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USING TOOLS TO INTEGRATE VISUAL APPLICATIONS WITH RELATIONAL DATABASES TO CREATE SOFTWARE IN THE EDUCATIONAL PROCESS

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Abstract

The material examines the wide possibilities of the C# language in the development of applications to support various educational processes; in this case, it means an introductory campaign and easy integration of application data with relational databases.

Keywords: educational processes, introductory campaign, relational databases.

In today's world, information technology increasingly affects all areas of life, including education. The use of information technology in education can improve its quality, make training more accessible and effective.

The C # language is one of the most popular tools for creating software in this area. C# has a simple syntax, support for many modern programming paradigms and ample opportunities to create reliable and effective applications. One of the advantages of such applications is that they can be easily integrated with other tools and technologies. For example, applications in C# can be integrated with databases, web services and other programs, which allows you to create complex systems to support the educational process. The convenience of using relational databases lies in the ability to store and process large amounts of information.

The complexity of the admission campaign as a process and the significant impact of its results necessitates the introduction and continuous improvement of information technologies (IT) in the processes of organization and information support of this direction of the educational institution. Modern studies quite widely consider the organization and conduct of the admission campaign. [1] However, only a small part of them is focused on IT, their development and implementation. Using educational web communities, the mechanisms of influence on the formation of a contingent of students have been investigated. Some authors considered the website of structural units of the educational institution as an alternative way of communication with applicants within the framework of career guidance. [2]

V.V. Osadchy in his writings described the use of neural networks in order to predict entry. [3] The author identified the use of a large dataset and a qualitative training sample as critical for obtaining accurate results. Modern research also offers models of data analysis:

- a mathematical model for analyzing and predicting the results of entrants' admission based on their profile data;
- a model for assessing the results of the admission campaign and the basis for predicting future quantitative indicators of the results of the admission campaign by using correlation-regression analysis and trend models;
- using certain relative indicators and a matrix of pairwise correlation coefficients to analyze the impact of these indicators on the results of the admission campaign;
- a model that allows you to build a forecast of the number of enrolled applicants in subsequent years of the admission campaign.

These studies gave fairly accurate results. Today of the tools for assessing and analyzing various aspects of the activities of the educational institution, in particular the admission campaign, are ratings. In terms of constant competition in the system of professional pre-higher education, a high position in the ranking for an educational institution is a necessary requirement of marketing strategies. This kind of information on the results of the admission campaign is publicly available in WEB and is a significant factor influencing the formation of the attractiveness of the educational institution among applicants.

Therefore, to ensure an effective admission campaign, educational institutions widely use specialized software systems developed by modern object-oriented programming languages, such as C++, C# and others. Also, it is necessary to take into account the need to work with large amounts of data, such as information about applicants, rating points, coefficients of the importance of the specialty and others. To do this, you need to develop a database and organize the interaction of the software system with the database.

C# applications can be easily integrated with databases due to the presence in the .NET platform of a wide range of libraries and tools for working with databases. [4] One of the main tools for working with databases in C# is ADO.NET, a set of classes that provides a single interface for accessing data from various sources, including relational databases, XML files and web services. ADO.NET allows you to perform standard database operations, such as connecting to a database, executing SQL queries, reading and writing data, and transactions.

Another way to integrate C# applications with databases is to use LINQ (Language Integrated Query), a query language built into C#. LINQ allows you to query databases using syntax similar to SQL, but with a higher level of

abstraction. LINQ supports various types of data sources, including relational databases, XML files and web services.

Therefore, the integration of visual applications with databases is important in the organization of the admission campaign, as it provides an opportunity for admissions officers to quickly operate large amounts of data relating to incoming educational institutions, as well as to generate reports on the progress of the admission process in a visual form.

One example of applications developed in C# in education is the learning management system "Module," which allows teachers to create and manage training courses, as well as monitor student performance. The system has an intuitive interface and ample customization options.

The developed application "PROGNOZ" is an example of a system designed to accompany the admission campaign of an educational institution of professional pre-higher education. The application is written in the C# programming language and uses the means of connecting and managing the college.accdb relational database containing the basic data of the admission campaign. Namely, the list of specialties of the educational institution, information on competitive scores, and so on. The system processes data on the current and predicted state of the tender to the EI with the possibility of online reporting. This information can be used by employees of the educational institution to analyze the situation of the admission campaign and develop a strategy for the higher educational institution in the next admission campaign.

The PROGNOZ system has the following functionality:

CONTROL tab – designed to work with database tables that contain information about the educational institution, specialties, competitive points.

STATISTICS tab – used to manage forecast data; charting and plotting data dependencies.

To connect the system to the database, a ADO.NET tool was used – a set of classes that provides a single interface for accessing data from various sources, including relational databases.

In addition, there are many other examples of C# applications in education, such as virtual labs, testing systems, prediction systems; programs to study mathematics, physics, chemistry and many other subjects.

Conclusions

The developed PROGNOZ system is an important tool for supporting the admission campaign of an educational institution of professional higher education. We plan to use this application in the work of the admissions committee of Cherkasy State Business College to create an accurate forecast of the popularity of college specialties. This information makes it possible to look for ways to regulate recruitment for a particular specialty.

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