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TELEGRAM BOT FOR SERVICE OF USERS OF A MEDICAL INSTITUTION

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The purpose of the research is to create an autonomous Telegram bot that allows the user to quickly and intuitively interact with the medical service: register, make an appointment, receive information, cancel a visit, and the administration to see the full list of records and work with the patient database. The object of the research is the process of digital service maintenance in a medical institution. The subject of the research is the development of a software tool for automating recording, informing and administering interaction with patients using Telegram. The system works completely autonomously, without hosting or third-party APIs. The developed bot can be integrated into the operation of a real medical institution without additional costs for cloud services. The system minimizes recording errors, reduces the burden on personnel, and increases the efficiency of work organization. The program can be scaled and adapted for other areas, for example, educational institutions.

Statement of the problem.

Information technologies today have not only changed the way people interact, but also radically transformed healthcare services. In the realities of modern Ukraine, especially after the COVID-19 pandemic and in the context of growing digitalization, more and more medical institutions need effective tools for prompt communication with patients. One of the most promising solutions in this direction is the use of messengers, in particular Telegram, as a platform for creating interactive bots that act as virtual assistants. This is what became the starting point for the development of this diploma project.

Telegram bots have long established themselves as a convenient and versatile tool for automating routine tasks, from event notifications to processing user requests. Their advantage is that interacting with them does not require installing separate applications or training — the interface is intuitive and already familiar to millions of users. In the medical context, this allows you to bring services closer to the patient, making the process of making an appointment, obtaining information about doctors or scheduling visits as simple and accessible as possible.

Thus, the purpose of the research is to create a multifunctional telegram bot for service of users of a medical institution. The implementation of the following functions is envisaged: user registration, appointment with a doctor, viewing of doctors' schedules, cancellation of appointments, automatic appointment reminders, as well as administration by the clinic staff.

The objectives of the research are: studying the structure and needs of medical institutions for digital communication; conducting an analysis of modern solutions in the field of telegram bots; designing the architecture and logic of a telegram bot adapted for medical service; implementing a database for storing user records; adding confirmation mechanisms, doctor scheduling, and administration; implementing a button menu as the main form of the user interface; testing the bot in a real environment and collecting feedback.

The novelty of the development lies in the combination of several key functions within one Telegram bot: making an appointment, reading the schedule from a separate JSON file, confirming actions, having an administrative panel, a menu on buttons, and an automatic reminder mechanism. This allows us to consider the project not only educational, but also ready for use. The practical significance of the work lies in the possibility of using the Telegram bot in a real medical institution. The solution does not require a separate server or cloud environment - the entire database is stored locally, the code is open for editing, and the interface is adapted for an ordinary user. In addition to the direct implementation of

the bot, the research also includes the creation of system documentation, a logical model, specifications, test scenarios, and examples of work in Telegram.

Presentation of the main material.

The subject area considered within the framework of the conducted research covers digital means of organizing interaction between patients and the administration of a medical institution. The main attention is paid to building a convenient and functional interface thanks to a telegram bot, which allows the user to quickly perform basic actions, namely: register; make an appointment; view the doctors' schedule; cancel a visit or get information about the contacts and work schedule of the institution. This applies not only to medical services as such, but primarily to the process of their preliminary organization: communication, planning, registration, notification. These actions are carried out before the direct provision of medical care and determine the overall level of convenience of service, as well as the efficiency of using the institution's human resources. For the patient, they are the first stage of interaction with the clinic, and for the staff - a way to reduce the load and avoid organizational failures. In most cases, such processes in medical institutions are implemented through phone calls, personal appeals or websites. However, each of these approaches has significant limitations. Telephone communication is dependent on the human factor, the website is more difficult to use, especially for the elderly, personal appeals are too time-consuming. In this context, a telegram bot is an intermediate, convenient and intuitive solution that meets the modern needs of users.

Based on this, we can distinguish the basic processes that should be implemented through the bot: receiving primary information from the user (name, phone, email); registering for an appointment with a specific doctor at a specific time and day; checking the availability of an hour in the schedule; viewing all your own records; the ability to cancel an appointment; displaying a list of doctors and the appointment schedule; sending reminder messages; administering records (viewing, cleaning, filtering) by the clinic staff. The task is to ensure a full cycle of service interaction: from data collection to reminders and saving history. Special attention is required for the secure storage of information about users, limiting access to administrative commands, checking the format of entered data (for example, checking email or date), as well as ease of use for people with different levels of digital literacy. Taking into account the trends in the development of digital medicine, it can be argued that such services have broad prospects for implementation in public and private medical institutions, and the implementation of such a bot is not just an educational example, but a ready-made product for use in practice.

An analysis of existing solutions has shown that there are a number of medical platforms in the world that offer online doctor appointment services, appointment notifications, and electronic patient records. However, most of them are either web-based or require downloading a mobile application, which automatically limits accessibility for certain groups of users. This is especially true for older people who, although they use messengers, are not always able to confidently work with browsers or new applications. Telegram bots for medicine already exist, but they have their limitations. For example, several bots that perform only one of the functions — making an appointment or informing about the schedule — can be found in the open access. However, there are few comprehensive solutions with a full interaction cycle (registration, doctor selection, checking the availability of an hour, confirmation, reminders, administration), and the vast majority of them are created either for large networks or in a commercial format. The analysis conducted showed that most of the existing Telegram bots have narrow functionality or limited application. Some solutions are integrated only into internal clinic systems and do not have open access, while others require payment for use or are created exclusively for a specific brand.

The Telegram bot developed as part of the research has a number of advantages that make it different from the listed solutions, namely: completely autonomous operation without the need for a server; open code that can be adapted to any institution; the ability to run even on a regular laptop; a simple interface with buttons instead of commands.

Comparing the developed bot with existing analogues, we can conclude that it is unique in its structure. Its advantages: simplicity, versatility, a full set of service functions, local database storage, no dependence on third-party servers or payments. This is especially important for small clinics that do not have IT departments or resources for large-scale digital transformation. Therefore, the creation of such a telegram bot does not duplicate existing developments, but complements the market of tools with an affordable, simple and practical solution that meets the specific needs of the Ukrainian medical environment, taking into account its technical and economic realities.

Conclusions.

Within the framework of the conducted research, a Telegram bot project for service provision of users of a medical institution was fully implemented. From the very beginning of the research of the subject area to the practical creation and testing of the finished software product, a full cycle was completed, which included analytics, development, debugging, testing and documentation. The results obtained not only confirmed the relevance of the chosen topic, but also demonstrated the high efficiency of using simple digital tools for automating medical services. Based on the analysis of similar systems, including foreign solutions, our own vision was formed - the creation of an autonomous, fully functional Telegram bot that does not require third-party servers, complex installation or expensive tools. Special attention was paid to ensuring that the user could fully go through the entire cycle of interaction with the bot, from launch to appointment booking, in just a matter of minutes. The system is completely autonomous - it can be run on any computer with Python installed. The Telegram bot does not depend on hosting, third-party APIs, or servers, meaning it works locally, which is critically important for small medical institutions that do not have access to complex IT infrastructure.

In summary, the developed telegram bot fulfills the task set in full, that is, it provides simple, fast, intuitive interaction between the patient and the medical institution, reduces the number of routine actions of the staff and creates a qualitatively new level of service in healthcare. The implementation of such a tool in practice will be an important step towards the digital transformation of local medical structures and improving the quality of patient service.

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ГЕНДЕРНІ СТЕРЕОТИПИ ТА УПЕРЕДЖЕННЯ У КІБЕРСПОРТІ: ІСТОРИЧНИЙ КОНТЕКСТ, СУЧАСНІ ВИКЛИКИ ТА ШЛЯХИ ПОДОЛАННЯ

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Проаналізовано історичний розвиток та сучасні виклики для жінок у кіберспорті. Досліджуються ключові бар'єри: гендерні стереотипи, упередження та гіперсексуалізація. Встановлено, що ці перешкоди мають соціальний та психологічний, а не фізичний характер. Обговорюються шляхи подолання, зокрема зміна громадської думки та створення інклюзивних