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DEVELOPMENT OF AN INFORMATION SYSTEM OF A MEDICAL INSTITUTION

Abstract. This article discusses the issues about Information technology (IT) is the research, design, development, implementation, maintenance or management of Computer Information Systems, in particular software applications and computer hardware. Information Technology Association. It deals with the use of electronic computers and computer software tools for the safe Conversion, Storage, Protection, processing, transmission and retrieval of information.

Keywords: Information Systems, design, development, computer hardware, Conversion, Storage, Protection, processing.

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Introduction. Information system (IS) – a system of people, Data Records and types of activities that process data and information in this organization, including manual processes or automated processes; computer information systems are only a component of Information Technology.

Information Systems, Computer Information Systems is a field that studies information technology (IT).

Conditions and methods of research. Information systems are engaged in the development, operation and management of the organization's IT infrastructure; today, the largest asset of companies is the information they provide people, experience, know-how, innovation (patents, copyrights, trade secrets). For a market operator to compete, it must have strong infrastructure information [1].

There are various areas of work of Information Systems: Information Systems, Information Systems strategy, Information Systems Development Management.

Information technology (IT) is the research, design, development, implementation, maintenance or management of Computer Information Systems, in particular software applications and computer hardware. Information Technology Association. It deals with the use of electronic computers and computer software tools for the safe Conversion, Storage, Protection, processing, transmission and retrieval of information [2].

Research results and discussion. Today, the term "IT" has expanded to cover many aspects of computing and technology, and the term has become more popular than ever. IT professionals perform functions ranging from installing applications to designing complex computer networks and information databases. Some of the tasks performed by IT professionals include data management, networking, engineering computer equipment database and software development, as well as the management and administration of entire systems.

Hospital Information System, also known as clinical information system, is a comprehensive, integrated is designed to manage the administrative, financial and clinical aspects of a hospital. It includes paper-based information processing, as well as data processing machines.

The purpose of IS is to provide the best support for patient care and administration through electronic processing: efficient use of the limited resources available for patient care; qualitative improvement of patient service; training support; research support.

Sometimes the corporate information system is separated from the larger Information System, as the former focuses on data related to patients and clinical cases (electronic patient records), while the latter oversees administrative matters. The difference is not always obvious, and there are conflicting arguments against the consistent use of the two terms [3].

As a branch of medical informatics, the unified information system aims to provide the best support for patient care and treatment through electronic data processing. It can consist of one or more software components with special extensions, as well as many subsystems in medical specialties (for example, a laboratory information system, a radiological information system).

Computers in clinical units are commonly used to perform the following tasks: administrative support – administrative and logical planning of patient care and intervention; patient data collection – retrieval, storage and retrieval of patient data, examinations, biosignals and images; real-time reduction and verification, encoding and processing of patient data; combining all patient data into one comprehensive view. Modeling interventions using models, support diagnostic and therapeutic decision-making. Monitoring and evaluation of therapy (drug therapy). Reporting and making reports, for example, after the patient is discharged from the hospital or when patients apply to other clinics. Assessment of the impact of the care provided on the patient's outcome.

The general stages of the evolution of CCT are shown below: isolated applications, monolithic systems, evolutionary systems, composite system. Three types of integration can be distinguished: data integration – means that the data registered in one application is available to another application, if necessary, and provided that they do not contradict confidentiality. This will prevent the same data from being overwritten and reduce the risk of errors. Combining a presentation means that data from different applications is presented to the user in an adequate, consistent manner. Especially for dynamically changing data, this is not self-evident [4].

Laboratory Information System (IAS) is a class of software that processes the retrieval, processing, and storage of information generated through medical laboratory processes. These systems often need to interact with tools and other information systems, such as hospital information systems.

The created software product will automate the work of registration operators in a medical institution. And in the future, it will be developed to provide services to several institutions, regardless of their orientation in medicine. At the

same time, the program develops the possibility of Use not only in a polyclinic, but also in a multidisciplinary hospital. There will also be a collection of information about the staff, their needs for ease of use.

Automated information system:

- reduction of separation time in the registry office of patients;
- increase the convenience of the operator's work, which is in the registry office;
- fast information about doctors;
- full report.

The "registration" module will include the necessary application for operators in a medical institution. Registration is the most important thing for a medical institution for receiving patients in a clinic and at home.The registration work consists of three points:

- this is a quick recording of patients who have applied to the clinic to the doctor's appointment, as well as telephone reception;
- ensuring a uniform distribution of the load on doctors and the type of care provided;
- operational search, submission of documents to doctors ' offices, care to bring and store the Polyclinic card file.

The relevance of this article is to relieve the burden on doctors, as well as reduce the time for patients to see doctors, waiting.

To control the large flow of patients, it is necessary to introduce advanced forms of organizing the work of medical personnel, as well as develop existing forms of the place of registration, taking into account the established norms. The work of the place of registration should go beyond the territory of public services and consider which clinic can help patients in case of excesses. The work of the place of registration is headed by the head, who is appointed to this position by order of the chief physician of the Polyclinic. This will help get rid of unnecessary movements in the module, there will be everything you need to carry out a quick registration of patients, and there will also be all the documents of patients, which will help to exchange information. If the flow of patients is very large, they can transfer information between clinics and freely receive patients from other clinics [5].

The initial stage of creating a module is the study, analysis and modeling of the organization's activities in order to improve and optimize the likelihood of working methods. The work uses bpwin and C# programs.

The purpose of this work is to model the information system of the Registration Department of a medical institution, which allows you to improve the flow of patient registration.

The main goals of this work are:

- Study of theoretical features of modeling organizational processes using bpwin tools;
- conducting a study of the subject area – the place of registration in medicine;
- build a model of the registration service based on the knowledge gained.

The object of research is the registry office. The subject of the study is the processes occurring in the medical registry for the separation of patients.

- patient recording process;
- the process of separating patients;
- the process of obtaining a coupon or self-registration;
- the doctor's appointment process.

Pre-project study of the automation object the 1st stage of AIS design (which ends with the preparation of the terms of reference), which is the study, analysis and description of the existing is. The purpose is to obtain the initial data for the design, specify the solution and the specific AIS solution.

It was shown how the process of registering a patient in a medical institution is going, how the entire registration process takes place.

The main method of data collection was to interview employees, study plans and reporting data, and patients. The study was conducted on weekdays. In the course of the study, answers were obtained to the following questions: user composition, patient needs, registration requirements, completeness and accuracy of information, intensity of patient treatment, and much more. The design and creation of the" registration " module is given in accordance with Figure 1.

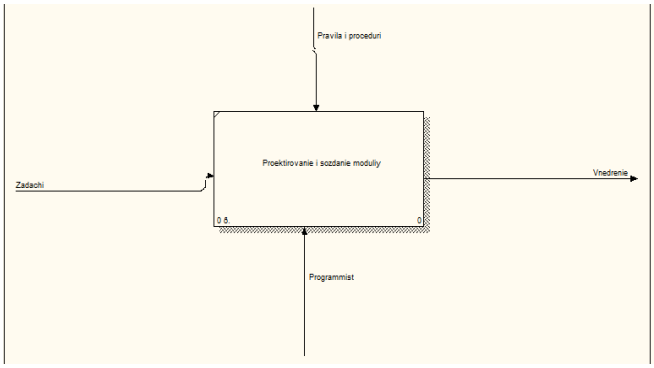

Figure 1. IDEF0 context diagram "design and creation of the module" Registration Department "for a medical institution"

Evaluation of the performance and reliability of the software product. The program interface of the registry office is described. It is given in accordance with Figure 2. The registry office consists of a menu, documents, actions, directories. And there are statistics, patients, paid services, payment, laboratory, employees, expert data, author buttons. The program interface is very clear and easy to use.

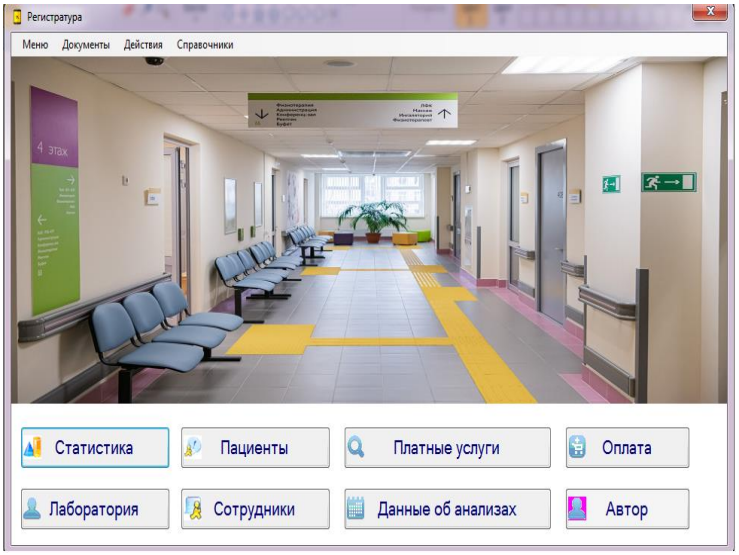

Figure 2. Registry office

When we start the application, we see the author of the program, as shown in Figure 3.

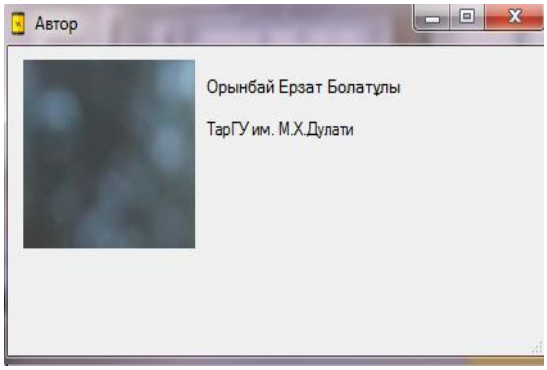

Figure 3. Author

After correctly entering the password and login, it is allowed to proceed to the next form, as shown in Figure 4. Here you can enter information about the patient. In particular, last name, first name, patronymic, address, passport, registration date. There are additional documents, a label for the type of patient. It is possible to print a patient card or report on patients.

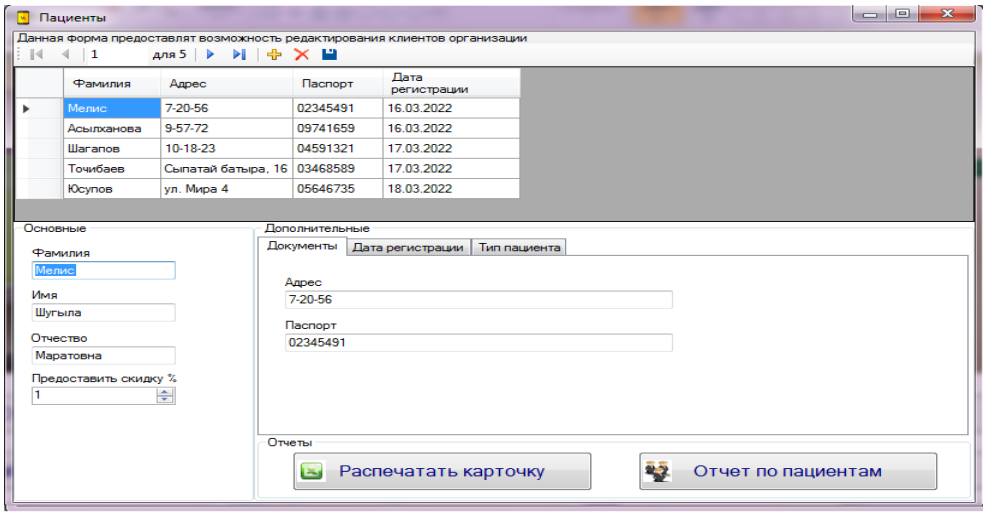

Figure 4. Patient window

According to the following Figure 5, the specification is given, that is, the types of services provided, description, price. There are many types of services provided. In particular, general blood tests, other tests, determination of blood type and Rh factor, ultrasound examination of kidneys and all other organs, heart Doppler, Massage, Massage of all other organs, magnetotherapy, electrophoresis, ultra-violet radiation, fluorography, etc. The possibilities of saving an image to disk, selecting an image are provided.

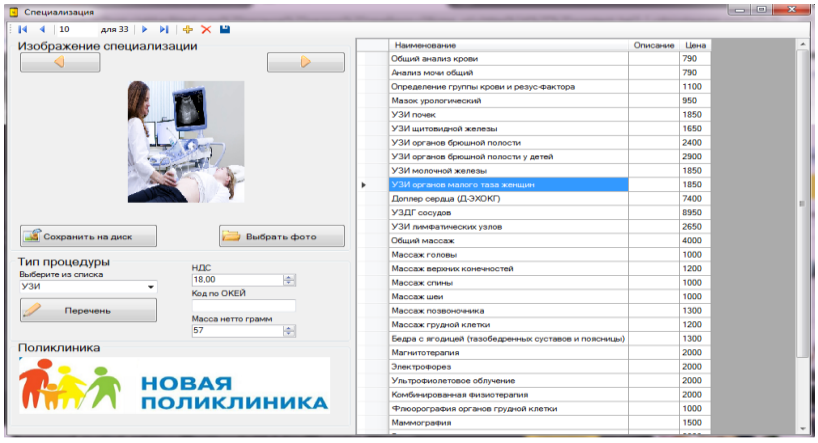

Figure 5. Specification window

This form allows you to edit the organization's suppliers. Here is information about the institutions. For example, Invivo, Olympus, Diagnostic Center. The name of the institution, address, phone, e-mail, registration date, etc. You can also print the card and get a report on suppliers. It is given in accordance with Figure 6.

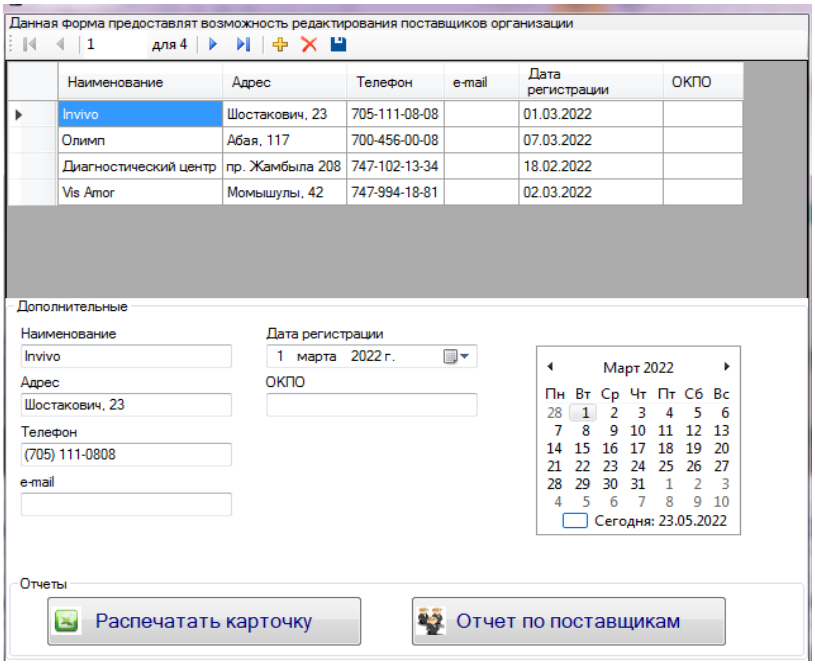

Figure 6. Processing of the organization's suppliers

The employee form allows you to view, change information about employees of the organization, form reports, view and issue personal cards. There is a separate card, service, date of reception. Personal information of the employee includes date of Birth, Month, Year, place of birth, passport, phone number, full name, patronymic, gender, address, personal identification number, education. The ability to paste, select a picture, print a personal card, and report on personnel is provided. This is given in accordance with Figure 7.

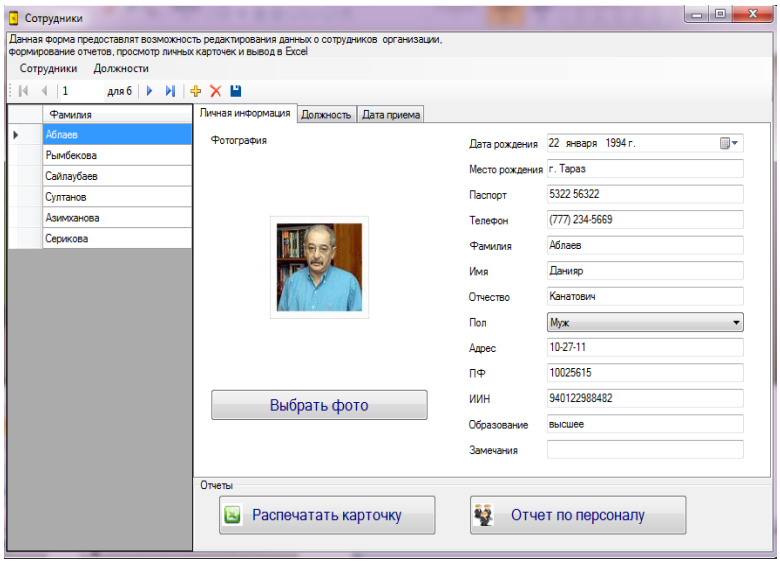

Figure 7. Employees

A full report for all Examinations and for a specific examination can be obtained as follows from Figure 8. Buttons for changing and reporting on examinations are provided.

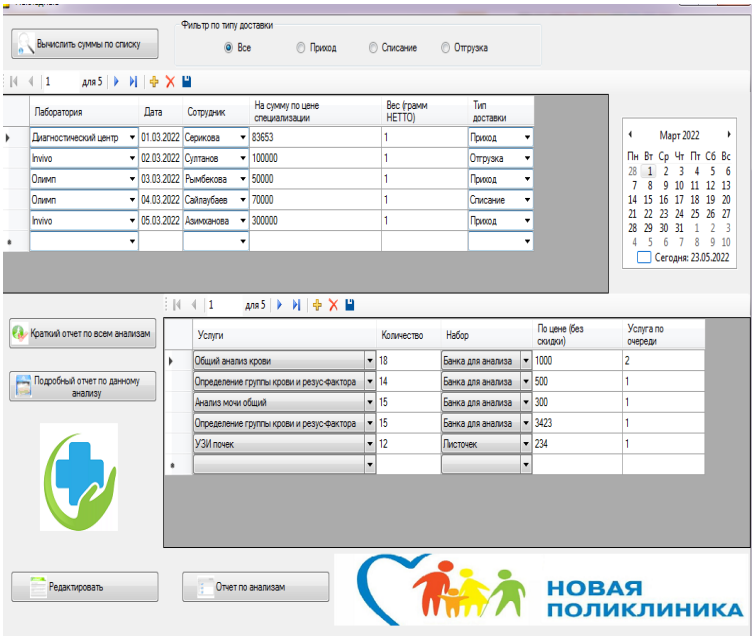

Figure 8. Report on all Examinations

Participation of employees in the reception of registered patients for all types of services provided. Here are the buttons on, off, delete, master, issue a check, change the type of Service. It is shown in accordance with Figure 9.

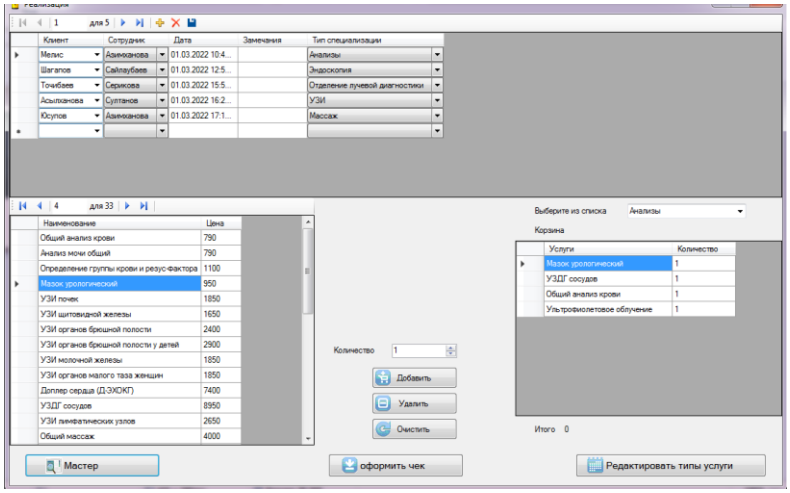

Figure 9. Implementation

Conclusion. An information system (IS) is a program for patient registration, data records, and activities that process data and information about patients and doctors, including manual processes or automated processes.

The program is engaged in registration and viewing data. There are different areas of operation of Information Systems: DBMS were also used, in which relational tables were stored.

The application is a comprehensive integrated is for data management. This includes paper processing of information, as well as data processing machines.

The purpose of the program is to immediately record patients for a doctor's appointment with immediate appeal to the Polyclinic, as well as to receive by phone, to ensure the release of a large flow of the population in order to evenly ensure the load on doctors and distribute it by types of care provided; to conduct a quick selection and transfer of medical documentation to doctors ' offices and

The following tasks were performed in the work:

- theoretical features of modeling organizational processes using bpwin tools were studied;
- a study was conducted in the subject area of the Medical Registration Department;
- a sample registration service has been compiled;
- developed patient accounting process;
- software developed;

The process of documents has been developed.

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МЕДИЦИНАЛЫҚ МЕКЕМЕГЕ АРНАЛҒАН АҚПАРАТТЫҚ ЖҮЙЕНІ ӘЗІРЛЕУ

Аңдатпа. Мақалада ақпараттық технологиялар, ақпараттық жүйелерді, атап айтқанда бағдарламалық қосымшалар мен компьютерлік жабдықтарды зерттеу, жобалау, әзірлеу, енгізу, техникалық қызмет көрсету және басқару жайында мәселелер қарастырылған. Ақпаратты қауіпсіз түрлендіру, сақтау, қорғау, өңдеу, жіберу және алу үшін электронды есептеу машиналары мен компьютерлік бағдарламалық жасақтама қолданылған.

Тірек сөздер: ақпараттық жүйелер, жобалау, әзірлеу, компьютерлік жабдық, түрлендіру, сақтау, қорғау, өңдеу.

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РАЗРАБОТКА ИНФОРМАЦИОННОЙ СИСТЕМЫ ДЛЯ МЕДИЦИНСКОГО УЧРЕЖДЕНИЯ

Аннотация. В статье рассматриваются вопросы по информационным технологиям, то есть исследование, проектирование, разработка, внедрение, техническое обслуживание или управление компьютерными информационными системами, в частности программными приложениями и компьютерным оборудованием. Она касается использования электронных вычислительных машин и компьютерных программных средств для безопасного преобразования, хранения, защиты, обработки, передачи и извлечения информации.

Ключевые слова: информационные системы, проектирование, разработка, компьютерное оборудование, преобразование, хранение, защита, обработка.