
Medical Diagnostic Models

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Abstract

In this article, in the course of explaining the topic, students will be presented with positive scientific results obtained using the BLITZ-SURVEY method, and a description of the method will be shown.

Keywords: diagnostic models in medicine, modeling, medical diagnostics, blitz-survey, DataMining, Rational models, Amazon, Alisa, Apple, Siri, Yandex.

Introduction

We started to explain the topic "medical diagnostic models" from the science of mathematical modeling in biology and medicine to 301 students of the Faculty of Management, Medical Biology, Biomedical Engineering and o.m.x of the Tashkent Medical Academy in the experimental test group in the style of "Blitz-survey" from interactive teaching methods. The number of students was 14 people. First, we gave brief information about the blitz survey method and divided the students into the 2nd group.

Method "BLITZ - SURVEY"

"Blitz - survey" (English "blitz" - fast, instant) method - a method that requires short, clear and concise answers to questions. In educational institutions, questions on this method are mainly asked by the teacher. Questions can be answered collectively, in groups, in pairs or individually. The form of feedback is determined by the type of training, the complexity of the subject being studied, and the coverage of students.

The application of this method in teaching is as follows:

The teacher brings to the attention of students by developing questions that require disclosure of the essence of the topic being studied, certain components.



Students answer the given question accurately within a short period of time.



When working in a group (pair), one student answers the question asked, his group mates complete the answer (though thoughts should not be repeated).

When using the "blitz survey" method, the basic concepts of the topic, the essence of the main ideas can be illuminated by students orally, in writing or in the form of an image (table, diagram).

Topic coverage process

Medical diagnosis (from other Greek diagnosticos - capable of recognizing) is the process of making a diagnosis, that is, a conclusion expressed in accepted medical terminology about the nature of the disease and the patient's condition. The same term is also called the section of clinical medicine that studies the content, methods and successive stages of the process of recognizing diseases or special physiological conditions.

The main sections of diagnostics as a scientific discipline are semiotics, methods of examining patients and the methodological foundations of diagnostics.

Medical diagnostics is one of the scientific branches of medicine, which is the process of establishing a diagnosis, that is, the nature of the disease and the patient's condition, expressed in accepted medical terminology.

It includes dozens of different methods and studies aimed at identifying and identifying pathologies and diseases. In fact, diagnosis is an examination of the patient. This science, which arose hundreds of years ago, developed along with other branches of medicine, as well as chemistry, biology and physics. The centuries-old experience of scientists and practitioners has been collected, systematized and improved, as a result of which many effective diagnostic methods have been found.

They give doctors the opportunity to make the correct diagnosis, identify the disease in the early stages and prescribe the correct and timely treatment.

In the field of medical diagnostics, there are various modeling processes:

- **Rational models** - are derived on a rational basis based on observations, theory and assumptions about the behavior of the physical components of the system.
- **Empirical models** - reflect the main characteristics of the available data. Epidemiological research, forecasting, planning and evaluation of preventive and control measures, disease risk assessment, patient diagnosis and improving the efficiency of operations are some of the important areas of application of models in medicine and public health.

Evaluation of the effectiveness of diagnostic models in medicine.

Accounting for specific characteristics of medical data

We will analyze diagnostic models using modern data mining approaches.

Methods "Data Mining" are proposed for evaluating the effectiveness of diagnostic models. A new assessment of these models, reflecting the thesis of the need for accuracy, serves as a practical help in solving medical diagnostic problems.

Systemic complexity of medical institutions.

Medicine, like many other sciences, relies on its own development.

Information achievements through empirical data, their analysis and generalization, i.e. technical means and research created in the field of medicine since the middle of the twentieth century began to provide an ever-increasing flow of information. One such data mining system is DataMining.

Where is **DataMining** used?

Grigory Pyatetsky-Shapiro, the author of the term "Information Discovery", defined it as the process of finding previously unknown, non-trivial, practically useful and open to interpretation information necessary for making decisions in various areas of human activity. .

Data mining is mainly used in the consumer service industries, including retail, finance, and marketing. Today, *in the field of medicine, mathematical models are being developed using such databases.*

In medicine

Data retrieval systems are also used for medical diagnosis. They are built on the basis of rules that describe the combination of symptoms of various diseases. Rules help to choose means of treatment. For example, the British startup Babylon Heath collects all the information about the health of customers, their lifestyle and habits, and then the algorithm puts forward hypotheses and offers options for examinations, treatments, and even recommends specific doctors and clinics. These databases include DynaMed (Dynamic Medical Information System), NORD Rare Disease Database, OMIM [Online Mendelian Inheritance in Humans].

Recommendation systems

Such systems are designed to offer products or services that may be of interest to people and are also used to support customers. They work by extracting data in real time. In other words, the model is constantly updated. This is how voice assistants Ales from Amazon, Siri from Apple and Alice from Yandex work.\

What do you need to learn Data Mining?

A data mining specialist must have deep knowledge in the field of mathematical statistics, be well versed in foreign languages, as well as in programming languages. It processes large amounts of data and looks for connections in them. The specialist uses machine learning methods, creates algorithms and works with statistical analysis. Then presents the data and results of their work to the organization in an understandable way. Based on these presentations, the company makes decisions; in medicine, this system works like this. Diagnostic models are widely used in all areas of medicine. In dentistry, traumatology and some other areas today we can see modern modeling models in the field of radiology. Here it is necessary to evaluate the modeling processes as a result of precise mathematical calculations.

Modeling in all areas of medicine should develop as a result of accurate calculations.

During the lesson, 14 questions on the topic prepared by the teacher were divided equally into the 2nd group. The students' places of residence were marked with the initials of the Latin alphabet.

The answers were rich in discussions.

In the process of filling in the answers, there were rebuttals from the listener.

Graphical model of learning outcomes

	ТАЛАБАЛАР	БАХОЛАР	Интефаол таълим методларидан "Блиц-суров" услубидаги дарс натижалари									
1			1-ГРУП									
2	A	5										
3	B	4										
4	S	5										
5	D	5										
6	E	4										
7	F	4										
8	G	4	2-ГРУП									
9	H	5										
10	I	4										
11	J	5										
12	K	5										
13	L	4										
14	M	5										
15	N	3										



Result:

Evaluating the effectiveness of diagnostic models in medicine using the "BLITZ-SURVEY" method in the process of teaching students the topic of medical diagnostic models. Explanation of methods for evaluating the effectiveness of diagnostic models using modern DataMining approaches. "Searching for information that takes into account the characteristics of medical data will show a positive result for students.

Proportion: $\frac{14}{100} = x\%$

$$X = 100/14 = 7,14$$

$$7,14\% * 14 = 99,96\% \text{ appropriation}$$

(6 students of the 5th grade, 4 students of the 4th grade, 1 student of the 3rd grade) with the results.

$$7,14\% * 6 = 43,02\%$$

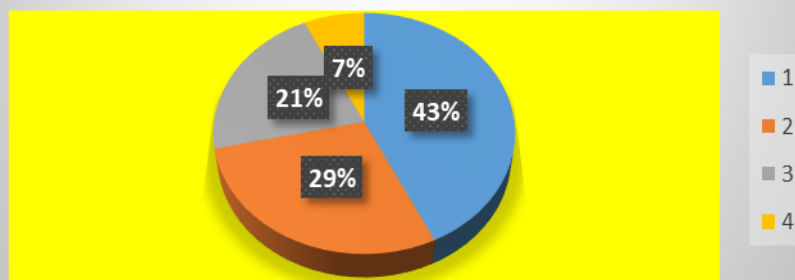
$$7,14\% * 4 = 28,56\%$$

$$7,14\% * 3 = 21,42\%$$

$$7,14\% * 1 = 7,14\%$$

We achieved a positive rate of 71.58%, absorbing 99.96%.

A graphic model of the results of a lost lesson using the "Blitz survey" method



Conclusion:

When using the interactive educational methodology "BLITZ-SURVEY" in the process of studying the science of mathematical modeling in biology and medicine, better results will be achieved if the teacher develops questions that require the teacher to reveal the essence of the topic being studied and certain components and bring it to the attention of students. At the same time, when choosing an interactive educational method, the degree of relevance to the topic, deep analysis and acceptance leads to a positive change in the quality of education. **The difference and advantage of the interactive educational methodology "BLITZ-SURVEY" from other educational methods** is that in this methodology the basic concepts of the topic, the essence of the main ideas can be explained to students orally, in writing or in the form of an image (tables, diagrams). It is this aspect of the method that is very effective in highlighting medical diagnostic models.

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