Worksheet for Week 3 CSC 343 Winter 2021
University of Toronto Mississauga

January 28/29, 2021

Relational Model

Consider the relations: `Faculty`, uniquely identified by a Social Insurance Number (`sin`), and `Courses`, uniquely identified by a Course Identifier (`cid`). These relations are connected by the relationship `Teaches`; as Faculty must teach Courses.

Given the following scenarios, draw an Entity-Relationship Diagram (ERD) that best describe it. Note: you are to assume that no other constraints hold, unless stated otherwise.

(a) Faculty members teach the same course in several semesters, each offering is recorded.

(b) Faculty members teach the same course in several semesters, however, only the most recent offering is recorded.

(c) In addition to (b), certain courses can now be jointly taught by a team of Faculty members. It is possible that no one Faculty member in a team can teach the course.
Hint: you will need to model this scenario by introducing new relations and possibly relationships.

ERD Construction

You have been hired by S.H.I.E.L.D. as a Database Architect. Your task is to create a database which helps them in tracking known Superheroes and Villains. Create an ER Diagram (ERD) which satisfies the following requirements:

- Extraordinary Citizens (Superheroes and Villains) have a unique identifier (`cid`), a name, and an age, a place of birth and weight.
- Superheroes are Extraordinary Citizens and we know how many people they have saved as well as their last known city.
- About Villains are Extraordinary Citizens: we know how many people they've killed as well as their imprisonment status.
- Each Superhero and Villain can have multiple aliases.
- Each Superhero and Villain can also have multiple archenemies.
- Each Superhero and Villain has a power grid, which includes their:
  - Intelligence
  - Strength
  - Speed
  - Durability
  - Energy Projection
  - Fighting Skills

  all of which are rated on a scale from 0-10.

Be sure to use the notation document provided by your instructor!