Phase 1: Database and Entity-Relation (ER) Diagram Design

Due: 3:30pm Feb 24, 2025

What to Turn In:
Turn in a hard copy of the ER diagram and the schema of the relational tables.
(Remember to write your names, one submission per team)

During Phase 1, your task is to design a conceptual model of the database and draw an ER diagram that can capture the information needed for this database. You need to model the data stored in the database as entity sets and relationship sets with cardinality and participation constraints, show attributes and identify primary key for each entity set. Then, you should translate your ER diagram into a set of relational tables with primary key and foreign key constraints (if any) indicated. (You do not need to write create table statements.)

Your database needs to store the following information about a university's database.

The database should include details about courses, students, and instructors. Each course can have several sections. Students can be undergraduates, MS students, or PhD students. PhD students can serve as TAs for a course, while MS students and undergraduates (who have scored A- or higher in the course) can be graders. MS and PhD students may have one or more advisors who are instructors. Each section should have exactly one instructor and can have none, one, or multiple TAs and graders. An instructor may teach up to four sections, ranging from none to four. Each section is assigned a specific time slot in a particular classroom, with the restriction that only one section can occupy a classroom at any given time slot. Additionally, no more than four sections can be scheduled concurrently in different classrooms during the same time slot.