Graduate Exhibition Registration and Scoring Project Requirements

Wayne State University
CSC 4996/4997 Fall 2012

1. Introduction:

The Wayne State University Graduate School is among the 20 largest in the nation. Graduate students often participate in cutting edge research and large scale creative projects in their fields as they work towards earning a master's degree or a doctorate.

Every year in early March, the Wayne State University Graduate School holds an exhibition that features the work of graduate students from the various disciplines in the university. The purpose of the exhibition is, "celebrating Wayne State's graduate community and the exciting research, scholarship and creative work of [Wayne State] graduate students." The students participate by presenting a poster, art project or oral presentation that focuses on their research or work. The student presentations are evaluated by professors who have volunteered to act as judges. The results of the evaluations are used to determine which of the projects will receive awards in several categories at a ceremony at the culmination of the exhibition events.

The Wayne State Computer Science Department has been contacted by the Graduate School to produce an electronic system to assist in the administration of the Graduate Exhibition. This system will assist the Exhibition organizers to keep track of student projects, judge assignments, score calculation and award assignment.

1.2. Domain Ditionary

Administrative User: A user of the GERSP system with the authority to add, modify and view all user accounts as well as awards, categories, judge assignment and award algorithms.
Award Algorithm: The way that awards are presented to projects. This has been based on the top n ranked mean total score from all of the judges who evaluated a project
GERSP: Graduate Exhibition Registration and Scoring Project. The project whose requirements are described by this document.
Graduate Exhibition: A one day event held by the Wayne State University Graduate School to showcase the research and creative projects of its students every March. The exhibition is open to the public.
Graduate Students: University students who are working towards earning a master's degree or a doctorate. Sometimes referred to as "grad students". "Master's students" and "Ph.D students" refer to subsets of graduate students working toward the appropriate degree.
Judge: A professor who has volunteered his or her time to evaluate student projects presented at the graduate exhibition. A judge is assigned to evaluate only a certain number of student projects.
Judge Assignment Algorithm: The way judges are assigned to student projects to evaluate them. In past years this has been expressed as "n judges evaluate each project and each judge is assigned m projects to evaluate."
Participant: A graduate student who has registered to participate in the Graduate Exhibition.
Project Awards: Awards presented to students for their projects based on the evaluation of those projects by the assigned judges.
Registration: The act of a grad student submitting his or her name and project to the graduate exhibition.
Score: A numerical value that is the result of a judge evaluating a student project in several categories.
Scorecards: Paper forms used by judges to record the scores that are the results of their evaluations of student projects.

Score Entry User: A user, likely a student volunteer, who enters the values on judge scorecards into the GERSP system on the day of the exhibition.
Student Project: A poster, oral presentation or creative project produced by a participant to present at the Graduate Exhibition. Each project is evaluated by a certain number of judges.
Conflict of Interest: Describes an assignment of a judge to evaluate a student project that he or she may not be able to evaluate impartially because of a relationship with the student. This usually means that judges should be evaluating projects from students in a different department than the one in which they work.

1.3 Purpose

The purpose of this document is to convey the minimum requirements of the GERSP to the student developers enrolled in Wayne State University computer science senior project class (CSC 4996/4997).

1.4 Scope

This project will produce a web application to manage student registration, judge assignment, score tabulation and award assignment for the Wayne State University Graduate School's yearly Graduate Exhibition in this and future years. Additionally, this project will provide a workflow for the users of the system that supports the existing organization and operation of the Graduate Exhibition.

2. System Description

This section describes the system that is currently in use by the Graduate School to administer the Exhibition and provides a list of the minimum functional and non-functional requirements for the GERSP. Please note that these are the minimum set of requirements for the project to be considered successful. The student groups will need to communicate with the client to produce a more detailed list.

2.1 Existing System

Last year, another CSC 4996/4997 class produced an electronic system similar to the one that you are being asked to produce. Unfortunately, this system was complicated to use to the point that the Graduate School had to have the student developers operate the system on the day of the exhibition. Since the students who produced that system have since graduated, the Graduate School has asked us to produce a system that is more user-friendly so they will be able to administer their exhibition without the student developers.

The previously created electronic system was an unsecured web application (i.e., the application did not require users to log in.) A user of the system interacted with the records contained in the system through 5 web pages, detailed in the list below:

- **Categories-** A page for adding, modifying and deleting different *types* of projects for which unique awards will be presented. Examples of categories are "Oral presentation", "Poster", and "Art Exhibit."
- **Contestants-** A page for adding, modifying and deleting participant projects. Data associated with "contestants" are: ID, Team Member, Project Type, Project Title and Category Number. Reports for creating "Packet Labels" (groups of 4 projects) are available from this page.
- **Judges-** A page for adding, modifying and deleting judges from the system. The only fields associated with judges are: ID, First Name and Last Name. This page contains no other functionality.
- **Scorecards-** This page exists to manage the assignment of judges to projects for evaluation and to input the scores from those evaluations. Records on this page contain

the following data: ID, Judge, Contestant, Content Score, Display Score, Oral Score and Total Score. A link is provided to assign judges to contestants. When this link is selected, a series of scorecard records with no scores are generated according the the judge assignment algorithm. These records may be edited to contain the actual scores. Links are also provided to remove all scorecards that have no scores associated with them and to manually create a scorecard. A search box for finding specific contestants is also available on this page.

- **Ranking-** This page ranks the top 30 contestants in each category. The categories are each displayed on a different tab on this page. The ranking is decreasing by final score (i.e., the average of all judge scores for that contestant.) From this page, a link is available to create a report of the top 10 contestants in the selected category. The records on this page contain the data: Rank, Contestant, Judge-Score (a list of all the judge scores for that contestant,) Project Type, Project Title and Final Score. The top 10 report omits the Judge-Score field.

Access to the previous electronic system is available for the student groups to study. Please be aware that the previous system may not meet all of the requirements for you system and that some of the details of how the exhibition is to be administered may have changed. The groups will have to communicate with the Graduate School (through the course TA) to determine what the final requirements for the GERSP should be.

2.2 Functional Requirements.

The following is a list of functional requirements. Please note that this list is the bare minimum of functionality required. Student groups should work with the client to create a complete list of function requirements.

- All users of the GERSP system must be identified by a unique username. Access to the system should be restricted only to registered users by a secret password.
- The functionality exposed to each user should be restricted by the role they play in the exhibition. (i.e., a participant should not be able to enter scores for a project.)
- Allow grad students to register themselves and their projects as participants via the world wide web.
    - A date after which registration is closed may be specified by an administrative user.
- Allow administrative users and their delegates to register judges for the exhibition.
- Administrative users should be able to add, view and modify all types of user accounts.
- Allow for the entry, modification and viewing of project categories. (i.e., poster, oral presentation, art project.)
    - Each category should have a default set of sub score categories which may be edited by an administrative user.
    - Each category should have a default set of awards and the formula by which they are awarded which may be edited by an administrative user.
- Assign judges to evaluate projects.
    - The number of judges per project may be specified by an administrative user.
    - The number of projects per judge may be specified by an administrative user.
    - Refrain from assigning judges to projects for which they may have a conflict of interest.
    - The following reports should be available:
        - Judges grouped by their assigned projects.
        - Projects by their assigned judges.
        - Scorecards with the judge and project details for each assignment. (note: These may vary depending upon the category of the project.)

- Input evaluation scores.
    - Task may be performed by judges, administrative users or score entry users.
        - Judges should only be allowed to enter scores for the projects they have evaluated.
- Summarize the scores of all participants.
    - The following reports should be available:
        - Participant scores grouped by category and sorted by any field.
        - The top n participants in any category.
        - The breakdown of all participants' scores. (i.e., the category specific scores from each judge.)
    - Administrative, score entry and judge users should be able to search by name for participants to see their score breakdown.

2.3 Non-Functional Requirements

The GERSP system must satisfy the following non-functional requirements in the categories of Security, Documentation, Performance, Availability and Reliability.

2.3.1 Security

- All reasonable measure to prevent a user from modifying, viewing or deleting a record that they do not have permission to modify, view or delete should be taken.
    - All databases secured by username and password.
    - Transmission of information between the client and server should not be in the clear.

2.3.2 Documentation

- All functionality implemented in the GERSP system must be documented. (i.e., user action to activate the feature and expected output should be defined.)
- All database fields must have some meta data associated with them giving precise descriptions and examples of the data they should contain.
- All Java code should be documented using Javadoc comments.

2.3.3 Performance

- Each user of the system should interact primarily with a single screen to perform their task to minimize the number of clicks and therefore the amount of time interacting with the electronic system.
    - This is especially true for score entry.
- Score summary and award assignment must occur within 10 minutes after activation by the user.
- Judge assignment must occur within 10 minutes after activation by the user.

2.3.4 Reliability

- A daily backup of system data should be scheduled.
    - Each backup must occur in two place, only one of which may be located physically near to the server.
- Manually triggered backups should be available to administrative users. This backup may be saved to the media of the user's choice. (e.g., a flash drive or a networked drive.) or to the default backup locations.

2.3.5 Availability

- Once opened for registration, the GERSP system servers should remain online and available 24/7 to allow students and judges to register.
- On the day of the exhibition, the system may be restricted to only essential users to ensure a timely response.

3. Additional Documents

Included in the archive with this document is an example of the project abstract submission form called “Grad Exhibition 2012.1 Abstract Form.pdf” as well as an example judge scoresheet called “Judging Score Sheet.docx”.