6. Климчук С. Загальна характеристика законодавства про інформаційну безпеку ЄС, США та Канади. *Юстініан*. 2006. № 11. URL: http://www.justinian.com.ua/article.php?id=2462

7. Про Стратегію інформаційної безпеки. Указ Президента України «Про рішення Ради національної безпеки і оборони України» від 15 жовтня 2021 року № 685/2021. *Офіційний вісник Президента України.* 2022. № 1. Ст. 31.

MULTILEVEL INFORMATION SYSTEM FOR RECORDING THE STUDENTS ACADEMIC PERFORMANCE

Aloshyn S.
Senior Lecturer of Computer Science Department
SHEI «Pryazovskyi State Technical University»
Dnipro, Ukraine

Piatykop O.
PhD, Docent,
Associate Professor of Computer Science Department
SHEI «Pryazovskyi State Technical University»
Dnipro, Ukraine

Fedosova I.
Doctor of Pedagogical Sciences, Professor,
Professor of Computer Science Department
SHEI «Pryazovskyi State Technical University»
Dnipro, Ukraine

Management of organizational and educational processes in a higher educational institution is a complex and important task. First in the conditions of the pandemic, and now in the conditions of martial law Universities of Ukraine were forced to switch to distance learning. In this state, the subjects of the educational process (students and teachers) are forced to use systems and distance learning, auxiliary means of video communication and conferences. One of the problems was the task of forming progress journals based on current assessments, preparing intermediate indicators of success and carrying out attestations.

At the SHEI «Pryazovskyi State Technical University» (the SHEI "PSTU"), when teaching applicants for higher education in all educational programs, a system of cumulative point-rating assessment of students' progress is actively used [1]. All basic business processes and functions are reproduced when assessing students and are regulated by many documents on the organization of the educational process. So, the educational process is characterized by its complexity and versatility. Therefore, automation support is required.

An automated system "Dean's office" [7] has been introduced at the SHEI "PSTU". The automated system "Dean's Office" is a software and technological complex for managing the educational process of an educational institution, designed to organize the work of methodologists and reduce the amount of paperwork. This system has a "Journal" module. And does not imply access to all students. Also, this module does not have a web interface. therefore, its widespread use in the conditions of distance education is problematic. Our university has also introduced a distance education system MOODLE [8]. "This system will also not help to solve the problem of forming general gradebooks according to the current grades of students. In this system, grades are given by each lecturer, there is no general summary table, there is no access to information of other participants in the educational process.

That is why the issue of creating an integrated distributed multi-level information system for recording the progress of applicants for higher education has become relevant, which can be freely used by all subjects of the educational process.

The created system automates such functions of the educational business processes as monitoring the level of students' knowledge and organizing the educational process. Such an automated system should provide functionality for the following actors (subjects of the educational process): student, teacher, head of department, dean and dean's office.

The main target audience of the cumulative assessment of success is actually students and teachers. That is, these are people who differ in age, educational level and experience in information technology and software.

To store information about students and their success, it is necessary to use database management systems (DBMS). The main requirements for a DBMS include the following: support for the SQL language for accessing the database; ensuring a quick response to inquiries; implementation of access to data and their editing by several users at the same time; data integrity support; protection of information from unauthorized interference with the database; providing documentation and logging.

Access to data should be regulated depending on the role of the user and the availability of authorization to the system. The database should be based

on a relational model, in which data for modeling is represented by relationships and tables.

Dynamic websites usually use a database to store content. The server script that interacts with the database must provide a web interface for sending information and displaying the results of a database query. MySQL is one of the most widely used database management systems in the world. MySQL is suitable for small to medium sized applications. MySQL is flexible because it supports a wide variety of table types. Thanks to its open architecture and GPL licensing, MySQL is also suitable for use.

A necessary requirement for a web server is that it works stably without failures. Another prerequisite for the server is the ability to connect to it via putty in order to be able to execute commands. The users of the system will be such subjects of the educational process: student, teacher, head of department, dean and dean's office.

The system use case diagram (Figure 1) shows the main groups of business rules and functions that must be implemented in the information system for all envisaged actors.

A user with the "student" role should be given access to view information regarding his individual curriculum: about the disciplines that are taught in the current semester, about the results of the previous semester. The student can also get acquainted with the accumulated points for each discipline and view in detail the structure of the accumulated points in accordance with the forms and methods of assessment created by the teacher on the scale of the educational institution. The system also provides the student with the opportunity to choose an educational trajectory for detailed viewing, since in the modern educational space it is possible to simultaneously receive higher education in several educational programs and individual curricula.

A user with the role of "teacher" can perform the following main functions that the system must implement:

− viewing information about all subjects of the current semester, provided to the user by load;

− viewing the gradebook for each subject, which is provided according to the load. The provision of the functionality for editing marks in the journal should depend on whether the user is the main teacher or assistant in a particular subject;

− the ability to add, edit and delete marks in the gradebook, print the gradebook table;

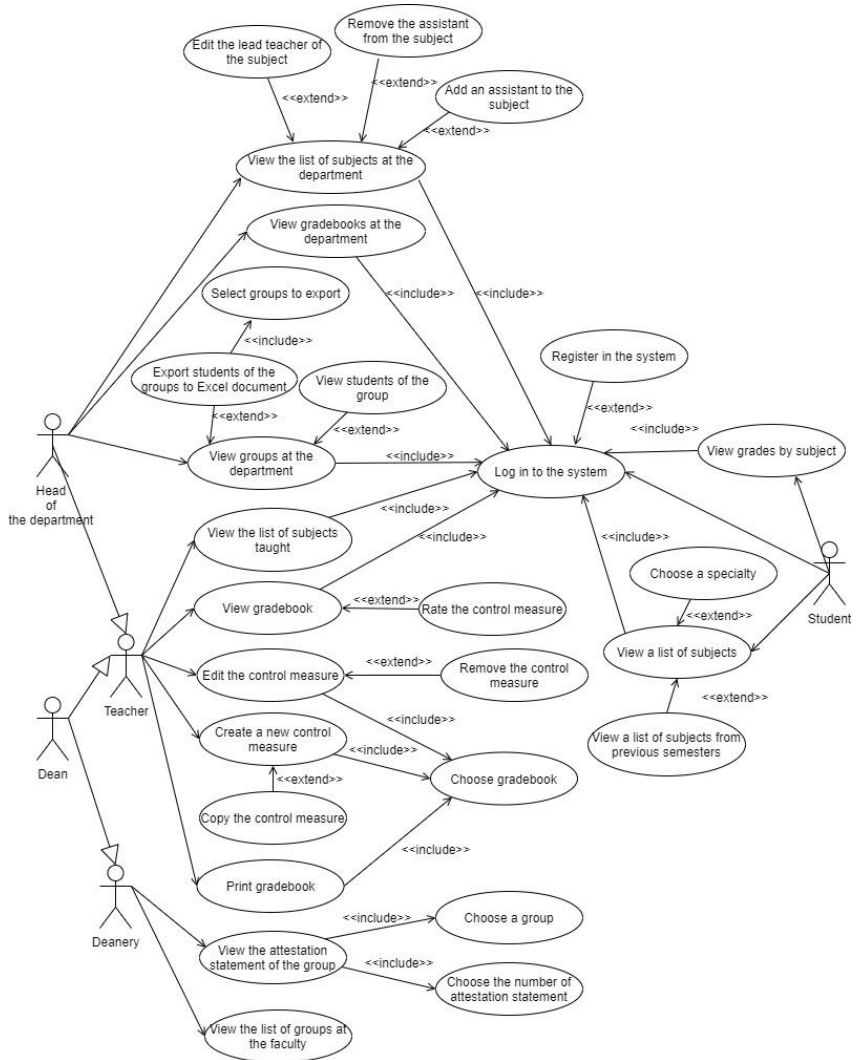− means of adding, editing, copying and deleting controls on the gradebook page.

Figure 1. System use case diagram

The user role "head of department" has the full functionality of the "teacher" role and has the following extensions to perform additional work:

− viewing all subjects allocated by the teaching load for the teachers of the department;

− appointment of key teachers and assistants for each discipline;

− displaying a list of all groups that are assigned to the department;

− export of information to MS Excel file (list of students of the group that was selected by the user).

Users with the "Dean's office" role are allowed to view all the groups that are in the faculty and their grades. They are also given the opportunity to print and export the selected certification sheet to a MS Excel file.

A user with the "dean" role combines the "teacher" and "dean's office" roles with their respective functionality.

So, the information system itself, which was developed to solve the problem and provide the appropriate functionality, was designed as a distributed web-oriented system with information storage in a remote database under the control of an active SQL server. User work with the system does not require additional costs for installing and configuring client software, since to work with the system, it is enough to use a web browser on any device.

After opening the main page of the site where the system is located, the user is asked to authenticate and determine his role in the system as Figure 2 shows.
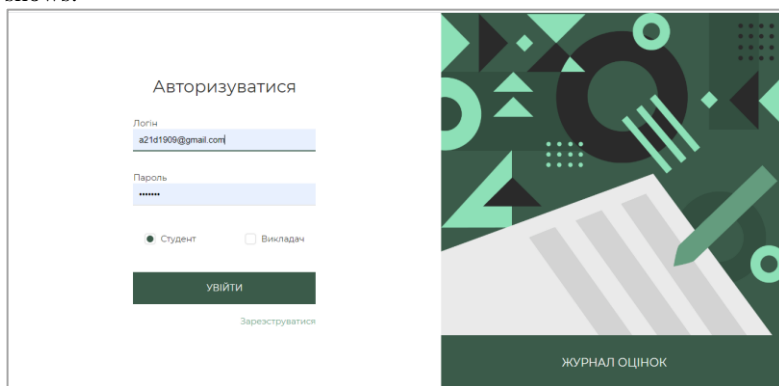

Figure 2. User authorization

The developed multi-level information system for recording student progress is relevant now for the traditional form of education as well.

References:

1. M. V. Borovyk, Assessment of learning accorting to cumulative point-rating system. *Economic Analysis.* 2014. Vol. 31. No. 1. Pp. 222–227.
2. AS"Dean's office". URL: https://vuz.osvita.net/asu-vnz/as-dekanat/
3. Moodle – Open-source learning platform. URL: Moodle.org

NEURAL NETWORK TECHNOLOGY FOR SYNTHESIS OF AN EXPERT SYSTEM FOR EARLY DIAGNOSIS OF ALZHEIMER'S DISEASE IN THE SPACE OF INTERSECTING FEATURES

НЕЙРОМЕРЕЖЕВА ТЕХНОЛОГІЯ СИНТЕЗУ ЕКСПЕРТНОЇ СИСТЕМИ РАННЬОГО ДІАГНОСТУВАННЯ ХВОРОБИ АЛЬЦГЕЙМЕРА В ПРОСТОРІ ОЗНАК, ЩО ПЕРЕТИНАЮТЬСЯ

Aloshyn S. P.
PhD in Engineering, Associate Professor,
Associate Professor at the Department
of Computer and Information Technologies
and Systems
National University «Yuri Kondratyuk
Poltava Polytechnic»
Poltava, Ukraine

Альошин С. П.
кандидат технічних наук, доцент,
доцент кафедри комп'ютерних
та інформаційних технологій
і систем
Національний університет
«Полтавська політехніка
імені Юрія Кондратюка»
м. Полтава, Україна

Haitan O. M.
Senior Lecturer at the Department
of Computer and Information Technologies
and Systems
National University «Yuri Kondratyuk
Poltava Polytechnic»
Poltava, Ukraine

Гайтан О. М.
старший викладач кафедри
комп'ютерних та інформаційних
технологій і систем
Національний університет
«Полтавська політехніка
імені Юрія Кондратюка»
м. Полтава, Україна

Пропонується технологія синтезу експертної системи у просторі ознак, що перетинаються [1; 2], для ефективного раннього діагностування хвороби Альцгеймера шляхом аналізу її первинних ознак, що дозволить підвищити якість розпізнавання хвороби на