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IN KARAKALPAKSTAN**

**ҚОРАҚАЛПОҒИСТОНДА
ФАН ВА ТАЪЛИМ**

**ҚАРАҚАЛПАҚСТАНДА
ИЛИМ ҲӘМ ТӘЛИМ**

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RESEARCH ON DEVELOPMENT OF SOFTWARE FACILITIES OF THE COMPLEX OF CLEANING OF POLLUTED WATER

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Summary. *This article discusses contaminated water purification. One of the key steps in developing software for calculating ecological and economic models, as well as creating and planning calculations for algorithm models developed. It includes input and output data processing software, organization of billing and execution software and information services.*

Key words. *Polluted water, solution, software, information services, mathematical modeling, dynamic modes, technical systems, data bases, functional diagram.*

The modernity of the scientific and technical level in industry, science and education at present is largely determined by the degree of implementation of information technologies that provide solutions to many problems of production, scientific research and the educational process. Therefore, the development of new software and hardware should take into account the latest achievements of modern world computer and information technologies.

Mathematical modeling of working processes using structural modeling methods is the most effective means of developing technical solutions for creating complex research or technological equipment. The use of methods and tools for mathematical modeling allows us to evaluate that correctness of design decisions, to conduct a multivariate analysis and choose the most effective solutions. The simulation allows us to assess the behavior of the designed installation, to identify the causes of possible emergency situations and to propose new technical solutions to prevent emergencies that may lead to severe economic or environmental consequences.

To date, many diverse tools have been developed abroad for mathematical modeling of dynamic modes in technical systems. Comparative analysis of existing software systems (PCs) is not an easy task, since they are created at different times and for different purposes. Software systems are very different in purpose, volume, quality and price. They may satisfy well some users and not be suitable for others.

Therefore, we formulate a number of requirements that must be met by modern software tools for automating dynamic calculations [2].

Modern software systems designed to study workflows in dynamic systems using mathematical modeling methods must have the following components:

- inter active and graphical means of forming a visual image of the technical device under study and its mathematical model;

- data bases of mathematical models (electronic libraries) describing that work processes in the elements of the technical systems under study;
- built - in tools for numerical simulation of the workflow in real time or in the scaling mode of model time;
- developed tools for graphical display of current calculation results and subsequent analysis of the results obtained;
- tools for archiving calculated data, reproducing the simulation process, and so on;
- means ensuring formation of virtual analogs of measuring and controlling equipment. On that above components, the role of databases of mathematical models that describe workflows in the elements of technical systems is decisive. It is impossible to perform numerical modeling and analysis of the workflow in a technical system if the database of mathematical models of the used software package does not have “ready” modules for “assembling” the block diagram of the system under study.

The software package for calculating ecological and economic models consists of functional and system content. The software implementation of the functional content of the complex is carried out on the basis of the subject area and the developed algorithms for solving the set tasks of the considered research topic.

In development of software for calculation of ecological-economic models, one of the main stages of work is the creation of system software allowing the organization and planning of calculations according to the developed model algorithms. These include the creation of programs for processing input and output data, programs for organizing and executing calculations, programs for an inter-modular interface, and information services.

The main program unit of the complex can be two types [3]:

- full - provides for conducting a computer experiment in the form of a set of separate sessions with the possibility of interrupting calculations, recording intermediate results on a disk and continuing a computer experiment;
- short - when several calculations are carried out within one session with obtaining final results.

In accordance with this, the algorithm of the basic program unit has the form presented in the algorithmic language in **Fig. 1 or 2**.

Computer experiment control algorithm within programming technology
OLYMPUS-TP

Start

Calculation Identification Clearing Variables and Arrays Reading Source Data

Repeat

Adjustment of source data

Calculation of intermediate data

Specifying Initial Physical Values

Setting the initial values of the parameters

Output of the initial data

to repeat

Calculation in one step. Output of intermediate values. Checking the condition for terminating calculations.

until the end of the condition

Calculation of the main characteristics

Conclusion of final results

Check the condition of the completion of the experiment

until the completion of the computer experiment condition

Record a computer experiment log

end.

Fig. 1. Algorithm of computer experiment of short type

Computer experiment control algorithm in the framework of programming technology OLYMPUS-TP

Start

Billing identification

Cleaning Variables and Arrays

if new calculation

that

Reading raw data

otherwise

Reading intermediate results

everything

to repeat

Adjustment of source data

Calculation of intermediate data

Specifying Initial Physical Values

Setting the initial values of the parameters

Output of the initial data

to repeat

Calculation in one step

Output intermediate values

Check the condition of the end of calculations

until the end of the condition

Calculation of the main characteristics

Conclusion of final results

Check the condition of the completion of the experiment

until the completion of the computer experiment

Record a computer experiment log

end.

**Fig. 2. Algorithm of computer experiment in the case of the full type
Library CRONUS: purpose, filling and maintaining**

The remaining program units (procedures) form a stable structure of the program complex, which is preserved for any program as a basis. In addition to these “mandatory” program units, others can be added to the complex that do not break the existing structure, but can develop it. The main structure of the software package is represented as a flowchart in **fig. 3**

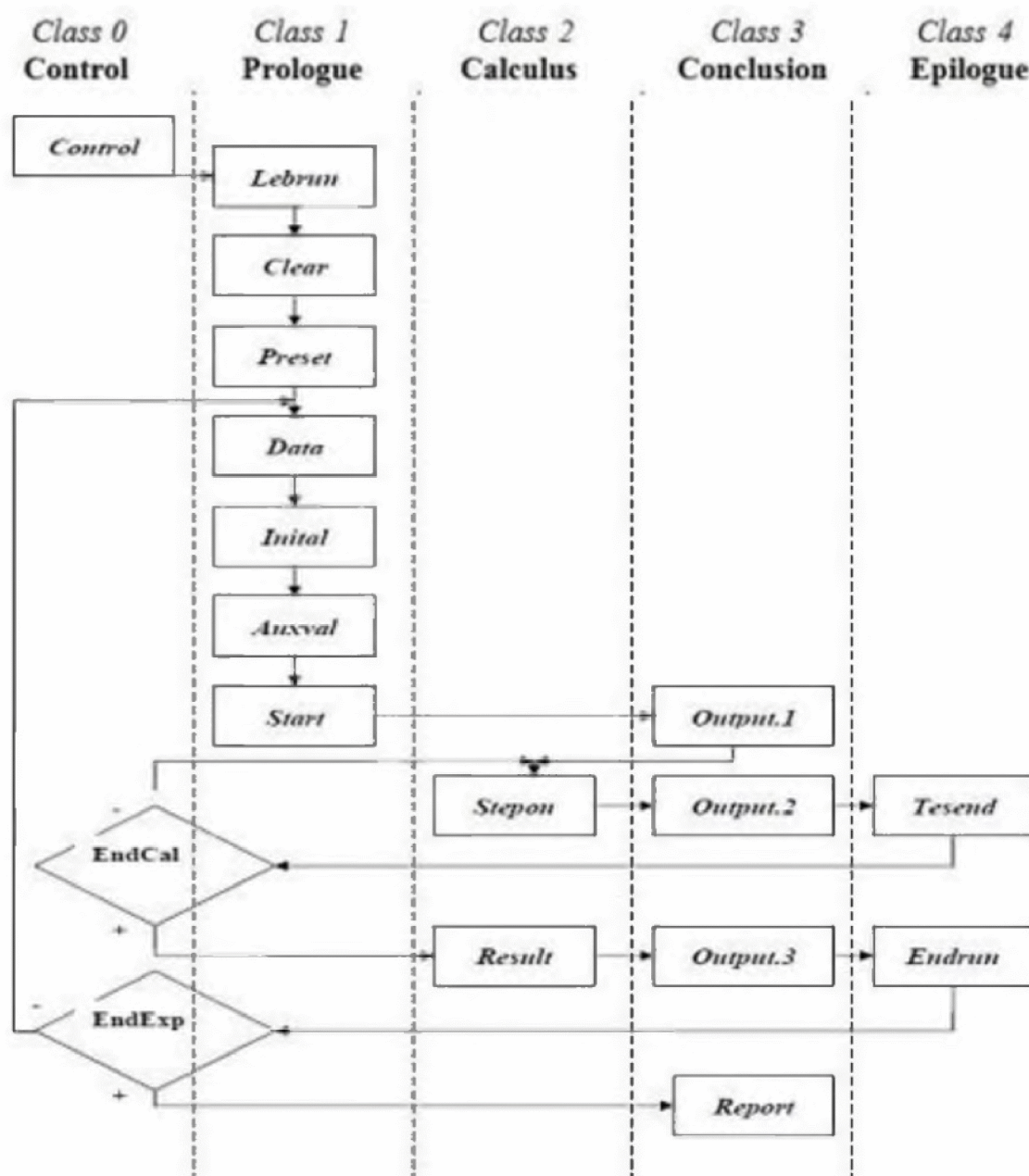


Fig.3. Functional diagram of the software complex type OLYMPUS. Classes in the project

Some changes made to the OLYMPUS project in connection with the development of Delphi programming systems have significantly improved the structure and quality of the programs. However, it should be noted that obtaining relevant documentation is a significant challenge.

References

1. Lyashenko I.N., Mixalevich M.V., Uteuliev N.U. Metodi ekologo-ekonomicheskogo modelirovaniya. -Nukus: Bilim. 1994. p.236
2. Gorbunov-Posadov M.M. Rasshryaemie programmi. — M.: Poliptix, 1999. p.336
3. Gorbunov-Posadov M. M. Konfiguratsiya programm: retsepti bezboleznennix izmeneniy / M.M. Gorbunov-Posadov. - M. :Malip, 1994. — p.270
4. Roberts R.V. The OLYMPUS programming system / R.V. Roberts // Atom (Gr. Brit.). - 1975. - No. 226. - P. 137-147

Rezyume. Ushbu maqolada ifloslangan suvni tozalash yechimi berilgan. Ekologik-iqtisodiy modellarni hisoblash uchun dasturiy ta'minotni ishlab chiqishda, shuningdek, ishlab chiqilgan modellar algoritmlari bo'yicha hisob-kitoblarni tashkil etish va rejalashtirishga imkon beruvchi tizim dasturiy ta'minotini yaratish asosiy bosqichlaridan biri hisoblanadi. U kirish va chiqish ma'lumotlarini qayta ishlash dasturlarini, hisob-kitoblarni tashkil qilish va bajarish dasturlarini va axborot xizmatlarini ishlab chiqishni o'z ichiga oladi.

Резюме. В этой статье обсуждается очистка загрязненной воды. Одним из ключевых этапов является разработка программного обеспечения для расчета эколого-экономических моделей, а также создание и планирование расчетов для алгоритмических моделей. Он включает в себя программное обеспечение для обработки входных и выходных данных, организацию программного обеспечения для выставления счетов и исполнения и информационные услуги.

Kalit so'zlar. Ifloslangan suv, eritma, dasturiy ta'minot, axborot xizmatlari, matematik modellashtirish, dinamik modellar, texnik tizimlar, ma'lumotlar bazasi, ishlab chiqarish diagrammasi.

Ключевые слова. Загрязненная вода, решения, программное обеспечение, информационные услуги, математическое моделирование, динамические модели, технические системы, база данных, производственная схема.