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ИЗДАТЕЛЬСТВО

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INTELLECTUAL AUTOMATED INFORMATION SYSTEM

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ИНТЕЛЛЕКТУАЛЬНАЯ АВТОМАТИЗИРОВАННАЯ ИНФОРМАЦИОННАЯ СИСТЕМА

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This article provides a brief overview of electronic document circulation. The authors describe how to use it and which systems can be used for the management of electronic documents. In addition, the authors provide information about computer program, which can be used for this purpose.

Key words: EDMS, DMS, Alfresco, CLIPS, CLIPSJNI, Net Beans.

Introduction

Rapid development of information technology applications has stimulated the growth of institutional capacity in the use of electronic documents system and improved corporate performance [1]. An electronic document system can be defined as a computer system used to manage documents and follow-up storage of electronic documents or copies of paper documents, keep multiple copies of documents. A document management system is a part of digital asset management dealing with documents catalog, workflow and records of the enterprise systems management system, content management systems. Such systems can be useful to facilitate operations, information management, and the possibility of retaining vast amounts of information in order to make processes and tasks faster and communicate with the ease of sharing documents within sections of the institution. State institutions of Iraq started using this technology, but the quality is not adequate, they need more efforts and follow-up adoption of this technology.

Electronic document management system (EDMS)

An electronic document management system (EDMS) is a software system for organizing and storing different kinds of documents. This type of system is a kind of document management system (more general type of storage system) that helps users to organize and store paper or digital documents. EDMS refers more specifically to a software system that handles digital documents, rather

than paper documents, although in some instances, these systems may also handle digital scanned versions of original paper documents, as shown in Fig. 1.

An electronic document management provides a way to centrally store a large volume of digital documents. Many of these systems also include features for efficient document retrieval [2].



Fig. 1. Electronic Document Works

Any document type (Word Excel,...) captures scanned documents making PDFs fully searchable; collects unlimited amounts of data in a variety of forms that can be quickly customized; gives administrators total control over access to the documents; provides full access to all of your documents with iOS or Android devices and allows signing, sealing, and delivering documents electronically.

General building process

Alfresco is a free software and proprietary licensed open source. Alfresco is capable of the following operations: document management; image management; multi-language support; multiple database support: MySQL, PostgreSQL, Oracle Database (Enterprise Edition), IBM DB2, Microsoft SQL Server (Enterprise Edition); portable application packaging; multi-platform support (officially Windows, Linux and Solaris); automating business processes with the embedded activity workflow engine; learning content management support for learning management systems (e.g. Moodle)[3].

Application Programming Interface (API)

Application Programming Interface is a set of subroutine_definitions, protocols, and tools for building application software. In general terms, it is a set

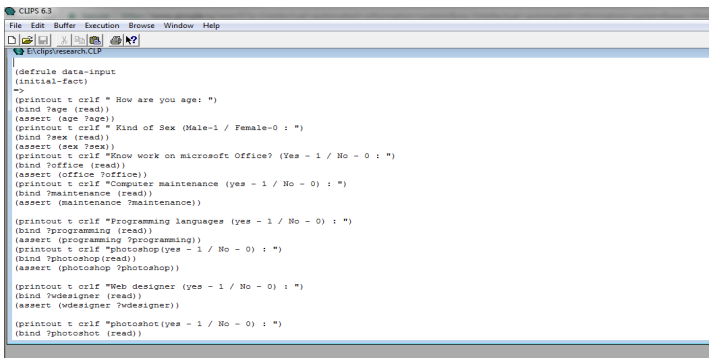
of clearly defined methods of communication between various software components. A good API makes it easier to develop a computer program by providing all the building blocks, which are then put together by the programmer. An API may be for a web-based system, operating system, database system, and computer hardware or software library. An API specification can take many forms, but often includes specifications for routines, data structures, object classes, variables or remote calls. POSIX, Microsoft Windows API, the C++ Standard Template Library and Java APIs are examples of different forms of APIs. Documentation for the API is usually provided to facilitate usage.

API purpose

Just as a graphical user interface makes it easier for people to use programs, application-programming interfaces make it easier for developers to use certain technologies in building applications. By abstracting the underlying implementation and only exposing objects or actions the developer needs, an API reduces the cognitive load on a programmer. While a graphical interface for an email client might provide a user with a button that performs all the steps for fetching and highlighting new emails, an API for file input/output might give the developer a function that copies a file from one location to another without requiring that the developer understand the file system_operations occurring behind the scenes.

Use Clips

We write the code by using Clips Expert system as shown in Figure 2.



```
CLIPS 6.3
File Edit Buffer Execution Browse Window Help
C:\clips\clips.exe
C:\clips\research.clt

(defrule data-input
  (initial-fact)
  =>
  (printout t crlf "How are you age: ")
  (bind ?age (read))
  (assert (age ?age))
  (printout t crlf "Kind of Sex (Male-1 / Female-0 : ")
  (bind ?sex (read))
  (assert (sex ?sex))
  (printout t crlf "Know work on microsoft Office? (Yes - 1 / No - 0 : ")
  (bind ?office (read))
  (assert (office ?office))
  (printout t crlf "Computer maintenance (yes - 1 / No - 0 : ")
  (bind ?maintenance (read))
  (assert (maintenance ?maintenance))

  (printout t crlf "Programming languages (yes - 1 / No - 0 : ")
  (bind ?programming (read))
  (assert (programming ?programming))
  (printout t crlf "photoshop(yes - 1 / No - 0 : ")
  (bind ?photoshop(read))
  (assert (photoshop ?photoshop))

  (printout t crlf "Web designer (yes - 1 / No - 0 : ")
  (bind ?webdesigner (read))
  (assert (webdesigner ?webdesigner))

  (printout t crlf "photoshot(yes - 1 / No - 0 : ")
  (bind ?photoshot (read))
```

Fig. 2. Code of Clips

Use Net Beans

In this program, we integrated with Clips as show in Figure 3. The program sends request to Clips, responses for the request and displays the information.

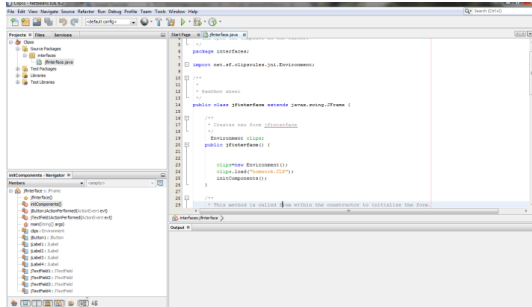


Fig. 3. Interface of Net Beans]

Description of the process

We used Alfresco to manage electronic documents. We integrated with Java to extract information from document and then we used CLIPS for analyzing information from the Alfresco; make CLIPS integration with java by using (CLIPSJNI); we make interface in java capable for sending request for CLIPS and CLIPS will send response for it and display the information as shown in Figure 4.

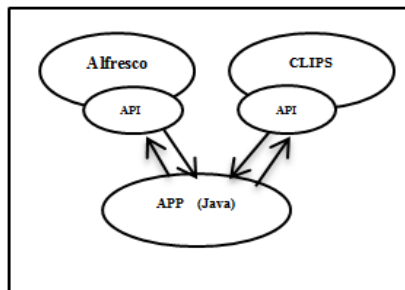


Fig. 4. Operating process

Conclusion

Electronic document circulation is a computer system to manage electronic documents throughout their lifecycle and to monitor document flow within an organization. Therefore, an electronic document circulation system is designed

for comprehensive automation of business processes related to handling of various documents. There are many software systems capable to handling electronic documents. One of the examples is Alfresco, which is a free software and open source capable to use Clips for expert system to analyze data and capable to be connected with Java.

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