A Solution to Dynamic Administration Users in Web Application for Assisted Testing

ANDY ŞTEFĂNESCU
University of Craiova, Faculty of Economics and Business Administration
A.I. Cuza street, no13, 200199, Craiova,
LAURA ŞTEFĂNESCU
Spiru Haret University, Faculty of Financial Management Accounting Craiova
Brazda lui Novac Street, no 4, 200260, Craiova,
ROMANIA

Abstract: The present paper has tried to expose, some theoretical and practical issues regarding the methodology of implementation an application what improvement the didactic evaluation. The computer-assisted testing presupposes the utilization computer systems and another associate technologist with intention of substantial decrease spent times of to teacher for testing and evaluating, the elimination errors of correction and why not, without subjective interpretations. Any dynamic application must let assures a solution for access to database, as much in the sense to query them, but and for the solution transactions which assure the usual operations to keep.

Key-words: e-forming, dynamic administration users, Web technologies, DHTML, ASP

1. Introduction

Any approach of teaching-learning-evaluation process in the context of using the computer in educational systems, it can avoid the implication of using computer along of this process. In June 2000 the European Commission gave the following definition: “E-learning means using of the new multimedia technologies and of the Internet to improve the quality of the forming by facilitating the access to resources and through exchanges and collaboration at distance”. In Belgium and Luxembourg this is called e-formation. E-learning is a forming system that uses numerical environments and nets through self-study and tutorials, work in forming centers or at home [1]. To be efficient, this new systems combines in a numeric program different sources of information: text, static or animated real and virtual images, sound, graphics, video, based on a scenario in which pedagogical progress is the key of interactivity and makes up the essential resorts. The two types of e-forming are discussed:

- asynchronous forming – supposes programmed going through between the learning steps and more free going through based on problem solving;
- synchronous forming – supposes courses as teaching activity and participation in virtual working groups;

In the asynchronous mode, forming may follow a program, followed by initial tests that generate a path and that respect previous acquisition and demands. In this system there are two activities:

1. Working with the student, starting with simple lecture of screen pages to using of simulators, passing through interactive situations, followed by evaluation sequences which condition the progress;
2. Evaluation by questionnaire with multiple choices or more or less practical activities like moving of objects and their rearrangement to their initial places, filling of blanks in a phrase and so on.

The activity what confirm the successfully final of forming process is represented of the testing and the evaluation acquired knowledge’s. Because exist on the instruct market sufficient system for e-forming, this project insist on this part of educationally process, least exploit, in which teacher tests and he evaluates. But, an exact delimitation doesn't make because application is made so that, at an evaluation with insufficient qualifying, the student is guides toward restudy, therefore a computer-aided training.

2. Dynamic Administration Users

In the development a system of testing and evaluation is start with identify the initial levels of knowledge for student in what look the informatics area, on a side, and on another side, in the submissive educating area [5]. The process is finalizes through the evaluation acquired knowledge’s, quantitative and qualitative.
The achievement of an administrative solution in a rigorous way presupposes the identification problems of the utilization databases from Web application [3].

Elemental characteristic which transformed the computer-assisted testing from the main techniques processes constituted the interactive action. In this sense are developed programs that are able to tests the level of qualification of students, the evaluation of their answers and the orientation their preparation forwards through recommendation bibliography or the repetition activity from specific point.

Web application for test and evaluate, develop through this pilot-project, use as solution for organize and access to database, software SQL Server - version 7.0. SQL Server had been choosed as first instrument for database access from Web dynamic pages build in ASP technology [2].

In view of his architecture, the constructive features and his functionality, Web Application for Assisted Testing, solicit utilization of technology as: technology client/server for Internet, technology for development dynamic applications for assure on/line query what affect the database applications. On the subject of, application is use as tools for building dynamic pages: Common Gateway Interface (CGI) and two important alternative solutions developed successively by: Microsoft Company: Net Server Application Programming Interface (ISAPI) and Active Server Pages (ASP).

The dynamic pages conceived for assured the query and the keep a record for databases associate Web applications are intercalate with static pages developed with of old HTML. All this is use for put to disposal every kind of user two important actions:

- to administrate dates in tables of database,
- to query databases,
- to generate rapport’s, etc.

Using the extension Dynamic HTML (DHTML) in the development this application, it offered the possibility to create documents which interact with the user without the implication servers in this process. With DHTML were added documents HTML elements of this kind:

- hide texts and images inside of documents and their display after a time in result interaction with the user;
- insert a timer for warning the user: "You have only 15 minutes! Your time is gone" and then application interrupts the examination if past 50 minutes reserves;
- generate forms, their reading, the execution and the presentation output users;

The achievement of an administrative solution in a rigorous way presupposes the identification problems of the utilization databases from Web application. Any dynamic application must let assures a solution for access to database, as much in the sense to query them, but and for the solution transactions which assure the usual operations to keep.

From view design databases of application for test and evaluation is distinguish as entity must be typify informational is: users. Users can be split in two classes: occasional users and record users.

The occasional users can see first level of site. The first level has a lot of general’s information’s what refers at the way to do examination, subject matter, exam thematic, bibliography, ways to contact professor, etc. Likewise, occasional users can to resolve tests from “auto testing category”. The record users are persons authenticate by system. This kind of users receives right to access in “examination room”, based on UserID and Password for testing. After the level of access to system’s resource and the associate rights, record users can be split in following category: User – supervisor, User – professor, User – student.

3. The Application Functionality

The application who improve didactic evaluation design by us, presupposes the utilization computer systems and another associate technologist with intention of substantial decrease spent times of to teacher for testing and evaluating, the elimination errors of correction and why subjective interpretations don’t.

In according with objective suggested by the application who improve didactic evaluation are synthetically broach a series of TESTER.01 functionally. These functionally consist in ability to:

- Information synthesis and data processing from a diversity sources: administrate dates in tables of database, query database, and generate report.
- Analyze, estimate and interpret the individual performance;
- Formulate and test the concept and hypothesis;
- Process voluminous dates;
- Process text, use Web, database, spreadsheets, and communication software.

This application admits three kinds of users. Each of them has different level of access to resources of application, based on UserID and Password. We split it in following category:
- User - supervisor has most many rights; he is the only one what has access at structure of databases, making the accounts for another users;
- User - professor is placed on the second place from view of right, having the access only to build hierarchies: Subjects matter → Tests → Questions → Answers. This hierarchy defines the structure of database on sector Professor
- User - student is the category with most little rights; this category has rights only for viewing questions, selecting correct answer, displaying marks obtained after evaluation.

Test results are deposited in database applications, for each student, in this way is done an archive with result obtained of students along running application. This thing is useful for user-professor, because he will elaborate test for verify in concordance with the level of student training. Also, we remind that, any kind of user who accessing application has a unique group of information store up in temporary file, keep till this leave application. In this way application run very well, with maximum efficiency, then it is use in same time by many users.

Our application has a group of restrictions for user-student. These restrictions are implementing for respect constraint rules by the exam regulation:
- student makes test evaluation once;
- student don’t view if he choose a wrong answer;
- time for test execution is 60 minutes;
- during 60 minutes he can modify selections made;
- no selection for questions is equal to a wrong answer;

4. Application Description
For the implementation functionality’s described before, first version of TESTER offer the users a veritable software tool for unroll into background computer-aided activity of examination and marks the students participate at exam. Application named TESTER.01 present many options for data processing, information analyze [4]. Also, it has capacity for adaptation at individual level or organizational.

Besides, TESTER.01 run on large range equipment’s, not very sophisticated or pretentiously, being able to administrate big volume of data, alone and in an economically way, using a network. Build on high technology with certified performance, system’s database is relational-distribute. We design database so that minimize maintenance costs for system, to administrate all type of data, to offer fast access to information for all kind of users. We propose to you a case of study, to demonstrate in this way, the applicability of our application named TESTER.01 for processing and analyze data necessary to didactic evaluation made by user-professor at each end of semester. TESTER.01 work session start with installation a web server. That is necessary because this application is a combination between ASP and HTML. Main window of application is like as site web and looks in that way:

![Main Window of TESTER.01](image)

**Fig.1 – Main Window of TESTER.01**
Therefore we display frame associate each type of user, for familiarize future users with application design by us for computer-aided this kind of activities. So, follow these frames:

User - supervisor is person who administrate database. He adds user-student or user-professor. Also he has an e-mail address and receive message about.

**Fig. 2 - Frame: Add Student**

Administrator : admin

**Fig. 3 - Frame: Access Professor**

User - professor has a UserID and password made by supervisor. After connection at TESTER, he can introduce test paper, select true answer, build algorithm for determinate mark. Also, he can view all students who are present at virtual exam and obtain a report.

**MATERIA TEST**

**INTREBARE RASPUNS LOGOUT**

Selectati raspunsuri pentru intrebari: Din lista componentelor pe care le ghide am implementat pe o placă de bază cu magistrală PC/ISA: memorie, microprocesor, conectori de echipament de memorare externă, sloturi ISA, sloturi PCI, porturi USB, Interfata AGP, cuplor CNR, Upes...

**Fig. 4 – Action: Insert variant to answer**

Also, he can view all students who are present at virtual exam and obtain a report.

User - student has only one right: access based on ID and password into virtual classroom. When he finishes filling in the paper test, access with one click bottom button “Trimite verificare” (Verify) and he obtain a report.

We mention that every paper test content following information: student’s name, group for study, academic year, test paper’s name, and exam’s session, time reserves to exam (see Fig.6).
Web application for test and evaluate made in an HTML combination with its extension Dynamic (DHTML) and ASP (Active Server Page) represents a collection of Web pages, well definite, is a server for testing what permits the examination and the evaluation students. This thing can be achieve in the informatics' laboratory were exist the computers in net, or to distance by Internet. So application runs on a server and accepts three types of users, being structured in following main subsystem: Supervisor, hardware, software, data ware [4].

As platform for the applications of type data basis, WEB background can bring the innovating solution as much for questions concerning the businesses among company, what for ones indeed them.

5. Conclusions

At present we are witnessing a world-wide spectacular development of Web tools especially created for design of e-libraries, tools offering, on the one hand, facilities for the electronic creation and publishing of course notes, case studies, paper topics, practical activities, self-evaluation and examination tests and, on the other hand, facilities aimed at creating a virtual environment for academic education activities.

Web testing systems are actually Web applications ensuring knowledge transmission towards a target group and users dynamic management through creating and updating a database which tracks the evolution over time of students’ activity in the course of the testing process.

Through the academic programs they uphold, as well as through the range of resources and services they provide Internet users with, many universities ensure the latter’s on-line access to teaching materials: course syllabus, e-textbooks, course management, a proper environment for application development, multimedia study environments, student assessment, project presentation, final examination, e-mail services, forum and e-newsletters. All this teaching support is organized in a course portfolio, memorized on a magnetic support, and which students access from a distance.

References: