**Information and Computer Science Department**

**ICS 324 – Database Systems**

**Project**

**Objectives**

The objective of this project is to develop a complete data-centric application.

**Outcomes**

After completing this project, students will master:

* Analyzing the System Requirement
* Representing the requirements using Enhanced Entity Relationship (EER) model
* Mapping the designed model into relational schema
* Writing SQL statements
  + Creating the tables including all applied integrity constraints
  + Populating the tables with sample records.
* Developing user interface for the system
* Writing a report about the system
* Presenting your work

**Project Description:**

Consider a *grade book* database in which instructors within an academic department maintain scores/points obtained by individual students in their classes. The data requirements are summarized as follows:

* Students are identified by a unique student id, their first and last names, and a major.
* The instructor teaches certain courses each term. The courses are uniquely identified by a course number, a section number, and the term in which they are taught. The instructor also assigns grade cutoffs for letter grades for each course he teaches.
* Students are enrolled in courses taught by the instructor.
* Each course being taught by the instructor has a number of grading components (such as mid-term, final exam, project, etc.). Each grading component has a maximum number of points (such as 100 or 50) and a weight (such as 20% or 10%). The weights of all the grading components of a course usually add up to 100.
* Finally, the instructor records the points earned by each student in each of the grading components in each of the courses. For example, student with id=201112340 earns 84 points for the grading component mid-term for the course ICS324 section 2 in the 142 term. The mid-term grading component may have been defined to have a maximum of 100 points and a weight of 20% of the course grade.

**Project Deliverable Phases:**

**Phase I: Conceptual and Logical Design**

Develop a conceptual model and map it into a logical schema using the relational model. Then implement resulting schema. The report should have the following sections:

1. Problem Statement
2. Database Requirements (defines the entities, attributes, relationships and constraints).
3. Conceptual schema (ER/EER Model)
4. Relational schema (all relations and constraints)
5. DDL statements to create database tables

**Phase II: User Interface (Front-end) Implementation**

Develop the front-end using java or any other language. Add the following sections to the report:

1. Tools and languages used
2. The user manual
3. Conclusion
4. Distribution of work (who did what)

**Presentations:**

Each group should prepare a power point presentation about their project and make a demo of the system.

**Grading & Work Schedule:**

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| **Task** | **Due Date** | **Weight** |
| Phase I | July 30, 2015 | 25% |
| Phase II | August 10, 2015 | 50% |
| Presentation & Demo | August 10, 2015 | 25% |