



UDK: 519.87

ORCID: **0000-0003-4357-7515**

## **ELECTRONIC DICTIONARY BUSINESS PROCESS MODELING: AN EXAMPLE OF ALISHERNAVOI'S ANNOTATED DICTIONARY**

*ELOV BOTIR BOLTAYEVICH-Doctor of Philosophy (PhD) in Technical Sciences, Associate Professor. Head of the of computer linguistics and digital technologies department , AlisherNavo'i Tashkent State University of the Uzbek Language and Literature*

**KHUSAINOVA ZILOLA YULDASHEVNA-Tashkent State University of Uzbek Language and Literature named after AlisherNavoi Master of Computer Linguistics**

---

**ANNOTATION:** The article covers the stages of development of modern lexicography.

In the article the better features of electronic dictionary than paper ones and the stages of creation process are given. The importance of creating an electronic Explanatory Dictionary of Alisher Navoi's work was mentioned. The business process that creates this electronic annotated dictionary is modeled. The structure of the database, which is the basis of this business process, is analyzed. It will indicate 8 tables created in the database. It shows that a business process of the electron Explanatory Dictionary of AlisherNavoi's works, representing a business process, that is modeled on the MVC platform, BPMN notation.

**Key words:** *electronic dictionary, business process, model, modeling, database, MVC platform.*

### **INTRODUCTION**

Modern lexicography is entering in a new development phase, as a terminography. The optimization of computer technology has led to the formation of applied linguistics areas such as computer and corpus linguistics, which have provided a solid foundation for innovation in dictionary science. Consequently, the computer lexicography development, in particular the creation of various types of new electronic lexicographic products, is a promising area of modern applied linguistics. The possibilities of electronic dictionaries are wide enough :speed, ease of finding information, large size, sound and graphic representation of the word, spelling check, interactivity, conciseness of the text, etc. Electronic dictionaries are based on modern lexical material and reflect language and



speech trends. It becomes a universal tool in the process of getting information from the user.

Electronic dictionaries are usually created based on the body of the text using automated processing and dictionary search tools. This involves special software - databases, computer file cabinets, word processing programs that allow you to automatically create dictionary entries, save and process dictionary data. So, creating an electronic dictionary involves the following steps:

- 1) form a body of text and create a dictionary in parallel;
- 2) automatic shaping of the sample body;
- 3) write dictionary entries;
- 4) enter dictionary entries into the database (DB);
- 5) edit dictionary entries in the database;
- 6) text editing in the database;
- 7) create dictionary text and layout;
- 8) Dictionary printing.

How to become a modern dictionary has become one of the central debates in local and foreign lexicography.

## **MATERIALS AND METHODS**

In the modern – high-tech world, terminological dictionaries have a special place. They correct the materialized components of scientific knowledge. These dictionaries and reference books are the basis for scientific and technical information [1, p. 2].

“With the introduction of information technology (IT) in the educational process, the use of electronic dictionaries, mobile applications and web applications is relevant and becoming more popular. One of the main tasks of teaching is to develop students' ability to understand lexical units and use them in learning a foreign language. It should be noted that there are many concepts and terms associated with electronic dictionaries. In modern papers and publications, the words such as electronic dictionary, digital dictionary, application, resource and tool are sometimes used to mean "dictionary" [2, p. 3]. Online and offline electronic dictionaries are replacing printed publications. In order to master the lexical features of the studied language in the most practical way, it is advisable to use modern types of dictionaries.



"An electronic or digital dictionary can be described as a program or portal equipped with a user-friendly interface and automatic, fast search tools" [3, p. 5]. The types of electronic dictionaries are usually differentiated according to the functions they perform. The main advantage of them is the use of audiovisual teaching aids, such as pictures, videos, audio clips [4, p. 235].

E-dictionaries combine a large volume with a user-friendly search tool. To find a word in an electronic dictionary, enter it in the search box of the dictionary or find it in the alphabetical root section.

Research shows that electronic dictionaries are superior to paper dictionaries in terms of their functionality, but also have a number of advantages:

- Multi-functionality - a variety of additional features that simplify the use of the dictionary. For example, you can specify parts of speech, origins, as well as word formation, taboo vocabulary [5, p. 2];
- Use of multimedia tools - pronunciation of captions, insertion of illustrative materials with photos, animations, video clips [6, p. 205], as well as the use of various graphic means [7, p. 145];
- Compatibility and dynamism - the availability of constantly updating information, as well as removing obsolete data [8, p. 47]. This is one of the important advantages of "paper" dictionaries, as they inevitably become obsolete when published [p. 7, 146]. Large base of words [10, p. 2]. Most electronic dictionaries have a term base that exceeds that of paper dictionaries and provide easier access to data using hyperlinks [6, p. 206];
- Variability of use - the availability of using dictionaries in local and global networks [6, p. 207]. That is, the use of offline and online versions [13, p. 7];
- Universality - as a rule, programs allow you to work with several languages and translation directions at the same time [14, p. 2]. Any language included in the dictionary can be used as an introduction [8, p. 47];
- Convenient search - the availability of using an effective search tool (full-text search, search in several dictionaries at the same time, high search speed) [6, p. 207]. There is also no need to memorize the word, the program itself offers options for the first letters [5, p. 2];



- Electronic dictionaries use a variety of linguistic technologies such as: morphological and syntactic analysis, full text search, speech recognition, and synthesis to access the content [7, p. 147].

The creation of an optional electronic dictionary with such advantages is carried out in the following stages:

- referral tasks,
- search for dictionary entries,
- dictionary entry analysis,
- use the information obtained to solve a language problem,
- use information to solve speech problems.

Other disadvantages of using electronic dictionaries include the incompleteness of the dictionary and the problem of keeping the dictionary database up to date. However, these problems can be addressed equally in paper dictionaries. This fact does not detract from the listed advantages of electronic dictionaries.

Uzbek researchers have also created many electronic dictionaries. In particular, Ravilov M.M., TogayevSh.Sh., Bakhshullayev H.U., Ubaydullayev H.I. created an electronic dictionary "E-lugat".

## **RESEARCH RESULTS**

It is known that the most complete idea of the richness of the author's lexical material can be given only by a dictionary that compiles a whole dictionary of works of art. The database of Navoi's electronic dictionary of works consists of Arabic and Persian words that are difficult to understand in the works of the thinker. This electronic dictionary will be an electronic dictionary version of Navoi's annotated dictionary of works. All words are explained in Uzbek. Let's analyze this process with the example of the word "Bar" in Navoi's works:

**BAR I – means fruit, harvest, result.**

1. The main word is in capital letters.
2. Possibility to join to the right of the main word: *bar yemoq, bar topmoq...*
3. The dictionary article is illustrated with illustrations, i.e. verse from Navoi's works.



4. Encyclopedic Information: The source of the verses cited as an example for a dictionary article is indicated.

5. Grammatical Characteristics: The word *bar* comes from a preposition [Grammatical Characteristics provides information about the morphological features of a dictionary article]. [V.V. Dubichinskiy, 2008: 57].

*Qishi Hanzal eksaachchig' bartopar,*

*Va gar nayshakareksashakkartopar.* [ Saddilskandari (Alexander's Wall), 285a18];

~ **ye-** – derive pleasure, to enjoy:

*Hayotgulshanidinqayda bar yegayko'nglum,*

*Ki g'amxazonigabo'lmishbadalbahori.* [ Khazoinul-maoniy, IIIb-345];

~ **top-** – derive pleasure, to enjoy:

*Visoltuxminiectim, firoq bar toptim,*

*Vafoniholinitiktim, jafosamartoptim.* [ Khazoinul-maoniy, Ib-426];

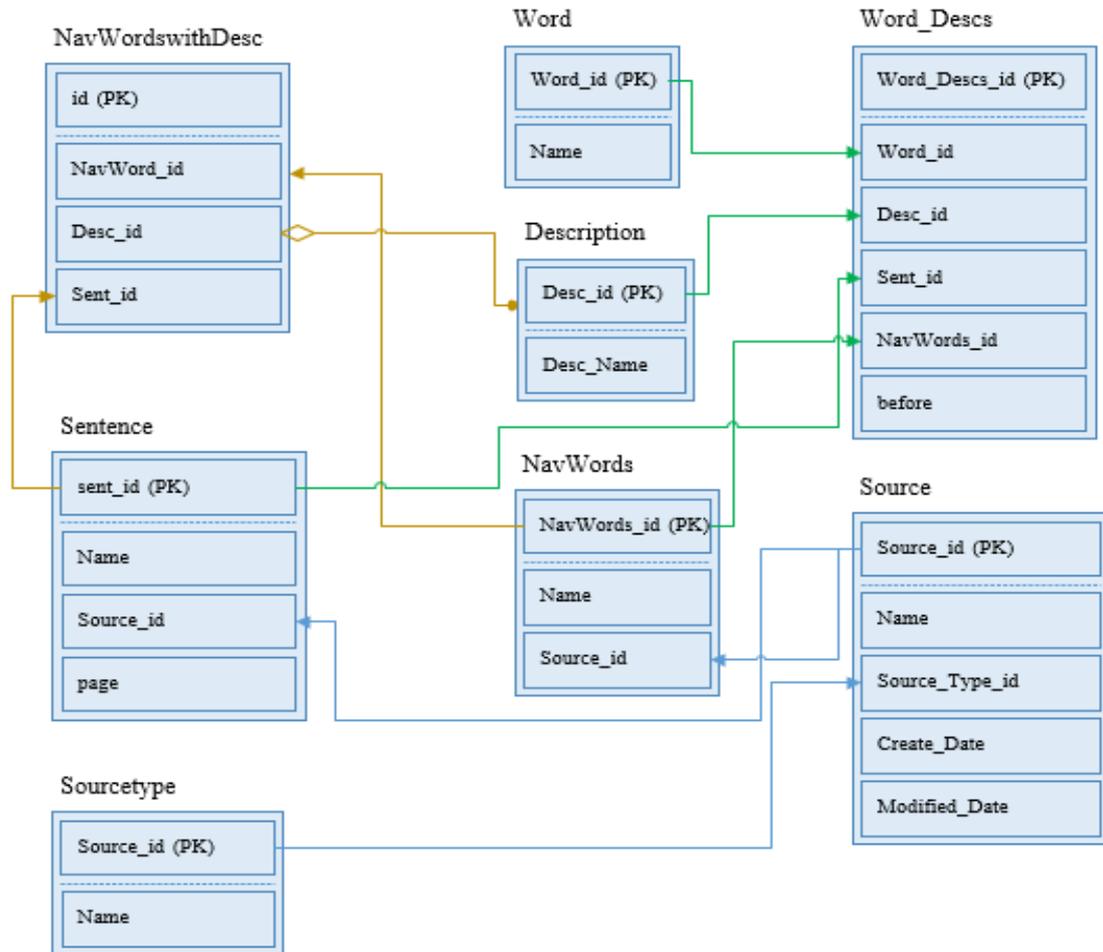
**BAR II – ~ means prefix that gives meaning *ust*, *-ma***

*Kamolakisendintopibintizom,*

*Aninglafz bar lafzimu'jiznizom.* [Saddilskandari (Alexander's Wall), 237b 16]

The optimal database of the business process is created based on the lexicographic microstructure of the word "bar".

Given that the database contains a complete glossary, it is important to separate the conjunctions of each word. IDEF1X notation was used to model the database structure.



**Figure 1: The structure of the electronic dictionary of AlisherNavoi's works**

The names of the tables and fields in Figure 1 are given in English. For example, tables include:

1. "NavWords"(Navoiy words) table – the main words of the annotated dictionary of Navoi's works;
2. "Description" table –descriptions of main words;
3. Source –informations about Navoi's works;
4. Sentence – excerpts from the works of AlisherNavoi;
5. Word – conjunctions of keywords in the annotated dictionary;
6. SourceType – types of works;
7. "NavWordswithDesc" table –independent meaning of the main word;
8. "WordsDescs" table – explanations of the meaning of the pronoun with its conjunctions.

The process of representing the electronic annotated dictionary of Navoi's works based on this database is modeled as follows:

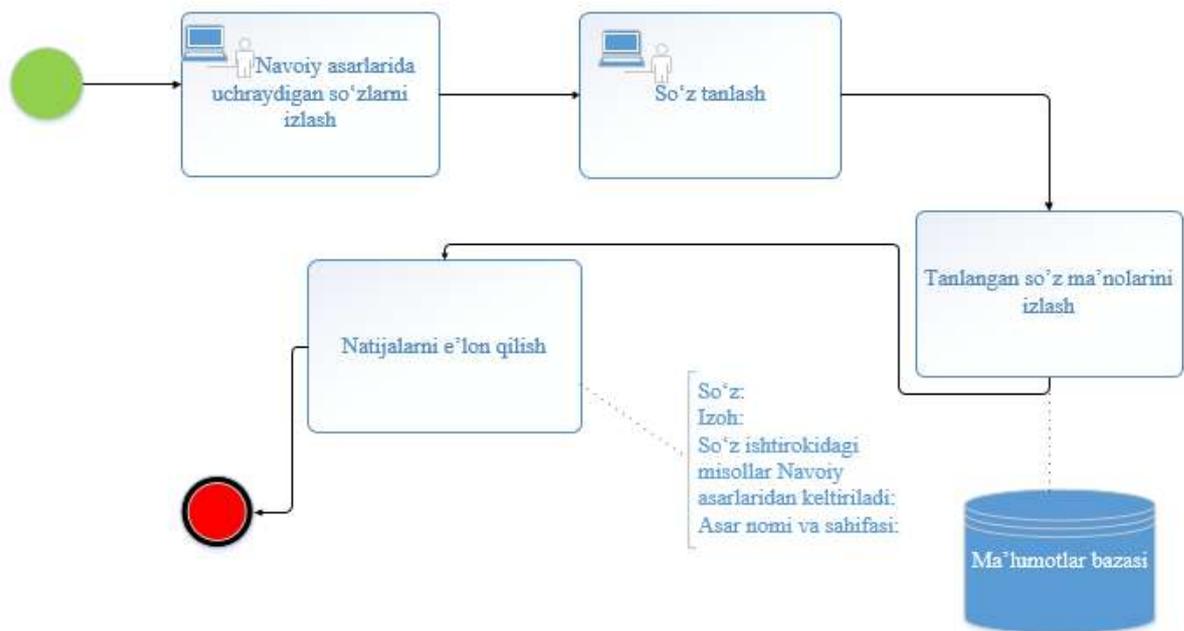


Figure 2. A business process model that represents an electronic dictionary of AlisherNavoi's works

This electronic dictionary is based on the MVC principle.

**MVC**—is **Architectural Design Pattern** which derived from the abbreviation of the initials words of **Model** (Model) **View** (Ko'rinish) **Controller** (Kontroller). MVC simplifies the structure of the software by dividing the software product into three main layers (Model, View, Controller). Requests from the user are forwarded to the controller. The Controller is part of the **business logic** and is responsible for working with the model. The model interacts with a database and, in many cases, represents a table in a database. Selects the Controller view and sends the model to it. The View represents the side that is visible to the user.

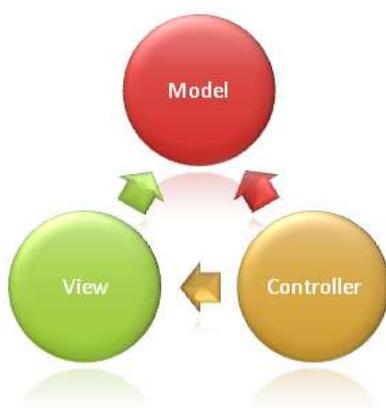


Figure 3. The principle of operation of the MVC platform



In this process, the Model function is performed by SQL database, the Controller function is performed by Python programming language and Django Framework, and the View function is performed by html language, cssjava Script technology.

**CONCLUSION.** In today's world of information technology, the electronic form of the works of great thinkers is just right. E-resources are accessible to students in every way. The completion of this research will provide the public with a website that contains information about the life and work of the Uzbek thinker. There are such websites, but this site contains an annotated dictionary of Alisher Navoi's works. A student reading Alisher Navoi's works will gain an in-depth understanding of the work with the help of an electronic dictionary. The developed program can be used as an auxiliary material in the system of secondary special and vocational education, higher education.

#### REFERENCES:

1. Vyshkin E.G., Nemich N.N., Khokhlova A.A.  
Лексикографическое описание английских и русских фитонимов в электронном глоссарии *Vestnik of Samara State Technical University. Series Psychological and Pedagogical Sciences*. 2021;18(3):115-126. DOI: <https://doi.org/10.17673/vsgtu-pps.2021.3.8>
2. E.G. Vyshkin, N.N. Nemich, A.A. Khokhlova (Utime College, Haifa, Israel)
3. Синица А.И. Использование электронных словарей на уроках русского языка и литературы [Электронный ресурс]: Электронный журнал «РОНО». 2014.  
[URL:http://erono.ru/art/?ELEMENT\\_ID=18805](http://erono.ru/art/?ELEMENT_ID=18805) (дата обращения: 25.03.2021).
4. Сабельникова, А.М. Использование электронных словарей в обучении английскому языку / А.М. Сабельникова, Н.В. Зимовец // Лексикография и коммуникация – 2018: сб. материалов IV междунар. науч. конф., Белгород, 26-27 апр. 2018 г. / М-во образования и науки РФ, НИУ БелГУ ; отв. ред. А.П.Седых. Белгород, 2018. С. 233-236.
5. Леонова А.В., Снопкова Н.А. [Современные инструменты технического переводчика](#). — Национальный исследовательский Иркутский государственный технический университет, 2012. — Р. 2.
6. Чепик Е.Ю. [Политическое слово в структуре электронного словаря](#). — Культура народов Причерноморья., 2005. — № 69. — Р. 205-209.



7. *Кашеварова И.С.* [Электронный словарь как новый этап в развитии лексикографии](#). — «Молодой ученый», 2010. — № 10 (21). — Р. 145.
8. Тузлукова В. И. — Типология педагогических лексикографических источников в международной педагогической лексикографии — Сборник трудов Второй Международной научно-практической конференции — с.47 Цит. по: Кашеварова И. С. — Электронный словарь как новый этап в развитии лексикографии — Молодой ученый — 2010
9. K.Litkowski. Computational lexicons and dictionaries // Encyclopedia of Language and Linguistics. — 2005. — P. 1-14. Архивировано 12 ноября 2013 года.
10. *Леонова А.В., Снопкова Н.А.* [Современные инструменты технического переводчика](#). — Национальный исследовательский Иркутский государственный технический университет, 2012. — Р. 2.
11. *Fesenko O.P., Laukhina S.S.* Electronic dictionaries as a product of modern lexicography. *Omsk Scientific Bulletin*. 2015. No. 4 (141). Pp. 46–48.
12. *Kantysheva N.G.* Hypermedial structural elements of the representation of special knowledge in computer lexicography. *Bulletin of the Chelyabinsk State University. Ser. Philology. Art Criticism*. 2012. Vol. 71. No. 32 (286). Pp. 47–50.
13. “A.Navoiyasarlaritiliningizohlilug’ati” I- tom. Toshkent: O’zbekiston SSR fanlarakademiyasimuhbira’zosiE.I.Fozilovtahririostida, 1983. 8-b
14. David Lindemann Bilingual Lexicography and Corpus Methods. The Example of German-Basque as Language Pair. 5th International Conference on Corpus Linguistics (CILC2013)
15. Vyshkin E.G., Nemich N.N., Khokhlova A.A. Electronic dictionaries in educational process in higher education. *Vestnik of Samara State Technical University. Series Psychological and Pedagogical Sciences*. 2021;18(3):115-126. DOI: <https://doi.org/10.17673/vsgtu-pps.2021.3.8>
16. Imon Banerjee, Ph.D, SriramanMadhavan, B.E., Roger Eric Goldman, M.D., Ph.D., Daniel L. Rubin, M.D. Intelligent Word Embeddings of Free-Text Radiology Reports. DepartmentofRadiology, StanfordUniversitySchoolofMedicine, Stanford, USA



17. Melnyk S. M., Sikorska V. V., Luhova T. A. Complex educational e-dictionary: compilation methods, expedience and u «Острозькаакадемія»: серія«Філологія». Острог: Вид-во НаУОА, 2020. Вип. 9(77).С. 11–15.