

DATABASE PROPOSAL OF A DOCUMENT MANAGEMENT SYSTEM

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***Abstract.** Nowadays it is very important for each university to have a good organization of electronic documents in a secure electronic format. It is also very important to view and manage the documents from one place, to be fully compatible with mobile devices and environmentally sustainable.*

This paper continue to describe our research in the field of Document management Systems.

Here, we propose a new architecture whose features are being explored in the special purpose of data management system. Technical details are provided about its implementation as a tool, built in the relational database platform. SQL is the language used by most relational database systems so our application will also query with this language.

***Keywords:** Document Management System, Database, Modern University, Architecture, File Platform, Documents Services*

Introduction

In a previous paper we proposed a Document Management System architecture. In the present research we continue the study, we will show some existing examples on the software market and we design a database for our university.

DMS examples

In this paragraph we give some examples of validated applications on the software market. SIVADOC (SIVECO Romania) provides a common platform that unifies processes and information to streamline the document flow, facilitate access to information, and protect against unauthorized access. [9] [14] (see Figure 1).

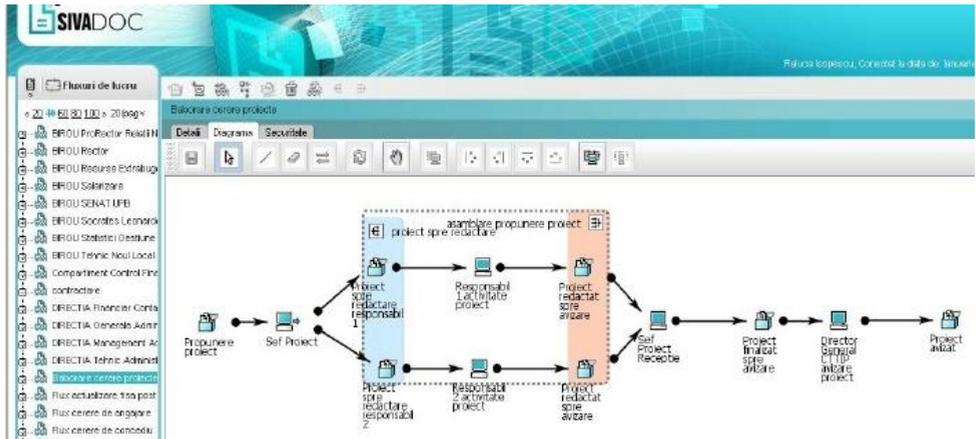


Figure 1. Sivadoc Platform (<http://www.siveco.ro/ro/solutii-business-to-business/cad/sivadoc>)

M-Files provides full functionality for rescue, archiving, search, history, control, versioning, approval and reporting streams. Access to documents is based on the organization's security policy and can be tailored to the needs of the organization. [9]

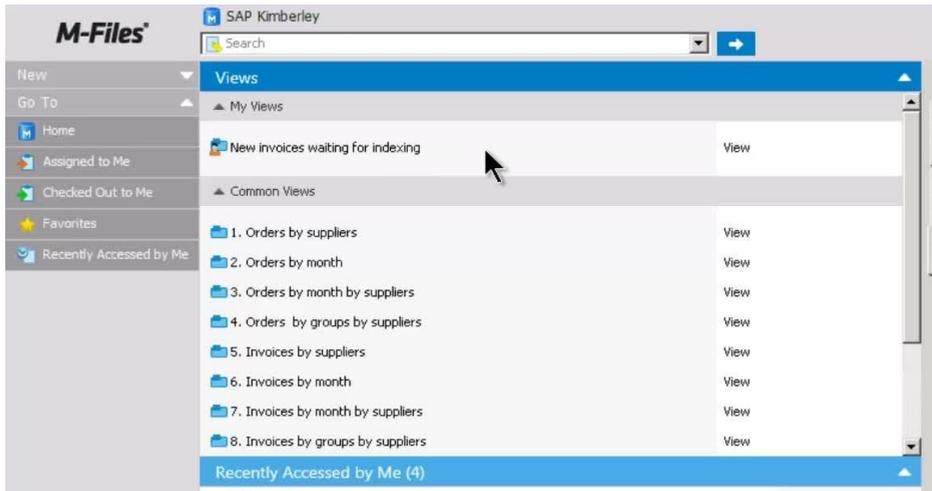


Figure 2. M-Files Platform, <https://www.m-files.com/en/download-latest-version>

The Agora DMS (managed by SoftTehnica) covers the registration of documents in the flow, electronic document storage, the evaluation of the work of the departments working on the settlement of documents entered into the institution.

This software offers the possibility of having multiple registers (such Single Registry and registers for each department), possibility of assigning the entry and exit number, possibility of reservation of the registration numbers with rights for each user, attachment of documents in electronic format to a registered document, printing proof of personalized registration. [9]



Figure 3. The Agora DMS Platform, <https://www.softlead.ro/aplicatii-software/agora-dms.html>

Charisma Document Management (managed by TotalSoft), built on Microsoft's Enterprise Content Management platform, helps you easily use information from any user by integrating familiar tools such as the Microsoft Office suite. [9]

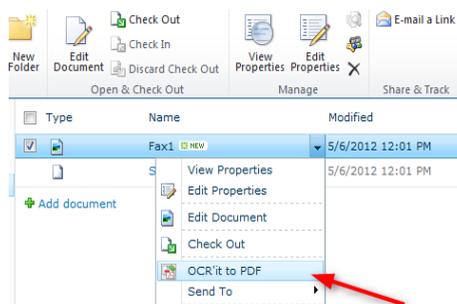


Figure 4. Charisma Platform, <https://www.charisma.ro/>

The most widely used document management software is on the first integrated marketplace platform in Romania, Softlead, which offers industry-leading applications and consulting in choosing the right software for the company. [9]

A DMS proposal in universities General Application Architecture

Increasing the volume of documents implicitly increases the workload and time required to manage the documents. This inspired us to design an Electronic Document Management system based on the latest Microsoft technologies to eliminate the difficulties encountered in managing documents [13].

Each company or educational institution is different, with different needs and procedures so the document management system has to be adapted to the organization's expectations. A good system for an organization may not be suitable for another organization [12].

According to the general model, any company can be structured in the following areas:

Back Office Area, Front Office Area, Middle Office Area, the Front Office Interface and Back Office Interface for network management and data transfer to Back Office central applications, Office Front Office and Back Office and enables connection to the university's computer system from anywhere on the globe, see Figure 5).

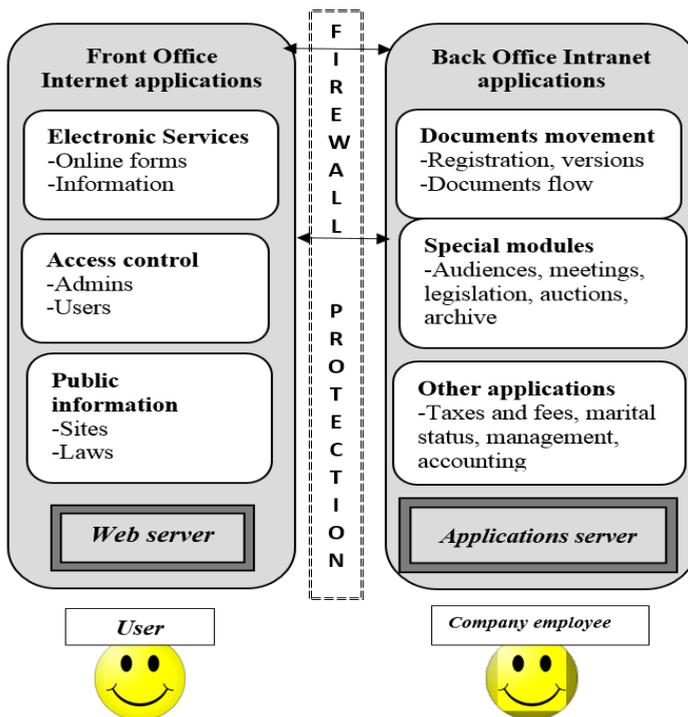


Figure 5. Model for organizing a DMS in the company

The proposed system as a solution in the university must offer the user the possibility to register as a user using a web or web-mobile interface, through which they can access information of public and private interest according to the assigned work rights and also to be interconnected with other computer systems of the university.

A possible architecture is shown in Figure 6.

We can consider our model as an architecture composed by a number of textual databases, stored in structured textual documents. The structure relates different modules by some criterion.

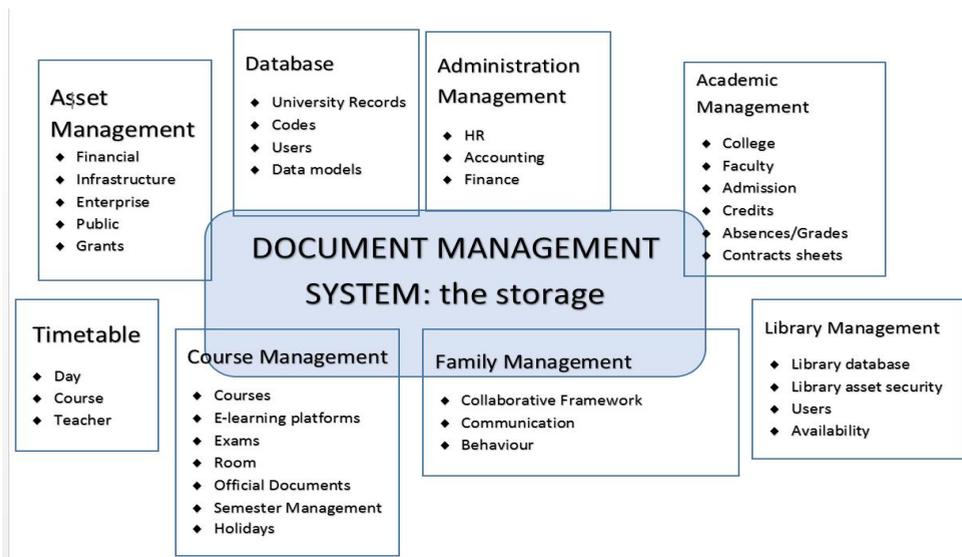


Figure 6. General storage architecture of the proposed system

Each module comprises three parts: text, structure and query language. The purpose of each module is to help the user of the system to find what they need. The information is stored in databases and our purpose is to find an easy way to search what the users want.

The user specifies the criteria, sees the results, then reformulates the query until he is satisfied with the answer. Below some of the proposed database structures (see next figures) are part of the new system created. The databases are relational, they are part of the Back Office components.

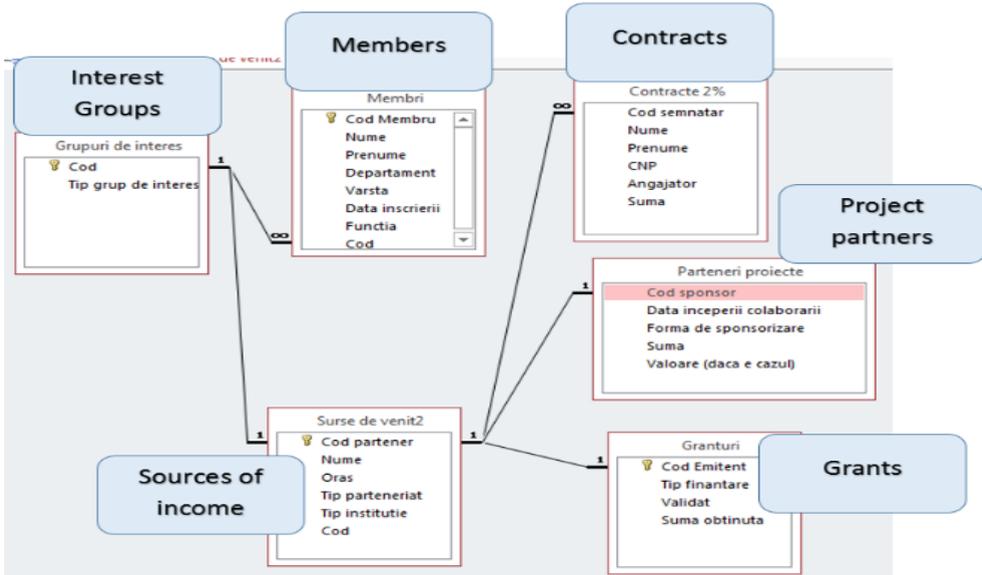


Figure 7. Example of database structure of module **Grants**

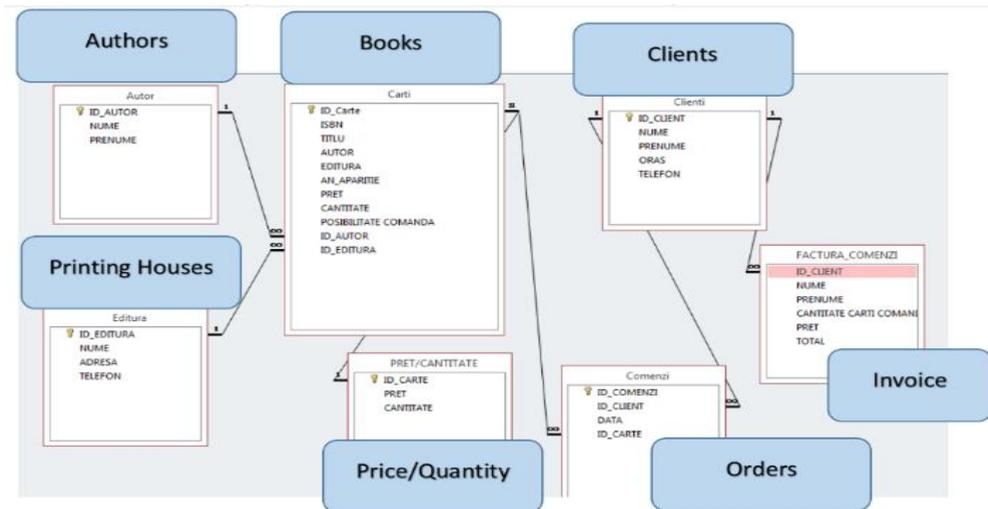


Figure 8. Example of database structure of module **Library** database

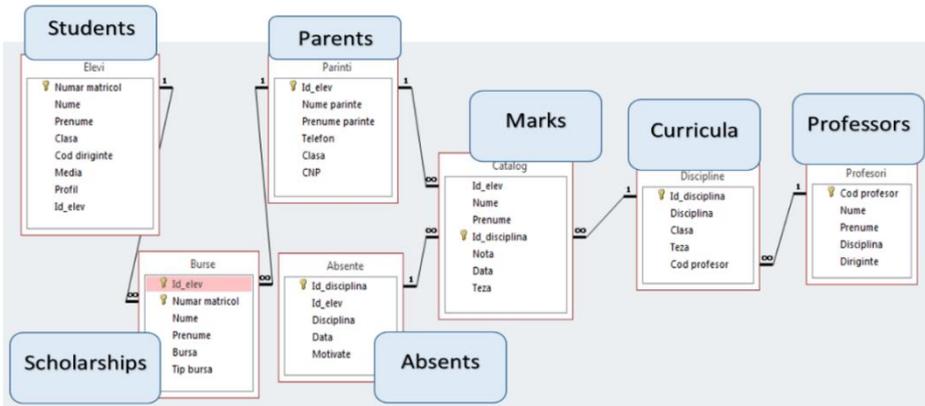


Figure 9. Example of data base structure of module Family management

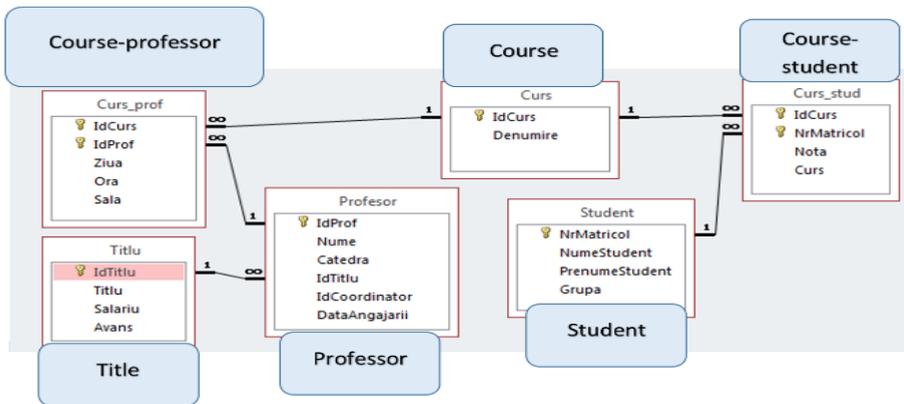


Figure 10. Example of structure of module Course management

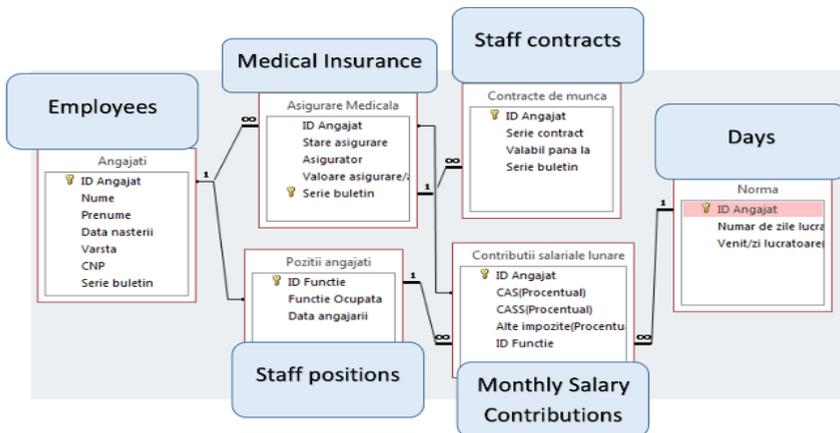


Figure 11. Example of database structure of HR module

Conclusions

The receipt of large volumes of documents in the modern university must be processed optimally. The received documents have different formats: physical and electronic. The documentation must reach the correct destination in the university as soon as possible. The human resources allocated must qualify for the registration and management of documents.

With the proposed database automatically we can process documents, streamlining document workflows, improving the relationships service with students, teachers and parents and relations with suppliers and business partners.

We collect with the help of a single platform all the documents entered in the university (letters, complaints, orders, contracts, etc.), classify them, extract the desired information, validate and centralize them.

The proposed database classifies and sorts all the documents received in a university, whether we are discussing unstructured, semi-structured or structured documents as form, printed, handwritten or images, regardless of the language in which they are written. The information from all sources is automatically integrated into the different financial or procurement systems (ERP, CRM, ECM, file manager, virtual library, electronic archive, etc.).

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