

UDC 007.5  
J. 29

**Zhanys Aray Boshanqyzy**

Ph.D., PhD, professor of Russian Academy of Natural number №7524, Head of the Department "Information Systems and Informatics" Kokshetau University named after Abai Myrzahmetova.

## SOFTWARE DESIGN ARM "MEDICAL AND EDUCATIONAL STATION"

**Abstract:** By analyzing the nature of information systems professionals determine their often as professionally-oriented small computer system situated directly in the workplace specialists and designed for the automation of their work.

For each object management is necessary to provide workstations corresponding to their functional purpose. However, the principles of IP should be common: consistency, flexibility, stability, and efficiency.

**Keywords:** Information systems, software and hardware, automation, calendar and master plan, the driver, Delphi 7, Windows-window template.

Workstation (IP) - software and hardware solution designed to automate the activities of a certain type.

IP combines software and hardware to ensure the human-computer interaction, allows input of information (via the keyboard, computer mouse, scanner and so forth.) And its display monitor, printer, plotter, sound card - speakers or other output devices.

The aim of this study was to establish an information system for the office of registrar. It was necessary to create a database containing information about teachers, teaching load, availability of work training programs and calendar-standard plans, plans for teachers' meetings, etc.

Relevance of the work is justified on the fact that the ability to process the data available in electronic format greatly simplifies the presence of a large

volume of paper documents, reducing the search time of any information.

To implement these requirements was the most convenient not to resort to the means of a universal database, and create an independent program in the form of an executable (exe-file), working from under Windows, with the interface as much as possible adapted for easy operation that does not require any additional knowledge .

The implementation of this task is carried out in the system programming Delphi, is well placed to build database applications, the necessary set of drivers to access the best known formats of databases, comfortable and developed the means to access information located on a local drive or on a remote server as well as a large collection of visual components for the construction of windows displayed on the screen, you need to create a user-friendly interface between the user and executable code.

According to the principles of the system of IP should be considered as a system, the structure of which is determined by the functional purpose.

Principle of flexibility means the adaptability of the system due to the possibility of tuning the modular construction of all subsystems and standardization of their elements.

The principle of the stability is that the IP system must perform the basic function, irrespective of its effect on the possible internal and external factors. This means that problems in some of its parts must be easy to handle, and the availability of the system - quickly recoverable.

Efficiency of IP should be considered as an integral indicator of the level of implementation of the above principles, referred to the costs for the establishment and operation of the system.

Operation IP can provide a numerical effect only with proper allocation of functions and workload between man and machine by means of information processing, which is the core of the computer. Only then will the IP is not only a means to improve

productivity and management efficiency, and social comfort specialists.

*Description information base*



Figure 1. The main window of the application

The main venue will be the information storage database created in the programming environment Delphi. Below is the working window.

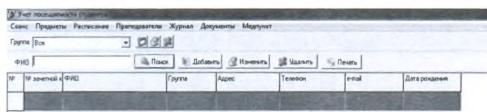


Fig. 2 attendance of students

In this window, you must select the group and perform a search, and then displays a list of groups of Compliance

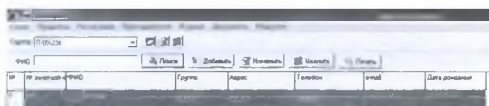


Fig. 3. Data about a group of WP4

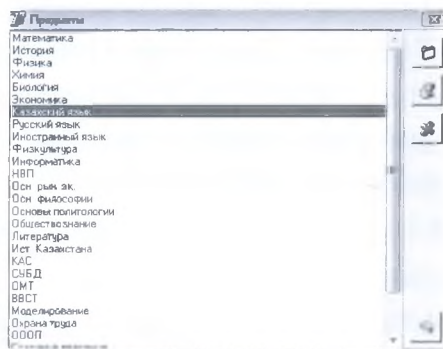


Fig. 4. The list of items

In this window, you can add items to schedule

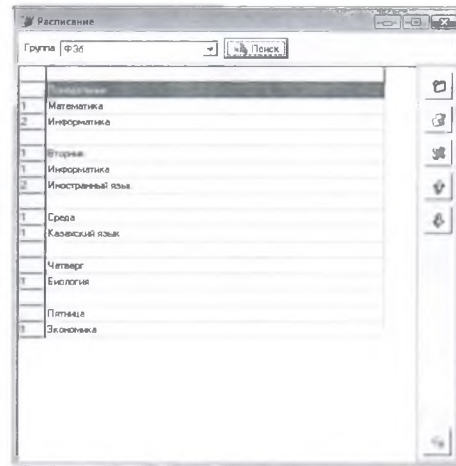


Fig. 5. Schedule Group F3b

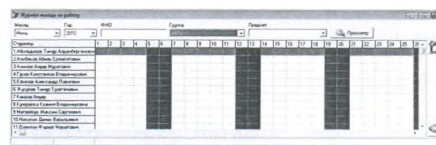


Fig. 6. Consideration passes to groups

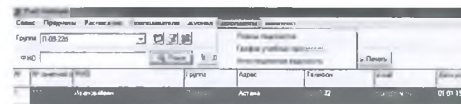


Fig. 7. Document window

This window displays the documents necessary for the job, they have the extension doc. Further work is to organize the process and data management, which is already carried out directly from the environment object-oriented programming Delphi.

*Description of the algorithm*

A little about Delphi programming language and databases.

In Russia, Borland Delphi appears at the end of 1993 and immediately gaining widespread popularity. New versions come out almost every year. They sold

all the new master, components, and software engineering.

For the development of this software was chosen development environment Delphi 7-based programming language Object Pascal. This development environment has been chosen on the basis of "visual programming", which gives the program readability.

Borland has released the seventh in a row version of Delphi, the main feature of which - an attempt to replace bulky and not always fast database access mechanism BDE, which has traditionally been used in all previous versions, alternative mechanisms.

To do this, first, in Delphi 7.0 includes support for technology ADO (ActiveX Data Objects - data objects, built as objects ActiveX), which is strongly developed by Microsoft.

Secondly, employees and Borland InterBase Software Corporation units developed a series of lightweight components to access data stored in tables server InterBase v.6.5 and above (InterBase page of the Component Palette). These components do not require BDE and thus create a "lightweight" client location. Less significant changes made in version 7:

- enabled the expert to create and configure arbitrary data modules with enhanced representation of the relationship data;
- improved technology MIDAS: for more flexible work with Microsoft Transaction Server introduced reentrant (stateless) data broker; simplified the process of developing an intranet-based applications at the expense of the new village InternetExpress.

Significant changes have been made in the integrated development environment IDE, including: to improve the coordination of collective work on the same project introduced a new tool - the list of To-Do; Software can now if you want to use multiple configurations for basic windows Delphi - for example, for coding mode on the screen can not attend the debug window, which, on the contrary, you may need to debug mode; your preference is easy to select the new

interface elements in the main window of Delphi; introduced filtering properties in the Object Inspector to simplify selection of the desired properties; Options Object Inspector can now be supplied with small icons that facilitate the correct selection of the desired item (for example, next to the name of each color shows a small rectangle filled with this color, next to the cursor - its appearance, etc.); significantly enhanced capabilities integrated debugger: debug break point can be grouped and made available or not available to a group of pixels; each breakpoint you can associate one or more actions to be performed when you reach this point; using the Run \ Attach to Process can otglazhivat process running in another instance of the IDE (this feature greatly simplifies the debugging of multi-tier applications); by selecting Run \ Run Until Return to the main menu, you can continue stepping through after the current routines, etc .; introduced additional capabilities in Project Manager to simplify the coordination of many people in a single project; Broadcast Manager, a mechanism to facilitate the development of multilingual programs in the framework of a single project; changes in the code editor, allowing you to configure it to use the "hot" keys; several redesigned help system.

Numerous changes and additions to the gallery components (the new version of the most powerful complexion Enterprise on page 20 located 218 standard components).

Version 3 comes in complexion: Standard, Professional and Enterprise. The composition of the utilities included in the complexion Enterprise, is fully consistent with a complete set of utilities Client \ Server Suite previous version.

Indeed, the process of development in Delphi is extremely simplified. This primarily relates to the creation of the interface, which takes 80% of the time development of the program. You simply place the required components on the surface of the Windows-window (in Delphi, it is called a form) and configure their properties with a special tool (Object Inspector).

Use it to associate the events of these components (click on the button, the mouse selection item in the list, and so on) with the code of its processing - and here is a simple application is ready. And the developer has at its disposal a powerful debugging tools (up to step through the commands of the processor), a convenient contextual help system (including for Microsoft API), Collective work on the project, to just name it. You can create ActiveX components without using Microsoft IDL, empower the web-server (server-side scripts), almost without knowing anything about HTML, XML or ASP. You can create distributed applications based on COM and CORBA, Internet and intranet-applications using data access Borland DataBase Engine, ODBC-driver or the Microsoft ADO. Introduced, since Delphi 3, support for multi-hop technology (multi-tiered) data access allows you to create scalable applications (relatively weakly dependent on the database server) due to the transfer of information processing methods (business rules) on the middle tier.

As mentioned earlier, the language used in Delphi Object Pascal, which is constantly expanding and supplemented by Borland. Language fully supports all requirements for object-oriented programming language. As befits a strongly typed language classes only support single inheritance, but the interface can have multiple ancestors. Among the features of the language include support for exception handling (exceptions), as well as the methods and routines overload (overload) in the style of C ++. Among the successful, in the opinion of the author, also includes

support for long strings in the format and WideChar AnsiChar. The latter type (AnsiStrmg) allows you to use all the charm of dynamic allocation information in memory, without any worries about its allocation and garbage collection Delphi does this automatically. For fans of free programming style are open arrays, variants and variant arrays that allow to place in the memory of all that your heart desires and mixed data types.

You can create your own components, import OCX components, create <Templates> projects <Masters> by <blank> projects. Moreover, Delphi provides a developer interface to the application (or external programs) with integrated shell Delphi (IDE).

Thus, you can use Delphi to create both the most basic applications, the development of which takes 2-3 hours, and major corporate projects, designed for dozens or hundreds of users. And for this you can use the latest developments in the world of computer technology with minimal time and effort.

One of the latest news from Inprise promises that in the near future can be transferred to applications developed in Delphi, on Linux. For more information on Delphi can be found on websites and [www.inprise.com](http://www.inprise.com) [www.inprise.ru](http://www.inprise.ru). There are many sites dedicated to Delphi, for example <Kingdom Delphi> - [delphi.vitpc.com](http://delphi.vitpc.com), Torry's Delphi Pages - [www.torry.ru](http://www.torry.ru). The latter contains a large number of references to the resources associated with Delphi. However, the site can be free [www.brainbench.com](http://www.brainbench.com) tested as a Delphi programmer 3 and receive by mail a certificate.

The power and flexibility of Delphi when working with databases based on the low-level kernel - CPU Database Borland Database Engine (BDE). Its interface with software applications called Integrated Database Application Programming Interface (IDAPI). In principle, now do not distinguish these two names (BDE and IDAPI) and consider them synonymous. BDE allows access to data using both traditional record-oriented (navigation) approach and using a set-oriented approach used in SQL-server databases. Besides BDE, Delphi allows you to access databases, using technology (and, consequently, drivers) Open DataBase Connectivity (ODBC) by Microsoft. But, in practice, the performance of systems using the BDE is much higher than the add when using ODBC. ODBC drivers' work through a special "ODBC socket", which lets you embed them in the BDE.

All tools databases Borland - Paradox, dBase, Database Desktop - use the BDE. All the features available in Paradox or dBase, "inherited" BDE, and therefore has the same features and Delphi.

During the implementation of this work was the analysis of the domain as an object of automation. This area was the workstation, "head of the department of educational work." Building Automated application was carried out in an environment Delphi. The database itself is created in MS Access. The application can access an external database through special components for working with databases.

Also during the work analyzed the economic efficiency of the use of such information systems.

The proposed software aims to systematize and optimize the data, significantly increase the speed of service. The work program is organized so that the input data are thoroughly tested, ensuring non-repetition of records in the database

Thus, this program will greatly facilitate the work of the Deputy Director for Academic Affairs.

The program is a huge opportunity improvements and modernization. Do not make the job of creating reports and display them in Excel.

Practical value of work consists in the fact that, first, experience was gained in the development of workstations, including mastered development tools such systems; Secondly, the school will have at its disposal and can be used in educational process of new electronic means.

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