

Отже, для паралельних обчислювальних систем підвищення зростання реальної продуктивності не пов'язане з ростом пікової продуктивності цих систем. Граничне значення прискорення 100 досягається при частоті $f = 100$. Воно досягається на одному процесорі. Підвищення частоти процесорів в системі має негативний вплив, тому що розширює безліч паралельних алгоритмів, що реалізуються тільки в послідовному варіанті.

Висновки

Дослідження і аналіз, які були проведені, дозволяють зробити висновок про те, що використання технології передачі повідомлень в загальному випадку суперечить концепції масовості паралелізму, так як не дозволяє: реалізувати закладені в паралельному алгоритмі потенційні можливості щодо прискорення обчислень; максимально використовувати обчислювальну потужність самої системи.

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TARGET CATALOG GENERATION FOR DIGITIZED HOLDINGS THE SCIENTIFIC AND TECHNICAL ACADEMIC LIBRARY

Abstract. The newest aspects in support of advanced and modern information and communication infrastructure and modernization of library services are analyzed. It is proved that the expansion of the functionality of the academic scientific and technical library can only happen by integrating the enterprise base of educational documentation into the analytical apparatus of the computerized library system. On basis the research of educational space information flows the data structures that

are necessary for modeling the target web catalog for end user of library collections are distinguished; the algorithm for automatized layout of profiled contents of library collections was builder using common publishing tools for the realization of objects of learning documentation.

Introduction

Information technology proliferation and computerization of educational space have made it possible to automatized the processing of academic data flows, and to ensure their profiling and targeted delivery of content to end-terminal of authenticated entity of the learning process. However, access to digitized collections of the scientific and technical library of higher education institutions, which are closely assimilated with pedagogical activity, is still subject to the outdated rules of paperwork management and is accompanied by the accumulation of bulky software with inefficient duplication of services performed.

Distributed integrated library system, in their development, do not take into account the technological trends of recent decades in the deployment of the latest media, with regard to structuring of educational and scientific content and in relation to mobile devices spread. Meanwhile, today's advanced reader needs unlimited access to information, dilative the list and nomenclature of sources provided, and increasing the number of data processed formats.

Analysis of recent research and publications. Support for advanced and up-to-date information and communication infrastructure and the modernization of library services are usually achieved through participation in collaboration agreements [1] and government programs [2], which provide students and faculty with access to overriding scientific and interdisciplinary databases. However, flexible and comprehensive provision of such services requires the staff of academic libraries to have broad competencies covering the content of educational and professional programs of higher education institutions [3, 4], as the funds of any scientific and technical repository are characterized by an excessiveness of branches of knowledge, resources and tasks required at the library (organizational) level and at the level of a specific node (employee) [5].

Also, the results of the analysis of existing publications indicate that automation of repetitive processes in the reader service department [6, 7] will increase the efficiency of the existing library collections operation and strengthen the relationship between the use of library resources and learning outcomes. Therefore, increasing the level and expanding the range of library services may be primarily due to the integration of the academic base of educational documentation into the analytical apparatus of the computerized library system.

Formulation of the problem.

The network infrastructure of the educational environment through the software object-oriented shell of the *KOHAC* learning system provides access to the

archive from the curricula of educational specialties, to academy database with student authorization, to the general repository of theoretical knowledge, including library collections [8]. Therefore, given the significant popularity mobile devices among students, the modeling of target catalog of digitized holdings of scientific and technical the academic library in client-server architecture with a principled higher level of interactivity of the information educational space end-terminal is timely and relevant.

Solution to the problem.

As a basic component of the academic information space, the computerized learning system flexibly operated of the profiled data streams and repositories of knowledge used in organizing the pedagogical process. An analysis [9] showed that *KOHAC* educational environment in day-to-day exploitation actively processes, in particular, the student database, including activity and study progress data, the teacher database integrated with the repository of training course syllabus according to academic groups and the current schedule. When modeling the target catalog of digitized library collections, such information arrays were quite sufficient.

In view of the topic presented research here special attention is drawn to the student database achievement table (Fig. 1, *a*), which contains grades from disciplines and in particular covers the type of current lesson with a date and task identified from a pre-indexed database of information and methodological support for the discipline, the content of which is stored in the facultative funds as part of the academic knowledge base [10]. Separate fields are highlighted for results of current control competencies to required topics of the discipline, which can be passed or re-passed at any time in the *KOHAC* educational environment with automatic recording of the points scored in the appraisal table of the corresponding form of educational process, which is activated according to the curriculum.

Thus, the identification tables of each student provide information when generating the data structure of an academic group that has a very extensive scheme of dynamic dependencies (Fig. 1, *b*). Table with information about the teacher of the current discipline (Fig. 1, *h*) also contains links and secondary tables, including those common to students' tables: these entities are authenticated as subjects of education process using the end-user login, also the hash function values of password provided, and a logical field to indicate the subject's current activity. In presented project of individual reader's web interface in table of the library catalog (Fig. 1, *c*), this information is also used as the basic data for target content parsing.

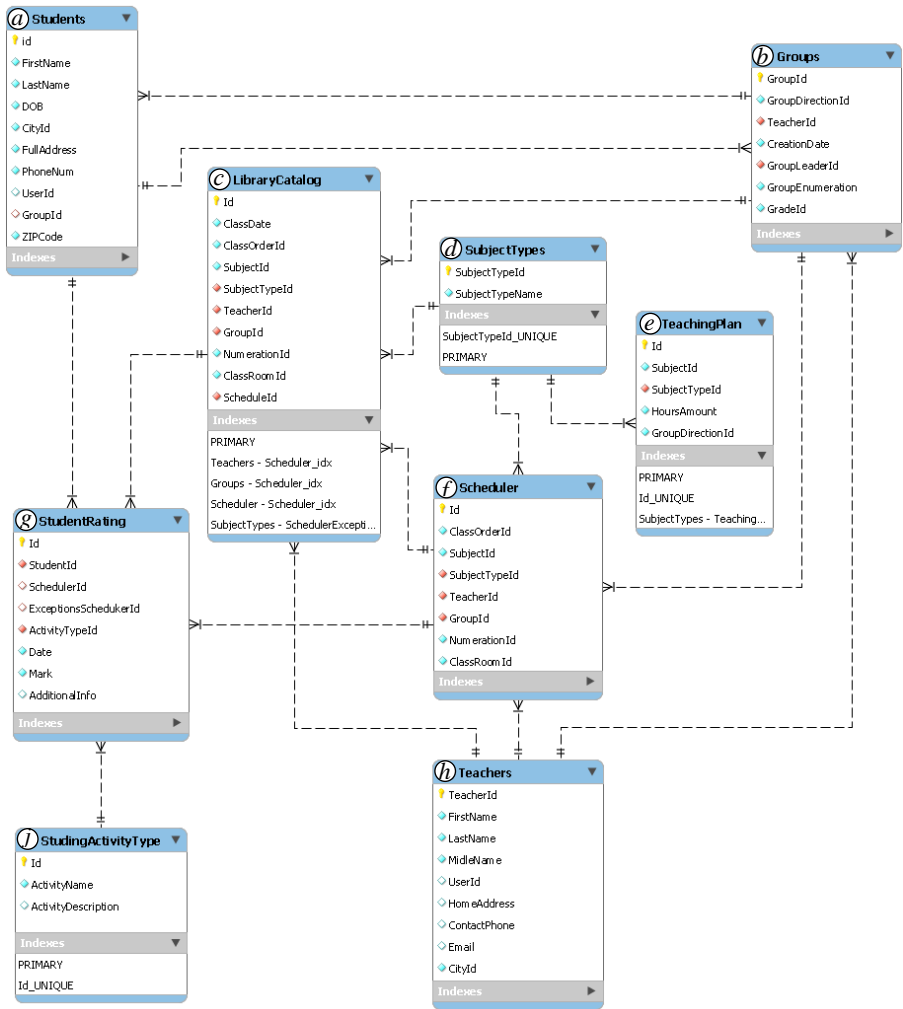


Fig. 1. Structure of dynamic dependencies by academic space information flows distributed

Coordination of academic discipline information flows, including methodological support from library collections, implements the curriculum, which contains the distribution of credits in the specialties and forms of tuition, the timetable of the academic process by semesters, forms of state certification. When organizing flexible access to syllabus repositories, for the general curriculum there is a separate structured table (Fig. 1, e), the fields of which are mainly determined by the stated criteria of the educational and professional program, as

well as the teachers' identifiers that provide for current discipline the envisaged forms of the educational process (Fig.1, *d*).

Thus, the stipulated information flows of the academic space network infrastructure contain all the conceptual information for prompt generation of target links array to educational content focused on the specific profile of the authenticated entity of the educational process. This service is implemented as a system of real-time synchronized academic database conditioned fragments containing lists and qualification evaluation results (Fig. 1, *g*) of students of the academic group, a list of disciplines on a schedule, topics and form (type) of lessons and so on. To enhance functionality and improve the communication capabilities of gives library services the library catalog access was realized through the web interface, which provided crossplatforming for designed information technology and use as end-terminal the web browser environment of mobile and desktop devices with arbitrary operating systems [11].

The traditional method of designing web interfaces is to use the standard markup language for web page, which provides a flexible means for displaying the content of library collections in common publishing means for the implementation of educational documentation components. These publishing toolkits include complex types of text arrays, structured with headings, frames, lists, subdivisions, columns, tables etc. They will also diversify to use of electronic editions the application possibilities HTML format in supported interactive screen forms, dynamic contexts and dialogues, and especially hyperlinks and inexhaustible multimedia content.

Organizing data streams with targeted educational content information in the profiled library catalog is best organized through a classic spreadsheet, which is automatically indexed by a web server and organized according to a lesson schedule (Fig.1, *f*) all points of methodological support in accordance with the form of academic discipline in force at the current date and time. The register grid thus filled (Fig. 2, blocks 28-35), is identical in structure, content and purpose to traditional paper catalog, and on end-user terminal of the educational environment according to the readed parameters of its profile (blocks 1-3) is displayed.

The generated resource provides separate responsibility areas for entities of *student* profile, the hierarchical profile of the *teacher* leading various types of occupation of the current discipline (block 6), and also the hierarchical profile of the *librarian*. By current or specified date through a designed interactive target catalog the educational process entities can quickly access the profiled comprehensive methodological support of the appropriate type of lesson, which is housed in the storage of facultative funds or the academic knowledge base of the *KI6iC* computerized library information system of the educational institution. For multimedia resources (blocks 36-39), downloading relevant thematic training software is possible [11].

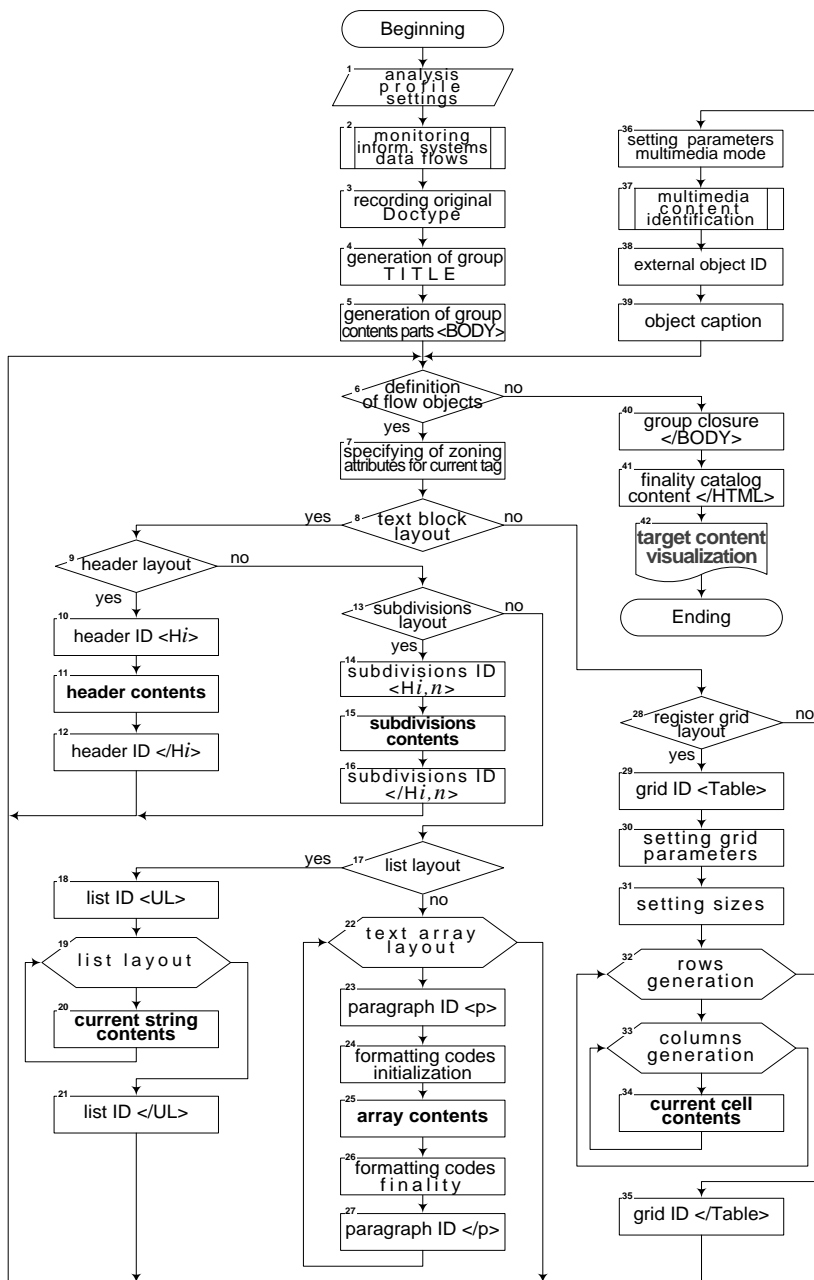


Fig. 2. Algorithm to generating the library collection target catalog for identified end-user

Conclusions. Thus, a target catalog, which is generated based on conditional distributed data flows, provides direct access to the digitized holdings of the scientific and technical academic library. In the circumscribed project, it functions as a self-contained modular component of the infrastructure of the *KI6iC* computerized information library system. This solution avoids the introduction of third-party products and extends the range of library services to authenticated entities in the educational information space. Further research into the development of the presented project it is advisable to focus on extending the web-based toolkit for semantic analysis of educational content. Effective certification and copyright protection mechanisms for compilers, editors, and owners of library holdings should also be here provided.

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