EasyChair Preprint

№ 14823

Software Complex of the Expert Department

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September 12, 2024

SOFTWARE COMPLEX OF THE EXPERT DEPARTMENT

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ABSTRACT. The work presents the development of the workplace of the department of examination of the patient's medical condition using databases for the formation of work documentation, reports and the preparation of statistical samples.

KEYWORDS: digitization, examination, SQL-databases, sorting, sampling.

I. Introduction

Structured information is an integral component for the possibility of computerization of workplaces. The most successful solution to the given task is the organization of information using relational databases [1], which allows you to store data in the form of electronic spreadsheets, as well as search for information in one or more tables based on a search key, and systematize it.

Since the patient's medical information is to some extent confidential, in order to prevent identification of the data and the person, the questionnaire and medical data are divided into separate tables, which are interconnected by encrypted keys.

II. DBMS "Expert"

The software complex is designed to facilitate and reduce the routine work of medical registrars and doctors when processing medical files of patients sent for examination of their medical condition.

The development and use of DBMS is aimed at reducing the paper circulation of documents, digitizing information, as well as automating data analysis, their selection in accordance with the task, the formation of various reports, etc. [2]. Medical case information is stored in the form of a database consisting of a number of tables (Fig. 1) connected to each other using primary and secondary keys.

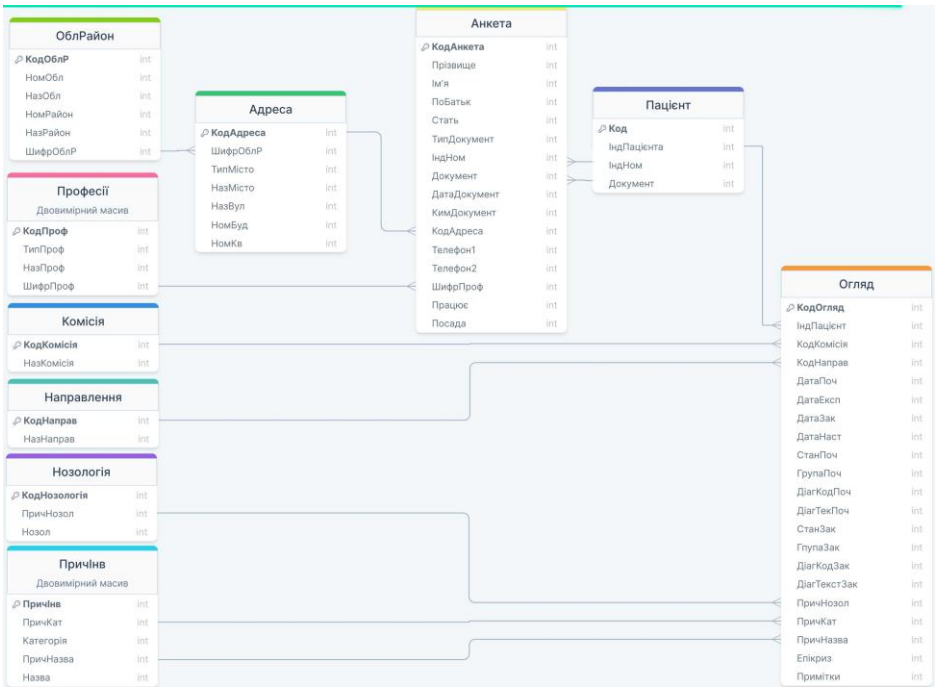

Fig. 1. DBMS "Expert".

Tables of personal and medical information are linked by component keys to guarantee the uniqueness of the values of each record and the protection of the individual's rights to the inadmissibility of disclosure of confidential information. These keys are formed using the data of several fields of the questionnaire in accordance with the given encryption algorithm.

The availability of a database for computerized workplaces of a certain organization allows different users to operate with information without the need to make reference requests between departments. Limiting the access rights to the database and the possibilities of editing it allows you not to violate the integrity of the data. This property is relevant due to the widespread use of computer technology, but the frequent computer inexperience of the staff and the lack of IT specialists in the institution.

Therefore, data access is organized using an intuitive graphical user interface (GUI). GUI, to facilitate the training of personnel to work with the program, is designed in the "standard" form of dialog windows of programs for "Windows environments" (Fig. 2, 3).

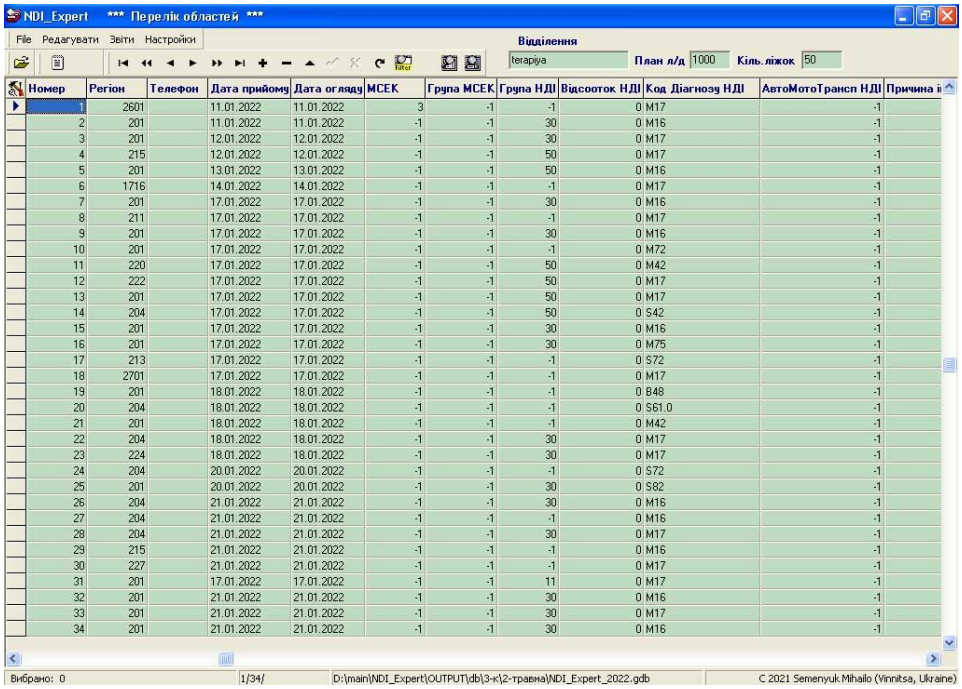

Fig. 2. GUI "Expert".

Some of the main and frequently used commands have been duplicated in the form of "icons" on the quick launch panel.

The main window of the DBMS displays records of patient examinations - the medical component of the database. For quick viewing of information, moving through the database is possible both by ribbons ("up", "down", "begin", "end") and by separate fields of record ("right", "left", "on beginning", "to the end"). This option is available when using keyboard movement keys, mouse manipulator, or selecting menu commands.

Current information about the used database, the number of records in it, and the number of the active line is displayed in the status bar. The names of the fields are placed above the corresponding columns, which makes it easier to view and identify the data.

To view or edit the required case, first select the required person in the "Questionnaire data" table (activated from the "Menu") using a filter, or by moving through the "Surname" field (which is sorted in alphabetical order). In the "Overview" table, in accordance with the identification key,

records are selected (Fig. 3) that satisfy the condition. By selecting the desired review, we switch to the editing mode (Fig. 4).

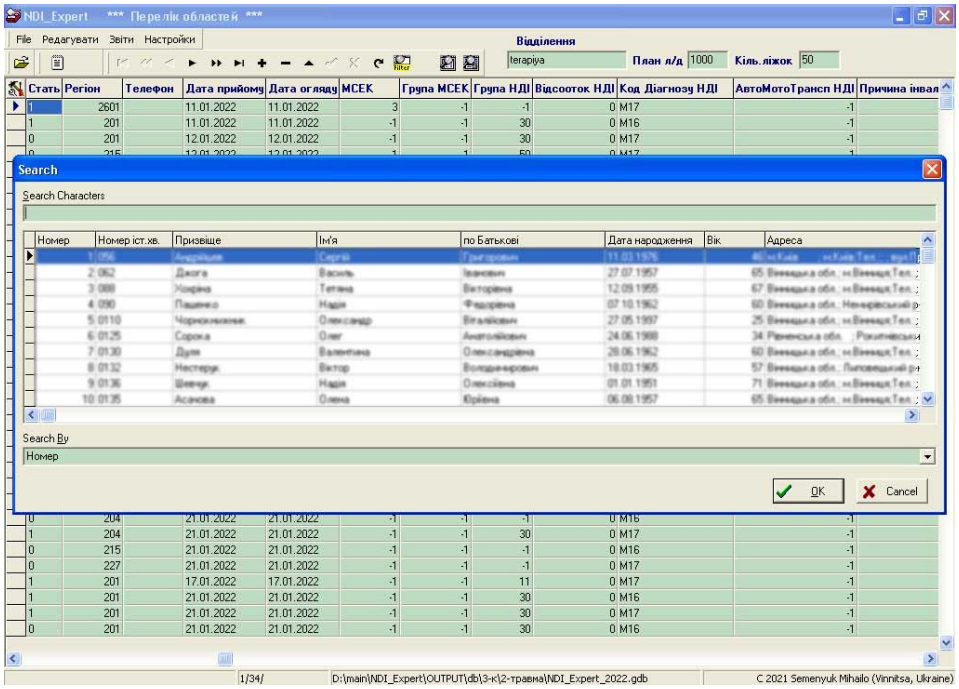

Fig. 3. Selection of the patient from the "Questionnaire" table.

For a new patient, a new record, the mode of adding a new tape is used, after which the transition to the editing mode is also performed.

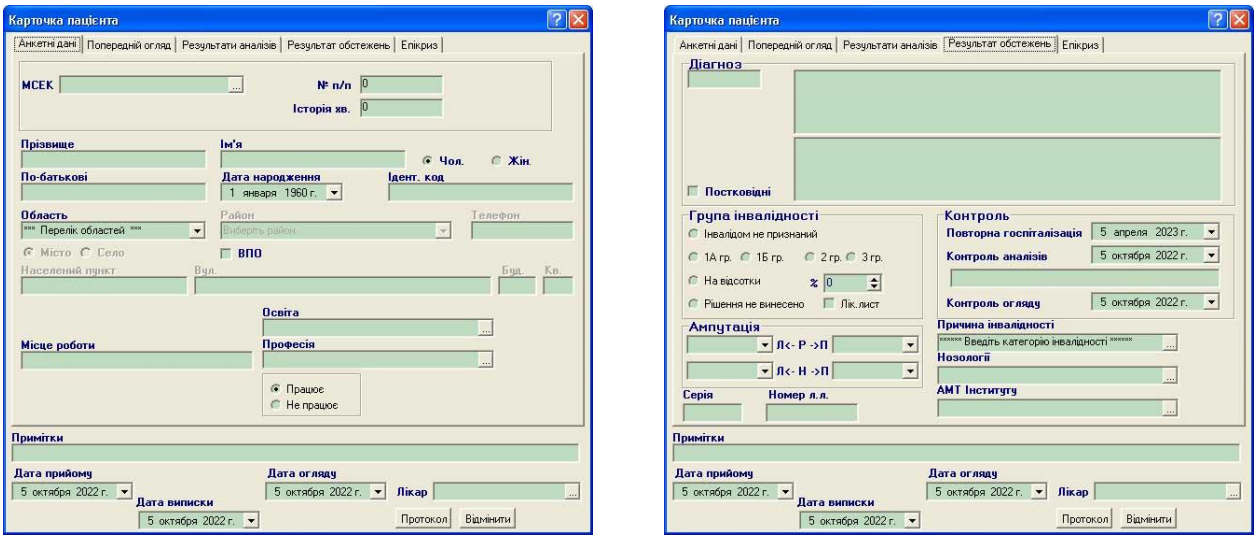

Fig. 4. Entering patient data.

To systematize information input, database fields are grouped by data topic in the form of separate pages.

A number of standard field values, to exclude repeated sets, are prepared for selection in the form of various data blocks (drop-down lists, alternative selection, calendar, etc.). The rest of the data is entered in editable elements.

The corresponding buttons are used to complete the editing. Depending on their selection and the state of the record (new, editable), information is recorded in the database tables with the formation of a composite key for identification of the person.

The DBMS implements the ability to filter and sort data in various combinations. This data can be generated in the form of necessary reports. These operations are performed either using

commands programmed for the corresponding actions, or - in advanced mode - using SQL sequences. The selected information can be printed or exported to some widely used file types

III. Conclusions

The presented DBMS "Expert" allows you to divide the time of entering the patient's questionnaire data and the results of his examination. Organization of access based on the "client-server" principle provides an opportunity to organize remote and shared access to information, as well as limit access to confidential information.

To create wider opportunities for analyzing reports and samples, transferring information to other institutions, the source information can be created in the form of Excel-type files, which will allow the use of various office packages.

IV. References

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