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AUTOMATION OF THE STUDENT SETTLEMENT PROCESS IN THE DORMITORY

Annotation

The article discusses the implementation of these improvements to make the system more flexible, scalable and convenient for both students and the administration. This will increase the overall level of digitalization and the quality of housing management at the educational institution.

This article is devoted to the development and implementation of an automated information system designed to manage the process of students settling into a dormitory. The relevance of the topic is due to the need to increase the efficiency, transparency and speed of processing applications for settlement, as well as optimizing the work of student dormitory staff. The article discusses the stages of requirements analysis, design and implementation of the system. The technologies used, the software architecture, and the user interface are described. The main focus is on automating key functions: submitting and processing applications, allocating places, maintaining a student database and reporting. The proposed solution makes it possible to reduce the time required to perform routine operations, minimize the human factor, and improve interaction between students and the dormitory administration. The results of the work demonstrate a significant increase in the convenience and efficiency of settlement management.

Keywords: automation, student residence, settlement system, application submission, seat allocation, information system, database, web application, tenant management, digitalization, university, software, integration, Django, React, PostgreSQL, electronic document management, process optimization, online settlement, student registration.

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АВТОМАТИЗАЦИЯ ПРОЦЕССА ЗАСЕЛЕНИЯ СТУДЕНТОВ В ОБЩЕЖИТИЕ

Аннотация

В статье обсуждается внедрение этих улучшений, чтобы сделать систему более гибкой, масштабируемой и удобной как для студентов, так и для администрации. Это повысит общий уровень цифровизации и качество управления жильем в образовательном учреждении.

Данная статья посвящена разработке и внедрению автоматизированной информационной системы, предназначенной для управления процессом заселения студентов в общежитие. Актуальность темы обусловлена необходимостью повышения эффективности, прозрачности и скорости обработки заявок на заселение, а также оптимизации работы персонала студенческого общежития. В статье рассматриваются этапы анализа требований, проектирования и внедрения системы. Описаны используемые технологии, архитектура программного обеспечения и пользовательский интерфейс. Основное внимание уделяется автоматизации ключевых функций: подаче и обработке заявлений, распределению мест, ведению базы данных студентов и отчетности. Предлагаемое решение позволяет сократить время, необходимое для выполнения рутинных операций, минимизировать человеческий фактор и улучшить взаимодействие между студентами и администрацией общежития. Результаты проведенной работы демонстрируют значительное повышение удобства и эффективности управления расчетами.

Ключевые слова: автоматизация, студенческое общежитие, система заселения, подача заявлений, распределение мест, информационная система, база данных, веб-приложение, управление жильцами, цифровизация, университет, программное обеспечение, интеграция, Django, React, PostgreSQL, электронный

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СТУДЕНТТЕРДІ ЖАТАҚХАНАҒА ОРНАЛАСТЫРУ ПРОЦЕСІН АВТОМАТТАНДЫРУ

Аннотация

Мақалада жүйені икемді, масштабталатын және студенттерге де, әкімшілікке де ыңғайлы ету үшін осы жақсартуларды енгізу туралы айтылады. Бұл цифрландырудың жалпы деңгейін және оқу орнындағы тұрғын үйді басқару сапасын арттыруға мүмкіндік береді.

Бұл мақала студенттердің жатақханаға орналасу процесін басқаруға арналған автоматтандырылған ақпараттық жүйені әзірлеуге және енгізуге арналған. Тақырыптың өзектілігі есеп айырысуға өтінімдерді өңдеудің тиімділігін, ашықтығы мен жылдамдығын арттыру, сонымен қатар студенттік жатақхана қызметкерлерінің жұмысын оңтайландыру қажеттілігімен байланысты. Мақалада талаптарды талдау, жүйені жобалау және енгізу кезеңдері қарастырылады. Қолданылатын технологиялар, бағдарламалық жасақтама архитектурасы және пайдаланушы интерфейсі сипатталған. Негізгі назар негізгі функцияларды автоматтандыруға аударылады: өтінімдерді беру және өңдеу, орындарды бөлу, студенттер базасын жүргізу және есеп беру. Ұсынылған шешім жоспарлы операцияларды орындауға кететін уақытты қысқартуға, адами факторды барынша азайтуға, студенттер мен жатақхана әкімшілігінің өзара әрекеттесуін жақсартуға мүмкіндік береді. Жұмыс нәтижелері елді мекендерді басқарудың ыңғайлылығы мен тиімділігінің едәуір артқанын көрсетеді.

Кілт сөздер: автоматтандыру, студенттік жатақхана, қоныстану жүйесі, өтініш беру, орындарды бөлу, ақпараттық жүйе, мәліметтер базасы, веб-қосымша, тұрғындарды басқару, цифрландыру, университет, бағдарламалық қамтамасыз ету, интеграция, Django, React, PostgreSQL, электрондық құжат айналымы, процестерді оңтайландыру, онлайн-қоныстану, студенттерді есепке алу.

Introduction. In modern universities, the process of settling students into dormitories is traditionally accompanied by large amounts of paperwork and manual registration of applications. This approach often leads to errors, delays and inconveniences for both students and staff of the dormitory. The lack of a unified automated system makes it difficult to quickly manage the housing stock and monitor the settlement process.

Automating the application process and keeping records of students living in the dormitory will increase the speed and accuracy of data processing, reduce the burden on employees and improve the quality of service. The introduction of software for settlement management is an important step towards the digitalization of an educational institution.

This work is aimed at creating a system that provides electronic acceptance of applications, registration of students and their accommodation in the dormitory, as well as control over the housing stock. The implementation of such a solution will improve the organization of the process and increase the transparency of interaction.

Applications/Improvements: Based on user feedback and analysis of operational results, areas for further development of the system have been identified. Possible improvements and additional features include:

1. Mobile Application

Development of a mobile version for Android and iOS that allows students to apply, monitor the application status, receive notifications and view information about their check-in.

2. Integration with the university's internal systems

Communication with the educational system, the academic performance database, and students' personal accounts to automatically receive data and take into account criteria when checking in (for example, priority for social benefits or

achievements).

3. Rating and priority system

Implementation of a flexible system of points and priorities in the allocation of places (by course, budget/contract, marital status, etc.), allowing you to set up a fair and transparent distribution.

4. A dormitory map with visualization

Adding a floor and room layout that allows students to

Application description:

The application for automating the process of settling students into a dormitory is a modern web-based system that makes it easier and faster to process and process applications for accommodation.

The main purpose of the application is to minimize the manual labor of the dormitory staff and make the check—in process transparent and convenient for students.

The application's functionality includes:

● Registration and authentication of users (students and staff of the dormitory).

● Submission of electronic applications for settlement with filling in the necessary information and attaching documents.

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● Automatic data validation and verification of the correctness of applications.

● Managing the status of applications, their transition from submission to approval or rejection.

● Notifying users about the status of applications and important events.

● Housing administration — accounting of rooms and available places.

●● View reports and check-in statistics for employees.

● Technically, the application is implemented with the separation of the client

Research methods. The implementation of this system will improve the efficiency of dormitories, speed up the process of settling in, reduce the burden on employees and improve the quality of student services.

The following methods were used to implement the project to develop a program for automating the process of settling students into a dormitory:

1. Domain analysis

The requirements were collected by interviewing the staff of the dormitory, the university administration and students. The key problems of the existing process and the needs of users have been identified.

2. Formalization of requirements

Functional and non-functional requirements for the system are formulated. The main modules are highlighted: application submission, seat allocation, room management, tenant accounting, and reporting.

3. System architecture design

The client-server architecture is selected. As a server part, there is a REST API that provides interaction with the database. The client side is a web interface for staff and students.

4. Database Development

A relational model for storing information about students, applications, rooms, check-ins, and events has been designed. The PostgreSQL database was used.

5. Software implementation

- Backend: developed in Python using the Django framework.
- Frontend: created using React.js and TailwindCSS.
- Authentication is implemented via JWT.
- Mechanisms of data validation and logging of user actions have been applied.

6. Testing

Modular and integration testing of the main components of the system has been carried out. Real interaction scenarios based on test data are used.

7. Deployment and implementation

The system is hosted on the university's server using Docker containers. There are instructions for operation and staff training.

8. Collecting feedback and revision

After the pilot launch, feedback from users was collected, on the basis of which adjustments and improvements were made to the interface and logic of the program.

The results of the study. During the implementation of the project, a program for automating the process of settling students into a dormitory was successfully developed and implemented. The system has demonstrated its effectiveness at all stages — from the

submission of applications to the full management of places of residence.

Key results:

● Significantly reduced the burden on dormitory staff by automating routine operations;

● Transparency and traceability of all actions in the system is ensured;

Thus, the set goals have been achieved. The developed system has proven to be a reliable and convenient tool contributing to the digital transformation of an educational institution. It has the potential to scale and can be adapted to the needs of other educational institutions.

Conclusion: Development of a program for automating the process of settling students into a dormitory based on modern and proven technologies — Next.js, Django, Nginx, Docker and PostgreSQL — allows you to significantly simplify and speed up the

As a result, the implemented solution meets the requirements of modern educational institutions and can become a reliable basis for digitalization of housing management processes.

● The application process for students has been simplified and is now available online.;

● The speed of application processing and decision-making has increased;

● The ability to analyze and generate reports has improved settlement planning and resource usage.

interaction between students and the administration.

Automation minimizes manual labor, reduces the likelihood of errors, and makes the process transparent and controllable. The implementation of the system improves the quality of service, saves time and resources, and provides convenience for end users.

The classic multi-layered architecture with separation of frontend and backend provides flexibility, scalability and prospects for further development and integration with other systems.

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