

Development and Problems in the Field of Medical Information Reporting

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ABSTRACT

Problems and errors in the application of computer technologies, Models and methods of organizing software development, the system of equations is solved by the method of a system of linear equations, and unknown phenomena are detected. The decision-making process often has to deal with problems that are often multidimensional in nature.

KEYWORDS: MIS, technology, strategy, medicine, system, model, method, principle, integration

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INTRODUCTION

The following main problems in the field of medical information presentation can be identified:

- a large number of unrelated specialized terminological systems;
- differences in the interpretation of the concepts and terms used;
- insufficient implementation of technologies for reflecting the semantic meaning of terms;
- Difficulties in reusing encoded data in different medical contexts.

Problems and errors in the use of computer technology

The lack of strategic and tactical planning at the stage of developing a medical information system usually leads to the following problem situations:

- incompatibility of interfaces of some systems;
- lack of integrated access to medical, administrative or reference information;

- inadequacy of the system to the requirements of the end user;
- lack of expected performance;
- lack of necessary support for standards;
- insufficient or exhaustion of system resources;
- discrepancy between the applied information technologies and the strategy of the medical organization. Most of these situations arise not because of technological errors, but because of deficiencies in control. Moreover, the problem lies in the absence or inadequacy of the methodology for using and managing existing technologies. Most of the failures in the development of information systems projects are caused not by technological failures, but by methodological and organizational errors, among which the following can be distinguished:

- incorrect prioritization in the organization of work;
- selection of standards and technologies that are not adequate to the tasks set;
- inability to achieve consensus and agreed vision of problems;
- non-observance of organizational and technical requirements;
- lack of provision of technical personnel with appropriate tools, skills and authority;
- lack of clearly defined goals, methods for assessing efficiency and control and accounting policies;
- incorrect organization of access and secrecy of information. For the successful implementation of the information system, it is necessary to adhere to the accepted standards and models for supporting the software life cycle..

Models and methods of organizing software development

The specification phase defines the requirements of the users in terms of the functionality of the computer system as that functionality would appear from the outside.

The design phase provides an accurate model of the system and a detailed description of its implementation (“HOW to build the system?”). This phase is often divided into two steps: architectural design and detailed design, the result of which should be some kind of formalism, on the basis of which further coding of programs will be carried out.

The implementation and development phase corresponds to writing programming code.

The validation phase is the verification of the adequacy of the system to the specified requirements. It implies installation and testing of the system in real life situations.

During the maintenance and support phase, system updates and improvements are carried out in accordance with the modified requirements.

In general, the following rule formulas should be drawn as follows:

$$\prod_{p=1}^{k_j} \left(\prod_{i=1}^n x_i = a_{i,jp} - w_{jp} \text{ \textit{вазн билан}} \right) \rightarrow y_j = v_{j,0} + v_{j,1}x_1 + \dots + v_{j,n}x_n +$$

$$+ v_{j,n+1}x_1^2 + \dots + v_{j,2n}x_n^2 + \dots + v_{j,n+l-1}x_1^l + \dots + v_{j,ln}x_n^l.$$

The peculiarity of this model is the following: not a single step can begin until the previous step is completed and its compliance with the requirements is checked at a certain checkpoint.

FORMULATION OF THE PROBLEM

The analysis of this information is based on the modeling process, taking into account the main disadvantages of creation, as follows:

1. Adaptive restructuring of forms and methods of information delivery in the process of solving problems.
2. Paperless processing of documents.
3. In some cases, the information is insufficient (opinion-based information about patients and opinions about the treatment of doctors).
4. There is not enough evidence for a particular disease, and due to various reasons, these symptoms are not enough.

The problem of poor quality of the above information should be taken into account in the modeling process. Here are some ways to fix this problem. We can try to supplement inadequate data using modern mathematical methods of equalization and extrapolation. However, we do not have this option, because data loss is very important.

This article discusses the main tasks of research using a mathematical model, including the nature of accounting for factors affecting the change in the system; Determination of the optimal level of factors to obtain the required values of indicators of the state of the system. These types of models are based on sample observation, which forms the primary database (data), which has matrices simulated with the number of columns equal to the number of rows and the number of factors being tracked.

(X_r, y_r) - selection of experimental data, $r = \overline{1, M}$, где $X_r = (x_{r,1}, x_{r,2}, \dots, x_{r,n})$ - r -input vector, a y_r - the output vector corresponding to it.

Linear regression analysis was chosen to determine the effectiveness of treatment and the effect of disease symptoms on diagnosis.

Given the low quality of the original data, we can use non-linear methods.

Analysis shows that linear regression analysis shows its effectiveness in many areas. $y = a_0 + a_1x_1 + a_2x_2 + \dots + a_nx_n$. (1)

In this formula, y is diagnostic (dependent variables); x1, x2, ... xn Symptoms (independent variables). The value of the y-shaped variables is given in the set Y. The combination of the independent values is given in the set X.

The decision-making process often has to deal with tasks that are often multidimensional in nature. In this case, the set of criteria is usually not of an equalizing nature. Scoring models are used to measure a single performance score (overall goal) of a set of performance indicators (specific goals).

Depending on the factors affecting the state of multidimensional medical systems, the models were statistically analyzed by researchers using modern mathematical models [2-4, 7-8].

CONCLUSION

This system of equations is solved by the method of a system of linear equations, and unknown phenomena are detected. The decision-making process often has to deal with problems that are often multidimensional in nature. In this case, the set of criteria is usually unmatched. Scoring models are used to measure a single performance score (overall goal) of a set of performance indicators (specific goals). In other words, scoring models are a mechanism for converting special-purpose functions to a common objective function.

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