CIS 526/726 – Spring 2013

Final Group Assignment – Ready Player One Leaderboards

Assignment Due: May 10th, by 5:00pm

Requirements:

For this assignment you will be developing a web application to meet the needs of the K-State Library Staff's alternate reality game to be run in conjunction with the K-State First Program tying into the book *Ready Player One.*

This application should consist of:

1. **Leaderboards** The application's primary function is to display leaderboards – one primary and five category leaderboards (primary for total score, and category boards for points earned in the five ARG paths (Attendance, Puzzle, Cross-curricular, Cooperation, and Story)
    a. Leaderboards should rank players by points in descending order. (10 points)
    b. They should list player Eid and score. (10 points)
    c. Top ten scores should be prominently displayed. (10 points)
    d. Additional scores should be loaded on demand (i.e. via Ajax mechanisms – an "infinite page" strategy will work well here). (10 points)
    e. Entering a K-State Eid in a search box on the page should display the player's total score and rank (a JQuery animation scrolling the page to the searched name's position and greying out other entries would be a powerful visual technique for this). (10 points)
    f. A player's milestone achievements (see part 5) should be displayed next to their name in iconic form. (10 points)
    g. Hovering over a milestone achievement icon should display the textual name of the milestone achievement (hint: placing text in the alt attribute of the img tag will do this automatically). (5 points)
2. **User Profile** For individual users, a more detailed profile should be available which:
    a. Is only viewable by the user and by administrators (10 points)
    b. Lists all milestones earned in both graphical and textual form (15 points)
    c. Lists each task completed, in the order of completion, along with time of completion and points earned (15 points)
3. **OME Synchronization & Authentication** Your application should use K-State's Central Authentication Service (CAS) to authenticate users.
    a. You will need to implement the client-side of the CAS protocol to validate users (http://www.jasig.org/cas/protocol) (20 points)
    b. You will also need to seed your database with a list of K-State First eids (we will be providing a mock list of eids and passwords for testing). (10 points)
    c. Your client-side authentication should be set to run against our mock CAS server, but be reconfigurable to use K-State's CAS server. (10 points)
4. **Administration Interface** The application should also provide an administration interface:

   a. That is only visible and usable by administrators (indicated by a field in the user's profile database) (10 points)
   b. That allows the addition or removal of points from a user (10 points)
   c. That allows the "freezing" of points on a user – while they can continue to complete tasks, these extra points will need to be held "in abeyance" until approved by the administration staff (20 points)
   d. That provides a specific page listing users upon whom administrative actions have been performed (i.e. points added/removed and accounts that have been frozen) (10 points)
   e. That can be accessed from any of the leaderboards (i.e. clicking a 'manage' link in the leaderboard will take you to an administrative page for managing that user). (10 points)
   f. That integrates into the player's profile (i.e. points held in abeyance are listed with visual and textual indicators of the status. (10 points)
   g. That allows for the display and editing of existing and creation of new tasks to be completed (as described below). (10 points)

5. **Tasks** Points are assigned to the players for the completion of tasks created by administrators. Tasks should therefore:
   a. Have a name, descriptive text, and a point total that they apply to a player when completed (10 points)
   b. Be recorded as completed on a player-by-player basis (Hint: this will require a join table and model; a many-to-many relationship). (10 points)
   c. Have a time frame within which the task can be completed. This time period can have a definite start and end, or only a starting date, only an ending date, or allow completion any time. (10 points)
   d. Be identified as belonging to one of the five ARG paths (Attendance, Puzzle, Cross-curricular, Cooperation, Story). This should be set by administrators on creation, and is the basis for sorting into the sub-leaderboards. (10 points)
6. **Milestone Tasks** Certain tasks can be flagged as "milestone tasks," which add special features:
   a. The first ten players to complete a task flagged as a milestone gain bonus points – the amount of bonus points should be assigned by the administrator on task creation. (10 points)
   b. Milestone tasks should have an associated, icon-sized image loaded by administrators when the task is created. This image should then be displayed on the leaderboard and profiles of those who have earned them. (10 points)
7. **Task Completion Interfaces** The application will also need to provide interfaces for recording task completion along the ARG paths. These interfaces include:
   a. A web-form based submission mechanism, where the logged-in player can type in the solution to a puzzle or similar key word. This solution needs to be matched against a keyword/solution defined for the task, and automatically apply the task completion and points earned to the player's profile. (20 points)
   b. A web interface for application-based submission. This mechanism should allow other applications to submit an encrypted package created by encrypting the player's eid and a unique task token, created when the task is created, using a public key. When an

encrypted package is received via POST request, it should be decrypted using the applications private key, and the task registered as complete for the user with the corresponding eid. (20 points)

c. *CIS 726 students or Extra Credit for CIS 526 Students.* A QR code-based submission mechanism, where, when created, a task generates a QR code image that can be downloaded by administrators, containing a link to a validation page on the web application. When this page is visited, the player can log in and by doing so automatically receive credit for completing the associated task. (20 regular points for CIS 726 students; 20 extra credit points for CIS 526 students)

d. *CIS 726 students or Extra Credit for CIS 526 Students.* A separate stand-alone application to read in student eids from a MagTek card reader, and automatically submit it to the web interface of the web application. This application needs to be easily configurable by an administrator to change the task token when it is set up in a new location. (20 regular points for CIS 726 students; 20 extra credit points for CIS 526 students)