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THE SYSTEM FOR DETERMINING THE QUALIFICATIONS OF INDUSTRY EXPERTS

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ABSTRACT
The qualification of industry experts is required to create software that implements a generalized method for estimating feature values. This method is one of the tasks of determining where objects are represented in the object-property table. Basically, objects should be divided into several classes (at least two). The created software reads objects from the file as data and makes decisions depending on the task, extracting hidden patterns.
The scores in the questionnaires intended for the distribution of drugs into VEN groups were processed by identifying instruments with higher indicators belonging to group V using modern intelligent methods. A list of drugs belonging to groups E and N was also compiled.
Obtaining contests based on informative indicators with expert evaluation in determining qualifications is a difficult task. Solving this problem will certainly lead to the creation of intelligent systems. The industry is based on the knowledge and experience of specialists. On the other hand, users in a wide range can share the system through computer networks and host databases and software.

INTRODUCTION: Medicine is working on creating an intelligent system to assess the qualifications of industry experts, such as for evaluating medicines when necessary. With the help of advanced information technologies and special methods, many areas can now be systematized, including medicine. The actual problem addressed in this research paper is the identification of qualifications based on special methods.

The field of medicine is considered one of the most difficult areas to formalize. Constructing a mathematical model for such areas relies on knowledge. In evidence-based medicine, a pressing issue is the development of algorithms and methods to extract new

knowledge. At the same time, the reliability of each hypothesis put forward is proven in the process of computational experiments on the model being studied. This paper discusses the correct organization, formation, development, and implementation of a generalized assessment analysis of qualifications.

LITERATURE ANALYSIS: : Intelligent systems are systems that, based on certain knowledge, can generate new knowledge similar to that of a person, and enable the enhancement of intellectual activity.[8]

This method was used to conduct a general assessment of the financial condition of the enterprise. [9]

The treatment of bronchial asthma is based on a combination of bronchodilators and glucocorticosteroid drugs. Initially, bronchodilators such as Berotec, salbutamol, bricanil, berodual, and Atrovent are administered using a nebulizer. [10]

To solve the problem of determining the qualifications of industry experts, the programming environment "Borland C++ Builder 6" was chosen. This is because "Borland C++ Builder 6" is based on the technology of object-oriented programming, which provides a visual programming environment and facilitates the development of complex systems. [6]

METHOD: On the basis of individual data processing methods, generalized estimates of medicines' belonging to the VEN group were obtained. Additionally, it is necessary to determine the competence of expert doctors in medicine classification. The scores in the questionnaires intended for the distribution of drugs into VEN groups were processed using modern intelligent methods that identified instruments with higher indicators belonging to group V. Furthermore, a list of drugs belonging to groups E and N was compiled.

RESULTS: The system's structure is as follows: the software for determining the qualifications of industry experts was implemented in the form of the "Expert on Bronchial Asthma" system, written in the Cin language. The program is created based on the modular principle, and it looks like this:

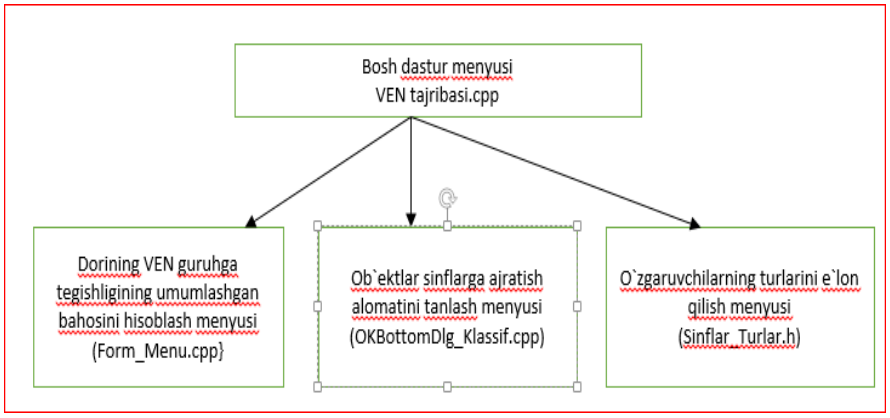

Figure 1 shows the structure and division of the system of the 'Expert on bronchial asthma'.

Viennese Experience (Viennese опыт.cpp) is the main program that combines all modules and is controlled through the main menu. The module for calculating the generalized assessment of drug belonging to the VEN group (Calculation of the generalized assessment of the drug belonging to the group вен.cpp) includes all types of variables in the program, as

well as procedures for working with dialog and disk files. This section contains "Selection", "Calculation of the generalized assessment", and "Assessment of expert qualifications".

The processes to be performed in the Selection section include determining the location of the "Open Selection File" button. The file you are hosting has several extensions, including ".tbl", ".prz", and "*.txt" formats. These files contain similar information.

Calculation of the final grade involves the following processes in this section. Each button has its own field, which determines the degree of necessity for a generalized assessment of drug belonging to group V using the formula {V}={E,N}. In this case, {E}={V,N} is considered the definition of a generalized assessment of drug belonging to group E, and {N}={V,E} is the solution of the generalized assessment process of the proposed drugs belonging to group N. The results will be posted in the notes section in oloxida.

The expert assessment of qualifications includes the following stages: "Expert weight", "Expert weight", and "Expert qualification." Each of them is designed to be solved using its own methods. Clicking on the "Expert weight" button will yield a result in the Memo section. The "VEN experiment" displays results in the StringGrid field. Clicking on the "Expert qualification" button will display results in the Memo field.

Selection of a feature for dividing objects into classes.cpp - in this menu, the sorting process by class is performed. Each button is associated with a specific class that includes the "Confirm" and "Cancel" buttons, as well as a ListBox field for selecting the process. The final result is obtained by clicking the "Confirm" button.

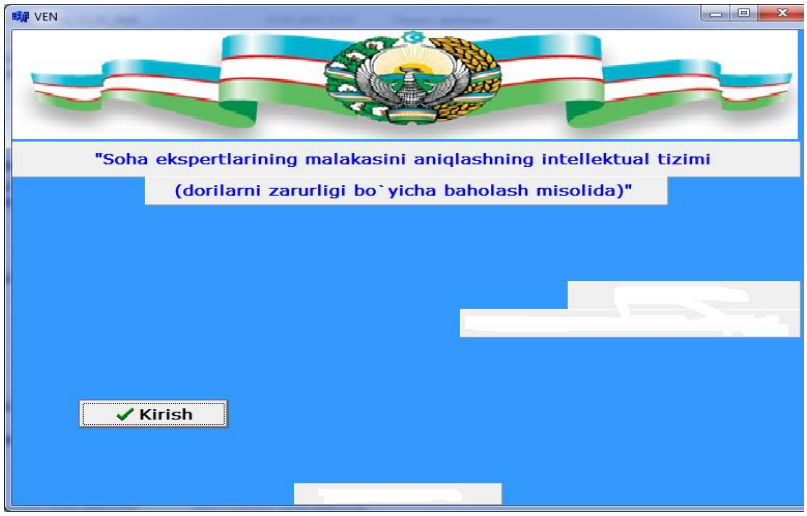

Figure 2: The Bronchial Asthma System. Expert in Bronchial Asthma.

After pressing the additional button, the menu of the main operating modes" is not grammatically correct as it lacks a verb in the second part of the sentence. Based on your intended meaning, the corrected sentence could be:

"After pressing the additional button, the menu for selecting the main operating modes will appear."

Alternatively, incorporating the suggested improvements, the sentence could be:

"After clicking on the additional button, a menu for selecting the operation modes or application settings will appear on the screen."

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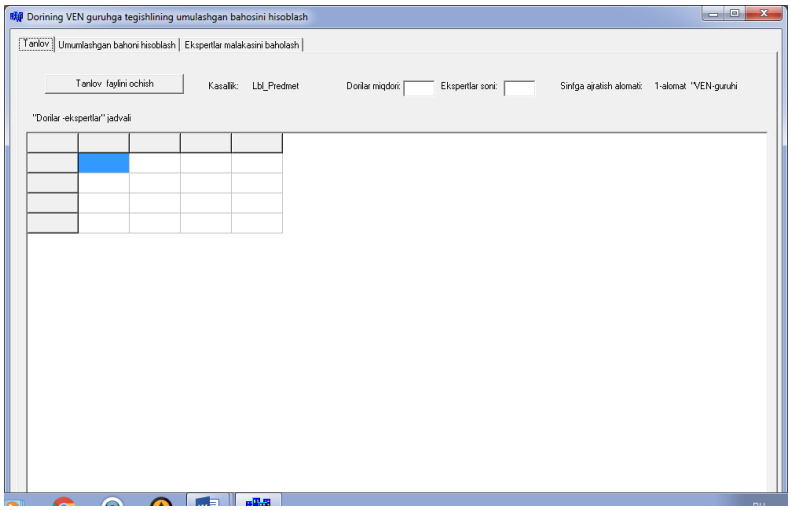

Figure 3 shows the modes of operation of the program 'Expert on bronchial asthma' for the treatment of bronchial asthma.

Let's take a look at the modes of the main menu. The file opening selection mode assumes that the user needs to select experimental data within a specific subject area to be processed in the first stage. In this mode, a submenu will appear on the File screen to select the appropriate file with experimental data

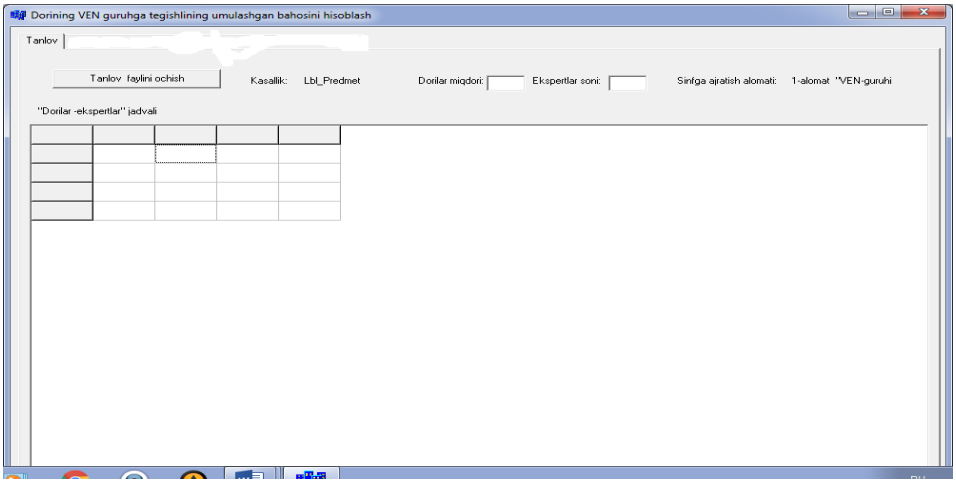

Figure 4 out of 4: 'Experience Information' Menu

By using the buttons shown on the bottom panel of the experimental data files screen, you can create experimental data files, specify the file name, and select the re-processing mode. Additionally, you can choose the mode for calculating the overall evaluation of the data.

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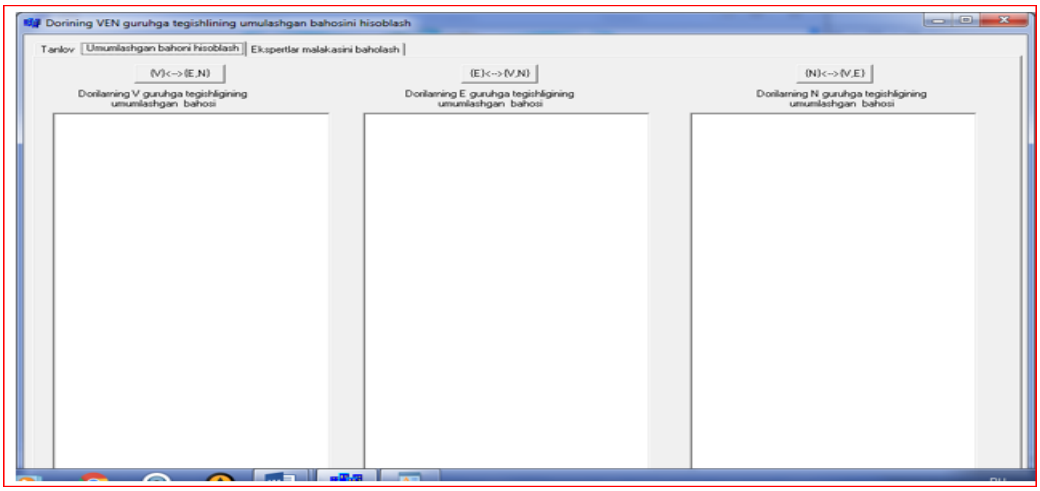

Figure 5 shows the points used for calculating the total score

This mode is designed for entering and editing information about an object using symbols and highlighting. When this mode is selected, the "Experience Information" submenu will appear on the screen. Additionally, there is a mode for assessing the qualifications of experts.

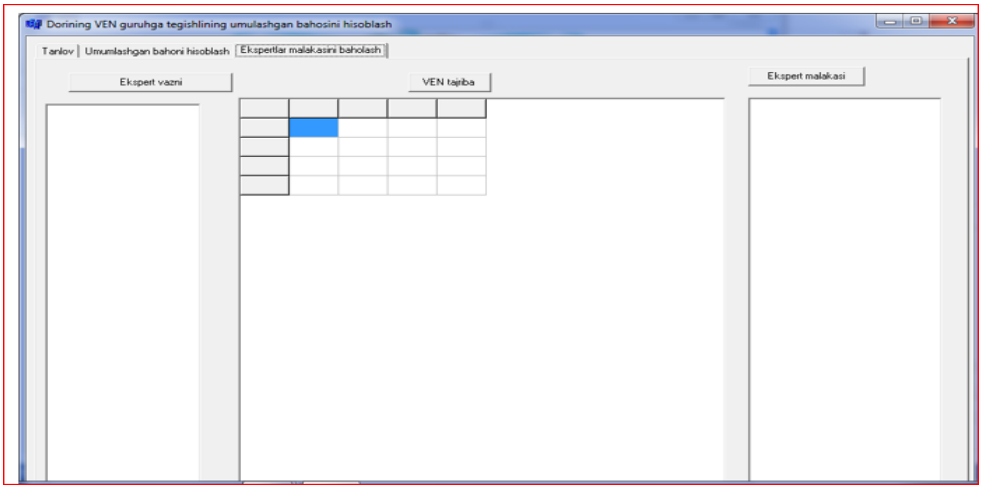

Figure 6. Assessment of experts' qualifications

Mode for selecting the dividing criterion of objects into classes

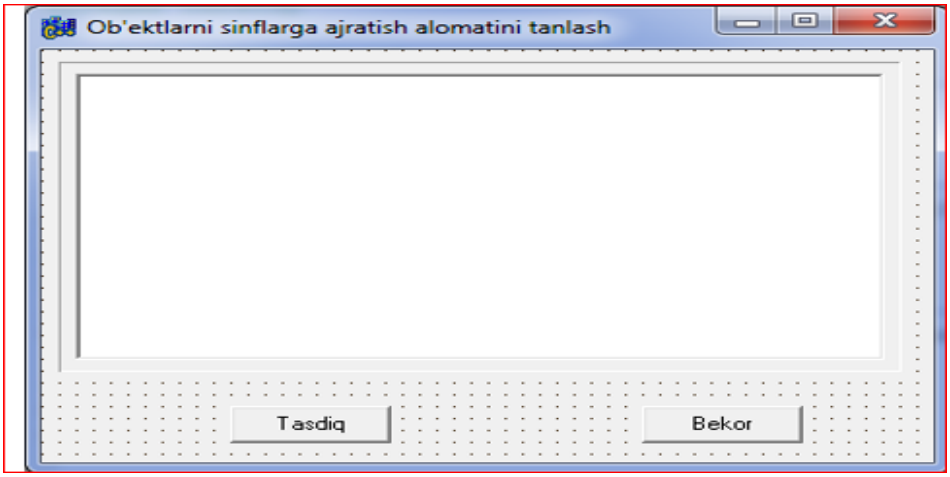

Figure 7. Selection of a feature for dividing objects into classes

Symptoms in the experimental data are represented by a list of symptoms. In this paragraph, symptoms are defined, including their name, whether they are quantitative or nominal, and the limits of values for quantitative symptoms. Additionally, the number of gradations of values for nominal symptoms is provided. The detection of symptoms of bronchial asthma is also demonstrated (in the VEN file *.tbl).

Data entry involves entering the values of the objects that make up the experimental data according to the list of features (in the file BA_VEN_LS_EXP *.tbl). During this process, values for all quantitative signs are entered and selections for nominal signs are made sequentially after entering the name of the object.

Data editing involves editing an existing object in the selection.

Preparation of a competitive work involves the automatic division of experimental data into classes based on the values of a single nominal attribute. This is achieved by using the same attribute to allocate the data into classes based on a specified nominal value, and assigning a class number of 0 to each object while removing the separator sign from the list. This provides the algorithm with the option of finding locally optimal coatings for processing the data (as indicated in the xobl_exp_ls file *.txt).

Other menu items are designed to provide various links to symptoms and data. Specifically, these include: printing of symptoms - which outputs a list of symptoms (xobl_exp_ls *.txt file); printing of an object - which outputs the value of the specified object by characters (ba_ven file *.prz); output of selection to text - which outputs experimental data to a text file (ba_ven0 file *.TBL); and statistics by attribute - which outputs statistics for selection objects that correspond to specified attribute values (file ba_ven0 *.prz).

When creating software, it is important to choose a data structure that corresponds to the nature of the problem, as determining the appropriate data structure is key to the successful creation of a program. To solve the problem, it is necessary to create a database (samples), construct an affinity matrix of nominal features, calculate generalized estimates of the target feature, and construct modules based on this to define patterns.

This software runs in a Windows operating system environment. The objects in this example should be divided into several classes, at least two. The objects are read from the file as data, and decisions are made depending on the problem set on them. Additionally, the program outputs hidden templates. To run the program from the file, you need to execute the executable file (program.exe). As a result, a window will appear on the screen, showing the program interface.

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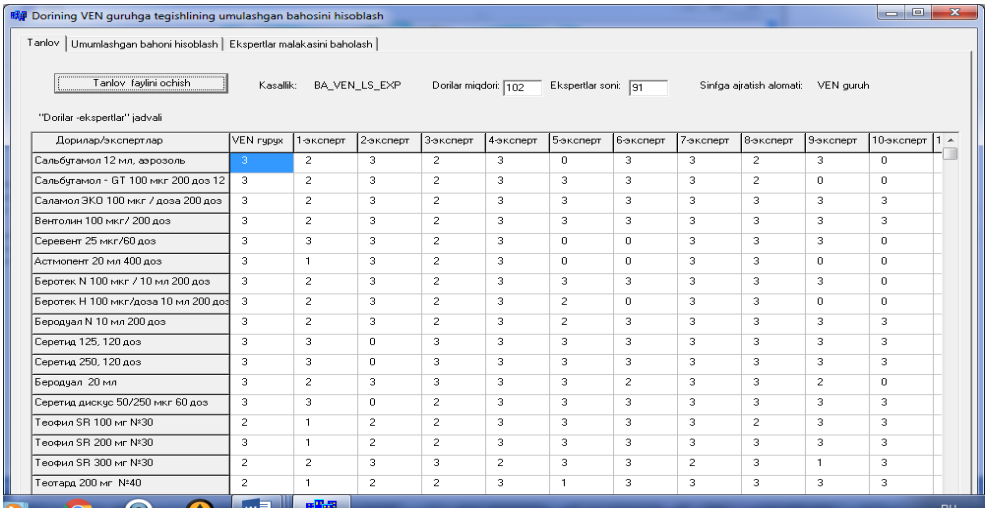
Figure 8. A window will appear, in which the program will look like this.

Upload file" button. The selection symbols and their classes obtained as a result of the experiment are then read into StringGrid arrays, displayed in the StringGrid field.



Дорилар/экспертлар	VEN гуруҳ	1-эксперт	2-эксперт	3-эксперт	4-эксперт	5-эксперт	6-эксперт	7-эксперт	8-эксперт	9-эксперт	10-эксперт
Сальбутамол 12 мл, аэрозоль	3	2	3	2	3	0	3	3	2	3	0
Сальбутамол - GT 100 мкг 200 доз 12	3	2	3	2	3	3	3	3	2	0	0
Саламол ЭКО 100 мкг / доза 200 доз	3	2	3	2	3	3	3	3	3	3	3
Вентолин 100 мкг/ 200 доз	3	2	3	2	3	3	3	3	3	3	3
Серевент 25 мкг/60 доз	3	3	3	2	3	0	0	3	3	3	0
Астмопент 20 мл 400 доз	3	1	3	2	3	0	0	3	3	0	0
Беротек N 100 мкг / 10 мл 200 доз	3	2	3	2	3	3	3	3	3	3	0
Беротек H 100 мкг/доза 10 мл 200 доз	3	2	3	2	3	2	0	3	3	0	0
Бередуал N 10 мл 200 доз	3	2	3	2	3	2	3	3	3	3	3
Серетид 125, 120 доз	3	3	0	3	3	3	3	3	3	3	3
Серетид 250, 120 доз	3	3	0	3	3	3	3	3	3	3	3
Бередуал 20 мл	3	2	3	3	3	3	2	3	3	2	0
Серетид дискус 50/250 мкг 60 доз	3	3	0	2	3	3	3	3	3	3	3
Теофил SR 100 мг №30	2	1	2	2	3	3	3	3	2	3	3
Теофил SR 200 мг №30	3	1	2	2	3	3	3	3	3	3	3
Теофил SR 300 мг №30	2	2	3	3	2	3	3	2	3	1	3
Теотард 200 мг №40	2	1	2	2	3	1	3	3	3	3	3

Figure 9. Viewing the 'Upload File' window.

To calculate an estimate that summarizes the data values, there are three groups in this window, each of which implements its results in the corresponding field. To do this, you need to click on the "Button" button specified in each recorded formula. The results will be outputted to the Memo field.

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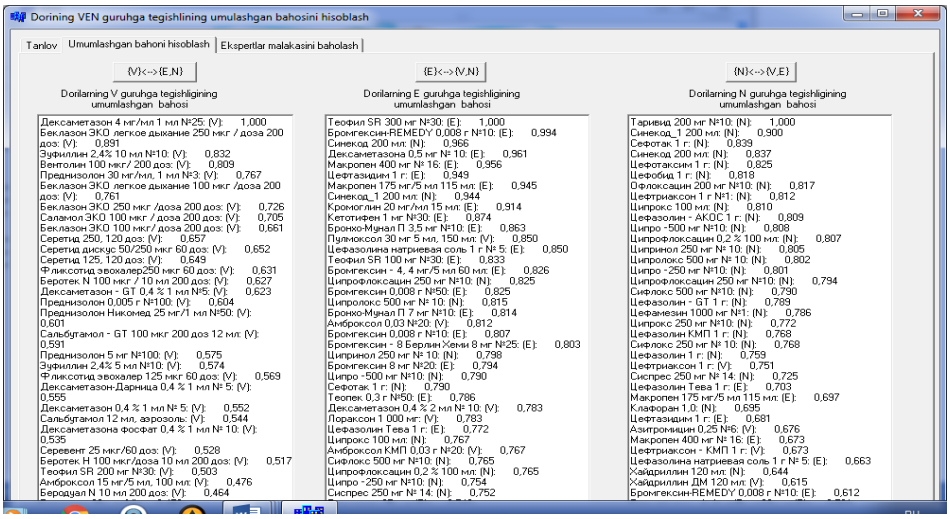

Figure 10. The window for calculating the generalized estimate

It can be observed that the results were generated by grouping the results obtained for each group of drugs as needed, and the resulting output is general. The next section of our program will cover the process of determining the qualifications of experts, where the weight of their expertise and VEN experience will be considered. The following section will describe the methodology used to assess the qualifications of the experts.

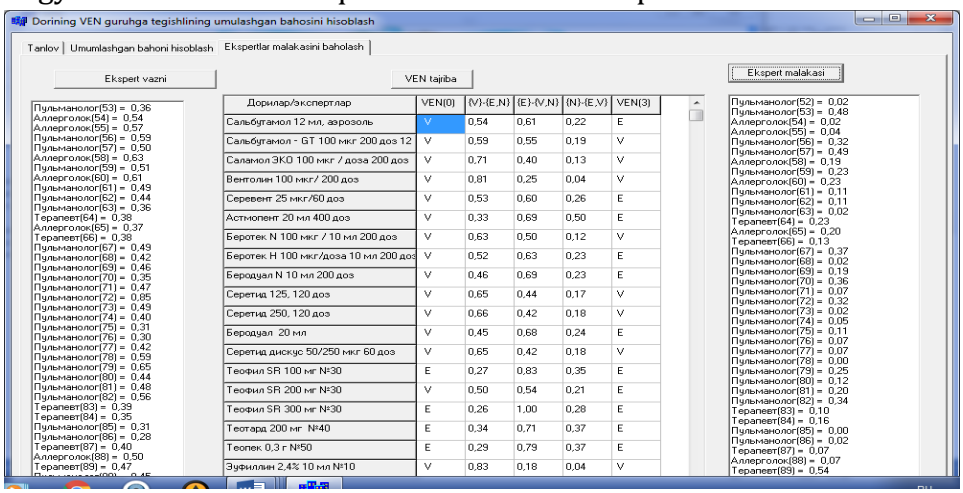

Рисунок 11. Окно оценки квалификации экспертов

A sample characterizing the incidence of bronchial asthma was used as a database for the computational experiment.

Table 1 shows the level of competence of specialists.

Experts	Experts percentage of adaptation
allergist	
1- Experts	63,7
2- Experts	37,3
3- Experts	38,4
....	....
V average	46,4
pulmonologist	

1- Experts	29,6
2- Experts	29,6
3- Experts	39,5
....	....
V average	32,9
therapist	
1- Experts	12,0
2- Experts	21,9
3- Experts	32,9
....	....
V average	22,2

DISCUSSION: When evaluating drugs, the correct assessment was given by an allergist in 46.4% of cases, by a pulmonologist in 32.9%, and by a therapist in 22.2%. Thus, allergists have demonstrated a relatively high level of qualification compared to other specialists [3]. According to the study, it is necessary to prioritize drugs belonging to group V. Based on the results of the VEN analysis of medicines used in the treatment of bronchial asthma, the following distribution of consumption of drugs belonging to group V was revealed:

1 - expert: 63.7%

2 - expert: 37.3%

3 - expert: 38.4%

In the future, the population and medical institutions should purchase vital medicines at their own expense. A list of necessary and secondary medicines used for the treatment of this disease has been compiled. The results regarding vital, undesirable, and secondary medications used for bronchial asthma were described clearly.

Conclusion: To create software that implements a generalized method for evaluating the values of a feature and requires determining the qualifications of industry experts, it is necessary to represent objects in the form of an object-property table. Essentially, objects should be divided into several classes, at least two. The created software reads objects from a file in the form of data, makes decisions depending on the task, and extracts hidden patterns. For convenience, the general structure of the "Borland C++ Builder 6" programming environment is presented.

The operation process of the software involves obtaining final results, which are then used to conduct a computational experiment. In the course of studying the theoretical and methodological aspects of developing methods to assess the qualifications of medical specialists, the response table method was utilized. This method was applied to the questionnaire responses of specialists in the disability group, to determine the degree of necessity for the use of Dori funds in treating the disease. Additionally, experimental studies were conducted using the developed system and algorithmic software tools.

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