ТЕХНИЧЕСКИЕ НАУКИ

DEVELOPMENT OF INFORMATION SYSTEM OF ACCESS TO BOOKS, AUDIO AND VIDEO MATERIALS IN THE KAZAKH LANGUAGE

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Abstract. The Article is devoted to the creation of an information system for online access to works of Kazakh literature, audio and video materials in the Kazakh language. A website has been created that allows users to get information online as well as download them. The website is created in the form of an electronic library. Search for books and other information can be done both by author and by genre. The system interface is in Kazakh and Russian languages.

Keywords: information system, algorithm, website, database, work, Kazakh literature, electronic library, client-server.

1.Introduction

Currently, the information system is closely linked to many areas of human activity. To create an information system, it is necessary, first of all, to organize the main design part of the system. The design part of the system is planning the development of the system as a whole and dividing it into specific parts. For the organization of the project part it is necessary, first of all, to define the main sections of the information system. When planning the main project part of the information system, it is convenient to use special support programs.

The work is devoted to the creation of a website for online access to works of Kazakh literature. The website makes it easy to find books, read online and download them to your computer. With the help of the Website, you can save time and read literature on the Internet at any time convenient for the reader using a computer, tablet or mobile phone [1]. Special programs such as VisualProlog, RationalRose, Justinmind, WireframeSketcher were used to create the Website.

2. Information system ontology

Ontology is an attempt to formalize a certain area of knowledge in a versatile and detailed way using a conceptual scheme [2]. A conceptual scheme is a set of information about concepts (properties, relations, constraints, axioms and concepts) that is necessary to describe the process of solving problems in the chosen discipline. In General, through ontology it is possible to create a model of the system taking into account specific concepts. Thus, ontology is a set of basic categories, namely: classes (or concepts); relations (or properties, attributes); functions, models (or objects). Protege 5.2 was used to develop the structure of the design part of the system. Protege 5.2 creates the structure of the future project, in other words, the execution algorithm. To work in this program, it is necessary to define the goals and objectives of the future information system. Based on this goal, it is possible to model a structured hierarchy of the system by dividing the information system into specific parts. Ontology modeling should clearly reflect the purpose and objectives of the information system. The proté-OWL editor allows users to create an ontology in a semantic grid, specifically OWL (Web Ontology Language). OWL is an ontology description language for semantic grid. OWL allows you to describe common classes and relationships between web documents and applications. OWL is a formerly valid world Wide Web consortium based on the OIL and DAML + OIL languages and currently provided by [3]. OWL is designed to describe not only web pages, but also objects of any system. Each element of the description in this language is assigned a URI.

The main purpose of the developed information system "Collection of Kazakh literature" is to unite the works and fairy tales of Kazakh literature into a single information system that combines in one place the works and fairy tales of Kazakh literature, as well as cartoons in the Kazakh language. Main task:

- Development of the design part of the information system,
- creation of a database of works of Kazakh literature;
- creation of a website on Kazakh literature;
- creation of client-server organization of information system.

Protégé 5.2 was used to describe the main part of the information system. This program divides the information system into two parts: the server part, the client part. The backend displays all data on the information system server, such as databases, including tables, what attributes the tables contain, and data such as logging into the database to query the table. The client side displays data on the main page of the information system, i.e. the website, for example, a list of books, menus, search, etc. (all data inside the General website). In Protege, these parts are represented as a class (Figure 1).
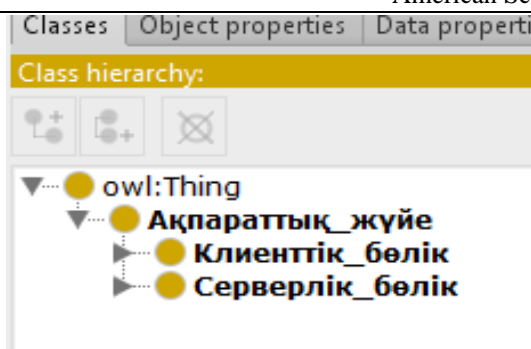
Figure 1. The class hierarchy of an information system

The client part of the information system describes the structure of the site, including authors, books, menus, cartoons, genres, languages, etc. [4] (Figure 2).
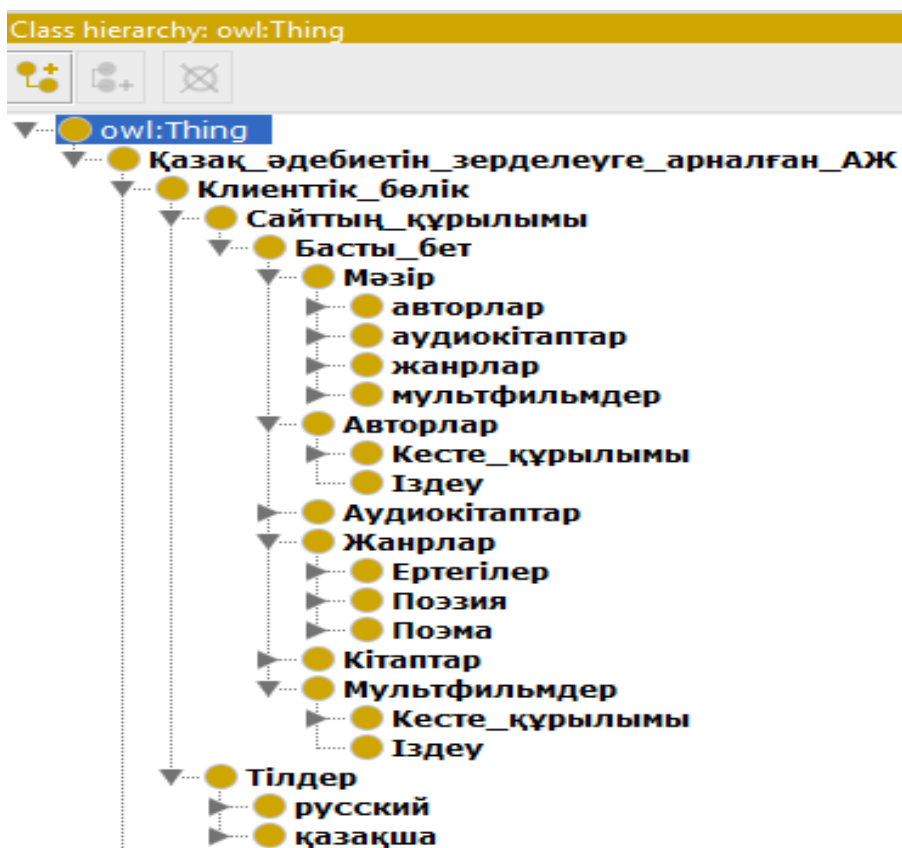

Figure 2. Hierarchy of the information system client class in Protégé 5.2

In the backend of the information system specified can access the server, you must set the user and a keyword to access, shows the structure of the database and table structure. The table consists of records and attributes, for example: id, title, avtory, zhanry, text, image, etc. (Figure 3).
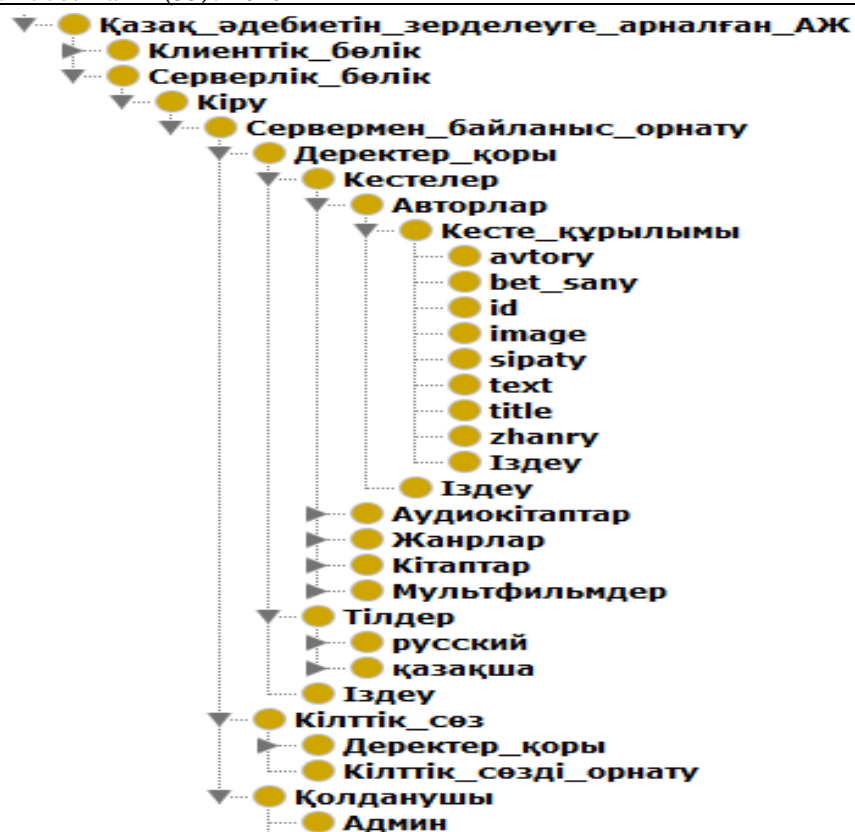
Figure 3. Hierarchy of the information system server class in Protégé 5.2

The ontology of the information system is created. Created classes and internal networks allow you to understand the structure of the information system. In Protégé 5.2, the hierarchy of the created information system is visually represented by a graph [5]. This graph is called OntoGraf. OntoGraf allows you to display the information system as a graph and through this graph you can see which classes in the hierarchy are related to each other, including which subclasses are superclasses. A superclass is a subclass within one class that copies all of its properties when you copy that subclass to another class. For example, in an information system, both on the server side and on the client side, the superclass is "the table structure". The table structure should have a common property for both parts. We can see such connections through OntoGraf [6] (Figure 4).
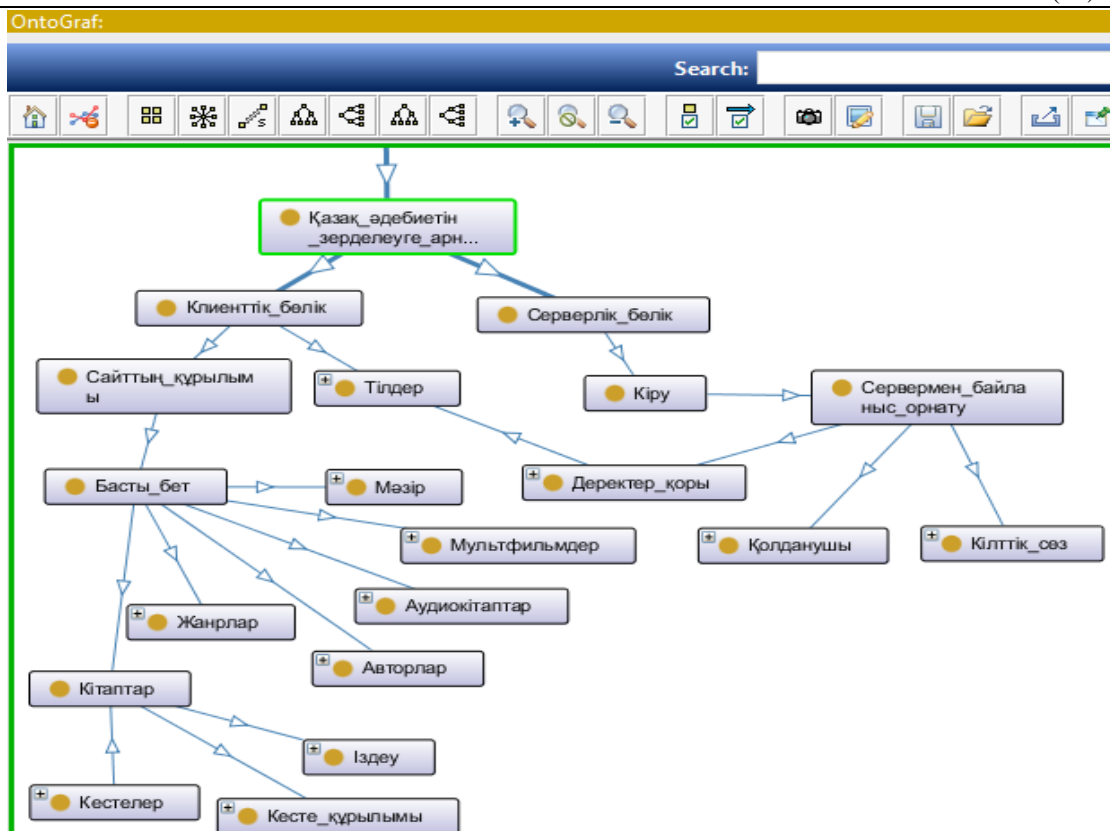
Figure 4. Hierarchical structure of the information system in OntoGraf

All data and books on the site are stored in a database. PhpMyAdmin software is selected to create the database [7] (Figure 5).

Figure 5. Table structure in PhpMyAdmin database

A website has been created that allows readers to read and download works of Kazakh literature online. The website is in the form of an electronic library (Figure 6).

Figure 6. The interface of the web site

3. Conclusion

The website stores information in the Kazakh language-art books, fairy tales, multimedia. The website provides readers with quick access to data, allows them to read books, listen to audiobooks and watch cartoons. Information from the site can be obtained online at any time convenient for users, as well as download them. The system interface is in Kazakh and Russian languages. Search for books and other information can be done both by author and by genre.

The ontology of the information system is developed in the Protégé 5.2 program. An ontology allows you to view components and classes within an information system. The database was created in PhpMyAdmin.

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