DEVELOPMENT OF AN ELECTRONIC REPOSITORY OF BIOMEDICAL SIGNALS AND IMAGES

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The massive transformation of the Internet at the beginning of the 21st century has contributed to key changes in the field of hosting and distributing open scientific knowledge. This also applies to the field of health care.

Open science has become a noticeable phenomenon and laid the foundation for the development of the general concept of open data, the main provisions of which were approved in the Berlin Declaration in 2010.

One of the components of the distribution of open data are various information platforms and repositories that provide the ability to search, view and use the data placed in them. The concept of open data has become the basis for the emergence of a number of projects working in the paradigm of open science, which is especially relevant for the medical field of knowledge, since most discoveries and achievements of a medical nature are always significant not only from a theoretical but also from a practical point of view. Their dynamism and diversity require constant tracking of new sources of information, assessment of their reliability and quality.

The classic structure of a biomedical signal and image repository usually includes several main components, such as descriptive metadata, technical metadata, signals and images. Moreover, this imposes restrictions on the creation of such an information resource. In addition, many conditions are imposed on such banks, which are related to the confidentiality of personal data, and the scalability of the data storage and the features of its placement. Their small number confirms all this.

During the development of the cloud repository, we analyzed the main processes that can occur in the repository. If we consider the repository from a global level, it is a set of modules that accept input parameters, based on which output parameters are formed.

The following were used to implement the electronic repository of biomedical signals and images are the IntelliJ IDEA development environment, the Java programming language for writing the server-side, the HTML hypertext markup language using JSP technology for organizing the web interface, the CSS markup language using the Bootstrap library for developing the graphical user interface, the Maven project build automation technology, Apache Tomcat for deploying the application on a local server, Git for versioning the developed system, and a NoSQL database for justification and comparison with the architectural level.

Thus, this combination of IT and its implementation tools allows for the creation of an easy-to-use, accessible electronic repository of biomedical signals and images.