



USE OF KNOWLEDGE BASES IN EDUCATION OF DATABASE MANAGEMENT

Tibor Radványi, Emőd Kovács

Abstract: In this article we present a segment of Sulinet Digital Knowledgebase curriculum system in which you can find the sections of subject-matter which aid educating the database management. You can follow the order of the course from the beginning when some topics appearance and raise in elementary school, through the topics accomplish in secondary school. It is noted that you can find the necessary equipment park and the preliminary convenient mathematical knowledge appropriate to the subject for theoretical and practical acquisition of the high-level database management in high schools, since the scientific definitions of relational database use the conceptual group and relationships of theory of sets in math.

Zusammenfassung: In diesem Artikel präsentieren wir ein Segment des Sulinet Digital Knowledgebase Lehrplansystems, in dem Sie Abschnitte des Unterrichtsstoffs finden können, die bei der Ausbildung in der Datenbank-Verwaltung helfen. Sie können die Reihenfolge des Kurses von Anfang an verfolgen, wenn einige Themen in der Grundschule auftreten und vertieft und in weiterführenden Schulen dann zuende geführt werden. Es wird darauf hingewiesen, dass Sie den notwendigen Ausrüstungspark und die erforderlichen themenbezogenen mathematischen Vorkenntnisse zum theoretischen und praktischen Erwerb der hohen Stufe der Datenbankverwaltung in Gymnasien finden, da die wissenschaftlichen Definitionen der relationalen Datenbank die konzeptionelle Gruppe und Beziehungen der Mengenlehre in Mathematik verwenden.

Keyword: teaching database management, didactics of Computer Science

1. The SULINET Digital (SDT) knowledgebase, one of the Hungarian knowledge bases

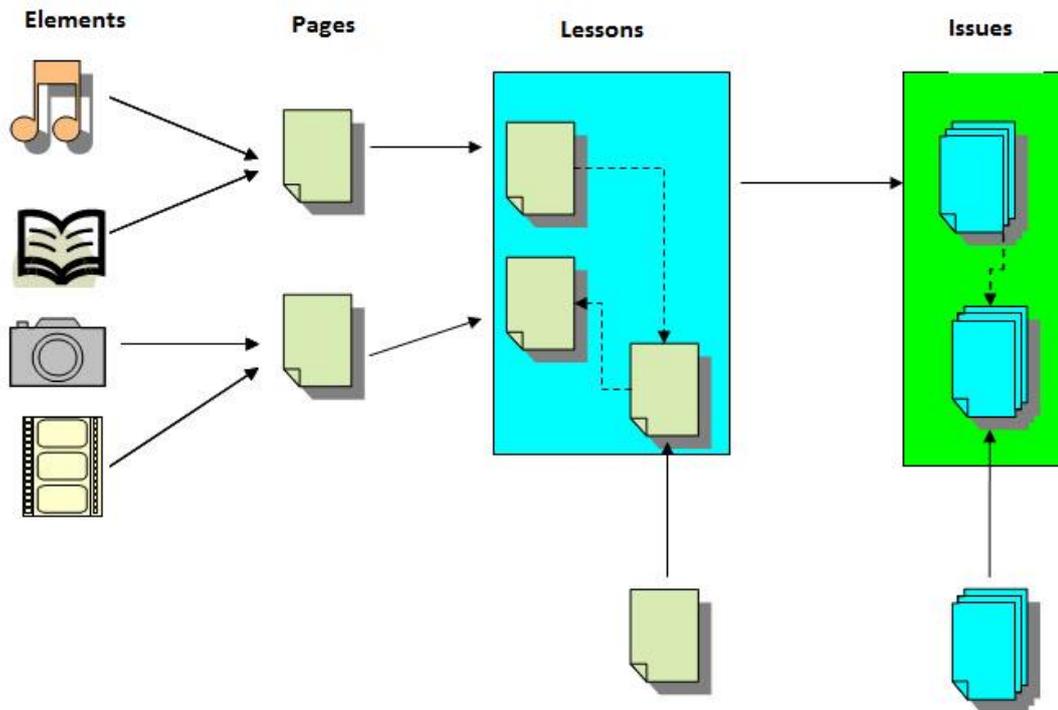
The Digital Knowledgebase is an interactive, dynamically increasing system. This is a combination of the on-line curriculum-database and data processing software that cover the different subject domain at all age group. All elements of the created curriculum database suitable for the syllabus in each areas of the civilizing, it contains concrete instructions for the users, curriculum matter and recyclable curriculum elements for the teachers and the students, also.

The contents are divided for elements, which elements belong to different subjects. It means that these elements are the corpus of the subjects on all civilizing areas. The users manage to create personal syllabus elements completing the corpus by central power with own elements, which can be used on the display of the system, or as an exported unit on others during the lessons. The SDT's aim is the on-line curriculum can be used as a multi-access database more and more time. In this way becomes recycle and stable valued. In view of requirement of recycle the subject-matter of instruction need to be broken up into the smallest primary matter. These small objects are named as learning objects (LO).

This container is called Learning Content Management System (LCMS). [1] The teachers manage to edit full themes, and apply text, audio, video archives on lessons. They have opportunities for devising the subject-matter. The self-sufficient sections can be used as the colourful parts of the presentations or expositions. The teacher should bring forward SDT as an attested source and mark out them as both a project and homework. The student can apply the harness system to study under the teachers' supervision or individually. Beside the active curriculum components a lot of further information can be found in the system. These materials are called metadata they describe the relation between the components as a unit.

Since the members of NET-generation as the computer cultured humanity step on professorship shortly, more and more we count on teachers ask a share in developing the content of SPT, so they enrich the longitude of the topics and tasks.

The teachers claim to locate the pedagogical recommendations attached to subjects in the system ([2], [3]), which can be authoritative for author's purpose.



Picture 1. SDT components structure

2. What need is there for databases at all?

We can have the student easily calculated upon the following: The computer science has an important feature. More and more users process data stored on more computers. The composed and practised software systems need to wrestle with increasing numbers of data. We daily realize the computer information systems in widely economic scene. There are computer information systems to direct production in the workshops, financial system, personnel recording system, warehouse system, control for materials direction system, and so on. Look at the range of using:

- Commerce: storage recording
- Branch of government: tax recording
- Sanitation: the illness recording
- Traffic: advance booking recording, timetables
- Engineers: drawing, constructing systems
- Education: students personnel recording

All them have a common feature, they handle databases, complicated relations exist between the data, the data must be kept in so long time. After all these systems contain further important features, anyway they must comply with some requirements, which need to be granted.

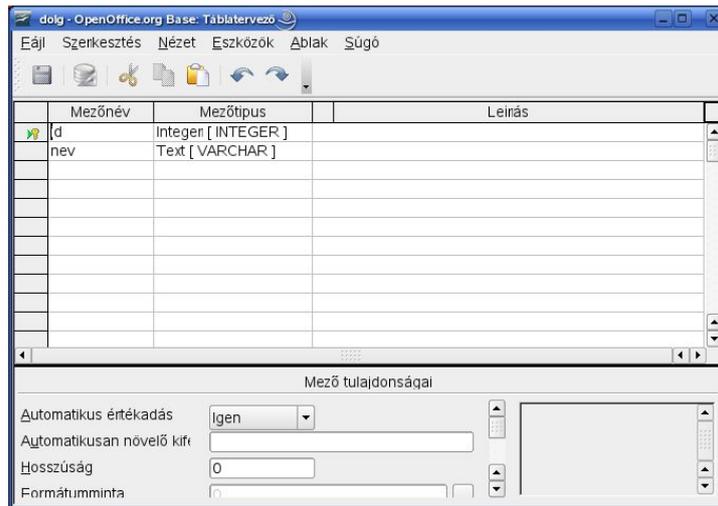
Handling powerful huge database
Multi-user promoting
Integration caring
Protection
Powerful program developing

3. Materials connected with database handling in the SDT

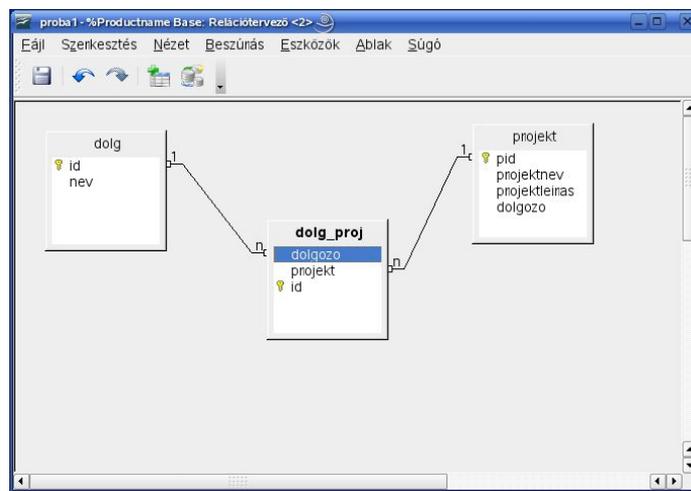
As curriculum component the database handling keeps carrying a lot of difficulties. Missing mathematical base hinder them in thorough and investigate processing in elementary schools. One of the SDT topics is the 'Data-table operating', it's appears in the 8th year. It is not about the databases, it shows the electronic spreadsheet programme on Windows and Linux platforms. These themes contain activities, which establish the fundament of spreadsheet knowledge. Besides the teachers are able to give explanation for databases fundament, perhaps without the mathematical definitions. This has an effect on 9-12 class topics, and in this age we deal concrete database management. The 'Database management' topic includes the 'Database definition and types' subtheme, which acquaints students with the relational data model rudiments. After the Introduction two subthemes let them know the database management of SDT on two platforms. They are the MS Access system on the Windows platform and the Open Office Base system on the Linux platform. You can find 13 classes deal this curriculum.

1. The environment of database management
2. Table creating
3. Data types
4. Table modifying
5. Clearing table
6. Recording data
7. Modifying data
8. Deleting data
9. Relations between the tables
10. Queries
11. Defining, ordering conditions
12. Templates
13. Reports

The titles of the chapters and the curriculum device are not optimal enough for order. Since the 'Queries' and the data recording, deleting topic presentation, teaching take different time. The authors got a prepared list of chapters, so they had to realize the curriculum. Perhaps the computer science teachers who are going to use the SDT system to educate the database management with the help of this system and its components, they can modify the time sequins due to audience and the chapters. The enclosed TIP (pedagogical references) prevents the processing that can set a trend for the teachers. The authors let teachers freedom to decide the application in this way or modify the materials. For example we assigned the 'Creating table' chapter to 'Student must be able to create table, definite and handle frames, save the naming rules chapter further the ' We recommend to choose Linux operating system'. The head-on education is suitable, so as the study in groups or individually. Teachers can motivate the student with colourful, individual tasks, which provided by the database processing management. The projector and teachers' presentations recommended. Of course the conceptions can be variegated due to reaching the output requirements. The SDT gives tools as curriculum components,, nominations in the chapters, formulating pedagogical methods. The database processing on Linux platform is prevented with about 80 peaces pictures, 17 animations and video, 5 voices, 210 text file and 140 keyword. The pictures are made in Suse Linux 10.0 system with KDE regards Gnome windows processing.



Picture 2. Table constructor



Picture 3. Relation constructor

You might control the students' skills with the test enclosed to chapter 13 in the SDT including 130 questions. These questions can be combination free as the teachers' regard. The 4th subtheme is the 'SQL language application'. In three chapters the student may deal with SQL language components.

4. Summary

In the secondary schools the database processing management teaching is a difficult question because of the relational database model base is the mathematics, the set and relations theory.

These methods appear in elementary and secondary schools, too, but exactly it is realised completely in the higher education. Therefore the simply and spectacular database processing management system is equal with the based knowledge in secondary school due to their age. The high level, particular database processing management need profound knowledge, significant technical skills and serious curriculum development. It means the world of the SQL servers, the advanced knowledge with programming skills like triggers, stored functions, transaction processing.

Literature

- [1] Magyar, Bálint 4th National Pedagogy Conference
- [2] Hunya, M., Dancsó, T., Tarsay, N. N.: Informational Options Using on Lessons, New Pedagogy Review, 2006/7-8. pg. 163-177.

- [3] Dancsó, Tünde: Informational and Communicational Technology Development concepts in the National Education Strategies, New Pedagogy Review, 2005/11 pg. 36-48.
- [4] Könczöl, Tamás: Sulinet Digital Knowledge System, Education Culture, 2004/12. pg. 90-96.

Authors

Tibor Radványi, Eszterházy Károly College, Computer Science Department, Eger, Hungary
e-mail: dream@aries.ektf.hu

Emőd Kovács, Eszterházy Károly College, Information Technology Department, Eger, Hungary