

PROCEEDINGS

of the Union of Scientists - Ruse

Book 5
**Mathematics, Informatics and
Physics**

Volume 8, 2011



RUSE

The Ruse Branch of the Union of Scientists in Bulgaria was founded in 1956. Its first Chairman was Prof. Stoyan Petrov. He was followed by Prof. Trifon Georgiev, Prof. Kolyo Vasilev, Prof. Georgi Popov, Prof. Mityo Kanev, Assoc. Prof. Boris Borisov, Prof. Emil Marinov. The individual members number nearly 300 recognized scientists from Ruse, organized in 13 scientific sections. There are several collective members too – organizations and companies from Ruse, known for their success in the field of science and higher education, or their applied research activities. The activities of the Union of Scientists – Ruse are numerous: scientific, educational and other humanitarian events directly related to hot issues in the development of Ruse region, including its infrastructure, environment, history and future development; commitment to the development of the scientific organizations in Ruse, the professional development and growth of the scientists and the protection of their individual rights.

The Union of Scientists – Ruse (US – Ruse) organizes publishing of scientific and popular informative literature, and since 1998 – the "Proceedings of the Union of Scientists- Ruse".

BOOK 5

**"MATHEMATICS,
INFORMATICS AND
PHYSICS"**

VOLUME 8

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INFORMATION SYSTEM FOR MEDICINES

Margarita Teodosieva

Angel Kanchev University of Ruse

Abstract: The paper describes an information system developed for the needs of medicines database maintenance. It contains information related to the characteristics and availability of medicines and therapeutic substances in a storehouse. Pharmacists are provided with a convenient and easy-to-use system for making relevant references.

Keywords: Information System, Data Base, HTML documents, Medicines, Internet

METHODS

Different methods can be applied for developing a centralized data repository for a storehouse database [1]. After a careful analysis of the recent trends in software development, the author chose the Web-oriented approach. It is especially appropriate considering the remoteness of the objects, the easiness and elegance of the system performance as well as the compatibility of the available software and hardware.

No additional programs are needed to be installed. The user simply opens a Web browser, inserts the URL of the site, and enters the system.

Server-side scripting technology based on Active Server Pages (ASP) has been preferred for creating a dynamic website.

The combination of ASP with the functionality of diverse Microsoft's ActiveX controls on one hand, and the application of recent methods for database access (ADO) on the other hand, is a leading technology for server-side scripting [2]. The usage of ASP was predetermined also by the choice of Windows 2008 server platform.

Working with ASPs requires the installation of Microsoft Internet Information Services (IIS) control system on the server.

Fig.1 shows ASP compared to the most popular technologies for creation of dynamic HTML content (CGI script, CGI program and ISAPI dynamic library):

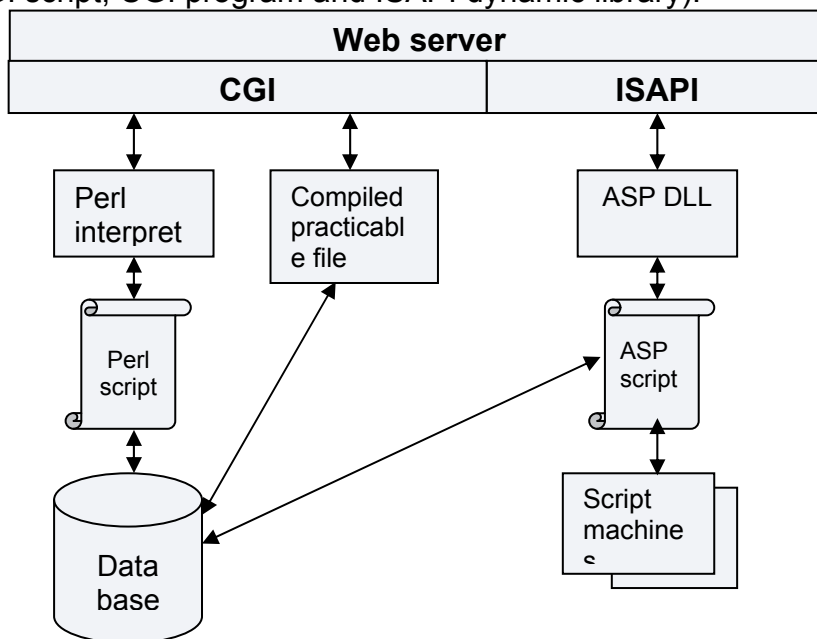


Fig. 1. CGI Script, CGI Program and ISAPI Dynamic Library

ASP ensures the creation of .asp scripts (similar to Perl scripts), which are processed by a special ISAPI library, asp.dll, and the relevant script machines. By standard, the ASP uses VBScript and JavaScript as script languages. ASP combines the comfort for elaboration of script languages (typical for a Perl CGI) with the optimized efficiency of ISAPI (which process the queues by setting parallel branches in the main process instead of starting a new one, as CGI appliances do).

IMPLEMENTATION

Fig. 2 shows modules connection diagram.

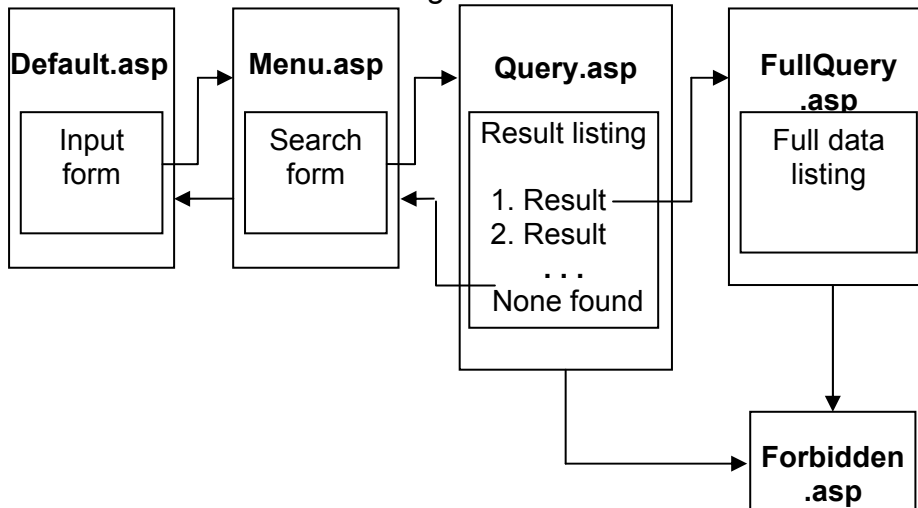


Fig. 2. Models Connection Diagram

Default.asp module accepts the data necessary for user identification and sends it to **Menu.asp** module through the data form. **Menu.asp** module fulfils the connection to the database containing users' accounts. Valid users are allowed to access the system and they can see the system menu for further searches. Invalid users are sent back to the starting point – **Default.asp**.

Search criteria are sent again to the next module, **Query.asp**, through the data form. This module implements the connection with the medicines database. It carries out relevant checkups and displays the results.

The **FullQuery.asp** module shows the full information concerning the medicine in question. The **Forbidden.asp** module is activated when an unauthorized user makes an attempt for direct access to **Query.asp** and **FullQuery.asp** modules.

To access the system the user has to point out the website URL and wait for a connection to the Web server. The server generates HTML page for the system entry, displayed as it follows:

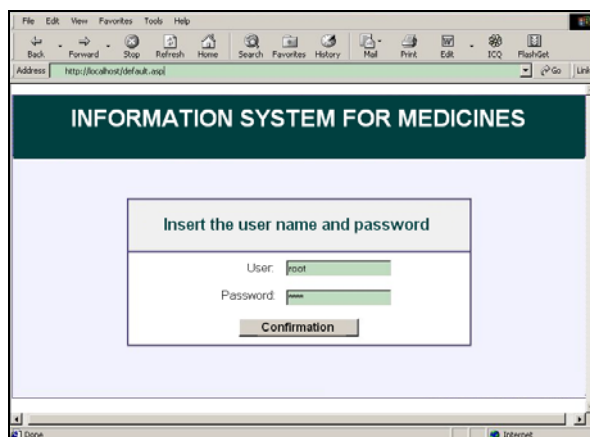


Fig. 3. Users' verification

Here the user enters his/her user name and password. Then he/she has to press either the button 'Enter', or 'Confirmation' using the PC mouse.

If the user is identified, he will be allowed to access the system menu.

The system allows carrying out complex searches by one, two or more parameters, introduced fully or partially. The user enters the parameters he needs and presses the Confirmation button.

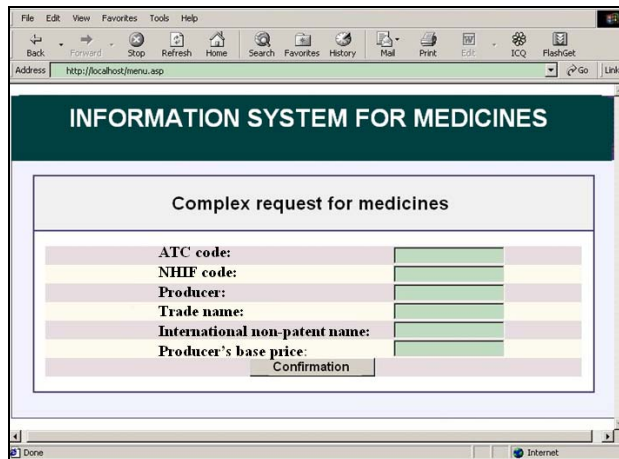


Fig. 4. Parameters for complex search

If there are no records in the system responding to the search criteria, an adequate message is displayed on the screen.

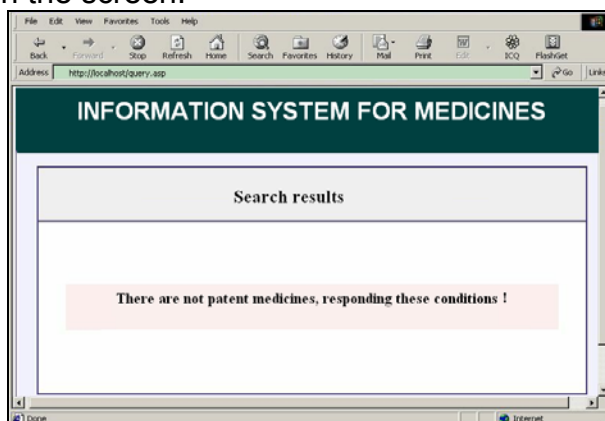


Fig. 5. Results of searching when nothing was found

Using the standard 'Back' button of the browser, the user returns to the previous page and can start a new search.

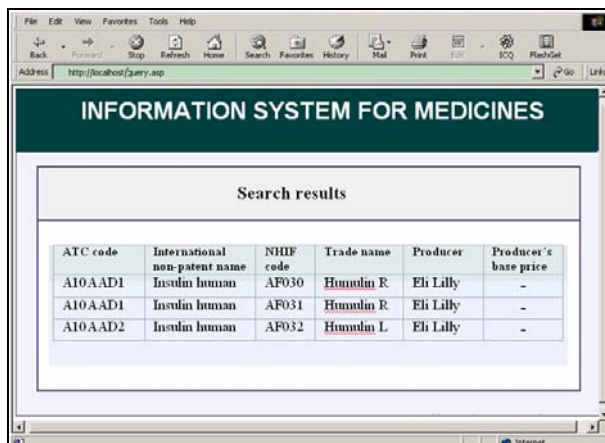


Fig. 6. Search results

If one or more records, consistent to the search conditions, are found in the database, they will be retrieved, but only those fields which correspond to the search will be displayed, as shown on fig.6.

Selecting the relevant hyperlink with the mouse (NHIF code field), the user can get all information about a certain medicament.

Full information about medical products	
ATC code	A10AA02
International non-patent name	Insulin human
NHIF code	A3032
Trade name	Humulin L
Producer	El Lilly
Medicine form	sol. ins.
Medicine quantity	40IU/ml A 10ml
Final packing	x1
Offend price of production	-
VAT in %	-
Producer's base price	-
Negotiated surplus charge of T.E.	-
Negotiated surplus charge of the pharmacy	-
Maximal selling price for NHIF	(fully paid)
Payment level from NHIF	(fully paid)
Diactinalprescriptions note	Group III MKCE 250.1

Fig. 7. Information about a medicine

For new references the user presses the Back button and enters the search criteria again.

If the user does not register in the system and tries to start any of the Query.asp and Fullquery.asp modules, the access will be denied because he is not identified.

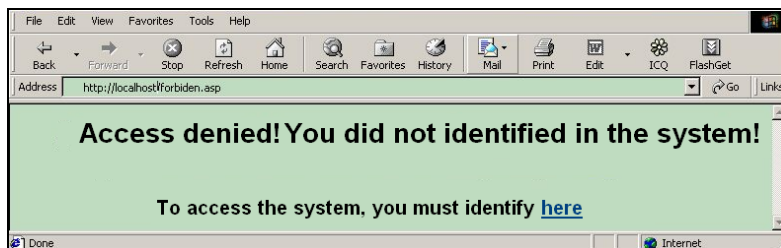


Fig. 8. Not registered user

Since it may happen due to a mistake or timeout of user's session, the author has developed a possibility for returning to the system's home page by selecting the hyperlink, marked with 'here'.

CONCLUSIONS

- The websites generated by the system are in conformity with the available versions of HTML protocol supported by the web browsers Microsoft Internet Explorer and Netscape Navigator, considering their wide usage. Internet Explorer is recommended, as it was used for this project development.
- There are no any special requirements concerning the system hardware.
- The requirements, set on the server's hardware however, are determined by the range of anticipated visits and the database space. The system designed by the author was developed on Pentium III, 1GHz, 256 MB RAM and 100 GB hard disc.
- The system may be further developed with an administrative part that will allow the database expanding and editing through Web interface. Thus, the need of MS Access 2000 installation on the server, as used in the proposed system, will be avoided.

REFERENCES

- [1] Lang, K., J. Chow, Database Publishing on the Web&Intranet, New York: Coriolis Group Books, 1998.
- [2] <http://www.microsoft.com/data/odbs>
- [3] <http://www.w3schools.com/sql>
- [4] <http://www.lcaydata.com/sql.htm>

CONTACT ADDRESS:

Margarita Stefanova Teodosieva, Assoc. Professor, PhD,
Angel Kanchev University of Ruse,
Department of Informatics and Information Technologies,
Tel.: 082 888 490
E-mail: mteodosieva@ami.uni-ruse.bg

ИНФОРМАЦИОННА СИСТЕМА ЗА ЛЕКАРСТВА

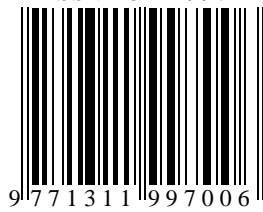
Маргарита Теодосиева

Русенски университет "Ангел Кънчев"

Резюме: Публикацията представя информационна система, разработена за нуждите на поддръжка на база данни за информация за лекарства. Тя съдържа информация, свързана с характеристиките и наличието на лекарствата, на веществата за терапия и складовете. На фармацевтите е предоставена удобна и лесна за използване система, за да направят съответните справки.

Ключови думи: Информационна система, База от данни, HTML документи, Лекарства, Интернет

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