Design and implementation of simple interactive e-learning system

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Abstract

There are many commercial or free e-learning systems available on the market. Most of these e-learning systems provide lot of functionality and modules. Some courses are completely based on e-learning resources instead of traditional learning model. This paper describes process of design and implementation of one special e-learning system, which is based on multimedia resources. The whole system is designed to provide multimedia presentation to students as learning resources. Created system allows lector to create quizzes and observe students success. E-learning system also offers graphs and charts of student's results. This system is based on linear workflow. That means students can see new learning resources and tests only after previous was done. Students can also create their own learning plan by defining dates. System is able to export this plan into general calendar format or remind students via e-mail. Paper describes process of design and creation of e-learning system with all mentioned features. The last part of paper is dedicated to discussion of student's and teacher's feedback.

Keywords: html, comparing, structure;

1. Introduction

This paper describes process of creating and implementation simple e-learning system focused on students’ progress observation. There are many e-learning systems on the market. Some of them are free, some commercial. In some situations is necessary to use very specific function, which is not available in standard e-learning systems. These situations can be solved with on-demand information systems. This paper describes the process of analysis, design and implementation of specific e-learning system. The main specific function which must be implemented is students’ progress and feedback observation. This can be done due to system design, data analysis, tables, charts etc.

2. Requirement analysis

First of all, the requirements analysis must be done. The system will be used by hundreds of students and tenths of lectors. Requirement analysis is divided into few chapters.
2.1. Users

There will be three types of users in the system. Administrator has control over all entities used in the system. Administrator also creates courses, learning materials and tests.

Another type of user is Lector. Lector cannot create courses or tests. His role is only for observing students results. Lector can see all tests done by students, overall charts, group average etc.

Student is ordinary user of system. His role is based on studying learning materials and doing tests.

2.2. Learning materials

Learning materials will be provided in combined form. Each learning material contains multi-media presentation and additional files like PDF etc. After studying the learning material, student must do a test. Test contains single choice, multiple choice and open questions. Single choice and multiple are corrected automatically; questions with open answer must be corrected by hand. Student is able to see his corrected test after test was submitted and corrected. This gives feedback to the student. Completing one learn step and make test allows student to move on next step (next learning material and test).

2.3. Testing

System is able to create tests for students. Tests should be simple and offers three types of question. Single choice question; where only one answer is right, multiple choice where can be each answer right or wrong and question with open answer where student answers by typing text in text field. This type of question must be corrected by hand. That is task for administrator.

2.4. Students’ progress observing

System must provide set of tools for observing progress of students. The main idea is observing and early warning will help teach assistant to solve problems the better way. The group lector can see different types of charts and tables. He can see chart shows students results from tests, chart comparing students’ progress and group average progress, one test average and so on. Next part of observing is system of early warning. If students’ progress doesn’t meet the criteria, his lector will be warned. In this case can lector contact student directly and solve problem.

2.5. Learn process planning

System provides learn process planning. Each student has to create learning process plan which specifies dates when learning task will be done. This learning plan must be created for each subject in which student is subscribed. System will automatically remind student to upcoming events. If student does not comply his learn plan, his lector will be automatically warned. This concept allows solving student’s problems early. All events from students learn plan can be easily exported to ical format and uploaded to another application like MS Outlook or Google calendar. This allows student to use his own calendar independently on e-learning system.

3. Implementation

The whole system is implemented as web application on asp.net platform. Figure 1 shows main application classes.
Diagram on the picture shows application components. Student, Lector and Administrator are system roles. Student account can be created by registration. Administrator account is created automatically. Lector account is created by administrator. Lector is connected with subject. Each subject can have more lectors. When registering subject, student can chose his lector. This lector has access to student’s tests and results.

System allows tests creation. Test is linked with concrete learning material. After studying learning material, linked test is available. After test is next learning material available. For test creation is available simple interface, where administrator can chose between three types of questions. After putting questions together test is published and available for students. Tests done by students are stored to database for future statistics.

4. Conclusion

Paper described process of design and implementation of simple e-learning system focused on students’ progress observation and rating. Described system is able to provide to students multimedia or classical learning materials. Course administrator can make tests for students and observe their progress due to charts and tables. System is designed to early warn lector if students’ progress doesn’t meet necessary criteria. Deployment of system in real practice shows that small solution developed on demand has good results and meets the needs of school.

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References