SOFTWARE FOR EXAMINATION CARDS GENERATING.

M. Kulev, A. Golubev

Technical University of Moldova

Software for generating of the exam cards is intended for the teachers and can be used for automatically generating different sets of exam cards for different subjects. An interesting nuance of the Software is that for one set of exam questions can be generated many different sets of exam cards. Row data are data bases of questions and problems, made by the teacher in adequate teaching plane of adequate subjects.

Description of software.

This program is developed based on Delphi 6,SQL and SUBD Paradox.

There are 3 routines of work: the input mode, the searching mode and the mode of creating the cards.

Beside it there are some useful functions

- Deleting all the questions (erasing data bases)
- Delete one question (by F8 key)
- Output all the questions with possibility of printing and saving to file
- Output the finding questions with possibility of printing and saving to file
- Loading an existing report.

Input mode

This program use database PARADOX. It absolutely responds needs of the program.

Alias Exam consist of 3 tables.

- Billets.db
- Quations.db
- Quations1.db

Billets.db – consist 3 fields:

- Num – Short integer – key field
- Num1 – Short integer – Save the number of the question. (is used for output)
- Q1,Q2,Q3,Q4,Q5,Q6 – MEMO fields where are saved(max 6)

This table Billets.db save the cards (is created during the cards creating before output).

Quations.db – consist of 6 fields:

- Num – Short integer – key field
- Type – Short integer – The level of question
- SUBJEKT – string – theme of the question

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- Quation – MEMO fields where the question is saved.

- Sum – number of lines in the question (for output)

- Num1 - Short integer – Save the number of the question. (is used for search)

This table (Quations.db) is the main table of the database. All the questions are saved there.

Quations1.db – consist of 6 fields:

- A – Short integer – key field

- Type – Short integer – The level of question

- SUBJEKT – string – theme of the question

- Quation – MEMO fields where the question is saved.

- Sum – number of lines in the question (for output)

- Num1 - Short integer – Save the number of the question. (is used for search)

This is an additional table. It is used for temporary storing of the questions during creating the cards (after that it erased).

During input mode is filling table Quations.db. fields Sum and Num1 are filing in automatically.

The searching mode

In the searching mode the user search necessary questions in the table Quations.db. the search is for fields:

- Subject

- A line or a phrase from question. A string is searching in the MEMO

- Difficulty level

Because of MEMO field output of all the searching results is impossible, that's why the results are showed during the finding. On the end of the searching is showed a message.

The mode of creating the cards.

This is the main and the most interesting mode in the program. In this mode you should , with help of radio buttons and other logical instrument, choose the necessary settings.

- *Number of cards* - form 1 до 6 this setting determine the number of questions in the billet in the table Billets.db and the square of paper occupied by one billet. If the number of questions is not determined the ERROR message is showed.

- *Difficulty of the cards – By default it is no defined.* By canceling the default mode is installing the mode of distribution of questions on complexity. On choosing the mode of distribution of questions on complexity maximal interval of the difficulty level must be the same or more than the minimal level + the number of questions.

- *Choose the subject*

- By permitting the random distribution of the questions in the different questions it is allowed to generate more number of questions, the number of questions is not important, but them number must be more than the number of questions in one billet. If this option is switched off, then the number of questions must be not less the number of questions increased by number of questions in the billet. By choosing and canceling of this option is corresponding the two different variants of the program working. In the first variant the table Quations1.db is creating and during all the generation no one element is deleted from it, but is created an array where is writing field NUM1 of already used in this billet questions, excepting the possibility of repeating questions in this billet. At the second variant also Quations1.db is creating, but every used question is deleted from this table during the cards generation, excepting the possibility of repeating questions in all set of cards.

- distribution of questions on complexity bring additional conditions for the number of questions. There are must be enough questions of every difficulty

The program was optimized by using the filter of the database and adding the field NUM1. this field is filled in automatically for the table Quations1.db during its creating, because of this field every record has its number, and the filtration of the integer type is more faster than a string type. The optimization of the program has allowed to raise working capacity of the program essentially (no less 10 times)

In spite of it was resolved the question of paper economy for printing the sets of cards. The additional field Sum was created. This field has been descript in the section of input the questions. With its help the maximal area borrowed by data is defined. The necessary size is installing after filling in the table Bilets.db.

Developed software is recommended for teachers and educational institutions using for simplification and acceleration of process of drawing up the examination cards. It can be modified in future. For example the data bases of the exam questions can be kept on the server and many teacher will be able to use them, including from different educational institutions. It will be a serious help for young teachers, who will be able to use the databases with questions made by skilled teachers and the generated set of cards will be different.

Beside it the main bases can be kept in internet what will offer to use the developed software for distance education.

Bibliography:
- " Програмирование в Delphi 6 " А. Я. Архангельский "BINOM" 2003
- "SQL-99 Руководство разработчика баз данных " В.А. Сичкаренко "DiaSoft" 1999