нарушений.

Для дальнейшего совершенствования процессов мониторинга ИР УО целесообразно уточнить перечень критериев и разработать методику их оценки экспертами; обеспечить публикацию перечня ИР УО, в наибольшей степени соответствующих требованиям; организовать обучающие семинары по работе с АИС.

ЛИТЕРАТУРА

1 Об утверждении Концепции развития экспорта услуг (продвижение бренда «Образование в Беларуси») на 2018–2020 годы: приказ Министра образования Респ. Беларусь, 20 февр. 2018 г., № 130 // Эталон – Беларусь [Электронный ресурс] / НЦПИ. – Минск, 2018.

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SECURITY OF APPLICATIONS FOR COMPUTER GAMES

The purpose of this paper is to analyze some aspects of the functionality of multiplayer computer games in relation to their structure and security. The main aspect of multiplayer games is to allow the player to the game together with other people. For this purpose, players must be at least two, however, their number can reach even thousands. The most widely used and most popular multiplayer game mode in modern times is the network game. Multiplayer games do not necessarily have to be played using more than one device.

If we talk about the security of our games or applications, we must bear in mind that it is impossible to completely secure such a structure. A programmer only can minimize risk or bypass problems.

The most important structural unit of the game is the database [1]. The security of databases is based on the use of a wide range of information security to protect them (database systems, database applications or function storage, potential added data, database servers and related network connections) against breach of confidentiality, integrity and security of accessibility. There are many types of control: technical, procedural, administrative and physical. This class of protection is a specialized topic in the wider field of computer security, information security and risk management.

Examples of types of threats that can occur in database systems are [2, 3]:

unauthorized, immeasurable or improperly performed activity by an authorized user, administrator, network managers,

getting malicious software that has the following effects: unauthorized access, disclosure of personal or proprietary data, deletion or corruption of data or programs, interruption or denial of authorized access to the database, attacks on other systems and failures of database services,

performance limitations,

physical damage to database servers caused by equipment failure, lightning, fire or liquid flooding,

improper creation of projects, databases, related programs and systems with errors creating various inconsistencies in security (eg unauthorized escalation of rights), loss or corruption of data, performance degradation, etc.,

data corruption or loss due to incorrectly entered data or commands.

Taking into account the listed and other important features we have created an application that allows you to implement the basic functions of a multiplayer computer game.

The structure of the application in the form of the created classes is shown in Figure 1.

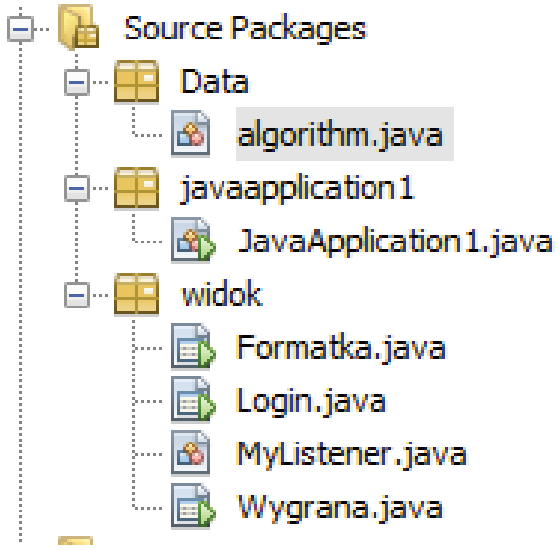

Fig. 1 – Classes structure in the application

In fig.1 we see three packages. The first is the Data package with the class algorythm.java containing the methods needed to perform calculations. The second (javaapplication1) in which the JavaApplication1.java class is contained is used to run the entire application. The third package called widok with classes Formatka.java, Login.java and Wygrana.java; in this package we also have the MyListener.java class that supports click events.

It should be noted that the Algorithm class implements the function of cryptographic encryption based on RSA. The RSA functions were written using security and crypto libraries. The first one is responsible for creating a pair of keys based on the size of 2048 bits. These keys are, of course, public and private.

The programming environments that were used in the creation of the application were Intellij IDEA and NetBeans. Intellij IDEA was used to create our database.

Currently developed application is being tested.

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БЕГРАДИЕНТНЫЙ МЕТОД ОБУЧЕНИЯ ПОЛНОСВЯЗНОЙ НЕЙРОННОЙ СЕТИ ПРЯМОГО РАСПРОСТРАНЕНИЯ

Градиентные методы обучения нейронных сетей при обратном распространении ошибки требуют больших затрат времени при сложных вычислениях частных производных, градиентов, изменений весов, моментов и скорости обучения. В виду большого объема вычислений при использовании градиентных методов хорошая сходимость алгоритмов достигается за большое количество эпох [1].

При решении тестовой задачи классификации нейронной сетью (при обучении градиентным методом) на вход подавалась относительно малая выборка данных, для активации нейронов использовалась сигмоидальная функция, методом «проб и ошибок» выбирались значения момента и скорости обучения. При этом, «приемлемые результаты», – сходимость и энергия ошибки достигались при обучении, примерно, за 10 – 15 тысяч эпох.