Lab 2 - CLASH Product Specification Outline

Spring 2015 Blue Team

CS411W

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Version 1.0

3. Specific Requirements

3.1. Functional Requirements

The description of the CLASH prototype, stating each functional requirement in a concise and complete format.

3.1.1. User Interface

The user interface shall be entirely webpage-based. The user interface is a Single Page Application (SPA). The user interface will reload all necessary code, HTML, JavaScript, and CSS in a single page load. The following functional requirements shall be met: **(Fiz/Francia/Cory/James/Ali)**

1. The user interface shall be coded not to require the download of browser plugins.
2. The client shall maintain a persistent connection for synchronization purpose.
3. The initial access screen shall be a login page to identify the user to the server.
4. The following user types shall be available:
    1. Administrator
    2. Instructor
    3. Student
5. On login, the user interface shall allow functionality by role as defined in table 1:

Feature	Administrator	Instructor	Student
Preview of Content	X	X	X
Access Readings Assigned by Instructor	X	X	X
View Slashed Document	X	X	X
View Video Stream of Lexical Bundles	X	X	X
View Color Coded POS	X	X	X
Insert System Generated POS IDs	X	X	
Correct System Generated POS IDs	X	X	

Delete System Generated POS IDs	X	X	
Insert System Generated Slash Location	X	X	
Correct System Generated Slash Location	X	X	
Delete System Generated Slash Location	X	X	
Account Creation	X (Creates Any)	X (Creates Student)	
Assign Student Account to Group	X	X	
Add a Reading Sample	X	X	
Assign Reading Assignment to Student Accounts	X	X	
Assign Reading Assignment to Student Group	X	X	
View Server Status and Existing Connections	X		

Table 1. Role Based Functionality

6. The user interface shall include the Slash, Slash Player and COLRS modules.

3.1.2. Slash Handler (Andrew)

The Slash Handler feature shall provide the capability to retrieve documents that were previously saved by an Instructor and the player will display lexical bundles from the document on the screen one at a time. Playback controls are provided to the user.

The following functional requirements shall be met, as defined in table 2, for all levels of user:

Object	Function
“Play”	Input control which initiates a display of the text in lexical bundles at the speed chosen in the speed control.
“Pause”	Input control which halts the progression of the display of lexical bundles at its current position in the stream.
“Speed Settings”	Input control which the user has the ability to increase and decrease the speed for the Slash Handler by lexical bundles per minute thresholds.
“Speed Display”	Output that shall display the current selected speed of the lexical bundles from the speed settings object.

Table 2. Slash Handler Functionality.

3.1.3. COLRS (Erich)

This section pertains to the requirements of the COLRS module. The COLRS module will provide an interactive view of the document entered by an Instructor. The documents viewed through the COLRS module shall be retrieved from the document database.

The following functional requirements shall be met:

1. Colors for each part of speech shall be distinguishable.
    1. Provide the capability for any level of user to select POS for colorization
    2. Provide the capability for any level of user to select or unselect a POS for colorization.
    3. Each POS shall be designated by a specific color that are easily distinguishable.
    4. The following POS shall be available for selection.
        a. Noun
        b. Verb
        c. Preposition
        d. Conjunction
        e. Adjective
        f. Adverb
        g. Pronoun
2. Lexical bundles in the document shall be distinguishable.
    1. The boundary of each lexical bundle shall be notated in the display of the document by a special character that resembles a slash.
    2. This special character shall be visible at the end of the lexical bundle exactly one space from the final letter of the word or exactly one space from the punctuation mark directly following the final word of the lexical bundle.
    3. Provide the capability for any level of user to select/unselect the ability to view the character denoting the lexical bundle.
    4. The default setting for this feature is selected.
    5. When the user deselects the feature, the special character is removed from the text.
    6. When the special character is removed from the text the text display shall remove all extra spaces created when the character was entered.
3. Lexical bundles found in the exception list shall be distinguishable.
    1. Each lexical bundle found in the exception list shall be notated in the text by making the lexical bundle bold.
    2. Provide the capability for any level of user to select or unselect the ability to view whether the lexical bundle was in the exception list.
        a. The default setting for this feature is selected.
        b. When the user deselects the feature, the lexical bundle is unbolded.
4. Instructor and Administrator users shall have have the ability to:
    1. Edit the boundaries of all lexical bundles within the displayed text.
    2. Edit the part of speech of each word within the displayed text.

3.1.4. User Accounts Management (Justin)

This section pertains to account creation and login authentication requirements. The User Account Database shall be referenced for all user management and reporting requirements. The Document database shall be referenced when users need to access documents for use in the COLRS or SLASH modules.

The following functional requirements shall be met:

1. User Account Database. The User Account Database will contain all users and their corresponding abilities to administer and access the system.
    1. Students shall have the ability to log into the system.
    2. Instructors shall have the ability to:
        1. Manage Class objects:
            1. Create Class object.
            2. Delete Class object.
            3. Add user to Class object.
            4. Remove user from Class Object.
        2. Extract Reporting Data from:
            1. Class objects reported on: Average Class bundle per minute
            2. Minimum bundle per minute
            3. Maximum bundle per minute
            4. Individual user performance reported on:
            5. Average bundle per minute per document.
            6. Time per document (in minutes).
            7. Total number of bundles per document.
            8. Time of session per document.
            9. Shall have all functional abilities afforded to Instructor and Student users.
    3. Administrators shall have the ability to:
        1. Add users of type:
            a. Administrator
            b. Instructor
            c. Student
        2. Delete users of type:
            a. Administrator
            b. Instructor
            c. Student
        3. Modify users type:

   a. Administrator
   b. Instructor
   c. Student
4. Shall have all functional abilities afforded to Instructor and Student users.

3.1.5. Documents Management (Fred/Moe/Ming)

The document management module shall provide the capability to view and manipulate documents entered by the Instructor/Administrator depending on user account role. Documents will be stored after they have been processed by the part of speech and lexical bundle tagger.

The following functional requirements shall be met:

1. Students shall have the ability to retrieve documents.

2. Instructors shall have the ability to:
   a. Submit a new document to the database.
   b. Submit a modified document to the database.
   c. Delete a document from the database.
   d. Print a document using each slash mark as a carriage return.
   e. Display the exceptions list.
   f. Print the exceptions list.
   g. Perform all functionality afforded to Student users.

3. Administrators shall have the ability to:
   a. Perform all functionality afforded to Instructor and Student users.

3.1.6. User Account Reporting (Charles)

User Account Reporting will give Instructors and Administrators the ability to review system usage, and student capabilities. Instructors will have the ability to see the usage statistics for their students, namely their reading speed, and what what files have been accessed. Administrators will see what the instructors have done, namely their name, ID, and what files they have uploaded.

1. Instructor accounts shall have the ability to request a report of a student account's system usage statistics:

    a. Student Name
    b. Student ID
    c. Average lexical bundle speed
    d. A list of readings completed
2. Instructor accounts shall have the ability to request a report of student group's system usage statistics
3. Reports shall be sent to the instructors email address stored in the system as a .csv file
4. The report for a Student Group shall include:
    a. Instructor name
    b. Student Name
    c. Student ID
    d. Average Lexical Bundle Speed
    e. A list of readings completed.
5. Will be emailed in by Charles; deleted on drive..

3.1.7. System Database (Justin)

This section pertains to the creation of a database. This database will contain 7 unique tables that will be used for User Account Management, Document handling and Data reporting.

The following functional requirements shall be met:

1. A table for USER shall be created with the following attributes:
    1. Username.
        a. VARCHAR(30)
        b. NOT NULL
        c. UNIQUE
    2. Password.
        a. VARCHAR(30)
        b. NOT NULL
    3. Usertype.
        a. INT(2)
        b. NOT NULL
        c. Foreign Key references USER_TYPE(usertype)
    4. User ID.
        a. INT(15)
        b. Primary Key

2. A table for FILE shall be created with the following attributes:
    1. User ID.
        a. INT(15)

   b. Primary Key
   c. Foreign key references USER(userid)
2. Filename.
   a. VARCHAR(32)
   b. NOT NULL
   c. Primary Key

3. JSON. Text from document stored in parsed format.
   a. TEXT
   b. NOT NULL

3. A table for CLASS shall be created with the following attributes:
   1. CRN(Course Reference Number).
      a. INT(15)
      b. NOT NULL
      c. UNIQUE
      d. Primary Key.
   2. Instructor.
      a. INT(15)
      b. NOT NULL
      c. Foreign Key references USER(userid)

4. A table for STUDENT shall be created with the following attributes:
   1. CRN(Course Reference Number).
      a. INT(15)
      b. NOT NULL
      c. Foreign Key references CLASS(CRN)
      d. Part of Primary Key
   2. Student.
      a. INT(15)
      b. NOT NULL
      c. Foreign Key references USER(userid)
      d. Part of Primary Key

5. A table for RECORD shall be created with the following attributes:
   1. UserID.
      a. INT(15)
      b. NOT NULL
      c. Foreign Key references USER(userid)
      d. Part of Primary Key
   2. InstructorID.
      a. INT(15)
      b. NOT NULL

c. Foreign Key references FILE(userid,filename)
d. Part of Primary Key

3. Filename.
   a. VARCHAR(32)
   b. Part of Primary Key

4. Time Spent Seconds.
   a. INT
   b. NOT NULL
5. Words Read.
   a. INT
   b. NOT NULL
6. Lexical Bundles Read.
   a. INT
   b. NOT NULL

6. A table for EXCEPTION shall be created with the following attributes:
   1. UserID.
      1. INT(15)
      2. NOT NULL
      3. Foreign Key references USER(userid)
   2. Exemption String.
      1. RCHAR(128)
      2. NOT NULL

7. A table for EXCEPTION shall be created with the following attributes:
   1. Usertype.
      1. Primary Key.
      2. INT(2)
   2. Role.
      1. VARCHAR(20)