XML Component - Catherine

Description

The XML component is responsible for extracting the data from the election ballot file (an xml file) and returning the data to the calling PHP script in a usable form. Included in this is checking to make sure that the XML in the election ballot file is valid and conforms to the specified format. If there is a problem, an error is returned.

Design

The XML component interface is implemented with the use of the Dom-XML library for PHP 4. This library provides functions for opening an XML file, retrieving the root node of the file, and extracting information from the root node. The functions that are used from this library are:

- `domdocument domxml_open_file(string filename)` - Opens an xml file for parsing and returns a `domdocument` for the file.

- `domelement DomDocument->document_element(void)` - Returns the root node of the document.

- `array DomElement->get_elements_by_tagname(string tagname)` - Returns an array of each `DomElement` which has a tagname of `tagname` and is a direct child of the `DomElement` node the function is called from.

- `string DomElement->get_attribute(string attribute)` - Returns the value of `attibute` that belongs to the `DomElement` the function is called from. "" is returned if `attribute` does not exist.

- `string DomElement->get_content(void)` - Returns the content of the `DomElement` the function is called from.

Most of the information can be easily obtained from the XML file in 20-30 lines of code. However, generating all of the questions takes a lot more code. Therefore, three helper functions are defined (which are not part of the interface) in order to make the code cleaner and more readable. They are:

- `array generateQuestionArray(DomElement question, string filename, int question_number)` - This function generates the array corresponding to one question in the ballot, question number `question_number`. It uses the other two helper functions, passing in the `DomElement`s corresponding to the CHOICES and VOTERS tags in the XML file.

- `array generateChoiceArray(DomElement choice, string filename)` - This function generates the array of choices for `DomElement` passed in as an argument.

- `array generateVoterArray(DomElement voters)` - This function generates the voter array for the `DomElement` passed in as an argument.

Interactions

Depends On:

- Dom-XML functions installed for PHP 4

Is Used By:

- Server Initialization

- Election Administration