MemorialDB: A Cemetery Management System Website

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May 23, 2025

Abstract – This is a web-based Cemetery Management System aimed at enhancing the organization and efficiency of cemetery operations. There are different dashboards for administrators and clients. The clients can check availability of plots, monitor payments, maintain contracts, and update their profiles, whereas administrators can view statistics, manage client information, and review contracts. Through automation, the system offers enhanced accessibility, minimizes manual errors, and updates conventional cemetery services.

Keywords — Cemetery Management System, Web-Based Application, Client Dashboard, Admin Panel, Interactive Map, Burial Slots, Contract Management, Online Payment System, Interactive Map, Digital Transformation

I. INTRODUCTION

In recent years, the evolution of traditional industries to digital technologies has transformed the way services are delivered and managed. A great example are cemetery and memorial services, which are often overlooked in terms of digital innovation. Managing burial plots, client records, and payment systems manually can lead to inefficiencies, inaccuracies, and delays in service.

To address these challenges, we have developed MemorialDB, a digital Cemetery Management System. It is a web-based application designed to modernize the management and client interaction process in cemeteries.

This paper discusses the development of the system, its objectives, features, and the benefits it offers to both clients and administrators.

II. BACKGROUND OF THE STUDY

The development of MemorialDB is important to stakeholders who are involved in cemetery operations. This study contributes to the process of modernizing a traditionally labor-intensive industry through the introduction of a digital solution that offers improved service delivery and operational effectiveness.

For Cemetery Managers, the system offers a centralized platform to administer burial plots, monitor client contracts, and follow payments and income. This minimizes the use of paper-based records and manual monitoring, thus reducing errors and simplifying administrative operations.

For Clients, it provides convenience, transparency, and accessibility. Clients are able to conveniently see plot availability, buy, track payments, and update their profiles online. This reduces the necessity for regular visits and enhances the overall user experience.

For Future Researchers and Developers, this study is a guide to creating digital solutions in sectors that are under-digitized. It emphasizes user-experience design and illustrates how web platforms can solve practical issues in the real world using automation and data management.

Generally, this project enables efficiency, transparency, and innovation in cemetery operations, eventually helping both clients and service providers by filling the gap between existing practices and contemporary technological capacities.

III. STATEMENT OF THE PROBLEM

Managing cemeteries and doing cemetery operations manually has seen to be inefficient, time consuming, and more likely to have mistake in documentation. Traditionally, cemeteries use a lot of papers to store data and records, which makes it hard to track client's

information, do reservations and generate accurate reports. These activities can lead to different types of errors such as double booking, loss of records, and delayed services. Cemetery management system can solve these problems and make the task easy and efficient.

IV.   SIGNIFICANCE OF THE STUDY

The MemorialDB Cemetery Management System provides notable enhancements in managing cemetery operations, offering advantages for administrators and clients alike. This research is significant as it presents a contemporary, digital method for maintaining records and providing cemetery services, moving away from conventional paper-based systems that frequently suffer from loss, damage, or human mistakes.

For administrators, MemorialDB streamlines the oversight of burial records, plot allocations, and client transactions. It allows quicker retrieval of information, decreases administrative burden, and improves overall productivity. Through automated updates and centralized data storage, employees can prevent record duplication and deliver precise answers to questions, leading to enhanced service quality and efficiency.

The system provides customers with a user-friendly platform to search for the burial sites of loved ones, view available plots, and request services—all through the internet. This is particularly beneficial for individuals who are unable to go to the cemetery physically. It also enhances transparency by enabling families to check records and monitor their requests.

By implementing MemorialDB, cemetery organizations can deliver a dignified and effective service while safeguarding important historical documents. This system connects conventional cemetery traditions with digital advancements, guaranteeing sustainability and ease for both current and future generations.

V.   OBJECTIVES

The main objectives of this project were to design and implement a web-based cemetery management system that simplifies information processing for the clients and administrators. In order to accomplish this, the project is designed by the following specific objectives:

1. To develop a fully-functional website that stores and maintains cemetery-related data in the form of: deceased individuals' information, burial plot types, locations and availability status, payment settlement and contract monitoring.

2. To implement two user roles: (1) administrator access, with complete control over the cemetery records, plot status, payment handling, and contract logs; and (2) client access, with limited actions like viewing plots availability, purchasing of plots, and monitoring personal transaction records.

3. To incorporate a login/register system for administrators *(without register option)*, and for clients upon accessing the website.

4. To use Python, HTML, CSS, and SQLite in building the system to properly integrate front-end presentation and back-end processes for smooth user experience and data management.

VI.   DESCRIPTION OF THE SYSTEM

The MemorialDB is a web-based application designed to facilitate and streamline the operations of cemetery services for both clients and administrators. It serves as a centralized platform for acquiring plots, client profiles, contract information, and payment transactions.

The system is divided into two main interfaces: the Client Dashboard and the Admin Dashboard. The Client Dashboard allows registered users to access personalized features such as viewing notifications, tracking pending or overdue payments, exploring an interactive vicinity map of the cemetery, purchasing burial

slots or mausoleums, viewing contract details, processing monthly payments, and updating personal information.

The Admin Dashboard provides tools for administrators to manage client records, oversee contract statuses, and monitor overall business performance through statistics and graphical reports. Administrators can also access and update information related to cemetery slots, client transactions, and revenue tracking.

The system is designed to improve operational efficiency, reduce manual errors, and provide users with a transparent and accessible digital service. It leverages modern web technologies to ensure responsiveness, user-friendliness, and scalability for future development.
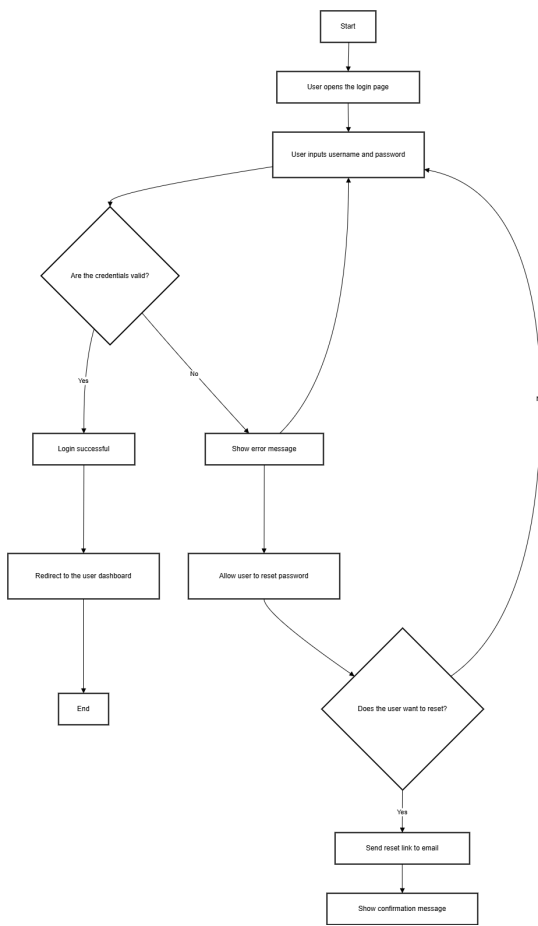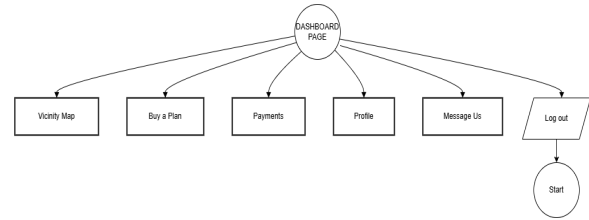
VII.   METHODOLOGY
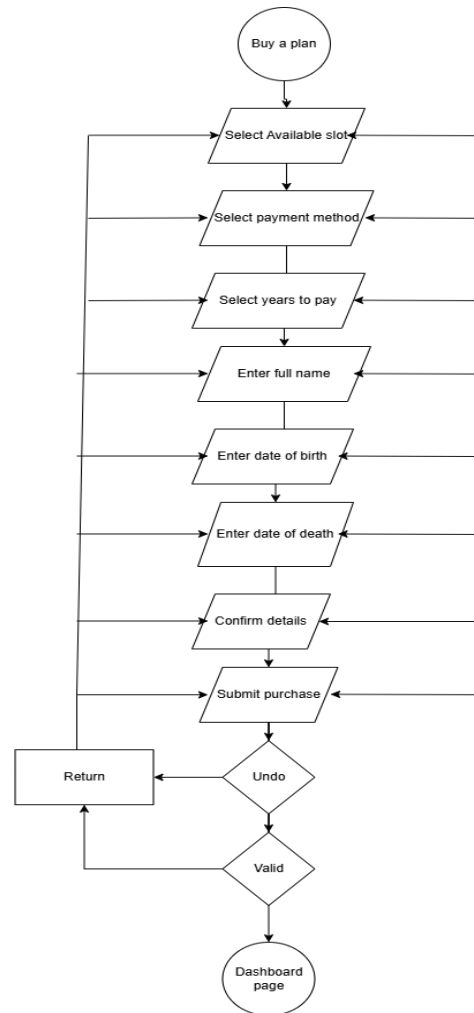

Figure 2. Dashboard Flowchart

Figure 3. Buy a Plan Flowchart

DB Cemetery Management System, we followed a practical and straightforward development process using a mix of front-end and back-end technologies. We designed the user interface with HTML, CSS, and JavaScript to make sure the website looked clean, was easy to navigate, and worked well on different devices.

Figure 1. Landing Page Flowchart

On the back-end, we used Python with FastAPI to handle the logic behind the scenes. FastAPI allowed us to create a fast and secure connection between the website and the database. For storing data like burial records and plot information, we chose SQLite—a simple, lightweight database that was easy to set up and worked well for our project's needs.

To make the system accessible online while we were developing and testing it, we used Ngrok. This tool gave us a public URL that linked to our local server, making it easy to test the website from different devices or share it with others for feedback.

VIII. REVIEW OF RELATED LITERATURE

Cemetery management systems (CMS) have grown in importance in modern society through the provision of organized, effective, and convenient services (Rahman et al., 2025). Traditionally, cemetery administrators maintained records manually using paper-based documentation (Sultana et al., 2021). The paper-based documentation was prone to errors, loss of records, and in-effectiveness in operations, especially when cemetery administrators required the identification of individual burial plots (Schmidt et al., 2020). To overcome these challenges, many cemeteries are already embracing digital management systems that automate record-keeping, streamline administrative operations, and provide easy-to-use tools for staff and clients(Oliver, 2022). This literature review examines cemetery management practices in the Philippines, including pricing models and administrative systems, with the hope of contributing to the development of a CMS that streamlines plot selection, purchasing, and digital payment.

Urban cemeteries, specifically in Metro Manila, gravely struggle with the issue of space constraints (Reyes, 2023). In response, "apartment-style" tombs have emerged as a solution. Fong (2019) observes that apartment-style tombs function to ease spatial limitations in urban settings. Public cemeteries, on the other hand, which are normally operated by LGUs, are typically overcrowded, poorly managed, and employ obsolete manual record-keeping (Dizon, 2023). In contrast, private memorial parks, on the other hand, offer better organized and enhanced services, catering mostly to wealthier clients (Bersabal 2025).

Building on these trends, the majority of private cemeteries have already begun embracing digital technologies to improve their service delivery. A study conducted by Komalasari (2020) indicated that the necessity of managing the cemetery areas in cities correctly and effectively has increased the importance of the Cemetery information System (CIS). Some have used electronic record-keeping, GIS-based plot mapping for efficient plot management, and online booking systems to improve customer satisfaction and administrative efficiency (Schmidt, 2018). For instance, some cemeteries have used automated plot allocation, digital transactions, and tracking of long-term maintenance (Gallera, 2023). These examples are proof of how digital transformation can potentially improve cemetery operations—a trend that is in line with the design goals of the proposed Cemetery Management System (CMS) of this study, which aims to offer interactive plot selection and secure online payment features.

Other than management system enhancement, a necessary factor to cite is the price structure in the different cemetery types . In the Philippine scenario, prices are relatively diverse depending on the cemetery type (public or private), location, and general site reputation. In public cemeteries run by LGUs, single burial lots range from ₱5,000 to ₱20,000 , while apartment-type niches range from ₱5,000 to ₱50,000, typically involving renewable leases within three to five years (See, 2020). Public cemeteries remain the cheapest for the majority of Filipinos; however, affordability typically comes at the expense of service quality and physical efficiency (Brizuela, 2016).

Meanwhile, privately owned memorial parks provide for better maintenance of facilities and more systematically arranged burial options, although these are at a much higher cost. The price of lawn lots can also range from ₱50,000 to over ₱500,000 (Manila Memorial Park, 2024), depending on the location and status, while family mausoleum crypts could range from ₱200,000 to over ₱2,000,000 (Heritage Memorial Park, 2024; Golden Haven, 2024; Mendoza, 2023). These figures highlight the huge gap that exists between public and private cemetery services, thus the need for more affordable and well-managed options across the industry. Briefly, the prevailing situation of cemetery management in the Philippines highlights the imperative need for digital advancement and enhanced spatial planning. Public cemeteries remain the least expensive option for most citizens; however, these are often plagued by the lack of essential infrastructure required to facilitate proper services. Conversely, private memorial parks are excellent in adopting modern technologies and having well-planned facilities but at much higher costs. This review emphasizes the need and urgency to implement a Cemetery Management System with digital plot selection, real-time buying functionality, and secure payment processing. Through the elimination of administrative inefficiencies and facilitating transparent pricing, such systems can offer scalable solutions that are applicable both to public and private cemetery settings.

IX.   THEORETICAL CONSIDERATIONS

The development of the MemorialDB Cemetery Management System is grounded in several key theoretical frameworks in information systems, database management, and human-computer interaction.

First, **Database Theory** underpins the structure of MemorialDB. This theory emphasizes data integrity, normalization, and efficient retrieval—principles that are crucial in designing a reliable system for storing and accessing sensitive records of the deceased. Proper application of relational database models ensures accuracy, consistency, and quick access to cemetery data such as names, dates, burial plots, and service history.

Second, **Systems Theory** supports the design of MemorialDB as a dynamic system with interrelated components—user interface, data processing, and administrative controls—that work together to achieve an organized and responsive management process. This theory promotes system efficiency and adaptability, allowing MemorialDB to respond to both administrative and customer needs.

Lastly, **Human-Computer Interaction (HCI)** theory guides the development of the user interface. A system that is intuitive and easy to navigate increases user satisfaction and reduces the learning curve for both staff and customers. HCI principles ensure that MemorialDB is accessible, user-friendly, and inclusive for people with varying levels of technical expertise.

These theoretical foundations ensure that MemorialDB is not only functional and efficient but also user-centered and sustainable in the long term.

X.   DATA AND RESULTS

At the present phase of development, MemorialDB, the cemetery management website, has not yet undergone a formal, scientific beta testing or public access to gather data regarding user experience, satisfaction and other relevant information useful for the research. However, the student-researchers conducted a series of internal evaluations and informal reviews which yielded preliminary feedback regarding the system. These insights showed strengths and weaknesses of the current state of the website, which helped in further improvement of the system under time constraint. Below are key results collected from the early-stage evaluations.

INTERNAL FINDINGS

Speed. Assuming that the resources to load are stored locally in the device, assessments showed that all pages seemed properly responsive and loaded packages in under 2

seconds upon click. However, when several libraries required internet access, the loading time highly depended on the speed of the local internet connection (WiFI or Mobile Data). This makes the range of average loading time jump to 3-5 seconds. Different users also claimed that speed of website loading is also relative to the computer performance quality.

User-friendliness. The website felt easy to navigate from the landing page to the user interface of both client's and administrator's point of view. The design looked familiar from other websites which gave users a smooth navigation experience, while it being a website on its own. The graphs and tables also helped users visually see and interpret information from the database as they are listed.

Color and Style. From an artistic perspective, the graphical user interface of the website gave initial impressions of a minimalistic yet modern look of the website. Majority of the color scheme was found to be white with a hint of shades of dark blue and green which fit well to the cemetery theme of the system.

Key Features. The initial assessment of the website highlighted three main key features of the website: (1) the vicinity map, which showed availability, type and price of the cemetery slots including the information (if existing) stored inside; (2) the contract process, which included buying a slot, choosing a plan, payment of the monthly amortization, and monitoring of current status of contract; and (3) the database management system, which comprised a complex back-end-based algorithm allowing efficient creation, deletion, updation and accessing of information from the local database system.

Suggestions. One of the immediate concerns raised by users was the need for a color-coded vicinity map as the mouse pointer hovers through each polygon which aims to help end-users easily recognize which slots are occupied and not. Other recommendations were mainly about the further improvement of the

website including more efficient filtering abilities of the table from the administrative view of the system.

XI. ANALYSIS OF DATA

With formal reviews of the website not having been conducted in an experimental environment, no scientific data has been analyzed. Nevertheless, based on internal results derived from preliminary assessments and developer testing, the findings indicate that MemorialDB was satisfactory in several key areas such as feature completeness, usability, visual presentation, and technical performance. Functionally, the system served its purpose of having cemetery-related data stored in a web-based system that supports client and administrator user access levels. Slot purchasing, information tracking, and plan selection worked according to design within internal testing, demonstrating an interconnected and uniform relationship between front-end user interface and back-end processes. From an usability point of view, the website was discovered to have a user-friendly layout, with navigation elements and form controls that supported modern UI/UX design. The structure of the website was characterized by being simple and concise, and was convenient for individuals who did not have extensive technical knowledge. Technically, the decision to employ Python for the back-end logic, HTML/CSS for styling the front-end, and SQLite for handling the databases was both functional and effective. The synergy between these technologies enabled smooth handling of data and retrieval, with no loss of system responsiveness and low utilization of resources. These tools combined made the creation of a fully functional website that can adapt with future updates, e.g., color-coded vicinity map, more efficient back-end optimization, and user feedback modules. Though no empirical data was collected from actual users, the initial internal testing process gave a good ground for further development. Once the site is in the deployment or beta testing phase, more data in the form of user engagement statistics, error logging, and frequency of feature use will provide more in-depth information to guide future updates and fine-tuning.

XII.   CONCLUSION

The MemorialDB marks a major advance in modernizing and simplifying the running of cemetery administration. Technically, the system provides real-time plot availability tracking, a strong database architecture for consistent storage and retrieval of burial records, and safe user authentication to guard private information. By transitioning from paper-based to a digital and automated system, it will greatly reduce human error possibility, improve data accuracy, and make it easy to retrieve information on the database of the cemetery. The system can provide transparent financial transactions, efficient plot administration, and store data effectively. Furthermore, empowering management with improved planning and decision-making powers are elements including digital mapping, reserve scheduling, and report generating. In conclusion, the MemorialDB not only improves the overall experience for grieving families, but also enhances operational efficiency, providing them with a more dignified and organized process. It is vital that any cemetery that desires to offer professional, respectful, and well-managed services in the contemporary era invest in this system.

XIII.   RECOMMENDATIONS

MemorialDB should improve mapping capabilities. Markings of available, occupied plots must be implemented clearly so the client can distinguish the differences. System should have automatic selection when the plot is clicked on the vicinity map. The different information should be displayed properly. Implementation of a centralized, cloud-based platform will help to guarantee safe, real-time access to records, enable disaster recovery, and allow future scalability. To enhance plot visualization, eradicate allocation mistakes, and help staff members and guests negotiate the cemetery, the system should combine GIS mapping features. Maintaining data security while staff members with different technical backgrounds can utilize the system effectively depends on a user-friendly interface including role-based access restrictions. Automating important tasks as document preparation, reporting, and plot reservations can also greatly improve operational effectiveness. The company should give staff constant technical support and training to guarantee effective adoption and long-term use. At last, the system should be built with future integration in mind so allowing possible improvements such mobile access, online payment processing, and connectivity with municipal or regional information systems.

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