**CSE 3330 Project 1-Phase 1**  **Spring 2020**

In this project, you will create a conceptual schema database design using the ER/EER model, then convert it to a relational (tabular) schema using the rules for ER/EER-to-relational (tabular) mapping. (In project 1-part 2, you will load data into the relational database and do queries in SQL, as well as program a Web interface to enter query parameters and display query results.)

The database that you will design in project 1 will keep track of the doctoral (PhD) students in the CSE department, their supervising professors, their means of support, the milestones they complete, among other information. Here are the requirements for the database:

1. We want to store and query information for the **DOCTORAL** database for the doctoral (PhD) students at UTA. Each **PHD\_STUDENT** has a StudentId, Name (made up of the components FName, LName), StartSemester (semester when the student started is made up of two components (Semester, Year))

2. The **DOCTORAL** database will store information on each CSE Department **INSTRUCTOR** and each research **GRANT**, as well as each doctoral **MILESTONE**. It will also include information about each **COURSE** and **SECTION** offered by the CSE department.

3. For each **INSTRUCTOR**, we shall keep track of the InstructorId (unique), Name (made up of (FName, LName), StartDate (when they started at the university), Degree (their highest degree achieved), and Rank (the title of the INSTRUCTOR –Prof, Asst Prof, Lecturer, etc.). **INSTRUCTORs** are of two main types: **ADJUNCT** and **FULL\_TIME**, and the full-time instructors can be either **TT** (tenure track) or **NTT (**non-tenure track). For the **TT** instructors, the database should keep track of NoOfPhDSupervised (the total number of PhD students the instructor has supervised so far). The **NTT** instructors should be related to the **COURSEs** they have taught as ***coursestaught.***

4. For each **SECTION,** we shall keep track of SectionId and each **COURSE** will be related to the sections of the course that are currently being offered.

5. **PHD\_STUDENT** has several main types based on the financial support he or she receives–**GRA** (graduate research assistant), **GTA** (graduate teaching assistant), **SCHOLARSHIP\_SUPPORT**(supported by a government scholarship or some other kind of scholarship), **SELF\_SUPPORT** (student supports their own studies –e.g. part-time PhD students who have a job or support their study by a loan or using their own means).

6. The database shall keep information about each **GRANT** (research or educational grant), which has a GrantTitle, AccountNo (the grant Id), Source (the funding agency or company name providing the grant), Type (the type of grant -research, educational, gift, contract, other), StartDate, EndDate, StartAmount, and CurrBalance.

7. The database will keep track of the current source of funding for each PhD student. For **GRA** this will be the **GRANT** that is the ***funding***of the student and the monthly pay. Many **GRAs** can be funded by one **GRANT**. Each **GRANT** has one or more **TT** faculty associated with the it, either as a ***pi***(Principal Investigator)or as ***co-pi***.

8. For **GTA** the source of funding will be the current **SECTION** (of a course) they are ***assigned*** for and the monthly pay. For **SCHOLARSHIP\_SUPPORT** student the funding will be the **SCHOLARSHIP** they are getting. We shall keep track of the ScholarshipId, type of scholarship and the funding source (organization or country) for every **SCHOLARSHIP**.

9. Each **PHD\_STUDENT** must pass several **MILESTONE**s to reach their degree. Each **MILESTONE** has a Mid and MName. When a student passes a milestone the date when the student passed is recorded.

10. Each **PHD\_STUDENT** must have a PhD ***supervisor*** who must be a **TT** faculty, plus several additional **TT** faculty on the supervisory ***committee*** of the student.

**Important Notes:**

(1) Individually or Pair Up: This project can be done individually, or in a pair (a two - student group). If students do it in a pair, both students will receive the same grade.

(2) Plagiarism Policy: Copying from other students or groups is not permitted and will result in a grade of zero for the entire project.

(3) EER Notation: The preferred conceptual design is to draw the ER/EER diagram in the ER/EER notation that we covered in the book.

(4) Relational Schema Notation: When you convert/map your conceptual design to relations/tables, include a relational schema diagram using the notation used in the textbook. Specify every primary key and referential integrity constraint.

(5) Diagrams Submission: You can draw your ER/EER diagram by hand (neatly) and scan it to an image file or use a drawing tool to create a computer image file or use any available database conceptual design tool.

(6) Assumptions Documentation: Include a text (word) file explaining briefly your design choices as to how you chose the entity types, attributes, relationships, and any subtypes/subclasses.

(7) Honor Code: Each student is required to submit the honor code. (Honor code given below). *Failing to do so will cost 20 points.*

(8) Rubric: Follow the rubric given for each deliverable to get maximum marks. ‘

(9) Submission Instructions: Zip all files and submit the zipped folder. *If you are doing the project in a pair, only one team member should submit the zip folder.*

(10) Late policy: Any submission after the due date will be penalized by *- 5% out of 100 for each day late.*

**Due Date: February 15th, 2020 by 11:59 pm.**

**Deliverables:**

1. EER Diagram
2. Relational Schema
3. Word Document
4. Honor Code

**Rubrics:** Make sure your submission follows the marking points mentioned below for each deliverable.

1. EER Diagram: + 60 points

* All entity types (including weak entity – if any)
* All attributes
* Primary key
* All relations
* Relational attributes (if any)
* Accurate cardinality ratios
* Accurate total or partial participation presentation
* Generalization and/or specialization presentation
* Follow the naming convention of entities, attributes and relations according to the given description.
* Follow proper representation of EER notations.
* If you are submitting a hand drawn diagram make sure it is neat enough and readable, and scan it with good resolution.

1. Relational Schema: + 30 points

* All tables
* All attributes
* Correct primary and foreign keys
* Correct direction of arrows
* If arrows are overlapping due to space congestion use line bump or use proper spacing.
* Entities, attributes, and relations of relational schema should match with EER diagram.

1. Word Document: +10 points

* State all your assumptions in the word document.
* Briefly explain your design choices for entities, relations, attributes, etc.

1. Honor Code:

* All students are expected to **include and sign the honor code** on the first page of each of their assignments. **Failing to do so will cost you 20 points.**
* Use the honor code below:

**HONOR CODE**

**I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.**

**I promise that I will submit only work that I personally create or that I contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.**