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B/S-Based Social Management System for Auto Clubs: Boosting Efficiency and Security

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Abstract: In today's rapidly advancing information age, computers play a crucial role in data management, significantly enhancing both efficiency and security, especially in complex information systems. Information technology has become integral to global communication, facilitating data exchange and interaction. The social management of auto clubs is an essential aspect of modern society, providing both support and comfort to these organizations. This paper examines the current state of service management in China's auto clubs and the evolving needs of their members. The system discussed, developed using IDE with MySQL, Tomcat, Jumpmvc, and Spring3, offers a dedicated front-end for users and a specialized back-end for staff. By leveraging this system, auto clubs can improve operational efficiency, enhance information security, and offer a more user-friendly experience.

Keywords: Information Security, Auto club, User Experience,Social management,Data Management

1. Introduction

The auto clubs social platform, developed using Java, is built on an Internet Browser/Server (B/S) management framework, utilizing web technologies as its core infrastructure. The platform's primary goal is to optimize the daily operations of auto clubs, significantly enhancing their efficiency. Furthermore, it aims to improve communication and interaction between the social management department and auto club members, ensuring quicker and more effective dissemination of information. The development of this platform is grounded in addressing real-world needs, where the application of advanced and mature computer technology plays a pivotal role in solving practical challenges faced by auto clubs. By focusing on these objectives, the platform not only improves the overall management of auto clubs but also fosters a more connected and responsive community, ensuring that both administrative tasks and member engagement are handled with greater speed and efficiency.

2. Related Work

The development of social management systems, especially for niche communities such as auto clubs, requires a deep understanding of both the technological frameworks and the social dynamics at play. This section reviews key works that have contributed to the development of such systems, focusing on deep learning, social network analysis, and the integration of information and communication technology (ICT) in social and organizational contexts.

The work of Ford and Honan [1] on the limits of mutual aid among app-based transport workers in Indonesia offers a critical perspective on the challenges faced by communities that rely heavily on digital platforms for their operations. Their findings underscore the importance of building systems that not only enhance efficiency but also foster a sense of community and support among users. This is particularly relevant for auto clubs, where the social aspect of the platform is as crucial as its functional capabilities.

Java et al. [2] conducted an analysis of microblogging communities, specifically focusing on Twitter. Their study provides crucial insights into the dynamics of online communities, which are directly applicable to understanding and improving communication within auto clubs. By analyzing user interactions and the flow of information within these communities, their work helps in designing systems that facilitate better user engagement and more effective dissemination of information. Yan et al. [3] explored the application of neural networks for survival prediction across diverse cancer types, demonstrating the potential of advanced machine learning techniques in handling complex, multi-dimensional datasets. While their work primarily focused on healthcare, the methodologies they employed, particularly in neural network design and data processing, are highly relevant to the development of robust social management systems. These systems, much like those in healthcare, require the ability to process and analyze vast amounts of data efficiently and securely, ensuring that the information is both accessible and protected. Nisa [4] examined the role of social media in the formation of Islamic social movements in Indonesia.

This study highlights the transformative power of digital platforms in mobilizing and organizing communities around shared values and objectives. The insights from this research can be leveraged in the design of auto club management systems, ensuring that they are not only tools for operational efficiency but also platforms for building and nurturing community identity.Medeiros et al. [5] explored the integration of ICT into Jakarta's informal transport system, specifically focusing on the ojek motorcycle taxis. Their research provides a practical example of how technology can be seamlessly integrated into traditional systems, improving both functionality and user experience. This is particularly relevant for the development of B/S-based management systems, where the goal is to enhance operational efficiency while maintaining the human-centric aspects of service delivery.Geertz's work [6] on ritual and social change, while rooted in cultural anthropology, offers valuable insights into how traditional practices can adapt and evolve in response to modern technological advancements. Applying these concepts to the context of auto clubs, it is possible to create systems that respect and incorporate the club's cultural heritage while embracing new technologies to improve management and communication.Finally, Newberry [7] provides a broader social context by examining state formation and domestic practices in Java. While this work is not directly related to technology, it offers a deeper understanding of the social dynamics that could influence the design and adoption of management systems in culturally rich environments like those of auto clubs in Indonesia.The current social management system for auto clubs is plagued by several issues, including its cumbersome user experience and inadequate security for managing social networking activities within these clubs. Additionally, the technology underpinning the system is outdated, lacking dynamic interface capabilities, and failing to demonstrate technological advancement when compared to similar platforms.

To address these shortcomings, there is a need to develop a more efficient social management system for auto clubs. This new system should enable users to oversee and manage the bulk of tasks associated with auto club social networking, thereby reducing the reliance on manual processes and conserving resources. In today's rapidly evolving technological landscape, where businesses and educational institutions are increasingly adopting computer applications for efficient and intelligent management, it is essential for higher education institutions, as key drivers of knowledge innovation, to leverage high-tech solutions to address practical challenges, adapt to modern requirements, and foster scientific, standardized management practices.

The ultimate goals of this system are multifaceted: to enhance the efficiency of daily operations within auto clubs, ensuring they meet the demands for high productivity; to streamline and improve the social management processes within these clubs, facilitating orderly and effective administration; to strengthen communication between the social management department and club members, accelerating the flow of information; to reduce manpower and resource consumption, thereby promoting a low-carbon lifestyle and achieving cost savings; and to improve the working environment for staff by enabling them to record and manage data directly through a browser-based interface, eliminating the need for manual record-keeping. Through the implementation of this system, auto clubs can expect to see significant improvements in both operational efficiency and member engagement, all while embracing modern technological advancements.

3. Overview of the System

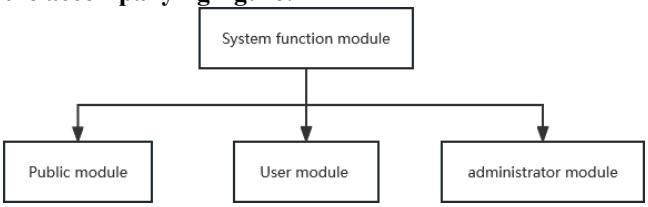
3.1. Analysis of Requirements

As the information age rapidly progresses, the widespread use of mobile phones has paradoxically led to a growing sense of social distance among people, even as their desire for social interaction intensifies. To bridge this gap, an online platform offers a way to transcend traditional concepts of communication, enabling users to connect without the need for offline gatherings. For drivers, the system simplifies the process of finding and joining auto clubs, allowing them to seamlessly connect with like-minded individuals and discover their ideal club environment.While users can interact with and view social announcements from various auto clubs, control over these announcements remains specific to their own club. This system also allows users to apply for membership in an auto club and become part of its social network.

The system is fundamentally structured around two principal roles: the system administrator and the rider. While these roles function autonomously, they are deeply interconnected through the database, which ensures integrated system performance. The system is segmented into two primary modules, each of which contains multiple sub-modules, corresponding to the specified features.

3.2.The system's operational framework

The operational principle of the system is illustrated in the accompanying figure:



The system is built using the Spring 3.0 architecture, a highly successful and widely adopted open-source framework in Java EE development. Spring is particularly valuable because it abstracts many common challenges encountered in modern application development. Compared to traditional J2EE development, Spring stands out as a lightweight application framework with unique features.

Spring's design philosophy is evident in its support for

POJO (Plain Old Java Object) development, allowing applications to be built with a focus on interfaces, and fully embracing object-oriented (OO) principles. With the backing of core modules like the IOC (Inversion of Control) container and AOP (Aspect-Oriented Programming), Spring simplifies the development process for Java EE applications. Moreover, it offers a wide array of system components that not only streamline the development process but also provide essential support for enterprise application services. These components allow developers to focus on building scalable and flexible systems while reducing the complexity typically associated with Java EE application development.

3.3. Overall composition of the system

Users access the login interface by clicking the login button. If not registered, they can register using their username, email, and password. Upon successful registration, users log in with their credentials.

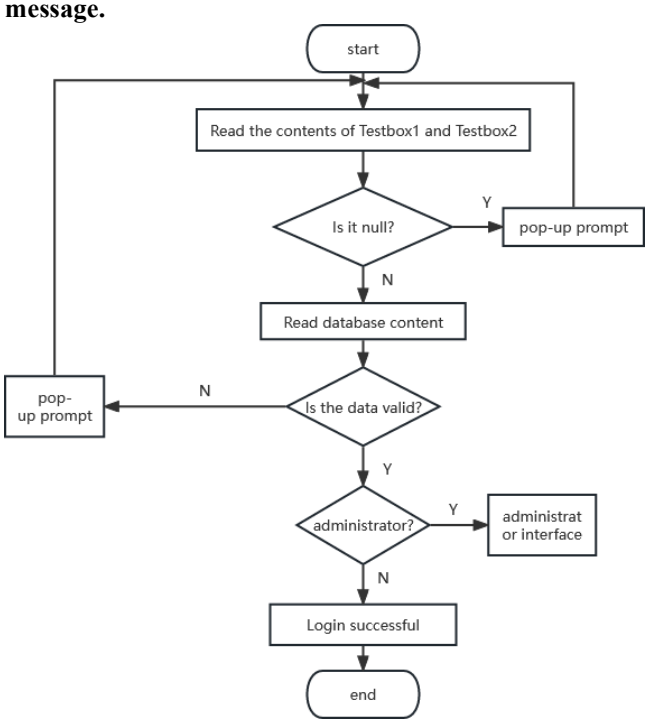
Login Function Code Implementation:

-Username Text Box ID:TextBox1

-Password Text Box ID:TextBox2

-Login Button ID:ImageButton1

-Event Handler:ImageButton1_Click triggers the login process when clicked. The function validates the username and password, checks credentials against the database, and either grants access or displays an error message.



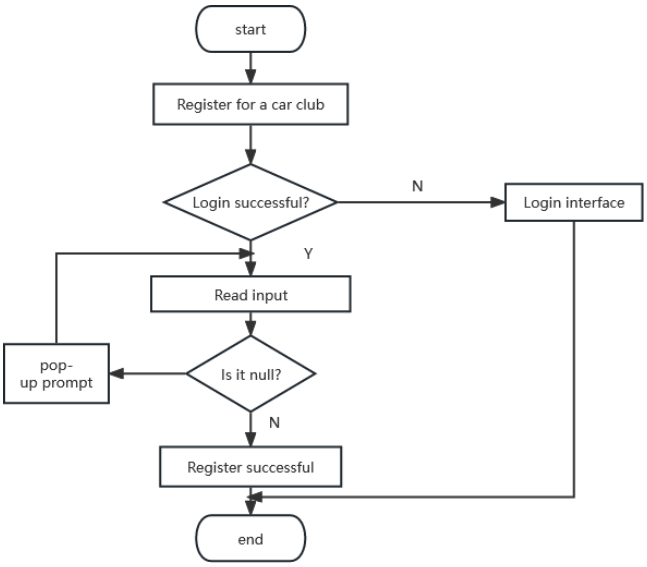
User Management Module:Function Description: Users can apply to join a rider club by clicking the "Apply" button on the homepage's "Rhetors" interface. They fill out a registration form, which is then reviewed by an administrator. Upon approval, the rider clubs become visible to all users, who can choose to join.

Auto Club Management Module:Function Description: Once logged in, and uploading files. The module allows users to post content like traffic updates or event announcements, Administrators can manage this content, including adding, deleting, modifying, and reviewing posts via database operations.

News and Album Management: Administrators can view and manage user-generated announcements, news, photo albums, and auto clubs, with options to review, add, modify, or delete content.

User Information Management: Administrators can view member details, disable accounts via a "Status" button, and modify or delete user information.

Auto Clubs Information Management: Administrators can review and manage auto clubs information, approving or deleting applications as needed.



4. System Testing

The module test serves as a crucial measure of system performance, evaluated through real-world testing scenarios. A comprehensive standard module test should assess the functionality of all related system modules, ensuring that the actual test outcomes align with the expected results. Significant discrepancies between the two necessitate further refinement. This section will delve into the detailed testing procedures and outcomes for the system's key modules.Among these, the dynamic basic test module is particularly vital, and its proper release is critical to the overall functionality of the test system. To evaluate this module, a black-box testing approach is employed. This method involves testing the module from two distinct perspectives: first, by following the correct procedure, and second, by deliberately introducing errors to observe any deviations in the results.The testing process begins by launching the system, selecting the release module, and accurately entering the required release information as prompted. The goal is to verify whether the system successfully processes and adds the information. Next, the test involves inputting non-standard release data—such as omitting the selection of a release module or failing to provide essential fields like a dynamic title, description, or content. This step is crucial in determining whether

the system appropriately handles errors and prevents the addition of incomplete or incorrect information.If the outcomes of both testing scenarios align with the predefined expectations, the module passes the test. If not, further improvements are necessary to ensure system reliability and accuracy.

5. Conclusion

The B/S-Based Social Management System for Auto Clubs offers a transformative approach to managing the multifaceted operations of these organizations by integrating advanced information technology solutions. This system, built on a robust Java framework and utilizing MySQL, Tomcat, Jumpmvc, and Spring3, addresses the critical need for enhanced efficiency and security in auto club management. By providing a dedicated front-end for members and a specialized back-end for staff, the platform significantly improves the user experience while ensuring secure and efficient data handling. Moreover, the system fosters stronger communication channels between members and the management department, leading to more responsive and streamlined operations. As auto clubs continue to grow and evolve, this B/S-based system serves as a vital tool in meeting the dynamic demands of modern social management, ultimately contributing to the development of a more connected and secure community within the auto club ecosystem.

References

[1] A. Java, X. Song, T. Finin, and B. Tseng, "Why we twitter: An analysis of a microblogging community," in Int. Workshop on Social Network Mining and Analysis, Berlin, Heidelberg: Springer, 2007, pp. 118-138.

[2] M. Ford and V. Honan, "The limits of mutual aid: Emerging forms of collectivity among app-based transport workers in Indonesia," Journal of Industrial Relations, vol. 61, no. 4, pp. 528-548, 2019.

[3] X. Yan, W. Wang, M. Xiao, Y. Li, and M. Gao, "Survival prediction across diverse cancer types using neural networks," in Proc. 2024 7th Int. Conf. Machine Vision and Applications, 2024, pp. 134-138.

[4] E. F. Nisa, "Social media and the birth of an Islamic social movement: ODOJ (One Day One Juz) in contemporary Indonesia," Indonesia and the Malay World, vol. 46, no. 134, pp. 24-43, 2018.

[5] R. M. Medeiros, F. Duarte, F. Achmad, and A. Jalali, "Merging ICT and informal transport in Jakarta's ojek system," Transportation Planning and Technology, vol. 41, no. 3, pp. 336-352, 2018.

[6] C. Geertz, "Ritual and social change: a Javanese example," in Ritual, Routledge, 2017, pp. 549-576.

[7] J. C. Newberry, Back door Java: State formation and the domestic in working class Java, Toronto: University of Toronto Press, 2006.