Developing an Online Marketing Information System: A Framework for Local Colleges

John M. Murillo[1], Melissa T. Guillermo[2], Joshua G. Laddaran[3]

Dr. Filemon C. Aguilar Memorial College of Las Piñas

murillo.john@dfcamclp.edu.ph, guillermo.melissa@dfcamclp.edu.ph, laddaran.joshua@dfcamclp.edu.ph

Abstract	Article Info
This study examined the development of an online marketing information system tailored for Dr. Filemon C. Aguilar Memorial College of Las Piñas, to enhance its digital presence and institutional outreach. The research utilized a mixed-methods approach, combining quantitative and qualitative analyses to assess usability, interactivity, and accessibility. A descriptive-correlational framework was employed to determine relationships between website design, user engagement, and stakeholder interactions. Primary data were collected through surveys, interviews, and usability testing, while secondary data included institutional records and literature reviews. Findings highlighted critical gaps in digital marketing strategies, underscoring the need for a centralized online platform to facilitate seamless communication and academic visibility. The study proposes a structured framework that integrates interactive features, automated inquiries, and virtual tours, ensuring a user-centric digital ecosystem. This research makes significant contributions to institutional marketing, offering practical applications for local colleges seeking digital transformation and enhanced stakeholder engagement.	

INTRODUCTION

The evolution of digital technology has significantly reshaped online marketing strategies, necessitating the development of effective information systems to optimize user engagement, accessibility, and communication. As organizations increasingly integrate digital platforms into their operations, website usability and design emerge as critical determinants of user trust and interaction (Esmeria & Seva, 2017; Garett et al., 2016). A well-structured online marketing information system serves as a gateway for institutions, facilitating enhanced visibility, user retention, and streamlined communication. However, existing frameworks often fall short in addressing dynamic user preferences and technological advancements, highlighting the need for a more comprehensive, research-driven approach. The problem stems from the inconsistencies in website usability and engagement metrics across institutional platforms, particularly within local colleges. While global studies emphasize the importance of user-driven interactivity (Spielmann & Mantonakis, 2018) and digital accessibility (Chen & Dimitrova, 2006), gaps remain in assessing their applicability within localized educational settings. The absence of standardized frameworks for designing effective marketing information systems limits institutions' ability to maximize online presence, directly impacting student outreach, enrollment strategies, and institutional branding (Pencarelli, 2020).

A critical research gap exists in the insufficient exploration of interactive digital tools that enhance consumer decision-making and institutional visibility. Prior studies have focused on general usability principles (Mvungi & Tossy, 2015) but have not fully examined how localized marketing strategies can leverage virtual experiences to enhance engagement (Cavallaro et al., 2021; Najafipour et al., 2014). Additionally, another pressing gap lies in understanding how cultural and regional factors influence website usability preferences, particularly in multilingual and diverse educational settings (Hillier, 2003). Addressing these gaps requires an integrative framework that aligns institutional objectives with user-centered digital strategies. In the Philippine educational context, digital transformation has become a pivotal element in improving institutional communication, student engagement, and marketing efforts. However, studies assessing the usability and effectiveness of local government and college websites remain limited (Siar, 2007). With the proliferation of online misinformation and content saturation (Quilinguing, 2019), institutions must adopt strategic digital initiatives that not only ensure accessibility but also foster trust and engagement among stakeholders. This study aims to develop a structured and evidence-based model for optimizing online marketing information systems in local colleges, integrating usability principles, interactive engagement tools, and culturally adaptive strategies. By systematically analyzing existing frameworks and proposing a refined approach tailored to institutional needs, the research contributes to both theoretical discourse and practical implementation, offering a robust foundation for enhancing digital presence in higher education.

LITERATURE REVIEW

METHODOLOGY

Research Design

This study employed a mixed-methods research design, integrating both quantitative and qualitative approaches to systematically examine the effectiveness of online marketing information systems within local colleges. By utilizing this methodological framework, the research provided a comprehensive analysis that combined empirical data with experiential insights, ensuring robust findings applicable to institutional development and digital engagement strategies.

A descriptive-correlational research approach guided the study, identifying patterns and relationships between website usability components, such as interactivity, accessibility, and visual appeal, and their impact on institutional marketing effectiveness. The descriptive analysis presented an overview of existing online marketing practices. At the same time, the correlational dimension evaluated the statistical significance of various website features in influencing user behavior and institutional branding outcomes.

The study relied on both primary and secondary data sources to support its findings. Primary data were collected through structured surveys, in-depth interviews, and usability testing involving students, faculty

members, and institutional digital administrators. These methods allowed for direct user feedback on website functionality and marketing effectiveness. Secondary data comprised existing literature, institutional reports, and case studies on digital marketing strategies, providing a theoretical foundation for the study's empirical analysis.

Participants of the Study

The participants of this study consisted of students who actively engaged with the college's online platform for academic inquiries, enrollment processes, and institutional updates, as well as faculty members who played a role in academic communication and outreach efforts, ensuring that the study captured perspectives on the effectiveness of online marketing for student engagement and institutional visibility. Additionally, administrative staff responsible for website management, content moderation, and digital marketing strategies were included to evaluate the system's responsiveness and integration with institutional objectives. Prospective enrollees seeking admission to the college contributed insights on accessibility and usability from an external user perspective. At the same time, local community members, such as parents and local government representatives, provided an additional layer of evaluation regarding institutional collaboration and public engagement. By incorporating these diverse stakeholders, the study aimed to comprehensively analyze user interaction, accessibility, and the overall effectiveness of the college's online marketing information system in fulfilling its intended purpose.

Instrument

The study employed a range of quantitative and qualitative research instruments to ensure a rigorous and multidimensional evaluation of the online marketing information system for Dr. Filemon C. Aguilar Memorial College of Las Piñas. Structured surveys were administered to students, faculty members, administrative staff, and prospective enrollees to systematically assess usability, accessibility, engagement levels, and overall effectiveness of the website in delivering institutional information and services. These surveys incorporated both closed-ended questions, which provided measurable insights into user interaction, and open-ended questions, allowing respondents to elaborate on their experiences and suggestions for improvement. To deepen the analysis, in-depth interviews were conducted with selected faculty members, administrators, and technical staff responsible for managing the online system. These interviews provided qualitative insights into institutional needs, technological challenges, and potential enhancements necessary to optimize digital outreach. Usability testing was implemented to evaluate the website's interface, responsiveness, interactivity, and ease of navigation. Test participants engaged in task-based evaluations, where they performed specific website functions, such as accessing announcements, utilizing interactive features, and submitting inquiries. The system's performance was then analyzed based on user feedback, response time, and accuracy in delivering information.

Furthermore, secondary data analysis was integrated to strengthen the empirical foundation of the study. Institutional records, existing digital marketing reports, and scholarly literature on website usability and online engagement were reviewed to align findings with industry standards and best practices. These datasets complement primary research by providing a broader perspective on digital transformation strategies within educational institutions. To enhance research validity and reliability, the study employed triangulation, comparing data from multiple sources—surveys, interviews, usability tests, and secondary documents—to ensure consistency and credibility of findings. Additionally, ethical considerations were strictly observed, ensuring participant confidentiality, informed consent, and compliance with institutional guidelines for data protection.

Data Analysis

The study employed quantitative and qualitative analysis techniques to systematically evaluate the effectiveness of the online marketing information system for Dr. Filemon C. Aguilar Memorial College of Las Piñas. To ensure precision and reliability, multiple analytical methods were integrated to examine usability, engagement, and institutional branding.

For quantitative analysis, structured survey responses were processed using descriptive and inferential statistics. Frequency distributions and percentile rankings were used to analyze user interaction patterns, while calculations of mean and standard deviation provided insights into stakeholder experiences and satisfaction levels. Additionally, correlation analysis determined relationships between website design features—such as interactivity, accessibility, and responsiveness—and key institutional outcomes, including student engagement and public visibility. Regression modeling was employed to predict the impact of usability improvements on user retention and institutional perception.

For qualitative analysis, data from in-depth interviews and open-ended survey responses were analyzed using thematic coding to identify recurring patterns in stakeholder feedback. Responses were classified into major themes, including website usability concerns, institutional branding effectiveness, and user experience improvements. A comparative analysis was conducted to determine the alignment between existing literature and participant feedback, ensuring academic consistency. Usability testing involved direct user interaction with the online system, tracking navigation speed, task completion rates, error frequencies, and overall satisfaction scores. Observations from task-based evaluations helped assess system responsiveness and user adaptability to interactive features, such as virtual tours and automated inquiries. Triangulation was employed to cross-validate findings from surveys, interviews, and usability testing, ensuring data reliability and methodological consistency. By integrating statistical, thematic, and observational methods, the study generated comprehensive insights into the system's performance, usability challenges, and digital marketing effectiveness. These findings informed practical recommendations for optimizing institutional branding, stakeholder engagement, and online accessibility.

Results and Discussion

The study examined the development and implementation of an online marketing information system for Dr. Filemon C. Aguilar Memorial College of Las Piñas, with a focus on usability, accessibility, and institutional impact. The agile approach was employed in the development stage, ensuring systematic testing of each website feature to assess its condition, efficiency, and performance. During the release phase, alpha testing was conducted by onsite developers utilizing software debuggers and hardware-aided tools to detect and resolve potential issues before public deployment. This ensured that the system met quality standards before advancing to beta testing, which was completed during the deployment phase. Beta testing involved actual users from the media department, allowing administrators to evaluate the website's functionality and collect feedback for refinement. Both testing phases confirmed the system's successful performance and readiness for institutional use.

The redesigned website introduced new features designed to enhance accessibility and engagement for stakeholders. These included an interactive virtual tour, centralized academic information, and automated inquiries, improving navigation and user experience (Cavallaro et al., 2021; Voronkova, 2018). The integration of web usability principles demonstrated that a well-structured digital platform significantly enhances user interaction, trust, and efficiency (Esmeria & Seva, 2017; Ugras et al., 2016). Survey results indicated that students and faculty found the platform highly effective in streamlining academic communication, providing structured content, and strengthening institutional branding (Garett et al., 2016). Additionally, the study highlighted the role of cultural context in multilingual website usability, ensuring accessibility for diverse user demographics (Hillier, 2003).

Further analysis confirmed that online engagement strategies, when integrated into institutional frameworks, contribute to better stakeholder interaction and user satisfaction (Chen & Dimitrova, 2006; Wirtz et al., 2018). The website's implementation demonstrated improved digital trust, reducing misinformation and enhancing institutional credibility (Quilinguing, 2019; Siar, 2007).

The system was developed using Visual Studio Code for coding efficiency, MySQL for database management, PhpMyAdmin for graphical database interaction, and XAMPP for local testing before deployment. The recommended hardware specifications ensured optimal performance, including a minimum 1 GHz processor, 4 GB RAM, and stable internet connectivity.

The website architecture consists of a front-end and back-end system, where the front-end, built using HTML, CSS, Bootstrap, and JavaScript, serves as the primary interface for users. The back end, developed using PHP and JavaScript, manages data storage and optimization through Azure and Heroku, ensuring seamless deployment and resource management.
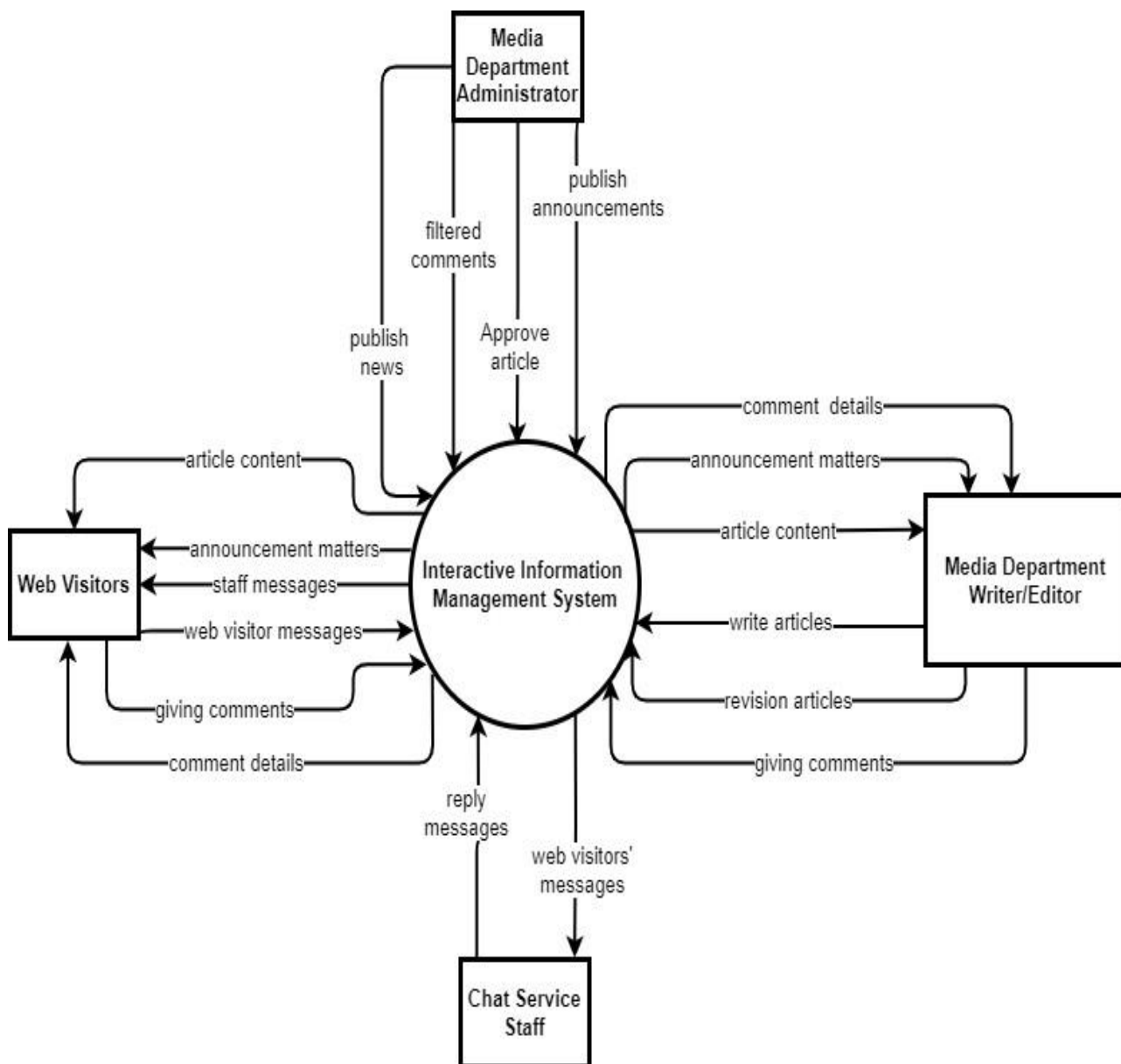

Figure 3.1: Context Diagram – Level 0

The administrative structure of the system ensures efficient content management, with designated roles for administrators, writers, and chat service staff. Administrators oversee content verification and publication, writers manage academic and institutional updates, and chat service staff handle inquiries and feedback.
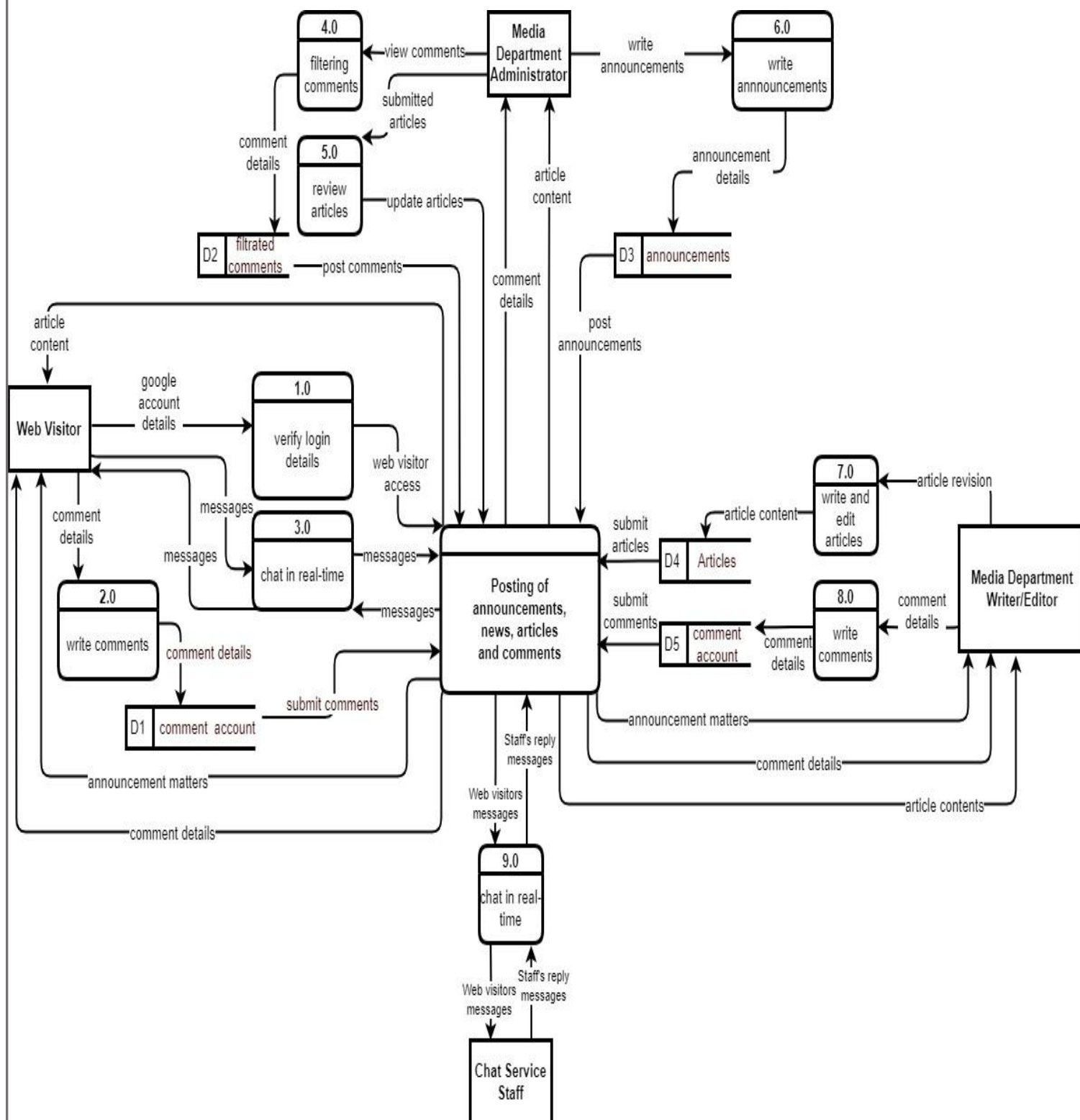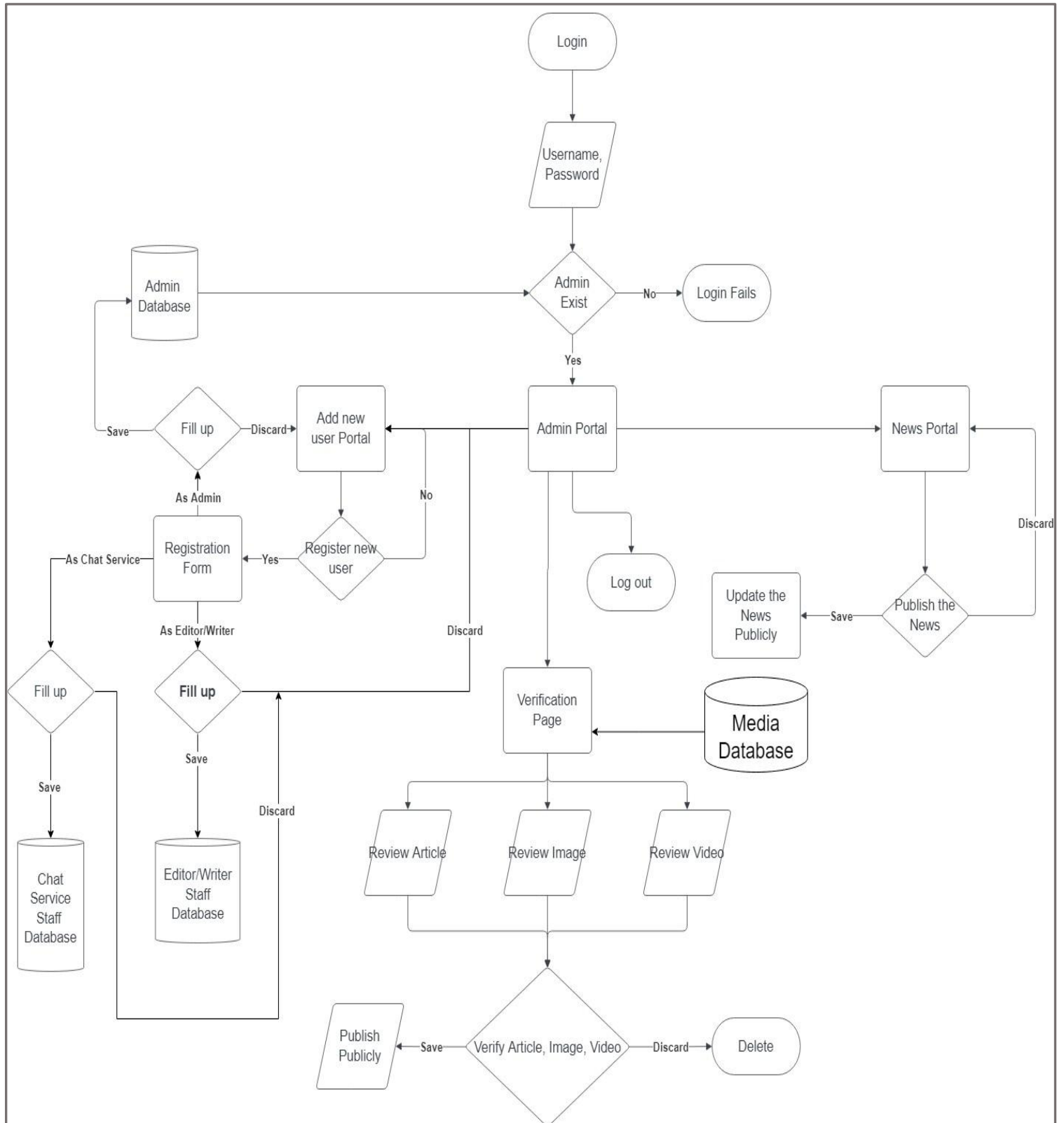

Figure 3.2: Level 1 – DFD

Figure 3.3: Administrator Flowchart

The editorial workflow enables writers to draft, revise, and submit content for approval, ensuring accuracy and relevance prior to publication.
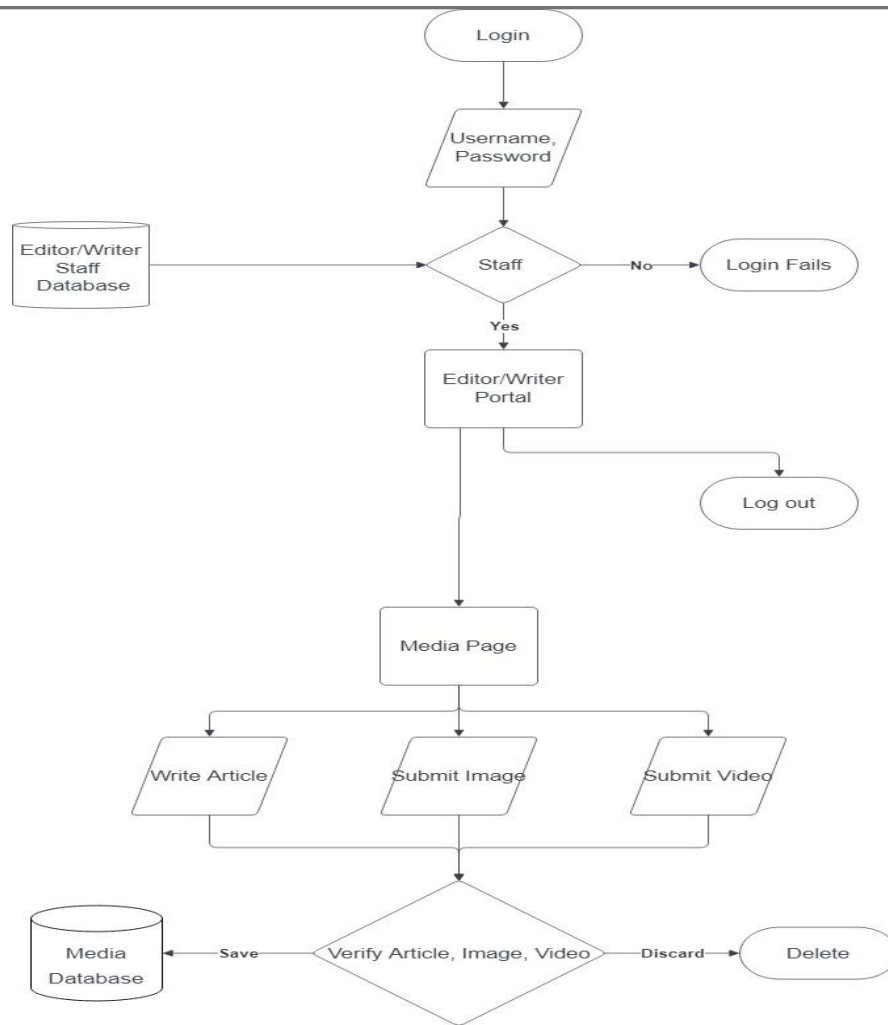
Figure 3.4: Editor/Writer Flowchart

The chat service functionality plays a crucial role in responding to user inquiries, providing real-time assistance, and accumulating feedback for continuous improvement.
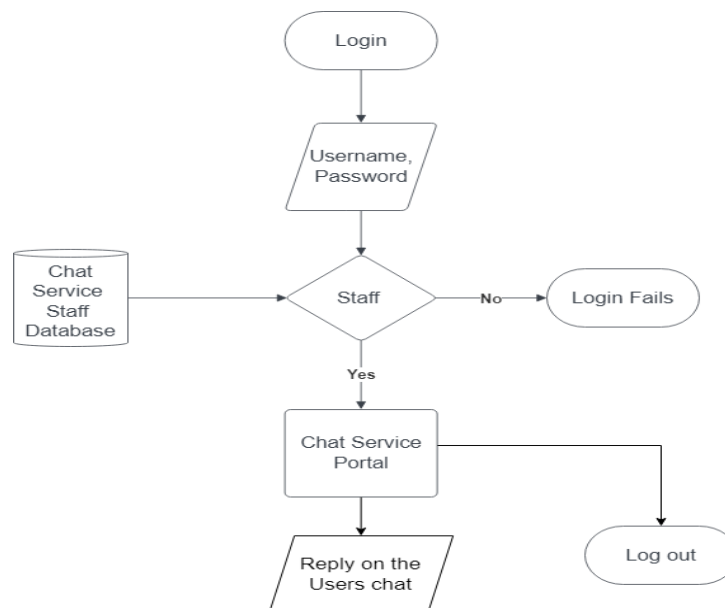

Figure 3.5: Chat Service Flowchart

The user access structure ensures that web visitors can navigate the platform efficiently, register for accounts, and interact with institutional content.
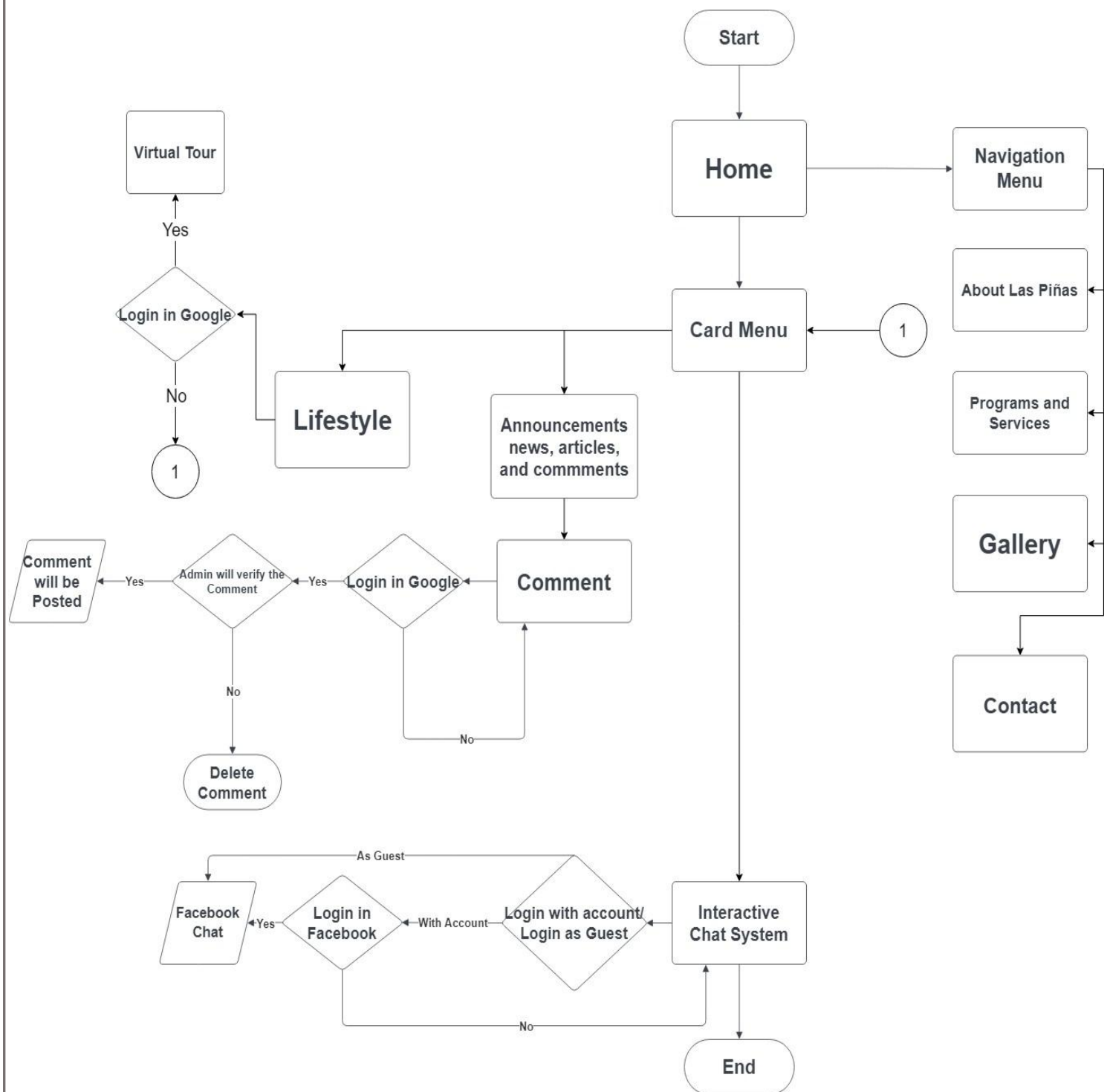

Figure 3.6: Web Visitor

The implementation plan ensured a seamless transition from the existing website to the newly optimized platform. Initial deployment on Google Cloud allowed for performance testing to assess speed, stability, and usability. Once validated, the system was transitioned for full operational use by government officials, academic administrators, students, and visitors.

To maintain peak efficiency, the website undergoes scheduled maintenance every thirty days, ensuring it continues to meet institutional objectives. Continuous user feedback integration helps refine features, optimize usability, and ensure long-term sustainability for institutional digital transformation.

Conclusion

The study successfully developed and implemented an online marketing information system for Dr. Filemon C. Aguilar Memorial College of Las Piñas, addressing key challenges such as fragmented social media presence, lack of centralized communication, and inefficient inquiry handling. The newly designed website integrates interactive virtual tours, automated inquiry responses, and centralized institutional information, significantly improving stakeholder engagement, accessibility, and institutional branding. Usability testing confirmed the system's efficiency, responsiveness, and ease of navigation, enhancing the institution's digital visibility while providing a structured framework for academic outreach. The study further demonstrated that well-integrated digital engagement strategies positively influence user satisfaction and trust in online platforms, ensuring a seamless and effective communication channel for students, faculty, and prospective enrollees.

Recommendations

To further refine and optimize the system, the following recommendations are proposed:

1. Continuous Content and System Maintenance – Regular updates should be implemented to ensure accurate information, responsive communication channels, and real-time user interaction, preventing misinformation and outdated content.
2. Enhanced User-Driven Features – Incorporating AI-assisted chat services and multilingual accessibility will strengthen user engagement, particularly among diverse student demographics.
3. Security and Performance Optimization – Routine system audits, database encryption, and load-balancing techniques should be enforced to maintain data security and platform reliability, ensuring uninterrupted access for stakeholders.
4. Marketing and Outreach Expansion – Leveraging social media integration and SEO strategies will further enhance institutional visibility, attracting prospective students and increasing digital outreach effectiveness.
5. User Feedback and Adaptation – Periodic usability assessments and stakeholder consultations should be conducted to align platform improvements with user needs, ensuring continued digital transformation and institutional growth.

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