Encyclopaedia Slavica Sanctorum:
Further Developments

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Abstract. The paper analyses statistical data concerning the use of the electronic Encyclopedia slavica sanctorum, an e-product with information about the texts about saints in medieval and early modern Slavonic manuscripts and printed books and in records of oral stories of the Bulgarian popular culture. The users' and guests' operations (viewing dates, viewing objects, and searching) are discussed and thus the advantages of this e-encyclopedia are revealed.

Keywords: Digital Libraries, Electronic Encyclopedia, Services, Content Analysis, Saints.

1   Introduction

The e-encyclopedia (www.eslavsanct.net), henceforth e-ESS, is one of the results of the project Saints and Holy Places in Bulgaria: Encyclopaedia slavica sanctorum (in electronic and Guthenberg versions) carried out by St. Kliment Ohridski University of Sofia, Institute of Literature, Bulgarian Academy of Sciences, and other institutions. It is directed by Prof. Dr. Habil. Iskra Hristova-Shomova (Sofia University, Faculty of Slavic Philologies) and is supported by the Bulgarian Science Fund under the project DDVU 02/68 (2010). The first stage of the project finished in the summer of 2012 when (on June 12-14 in St. Kliment Ohridski University of Sofia) a big international conference was organized, the proceedings of which were published in issues 47 and 48 of the journal Starobŭlgarska literatura (2013), editor-in-chief Ana Stoikova. Various approaches towards saints' cults in medieval Slavonic milieu and towards texts associated with them (e.g., vitae, homilies, hymns, prayers, church calendars, and historical sources) are demonstrated in the papers collected in these issues. At the conference the electronic version of the Encyclopaedia Slavica Sanctorum (e-ESS) was presented which was developed earlier as a web-based platform for online management and presentation of structured digital content. This work was done in collaboration with the Institute of Mathematics and Informatics, Bulgarian Academy of Sciences [6, 10]. The platform was developed using the server technologies PHP, MySQL, ffmpeg, wvWare and HTML, JavaScript, CSS on the client side (see [3, 7]). In 2013 we reported statistical data revealing aspects of the work on the e-ESS and its

use as an internet resource (see [3]). In this paper we will discuss further enrichment of the statistical data for the period from 2012 to 2014.

The e-ESS brings together the following types of data: 1) information on the saints identified in medieval Slavonic manuscripts (about their lives and deeds and about their cults and particularly about texts dedicated to them in medieval Bulgarian literature and letters) and 2) diplomatic editions of original texts concerning the veneration of the saints: both of medieval sources and records of the popular culture in Bulgaria. All this information is structured by particular parameters and thus searching in the e-ESS can be made in three different manners:

- by viewing a chosen date in the calendar given: if one chooses a date, one receives information about all the saints commemorated on this date according to numerous medieval manuscripts (more than 100); the information on the sanctoremes (commemorations on given dates) in the e-ESS was initially based on the materials of Iskra Hristova-Shomova (see [9]) culled from the calendars of medieval Slavonic Apostolos manuscripts (containing Acts and Epistles) and was further enriched with materials from other medieval Slavonic sources: Gospel manuscripts, full Bibles, Synaxaria (see [11]), et al.;
- by viewing objects gathered in 12 lists of types of objects, viz. a list of all the names of saints in e-ESS and their days in the calendar; a list of the rulers and the saints who lived during their reigns; lists by genres of texts dedicated to saints: lists the vitae, homilies, offices, prayers, folklore nar-ratives that are published in e-ESS; a list of the places where the saints in-cluded in the e-ESS lived or died, etc.;
- by searching by different parameters, one or many, chosen by the user, for instance one could search for the name of a given saint, or one could com-bine two or more parameters, for instance one could get a list of 10 martyrs who died in Rome in the third century.

The software used for content and access analysis is BI tool QlikView. Qlik-View is a highly interactive business intelligence software solution based on in-memory associative search technology which allows users to use data to make important decisions. As an analysis services provider, it is connected to the e-ESS objects repository and tracking services by a preliminary created data warehouse. The data warehouse is updated automatically, achieving real time analytics solution.

2   Users' Activities

There are two types of users: registered and guests. The number the guests is much bigger than of the registered users. The registered users are 471 until now (July 1, 2014). They register with a chosen login name, password and e-mail address. Only registered users can search by various parameters encoded and they can read the original medieval texts and popular culture and folklore records published in the e-ESS. In this paper we will discuss the activities both of the registered users and guests.
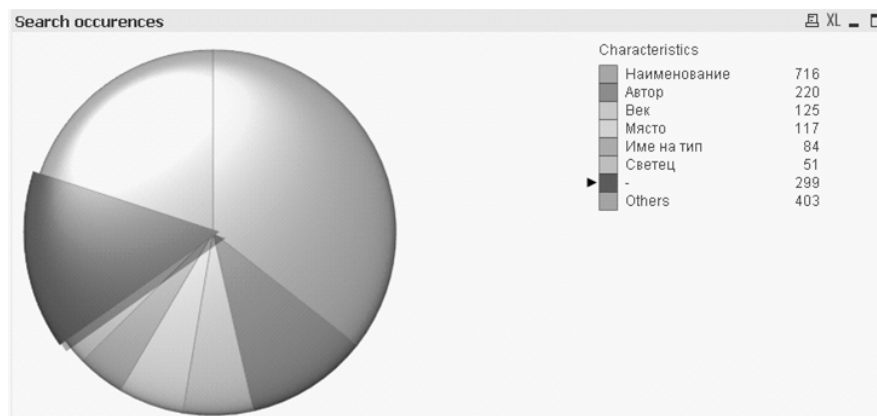
Fig. 1. Search occurences

2.1 Parameters

Fig. 1 shows which are the most often selected parameters by which the search was made by registered users: the system registered 716 occurrences of searches by a saint's or Church feast's name; 220 occurrences of searching by the names of the authors of the articles in the e-encyclopaedia, 125 occurrences of searching by century, 117 by place name, 84 by types of holiness. The number of the "other search occurrences" is relatively big which could mean that there were searches by a combination of parameters (for instance, a search for hermits for whom homilies are published in the e-ESS). What is worth noting here is that on the second place by number of such occurrences is the search by authors of the articles input in the e-ESS. This suggests that this e-product has proven to be a place for professionals to meet and to look for reliable publications of chosen scholars and for bibliography (which is reach in the e-ESS).

Actually, if compared to the statistics from the last year (2013) (see [8]), the tendency is almost the same: in 2013 we reported that the most often search occurrences were by saints' and feasts' names, followed by search occurrences by the authors of the materials included in e-ESS; then by place, by type of sanctity, by month, by century and also there was a big number of "others".

2.2 Objects View

Fig. 2 shows that the users and guests most often choose to view objects (to get lists of objects) than to search by chosen criteria (parameters). An explanation of this fact is that only registered users can search by a parameter or by a combination of parameters. Guests have access to the options "view date" and "view objects". Another explanation of the correlation in this figure stems from the approach of the guests and users: if one is not looking for a particular saint, place, or Church feast, one prefers the option "view objects" to get the general picture of what is available in the e-

encyclopedia. Then one's next step is to choose from the list a saint or a text according to one's needs and interests.
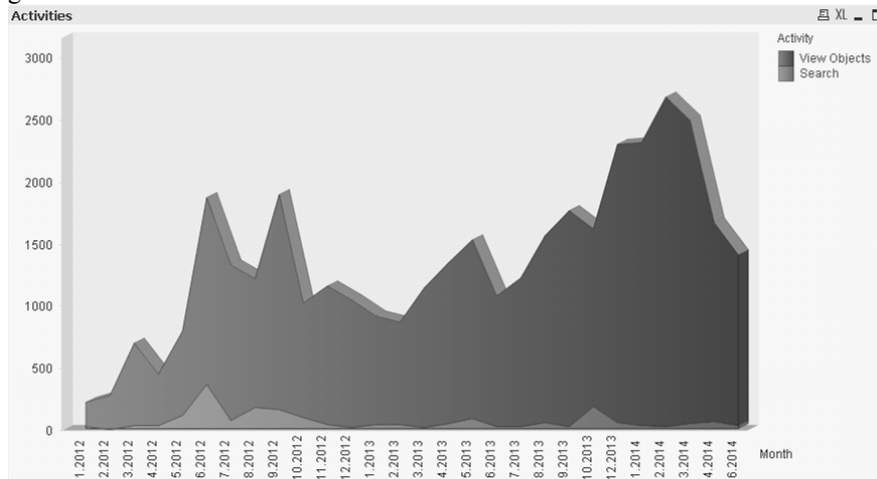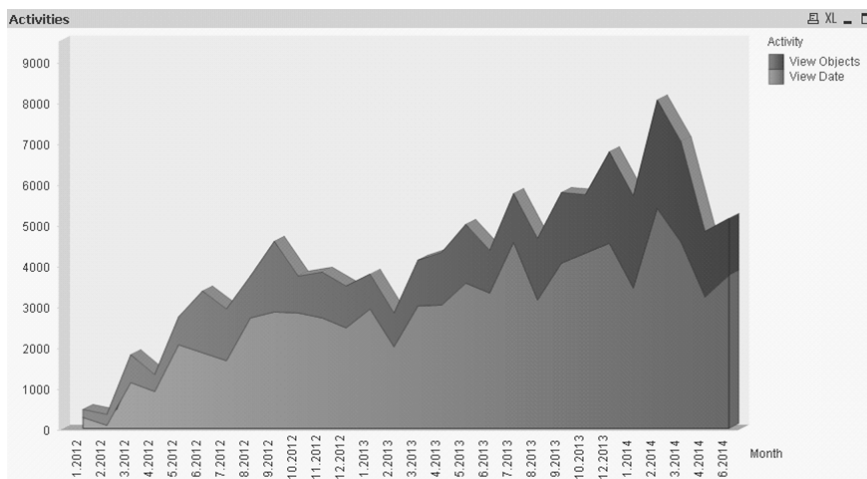

Fig. 2. Activities

Fig. 3. Popularity growth

2.3   e-ESS Popularity Growth

Fig. 3 demonstrates an increasing interest in the e-ESS since 2012 and particularly in viewing dates in the calendar and viewing objects in the lists of objects (according to saints' names, centuries, places, various types of texts, etc.). The dynamics of the two graphs reveals that they are parallel in time. This suggests that the saints' names and the dates on which they are commemorated are closely linked in users' mentality.
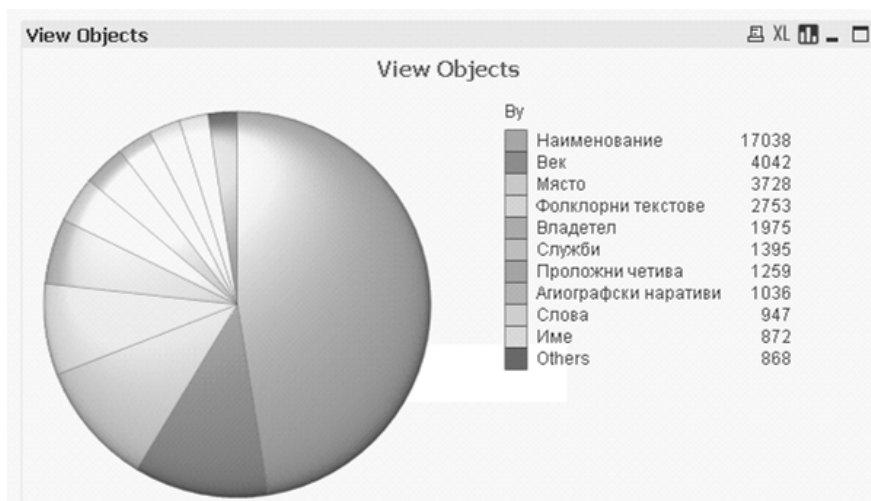
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Fig. 4. Viewing preferences

	15	? Георги	12	? Петка	8
? Варвара	7	? петка	7	? Иларион	7
? Теодор Тирон	6	? Илия	5	? Hef,hr	4
? Ld,ld,d	4	? R.d,rfk	4	? H	4
? алекса	4	? Григорий	4	? св. Петка	4
? Алекси	4	? Трифон	4	? ???	4
? Марина	4	? Богородица	4	? Григорий Велики	3
? Георги П	3	? Ксенофонт	3	? Антоний	3
? св. Алексий	3	? илия	3	? Георги По	3
? Пелагия	3	? Теофания	3	? иларион	3
? анна	3	? I	2	? Иларион Мъгленски	2
? 40	2	? методий	2	? Гликерия	2
? Григори Велики	2	? иван рилски	2	? Наум Охридски	2
? Георг	2	? Dkjfkrx	2	? ??????	2
? Алексий	2	? ?????	2	? Юлиания	2
? Теодора	2	?	2	? Петър Атонски	2
? J,rbfk	2	? ?	2	? пант	2
? свети	2	? Петка Търновска	2	? Модест	2
? Кирил и Методий	2	? Григо	2	? григо	2
? светци мъченици	2	? Лазар	2	? йоаким	2
? Георги Побе	2	? йоан поливотски	2	? Лесновски	2
? пелагия	2	? св.Емануил	2	? вит	2
? Мартиниан	2	? Филотея	2	? григорий	2
? Таисия	2	? мъченик	2	? св. Параскева Римлянка	2
? Гавриил	2	? Георги Побед	2	? Григориј елики	2
? ilejr	2	? марина	2	? Георги Поб	2
? георги	2	? епиЕмануил	2	? Кирил	2
? ипатий	2	? Иван	2	= Кирик и '	2
? sw	2	? сЕмануил	2	? U	2
? свЕмануил	2			? Михаил	2
? бори	1	? Ераз	1	? веев==\\	1

Fig. 5. Most viewed saints

2.4   Lists of Object

Fig. 4 shows the most often viewed lists of objects. As expect, most often the users and guests look at the list of saints' and feasts' names (17038), followed by the list of the centuries (4042) in which the saints lived, then followed by the list of places (3728) where the saints lived/ died. The third place is occupied by the list of folklore and popular culture records. We re-ported the same frequency of viewing the objects

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in our paper in 2013 but the numbers are now almost doubled. This type of frequency convinces us that our decision to combine heterogeneous information and sources about sainthood in an e-platform with encyclopedic character proves to be productive. In particular, the combination of data from canonical written sources and from popular culture in an e-encyclopedic article for a given saint turns out to be useful and attractive for numerous users.

2.5   Lists of Saints

As shown, most often the users and guests viewed the list of saints and chose certain saints. The articles for which saints were most frequently viewed? These are the e-articles for St. George, St. Petka of Turnovo (Parasceve of Epibatai), St. Elijah, St. Theodore Teron. Still in the first 10 most often viewed articles are saints who are not so popular in Bulgaria and Orthodox world. This situation is due possibly to the fact that there is no enough information for rare cults in other e-resources and our e-ESS fills this gap. Fig. 5 illustrates these statistical data.

2.6   Operations

The next diagrams in our paper show the number of operations – by the users/ guests and by the editors working on e-ESS.
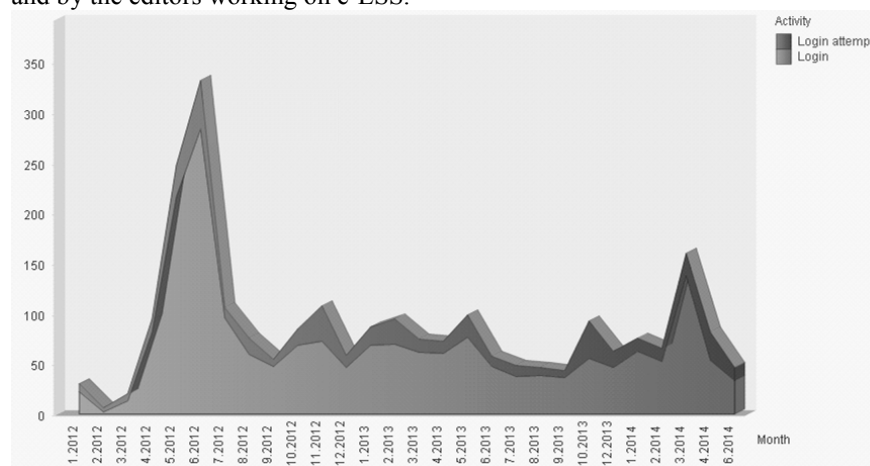

Fig. 6. Logins by time

Login

Fig. 6 shows that most logins happened in the first year when the e-ESS appeared in the internet. After these initial peaks, there are between 50 and 100 logins in the system per month with peaks around the big Christian feasts: Christmas and Easter. The number of operations increases in time, as shown on Fig. 7, that is, the share of more specialized use of the e-ESS increases. This could be due to three reasons: a)

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more professionals and students got interested in the e-encyclopedia; b) the users needed time to get familiar with the options available in the e-ESS; and c) the working team provided at the end of 2013 more detailed instructions and guidelines for the options of the e-ESS.
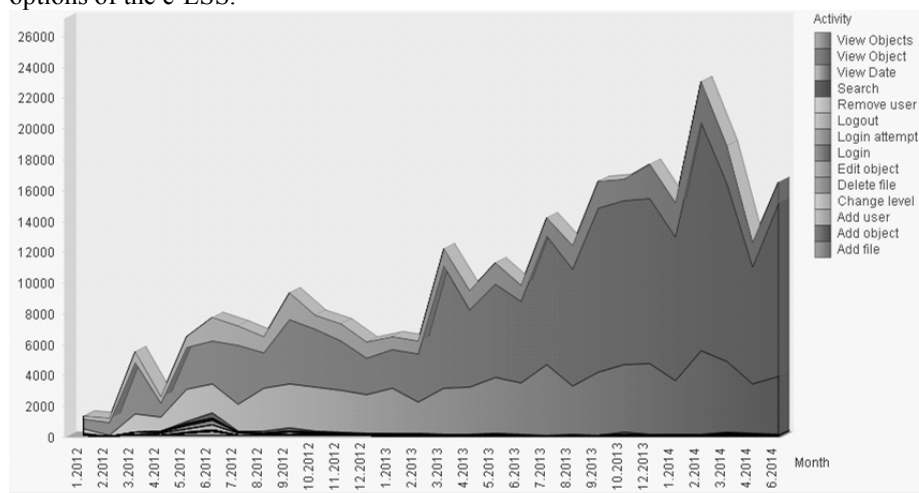

Fig. 7. Activities by time

Top operations by type

Fig. 7 demonstrates once again that the most frequent operations are: viewing objects and viewing dates, while the search occurrences are much less. The operations performed by the working team and administrator, such as editing object, deleting files, adding files, removing users are less in number than "viewing", as can be expected, and this suggests that the results of the scholarly work does not remained known and used by a limited scholarly community but has a broader impact in society.

2.7   Operations by Date and User Roles

Fig. 8 shows the correlation of the number of operations of guests, regis-tered users, editors, and administrator. As a matter of fact, the editors are two categories: a) editors : they have the right to edit their own articles; b) all data editors: they have the right to edit the articles of all the editors. The statistical data show once again that the share of guests is much bigger than the share of the registered users – this is expected and is a general tendency in the internet nowadays to avoid registration in e-resources. As is expected, the operations of the working team are more in number in the initial year when the e-ESS was constructed than in the following periods. Still, in the next years the work continued but the share of the operation of the editors is smaller than the share of those who were interested in the encyclopedia and this is evidence that this e-product attracts the interest of both specialized and general public.
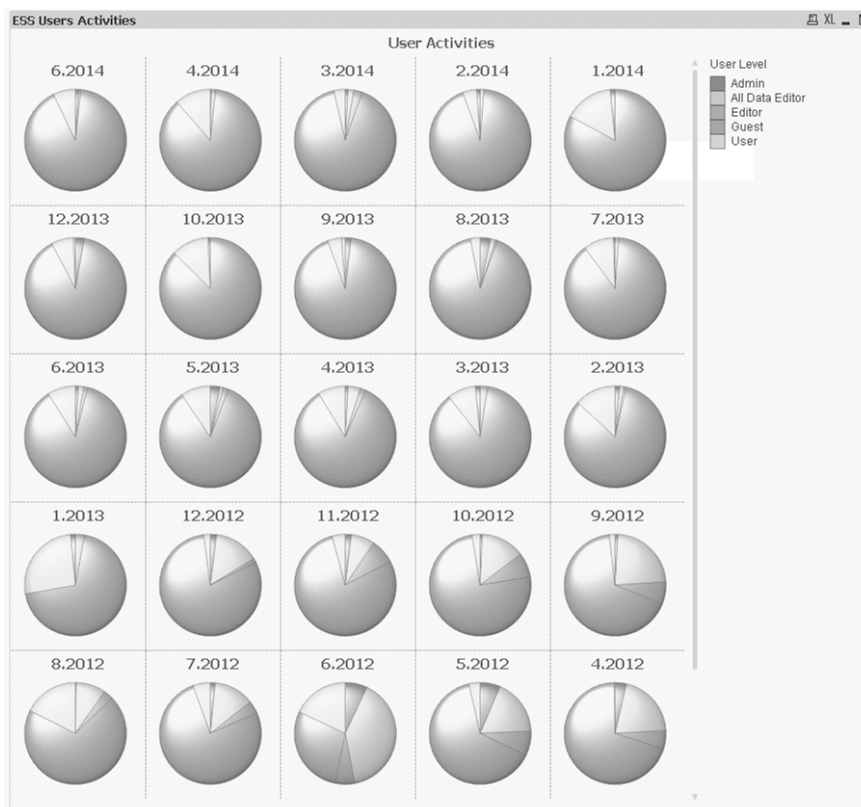
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Fig. 8. User roles activity ratio by months

2.8   Most Read Texts

If we consider all the operations, including those by users and editors, which are the most frequently visited texts? Fig. 9 suggests that most often was read the information about SS Cyprian and Justina – by guests. On the second position is the e-article about St. Basil the Great and this can be ex-plained with the fact that article contains publications of more original texts than the other articles in the e-ESS. The interest of guests towards these saints could be due also to the belief that they can be invoked for protection against evil spirits. Then follow St. Petka of Turnovo, St. Theodore Teron, St. Kliment of Ohrid, St. Elijah, St. George, St. Demetrios of Thessaloniki, and St. Marina. The interest towards these articles is expected because of two reasons: first, these saints are popular in Bulgaria and Orthodox world, and, second, there is a lot of information about them in the e-ESS. A great number of the data encoded are special-ized (such as information of the medieval Greek texts dedicated to the saints and their translations made in medieval Bulgaria and on the manuscripts containing these trans-lations) and the interest in them from the side of the users/ guests suggests that among the guests and users there are professionals in humanities.
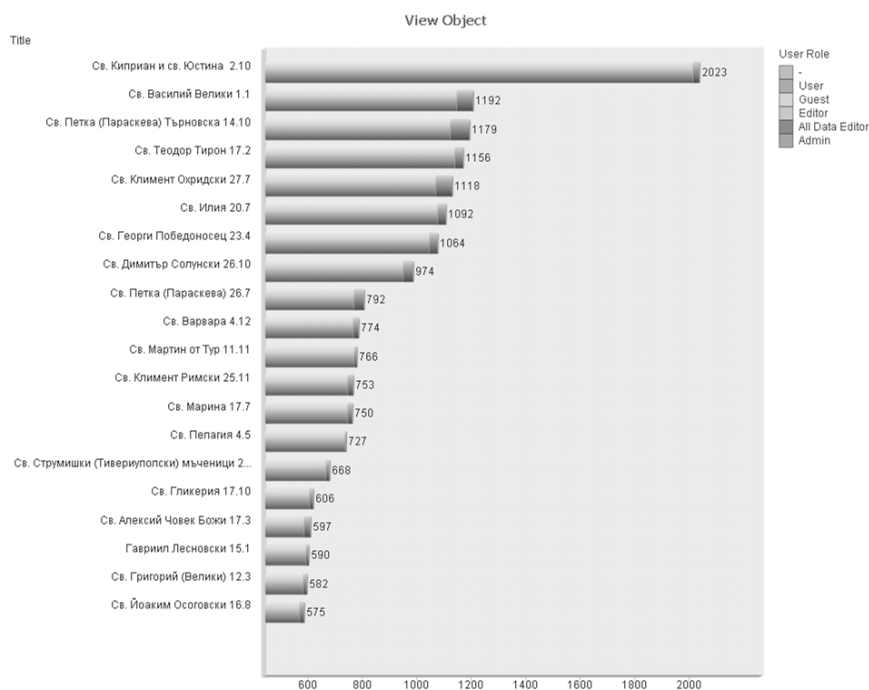
Fig. 9. Most viewed objects

Fig. 10 gives idea when/ on which dates certain articles about saints were read in May 2014. More frequently an article is viewed on a certain date, the bigger is the circle in the figure by which the users interest is represented. The commemorations on the following days from the Church calendar are included in the figure: July 20 (most probably the article about St. Elijah was mostly viewed); April 1 (St. Mary of Egypt, St. Eleutherios of Persia); June 10; November 10, etc.

Fig. 11 again shows the dynamics of the interest towards saints in May 2014. The article about St. Petka of Turnovo is very frequently viwed on different days. This sanctoreme is followed by the sanctoremes of SS 40 martyrs of Sebastia, St. George, SS Cyprian and Justina, St. Basil the Great, St. Demetrios of Thessaloniki, St. Kliment of Ohrid, St. Elijah, St. Pelagia, St. Theodore Teron, St. Clement of Rome, St. Parasceve of Rome, St. Barbara, St. Marina, St. Martin of Tours, St. Joachim of Osogovo, SS Martyrs of Tiberiopolis, and others. Fig. 11 illustrates also another tendency in the manner of usage of the e-ESS. The e-article about St. George was most frequently viewed on the day of the saint: 41% ot the views are on May 6, 2014. This case illustrates one of the important functions of the e-ESS: it is used as a tool of education which gives easily and fast both general and specialized information. Moreover, this information is structured according to objective scholarly criteria and avoids forms of manipulation.
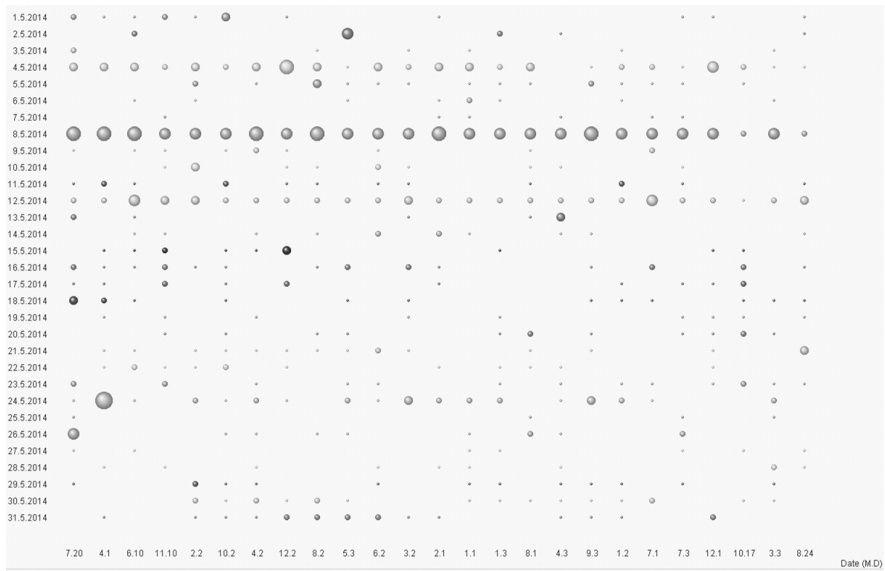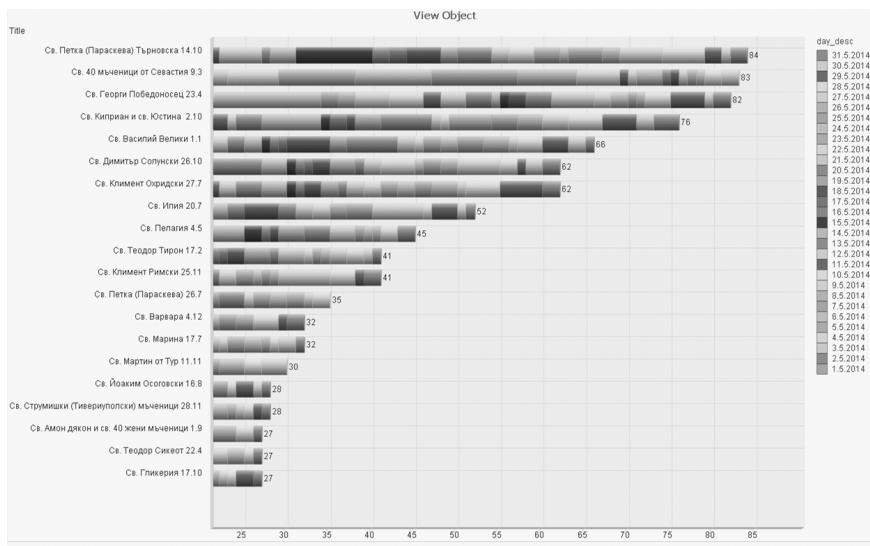
Fig. 10. Date-article dependence

Fig. 11. Date-saint dependence

2.9 Most Edited Items

The last figure in this paper shows how often 20 articles have been edited by the administrator and all data editors. Thus, the article about St. Theodore Teron was revised and expanded 73 times. Fig.12 convinces the reader that the website is in process of development and enrichment. Also it demonstrates the advantages of electron-

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ic reference resources and particularly of this encyclopedia: the information can be easily updated in accordance with the latest discoveries and publications.
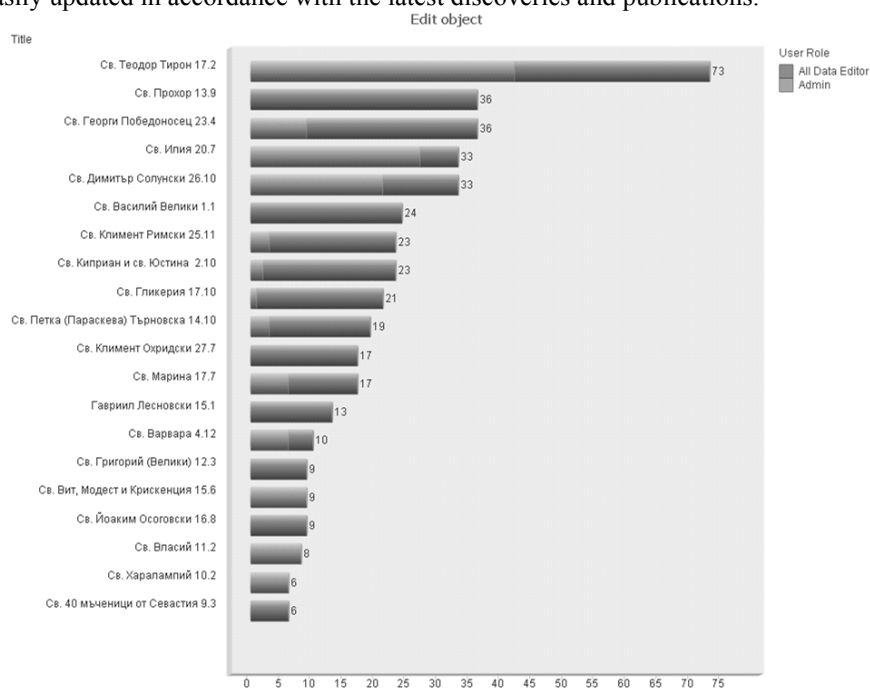

Fig. 12. Most edited objects

3 Conclusion

This paper reports new statistical data about the development and use of the electronic Encyclopedia slavica sanctorum in the period 2012-2014 (see [8]). Figures 1-12 illustrate different aspects of the work on the e-product and of its use by guests and registered users (see [4, 5]). Although the number of virtual visits of the site decreases if 2012 and 2014 are compared, the number of operations performed by guests and users increase which is evidence of a professional interest and use of the e-product (see [1, 2]). Still, it is used not only by specialists in humanities. The fact that the articles about saints and church feasts are more frequently viewed on their dates in the Orthodox Church calendar suggests that this encyclopedia is used by broader public which looks for professional information and which is interested in the history of Bulgarian Christian feasts.

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