academic contributions.

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