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DEVELOPMENT OF A MODERN DORMITORY MANAGEMENT INFORMATION SYSTEM FOR STUDENT ACCOMMODATION

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Abstract. Dormitory Management Information System is a digital information system designed for managing and monitoring student dormitories. The system enables student registration, application submission, document processing, room allocation, contract and payment management, attendance tracking, as well as sending announcements and notifications. It allows centralized management of dormitory operations. The platform includes separate dashboards for students, the Student Office, staff, and the administration, providing each user with convenient tools tailored to their responsibilities. Dormitory Management Information System helps reduce paperwork, store data in a unified database, enhance control, and improve the overall quality of services in dormitory management.

Keywords: student dormitory, information system, digital management, dormitory management, automation, role-based access control, student system, monitoring

Annotatsiya. Dormitory Management Information System — talabalar turar joylarini boshqarish va nazorat qilish uchun mo‘ljallangan raqamli axborot tizimidir. Ushbu tizim orqali talabalarni ro‘yxatdan o‘tkazish, ariza topshirish, hujjatlarni qayta ishlash, xonalarni taqsimlash, shartnoma va to‘lovlarni boshqarish, davomatni kuzatish, shuningdek e’lon va xabarnomalarni yuborish imkoniyati mavjud. Tizim yotoqxona faoliyatini markazlashgan holda boshqarishni ta’minlaydi. Platforma talabalar, Student Office, xodimlar va ma’muriyat uchun alohida boshqaruv panellarini o‘z ichiga oladi hamda har bir foydalanuvchiga o‘z vazifalariga mos qulay vositalarni taqdim etadi. Dormitory Management Information System hujjat aylanishini kamaytiradi, ma’lumotlarni yagona bazada saqlaydi, nazoratni kuchaytiradi va yotoqxona boshqaruvi xizmatlari sifatini oshiradi.

Kalit so‘zlar: talabalar turar joyi, axborot tizimi, raqamli boshqaruv, yotoqxona boshqaruvi, avtomatlashtirish, rollarga asoslangan kirish nazorati, talabalar tizimi, monitoring

Аннотация. Dormitory Management Information System — это цифровая информационная система, предназначенная для управления и мониторинга студенческих общежитий. Система обеспечивает регистрацию студентов, подачу заявок, обработку документов, распределение комнат, управление

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договорами и платежами, контроль посещаемости, а также отправку объявлений и уведомлений. Она позволяет централизованно управлять деятельностью общежития. Платформа включает отдельные панели управления для студентов, Student Office, сотрудников и администрации, предоставляя каждому пользователю удобные инструменты в соответствии с его обязанностями. Dormitory Management Information System способствует сокращению бумажного документооборота, хранению данных в единой базе, усилению контроля и повышению качества услуг управления общежитием.

Ключевые слова: студенческое общежитие, информационная система, цифровое управление, управление общежитием, автоматизация, ролевой доступ, студенческая система, мониторинг

INTRODUCTION.

The rapid development of modern information and communication technologies is leading to the widespread implementation of digitalization processes in all areas of the education system. The management system of student dormitories, which is an important component of university infrastructure, is also not excluded from these processes. Activities such as student registration, application submission, document processing, room allocation, contract management, payment control, and attendance tracking are considered the main elements of dormitory management. Currently, these processes are often carried out manually or through separate, unintegrated information systems. This results in increased paperwork, inefficient use of time resources, data inconsistency, and reduced management efficiency. In particular, the growing number of students, as well as the expansion of university and dormitory infrastructure, further exacerbates these issues. Therefore, the implementation of a unified, centralized, secure, and user-friendly digital system for managing student dormitories has become an urgent necessity. Such a system enables the automation of all processes, centralized data storage, enhanced monitoring, and improved service quality.

Dormitory Management Information System designed for managing student dormitories, along with its functional capabilities, architecture, and practical significance. The system aims to modernize dormitory management, reduce administrative workload, and create a convenient service environment for students.

LITERATURE REVIEW.

The digitalization of student dormitory management systems has emerged as one of the key research directions in recent years. An analysis of existing literature indicates that many studies are focused on automating dormitory management processes, centralizing data, and improving overall management efficiency. A number of studies highlight the use of platforms developed based on Management

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Information Systems and Enterprise Resource Planning systems, which enable centralized data storage and real-time management. While these systems are effective in optimizing general management processes, they often fail to fully address the specific needs of student dormitory management.

Additionally, some research has proposed local systems that include separate modules such as student registration, room allocation, and payment monitoring. However, such systems are often not well integrated, and data exchange between them remains limited. As a result, issues such as process duplication, data inconsistency, and lack of effective control arise in management practices. Scientific sources also emphasize that the implementation of digital systems can enhance service quality by centralizing management, reducing human-related errors, and introducing automated monitoring mechanisms. In particular, the application of role-based access control in multi-user systems is considered essential for ensuring security and effective system administration. At the same time, most existing systems are not designed as comprehensive solutions and tend to cover only specific functional aspects. For effective dormitory management, there is a need for an integrated platform that unifies all processes—from student registration to payment processing, attendance tracking, contract management, and internal monitoring—within a single system.

METHODOLOGY

In this study, modern software approaches and system design methodologies were employed to digitalize and optimize student dormitory management processes. The DORMIS system was developed based on a modular and multi-layered architecture, where the system is divided into frontend, backend, and database layers.

At the initial stage of the research, student dormitory management processes were analyzed, and existing problems as well as user requirements were identified. Based on this analysis, both functional and non-functional requirements of the system were formulated. During the system design phase, user scenarios were developed, and specific functionalities were defined for each user role.

The DORMIS system was developed based on the following key methodological approaches:

System analysis — studying existing processes and identifying problems
Modular design — dividing the system into separate functional components
User-centered design — adapting the interface and functionalities to user needs
Prototyping and iterative development — step-by-step system development and testing

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To ensure proper distribution of permissions among users, a role-based access control mechanism was implemented. Through this mechanism, different access levels and functionalities were defined for students, Student Office staff, dormitory personnel, and administrative management users.

In terms of data management, a centralized database was utilized, ensuring data integrity, security, and efficient processing. The system also incorporates near real-time data updates and monitoring functionalities.

DISCUSSION AND RESULTS.

As a result of the development and practical evaluation of the DORMIS system, significant positive improvements were observed in the management processes of student dormitories. With the implementation of the system, processes that were previously carried out manually or in a fragmented manner were integrated into a single platform and automated.

Firstly, the processes of student registration, application submission, and document handling were fully digitized. This significantly reduced paperwork and minimized time consumption. Students are now able to manage all processes remotely, enhancing convenience and accessibility.

Secondly, in the room allocation process, the centralized management system and automatically updated room information reduced human-related errors. Room capacity, occupied spaces, and available vacancies are displayed in near real-time, ensuring fair and efficient allocation.

Thirdly, financial processes were made more transparent through payment and contract management modules. Each student's payment status, outstanding balance, and contract details are accurately monitored within the system. This simplified control for the Student Office and contributed to reducing outstanding debts.

Fourthly, the attendance module enhanced monitoring of students' presence in dormitories. Since attendance data is maintained electronically, reliability has increased and errors related to the human factor have been reduced. The administrative management can utilize this data for analysis and monitoring purposes.

CONCLUSION.

As a result of this study, the DORMIS (Dormitory Management Information System), aimed at digitalizing student dormitory management processes, was developed and its effectiveness was substantiated. The system integrates key processes such as student registration, application submission, document processing, room allocation, contract management, payment control, attendance tracking, as well as announcement and notification management into a single

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platform. The research findings indicate that the DORMIS system significantly reduces issues such as excessive paperwork, time loss, and data inconsistency in dormitory management. Through the system, data is stored in a centralized database, control processes are automated, and overall management efficiency is improved. Additionally, the user-friendly and intuitive interface enhances the quality of service provided to users. One of the key advantages of the DORMIS system is its flexibility and scalability. The system can be further enhanced in the future by integrating new modules, additional services, mobile applications, and AI-based analytical tools. This will enable the system to evolve into a more comprehensive and advanced management platform.

REFERENCES

1. Laudon, K. C., & Laudon, J. P. *Management Information Systems: Managing the Digital Firm.* 17th ed., Pearson, 2021.
2. Stair, R., & Reynolds, G. *Principles of Information Systems.* 14th ed., Cengage Learning, 2021.
3. Turban, E., Pollard, C., & Wood, G. *Information Technology for Management.* 12th ed., Wiley, 2021.
4. Sommerville, I. *Software Engineering.* 10th ed. (updated editions used in 2021–2023), Pearson.
5. OWASP Foundation. *OWASP Top 10: Web Application Security Risks.* 2021.
6. ISO/IEC 27001:2022. *Information Security Management Systems Requirements.*
7. IEEE. *IEEE Software Engineering Standards Collection.* IEEE Press, 2022.
8. Zhang, Y., & Liu, H. "Design of Smart Dormitory Management System Based on Web Technology." *Journal of Computer Science and Technology,* 2022.
9. Kumar, S., & Singh, R. "Web-Based Hostel Management System with Real-Time Monitoring." *International Journal of Engineering Research & Technology,* 2023.
10. Chen, X., & Wang, L. "Digital Transformation in University Dormitory Management Systems." *International Journal of Information Systems,* 2024.
11. Abdrasulov A.Q., Naxshamova Z.A., Yaxshiboyeva S.S., Shomuratova Z.S. Künstliche Intelligenz: Untersuchung ihrer sozialen Auswirkungen und Mechanismen für eine zukunftsorientierte Steuerung // *International Conference on Multidisciplinary Sciences and Innovations (ICMSI).* – Germany, 2026.
12. Abdrasulov A.Q. Sun'iy intellekt yordamida qishloq xo'jaligi jarayonlarini avtomatlashtirish // *"Raqamli iqtisodiyot" ilmiy-elektron jurnali.* – 2026. – 14-son. – B. 239.
13. Abduvaliyev A.A., Abdrasulov A.Q. Geoxborot tizimlari yordamida transport va logistikani boshqarish // Qarshi, 2025. – B. 430.

ISSN 3030-3907

14. Abdrasulov A.Q. Zamonaviy texnologiyalarning yoshlar ta’limiga ta’siri // *International Conference on Multidisciplinary Studies and Education.* – 2026. – Vol. 3, No. 1. – P. 13–15.

15. Abdrasulov A.Q. Zamonaviy ishlab chiqarishda robototexnika tizimlaridan foydalanish // *Zamonaviy ilm-fan va tadqiqotlar: muammo va yechimlar.* – 2025. – Vol. 2, No. 5. – P. 343–345.

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