Advancements in network-based management systems for enhanced business services

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Abstract. This article explores the advancements in network-based management systems designed to enhance and streamline business services. It focuses on the development of an automated information system tailored to optimize the management of atelier services. This system automates service requests, monitors the quality and quantity of solutions, provides up-to-date service listings and optimizations, generates various reports, and offers department managers a valuable tool for automating routine tasks associated with performance registration and related documentation in their respective departments.

1 Introduction

The relevance of the development is associated with an increase in the volume of the enterprise, the expansion of its influence on the clothing sales market [1]. Every year, the demand for a particular type of clothing changes greatly, so there are a lot of unsold goods left. Therefore, Atelier "atelier", it needs automation of ordering the necessary materials for the most profitable handling of funds [2-4]. Which indicates the relevance of automation of the Atelier's work? In modern conditions, it is necessary to know which products are currently needed by customers, which materials are the most popular. Due to what is the need for forecasting profitable goods and materials. Due to this, the company's profit will have to increase [5, 6]. Also, in the modern world it is difficult to develop an enterprise without having a website. There is a problem of buying certain goods, materials, since it is unclear in which branch the necessary material is located and whether it is available at all [7]. Since the aim of the atelier is to expand its customer base, which leads to a large number of questions from customers. There is a need to track the condition of the product, namely its description, location, quantity information, reviews [8, 9]. All this is necessary so that the client can simply go to the site and get this information, and not disturb the operators. The client will not need to go to the nearest branch of the atelier or call the operator [10-12]. He will have the opportunity to view all the necessary information on the site. If necessary, arrange delivery or pickup. The problem of a large number of one-type calls to the operator from customers. There is a need to add a forum function or a "frequently asked questions" section

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This is caused by a decrease in the number of operators and improving the quality of services provided [14,15].

Also, for the high-quality execution of the order, the manufacture of the product, it is necessary to take measurements. It is labor-intensive to take measurements every time, it is necessary automation of this process [16-19]. For regular customers, you can save their measurements in the database, which leads to faster customer service [20]. There is also a need to track the workload of employees (in particular seamstresses), monitor their activities, simplify employee team management capabilities [21, 22]. With the growth of the company's sphere of influence, paperwork increases, it is necessary to store all data on an electronic medium [23]. Which in turn should increase the efficiency of administrators and operators, because it will only be necessary to enter the full name of the employee / client to receive all the necessary information. Team monitoring will allow the managing staff to find the weaknesses of subordinates, point them out and make decisions that can increase labor productivity [24, 25]. Selling goods using a web application will allow you to expand the customer base, since the atelier will no longer depend on where the branch of the company is located [26, 27]. This will allow you to save on renting premises, automate processes, scale your business, and start trading your services in other cities. Also, another problem is the accounting of materials and goods, so as not to count and not waste the seamstress's precious time and resources for the consumption of goods, there is a need to automatically keep records, calculate statistics and provide a report to the administrator [28]. The presence of such a site at the company will contribute to an increase in influence and prestige among consumers. This will allow you to clearly demonstrate your advantages over other ateliers [29].

2. Application structure

AIS should be implemented using PostgreSQL in the form of seven subsystems. There must be mobile versions of the web application for the client, the courier and the developer. The architecture of the system is shown in Figure 1.

![System Architecture](image)

**Fig. 1.** – System architecture

The AIS should implement the functions presented below as an example on a diagram of use cases. The diagram describes the functionality of one subsystem in Figure 2.

![Diagram of use cases "Purchase of goods"](image)

**Fig. 2.** – Diagram of use cases "Purchase of goods"

### 3 Result and Discussion

AIS processes confidential information (personal data of the Group's employees, work-related information not subject to disclosure to third parties) and is an automated system in a secure design [30].

The system interface shall conform to the layout shown in Figure 3, 4.

![System Interface](image)

**Fig. 4.** – System Interface (a - category of atelier services, b - atelier service category)

The automated information system will be developed using the algorithm shown in Figure 5.
Fig. 5. – Algorithm of AIS development

4 Conclusion

The fulfillment of this technical task will lead to a ready-made web application with various roles that can facilitate maintenance clients, by storing information about the previous use of the atelier's services, providing information about goods in stock, materials in stock, services provided, information about a detailed description of all services rendered. The use of automation will reduce the number of service personnel, increase the volume of products [30].

Material costs will have to be reduced, as it will be clearly visible which materials are in demand in this period of time. Automation of online ordering will allow the atelier to expand your sphere of influence and become an online store. The client will be able to select a suitable product after some time of searching for the product on the website and order it at home. That will allow atelier, without having branches in the city, to provide services to a large number of customers. Ready-made software will increase the customer base due to a modern approach to business. The presence of the website will help atelier "atelier" become more popular, which in turn will increase the influence on the clothing sales market, increase the prestige of this enterprise. The increase in the customer base will contribute to an increase in questions from customers, the system takes this into account. The system has a forum section where frequently asked questions are answered [31-33].

References


10. V. V. Kukartsev et al. Using digital twins to create an inventory management system //E3S Web of Conferences. – EDP Sciences, 2023.


18. A. Shutaleva et al. Migration potential of students and development of human capital //Education Sciences, 2022, **12**(5) 324.
26. V. A. Nelyub, S. Y. Fedorov, G. V. Malysheva and A. A. Berlin. Properties of Carbon Fibers after Applying Metal Coatings on them by Magnetron Sputtering Technology Fibre Chem, 2022, **534** 53 252(7).