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**Introduction to XML**

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**Design Document XTML:**

**Goal:**

To provide a test management system that is learnable, effective, easy to use and highly interactive. To achieve this level of user friendliness; the system will incorporate these characteristics through careful analysis of user and business requirements, as well as solution design using the latest technology. More specifically the solution design will be a content model for a quiz or test document type - implemented with the xml schema technology. The objective of the project would be to develop an Extensible Test Markup Language (XTML) that allows professors to create quizzes or tests for their students. Then document instances will be validated based on business rules specified in the content model. This document will also produce several views based on test results. The students in a particular course will also be able to take these tests once enrolled in a course.

**Purpose:**

To allow professors to create test and quiz instances of the document type and allow students to take a test or quiz as well as to allow software developers ease of access of structures.

**Audience Definition:**

End users and their goals

* Admin- Assign a professor to a course
* Professors – read, create , modify, and grade quiz or test documents
* Students - read, take and submit quiz or tests

Software Developers’ goal

* Access important elements for presentation software

**Requirements:**

User requirements

1. The document type should have a description of the task/action/event.
2. The document type should be a quiz or test.
3. A quiz should comprise two question types; i.e., multiple choice and true/ false.
4. A test should comprise three question types; i.e., multiple choices, true/false, and essay type or fill in the blanks.
5. The document type should provide attributes of elements that contain answers to quiz or test questions.
6. The document type should provide elements to capture test response quiz or test response.
7. The document type should provide elements that provide the response choices for the multiple choice question type.
8. The document type should have an attribute or element that will contain the unique identifier for the professor who created the test.
9. Should provide elements for essay type and fill in the blank type test questions
10. Should provide elements for true/false type questions
11. The document type should have a topic element as an identifier for each quiz or test

Security requirement

Student is not allowed to take a quiz or test twice

**Proposed Content Model:**

The cross reference table below is used to highlight the requirements, represented by numbers and the content element that satisfy those requirements.

**Required document information**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Content:/Requirements’ by #:** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** |
| Task Description | **X** |  |  |  |  |  |  |  |  |  |  |
| Quiz type |  | **x** | **x** |  |  |  |  |  |  |  |  |
| Test type |  | **x** |  | **x** |  |  |  |  |  |  |  |
| Multiple choice type |  |  | **x** | **x** |  |  |  |  |  |  |  |
| True or False type |  |  | **x** | **x** |  |  |  |  |  |  | **x** |
| Essay type |  |  |  | **x** |  |  |  |  |  | **x** |  |
| Fill in the blank type |  |  |  | **x** |  |  |  |  |  |  |  |
| Answers |  |  |  |  | **x** |  |  |  |  |  |  |
| Question Response |  |  |  |  |  | **x** | **x** |  |  |  |  |
| Professor ID |  |  |  |  |  |  |  | **x** |  |  |  |
| Test/Quiz Topic |  |  |  |  |  |  |  |  | **x** |  |  |

**Defining the information relationships**

|  |  |  |  |
| --- | --- | --- | --- |
| Item1 | Relationship | Item2 | Description |
| Task Description | Requires | Document Type | You cannot have a description of a quiz or test if one does not exist. Thus, a description of the type of document is required once the document is created. |
| Multiple Choices /True or False/Essay Type/Fill in the Blanks/Topic | Belongs to | Test | Each test must contain question types; thus, all question types provided by this document associates with a Test. It should also contain a topic to indentify the quiz and subject area. |
| Multiple Choices /True or False | Looks like | Quiz | Each quiz is like a test they both have questions except that a quiz is not as comprehensive as a test and comprise only two question types, i.e., multiple choice and true or false |
| Choice/Question | Belongs to | Multiple Choices | Multiple choices are completed when they comprise four choices and have a question element. |
| Correct | Depends on | Multiple Choices | For each choice in a multiple choice there is a “Correct” information item that determines what choice is correct or not; thus, if there is no choice there is no “Correct” information item. |
| Correct | Depends on | Multiple Choices | For each choice item there is a state correct or incorrect; thus, if there is no choice then there is no state. |

**Define the Document Structures**

Definition of information items – these are accessible items meant to be unambiguously labeled.

<Test>

🡨! Task description🡪

This is a quiz for the introduction to xml class…..

</Test>

<Question> In XML, when we say a document is well formed what do we mean? </Question>

<Answer> The document conforms to the rules of XML</Answer>

<Choice>The document begins with a capital and ends with a period</Choice>

<questionResponse> 🡨! Whatever the student’s response is 🡪 </questionResponse>

**Assumptions:**

* Each quiz and test instance document for a particular student will be sent back to the professor for grading
* There will be a persistent document with the answers for each quiz or test created by a professor for his/her students
* Multiple choice and true or false questions are graded by the software
* Essay and fill in the blank type questions are graded by the professor
* Summary reports will be derived from the aggregation of results done by the professor

**Deliverables for future project:**

* Fully implemented n-tier architecture: data tier, business tier and presentation software will be provided to created a better interaction or enrich user experience.