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A Web-Based System for Managing Lawn Care Services: Implementation and Evaluation at Kak Gee Services

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KEYWORDS

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Service Management
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Case Study
Scheduling

ABSTRACT

This paper presents the implementation of a web-based system developed to manage and streamline lawn care services at Kak Gee Services. The system automates key processes, including scheduling, customer communication, and service management, offering a more efficient and organized approach compared to traditional manual methods. By integrating features such as real-time scheduling, service tracking, and customer management, the system enhances operational efficiency, reduces errors, and improves customer satisfaction. An evaluation of the system's performance, usability, and impact on business operations was conducted through user feedback and performance metrics. The findings suggest that the web-based system significantly reduces administrative workload, improves service accessibility, and provides greater transparency in pricing and scheduling, ultimately contributing to better service delivery and customer experience.

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1.0 INTRODUCTION

The rapid growth of digital technologies has greatly changed how service industries operate. These technologies offer new ways to solve problems and improve how businesses interact with their customers. Lawn care services, although a smaller part of the service industry, are important for maintaining outdoor spaces. Traditionally, these businesses have used manual methods for handling customer requests, scheduling tasks, and delivering services. However, these old methods can lead to inefficiencies, difficulties in scaling the business, and lower customer satisfaction.

Kak Gee's grass-cutting business based in Terengganu, Malaysia, among companies that facing similar challenges with manual operations. The current system suffers from several limitations, including restricted accessibility and visibility for customers and service providers, which leads to missed business opportunities; inefficiencies in scheduling and communication, often resulting in misunderstandings and conflicts; and a lack of price transparency, which can cause disputes.

To address these issues and support the modernization of the lawn care service sector, a web-based platform for lawn care services has been developed. This platform provides features like online

booking, efficient staff management, and comprehensive customer data handling [1]. It offers a more reliable, scalable, and customer-focused solution designed to enhance the overall experience for both the business and its customers.

This paper presents the design, development, and evaluation of the web-based system created for Kak Gee Services. The system was built to address critical challenges such as manual scheduling, inconsistent communication, and limited record-keeping. By incorporating user-friendly interfaces, automated scheduling, and real-time communication tools, the system enhances service management efficiency and improves customer satisfaction [2].

Additionally, this system provides a simplified self-service platform for clients to access service information, schedule appointments, and make reservations. The primary objectives include automating scheduling processes, boosting operational efficiency, and improving customer accessibility to information. This system not only addresses the current needs of Kak Gee Services but also sets a standard for modernizing lawn care services through innovative digital solutions. Enhancing internal resource booking to increase productivity and workflow, integrating worker calendars for more effective coordination, and applying virtual resources to streamline booking have value approaches [3].

2.0 SYSTEM DESIGN

An Agile development method was used to create the web-based managing and scheduling system, emphasizing flexibility, iterative progress, and continuous user feedback. Key factors included adapting to changing needs, reflecting on the development process, and identifying areas for improvement. Case studies were utilized to gather user requirements, while a project wishlist prioritized tasks based on importance and impact [4].

2.1 Context Diagram

Fundamental functional requirements ensure that an online system meets user needs and runs efficiently. Security is a major concern, requiring secure administrator login processes for managing access controls. The web interface must be optimized for usability, allowing all users to navigate and communicate with ease. Performance is crucial, requiring quick responses to user actions. Furthermore, the system must be highly reliable, ensuring consistent availability while limiting the possibility of system failure. The overall idea of the system is illustrated in Figure 1 and Figure 2.

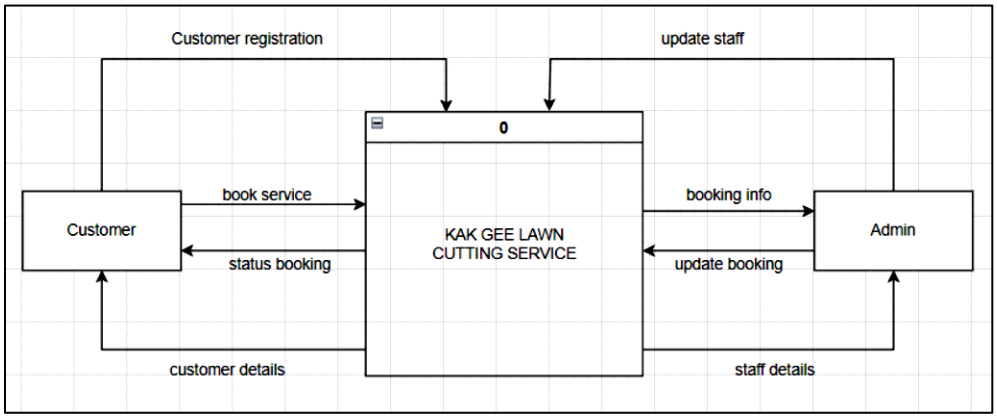


Figure 1: System Context Diagram for A Web-Based System for Managing Lawn Care Services

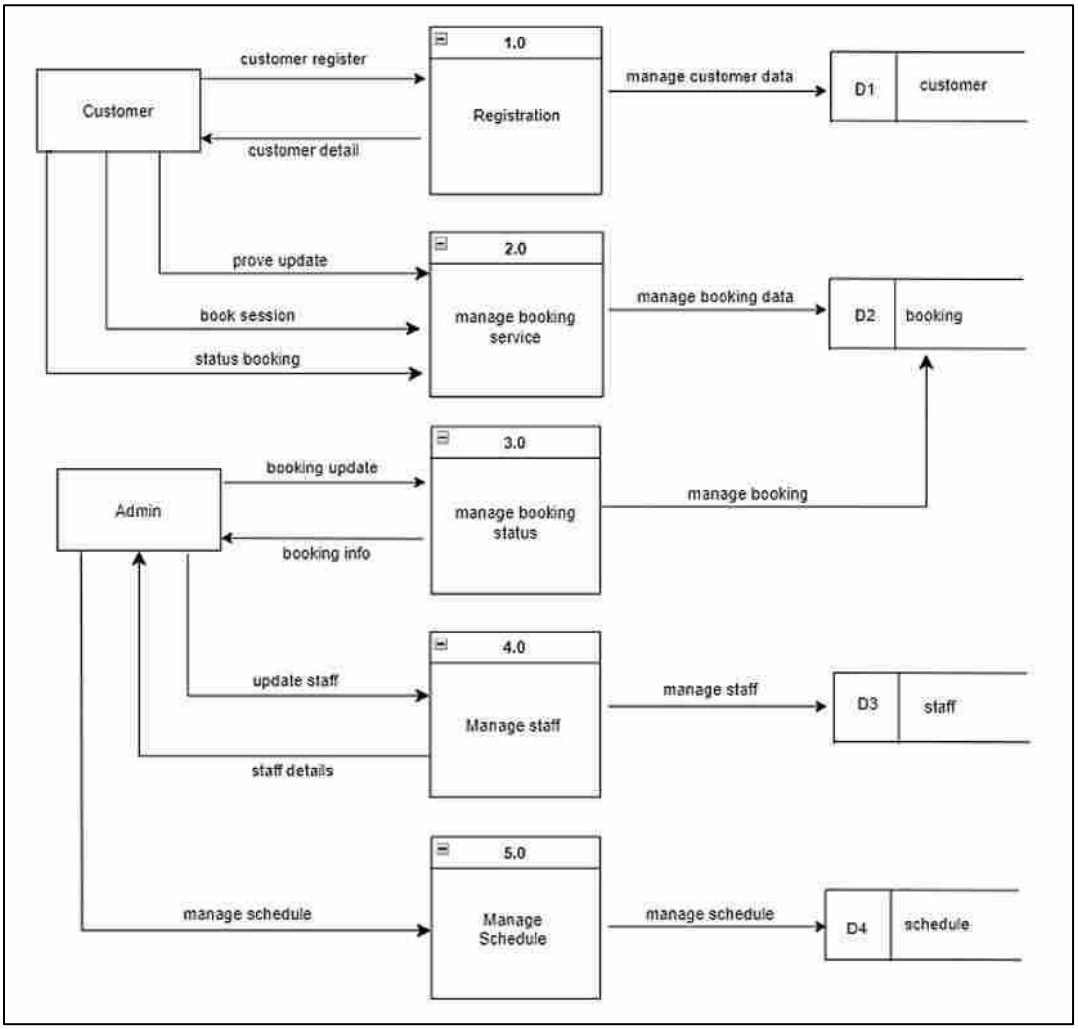


Figure 2: Data Flow Diagram for A Web-Based System for Managing Lawn Care Services

2.2 Entity Relationship Diagram

A key use of ER Diagrams in the Kak Gee Lawn Cutting Service System is shown in Figure 3. A comprehensive database is necessary for efficient operation. Carefully identifying the right entities and defining accurate relationships between them is crucial, as supported by research and best practices in database design [5].

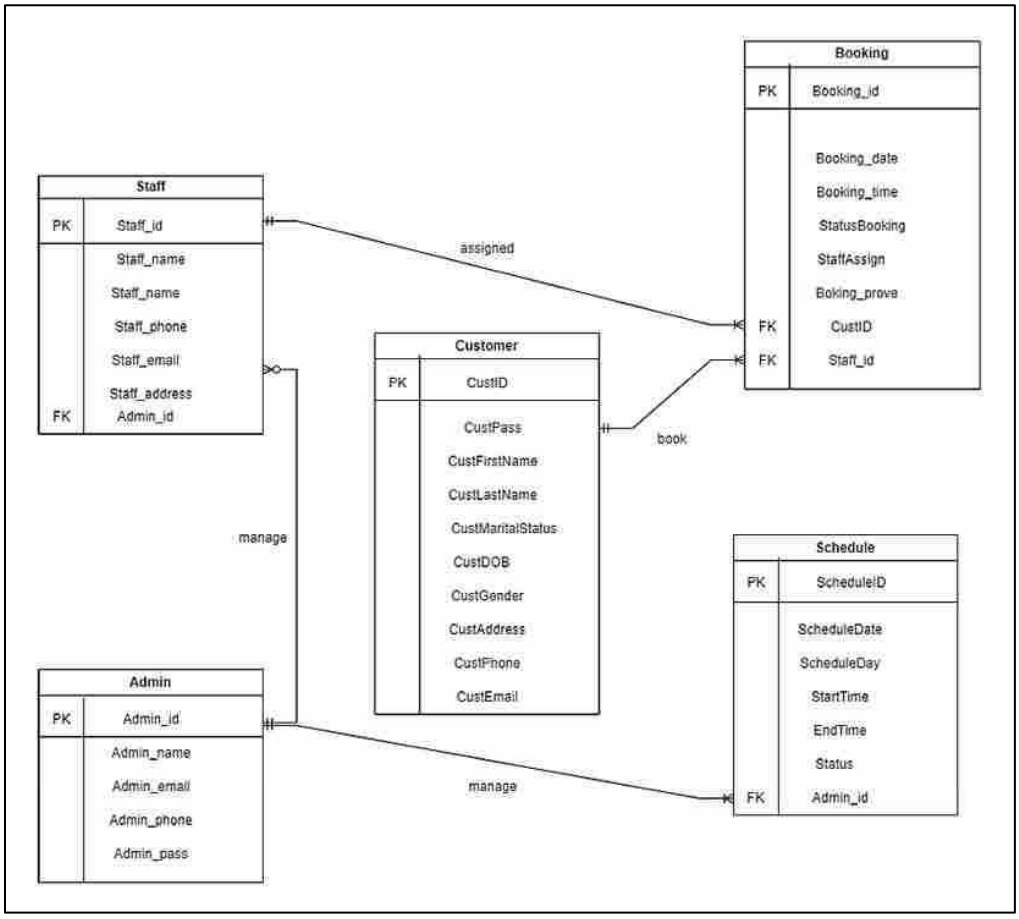


Figure 3: Entity Relationship Diagram for A Web-Based System for Managing Lawn Care Services

2.3 System Flow

The flow of information within the scheduling and management system is clearly represented by system flowcharts, which a visual representation of the data and processes to illustrate the relations and flows. Figure 4 illustrates the system's fundamental workflow for user admin and Figure 5 for user customer.

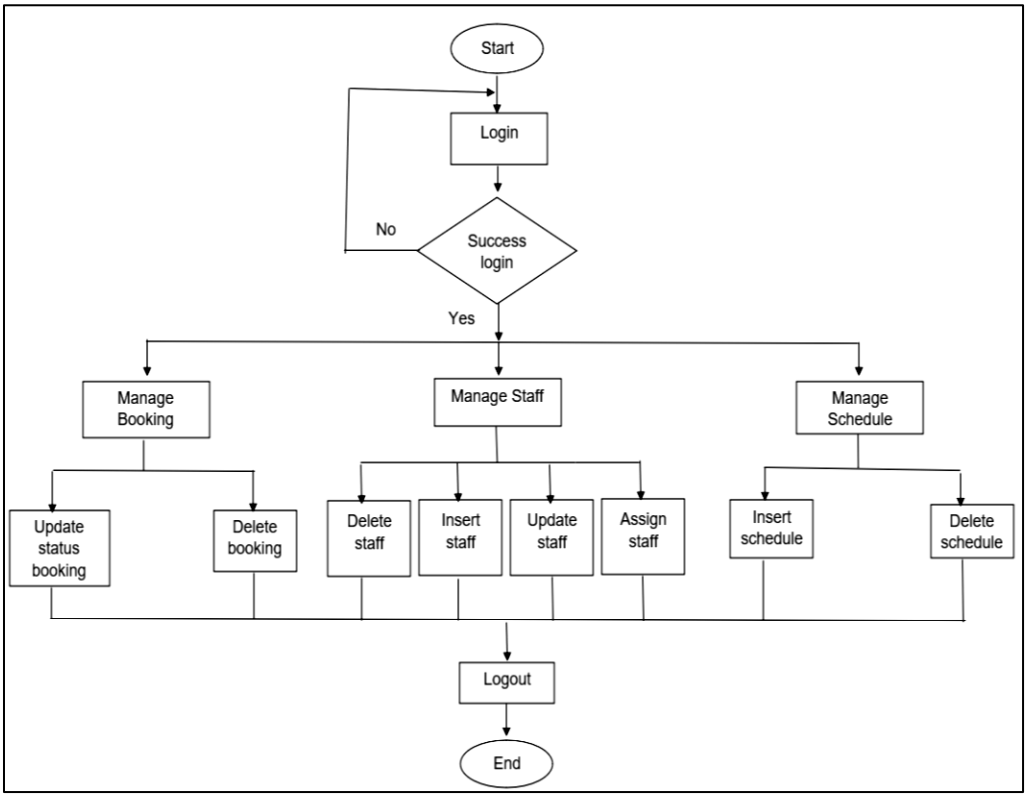


Figure 4: Flowchart User Admin

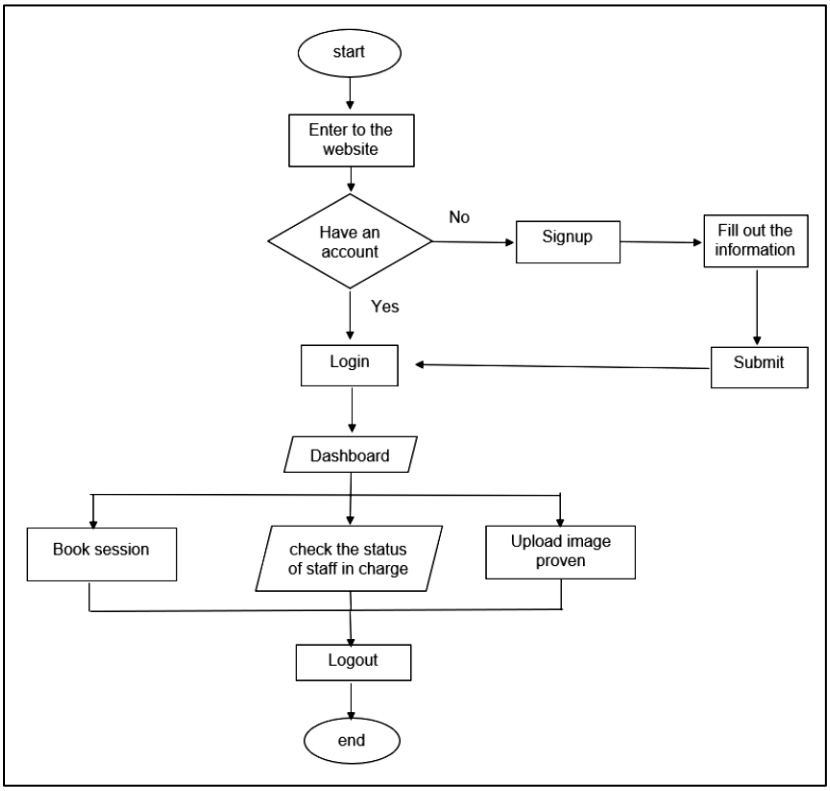


Figure 5: Flowchart User Customer

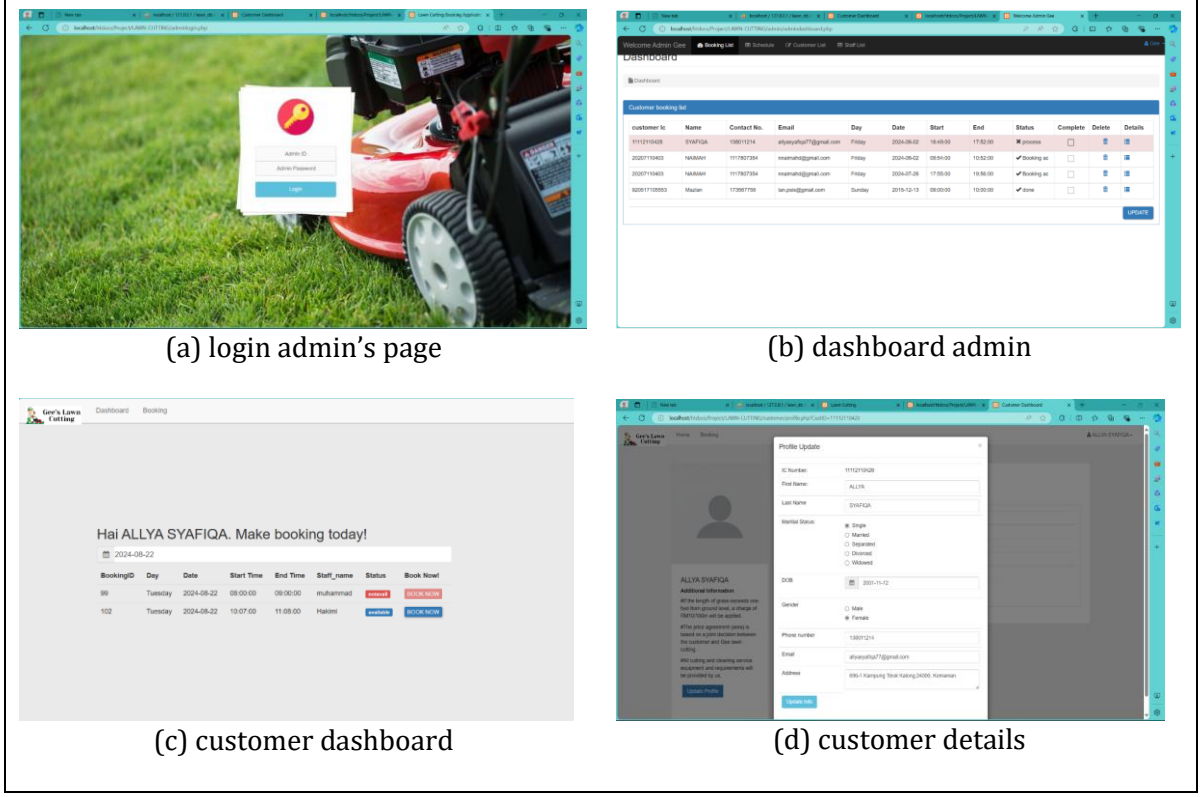
3.0 SYSTEM DEVELOPMENT AND IMPLEMENTATION

The development process of the web-based lawn care service scheduling and management system utilized modern web technologies to deliver a reliable and user-friendly platform. The front-end interface was developed using HTML, CSS, and JavaScript to ensure an intuitive and responsive design, while the back-end incorporated server-side logic and database integration to manage data effectively [6]. Extensive testing was conducted throughout the development phase to validate the system's functionality and usability, aligning with the goal of enhancing operational efficiency and customer satisfaction [7] .

The system's primary user interface provides a seamless experience for users, displaying a schedule of available services as its central feature. Figure 6 illustrates the main user interface of the system. Additionally, Figure 7 showcases selected screenshots of various system interfaces, including: (a) the admin login page, (b) the admin dashboard, (c) the customer dashboard, and (d) detailed customer information.

These interfaces were designed to meet the functional requirements identified during the planning phase. For administrators, the system includes features such as login/logout functionality, booking and schedule management, staff assignment, and status updates. Customers benefit from features like registration, secure login/logout, staff status tracking, booking capabilities, and payment upload options [8].

Figure 6: Main Interface



(a) login admin's page (b) dashboard admin

(c) customer dashboard (d) customer details

Figure 7: The System's Other Interfaces

The testing phase confirmed the system's robustness, meeting key non-functional requirements such as usability, performance, security, reliability, and scalability. The system's modular design, coupled with a robust database and user-friendly interface, ensures adaptability for future updates or expansions [4]. The successful implementation of the Kak Gee lawn care service management system demonstrates its capability to streamline operations, improve service quality, and deliver a better overall experience for both administrators and customers [9].

4.0 CONCLUSION AND FUTURE WORK

The Kak Gee Lawn Cutting Service System has demonstrated potential to enhance customer satisfaction and operational efficiency, contributing to the success of the business. To further maximize the system's effectiveness, this study recommends several key enhancements. These include establishing a frequently updated help center, implementing real-time notifications for critical events, streamlining scheduling through features like recurring bookings and rescheduling or cancellation options, and introducing a dedicated employee portal for schedule management, communication with administrators, and feedback submission.

Additionally, providing comprehensive customer support through multiple channels, including a chatbot, and incorporating a customer feedback and rating system will foster continuous improvement. These enhancements are expected to bolster the system's security, usability, and reliability, driving greater operational efficiency, improving customer satisfaction, and positioning the business for sustained growth and long-term success. This forward-looking approach

underscores the importance of continuous system refinement to adapt to evolving customer needs and market demands.

Author Contribution

Wan Nur Idayu Tun Mohd Hassan: Conceptualization, supervision, methodology, writing and editing. Nurul Naimah Din: Investigation, conceptualization, visualisation, development, writing, and editing. Ziti Fariha Mohd Apandi: Methodology, writing and editing.

Conflict of Interest

The research declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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