CPSC 4620 Project:
Part 1 – Database Design via ERD

Due: <u>See Canvas</u>

100 pts

"Zen Fest" (ZF) needs a database. ZF is a national chain of yoga schools with thousands of students and hundreds of leaders nationwide. The database must keep track of all the sessions that are offered, who is assigned to lead each session, and which students attend which session. Also, it is important to track the progress of each student as they advance, as there are many levels to the mastery of yoga.

Create a complete Crow's Foot ERD for these requirements:

- Students are given a student identification number when they join the school. The number is stored along with their name, date of birth, and the date they joined the school.
- All leaders are also students, but clearly not all students are leaders. In addition to the normal student information, for all leaders, the date that they start working as a leader must be recorded along with their leader status (paid or unpaid).
- An leader may be assigned to teach any number of classes, but each class has one and only one assigned leader. Some leaders, especially unpaid leaders, may not be assigned to any class.
- A session is offered for a specific level at a specific time, day of the week, and location. For example, one session might be taught on Mondays at 5:00 p.m. in Room 1 is an intermediate-level session. Another session taught on Mondays at 6:00 p.m. in Room 1 is a beginner-level session. A third session taught on Tuesdays at 5:00 p.m. in Room 2 might be an advanced-level session.
- Students may attend any session of the appropriate level during each week, so there is no expectation that any particular student will attend any particular session. Therefore, the attendance of students at each individual session must be tracked.
- A student will attend many different sessions, and each session is normally attended by many students. Some sessions may not be attended by any students. New students will not have attended any sessions yet.
- At any given class, leaders other than the assigned leader may show up to help. Therefore, a given class may have a head leader and many assistant leaders, but it will always have at least the one head leader who is assigned to that class. For each class, the date of the class and the leaders' roles (head leader or assistant leader) need to be recorded as well as the cost of the class (as different leaders will have different costs). For example, Mr. Jones is assigned to teach the Monday, 5:00 p.m., intermediate class in Room 1. During a particular meeting of that class, Mr. Jones was the head leader and Ms. Chen served as an assistant leader. For another class those roles may be reversed.
- Each student holds a yoga level. The level name, level description, and level requirements are stored. Most levels have numerous level requirements, but each requirement is associated with only one particular level. All the levels except beginner at least one requirement.

- A given level will be held by many students. While it is customary to think of a student as having a single level, it is necessary to track each student's progress through the levels. Therefore, every level that a student attains is kept in the system. New students joining the school are automatically given the beginner level. The date that a student is awarded each level must be kept in the system. All levels have at least one student who has achieved that level at some time.

Notes:
Nowhere in this description does it mention a unique ID or primary key. This is because your customer is unfamiliar with databases and does not know that primary keys are important. Be sure to add an appropriate primary to the entities when necessary. Also, make sure you have all the bridge entities you need to properly represent the M:M relationships (this is a conceptual design of the database after all).

Given your client's lack of knowledge about databases, there may be other things you need to interpret for them as well. Feel free to ask follow-up questions if something is unclear.

Help:
Use MS Teams to ask questions. **Do not wait until the last day to ask questions or get started!**

Groups:
You may work as an individual or work with **one partner** for this project. **Please note that once you have selected a partner, you are only allowed to work with that partner for the rest of the semester on this project.** If you work with someone and decide you do not want to work with them on a later stage, you each have to complete the project on your own. So, pick your partner carefully. If you work with a partner, **actually work with them**. Divide and conquer will not work well for this assignment. Discuss and work on the diagram together. You could also try crafting an ERD individually, and then meet to compare and combine the designs, but either way **you will still need to work together on the assignment.**

You may only work with one partner. Any larger groups would be violating the academic integrity rules for this session. Any groups that work together would also violate the academic integrity rules. For this assignment, there is not much that can be discussed without violating academic integrity, so it is best not to discuss it with anyone other than your partner. If working with a partner, make sure select your partner when submitting to Gradescope and both partner's names must be on the document.

Submission:
You will submit an electronic copy of your ERD as a PDF file via Gradescope by the due date (the assignment is linked to Canvas). When submitting to Gradescope you must indicate who your partner is (if you have one). Only 1 partner needs to make the submission. **No late assignments will be accepted. Make sure you associate all the rubric items with your document in Gradescope.**

You must use a diagramming tool to create your diagrams (such as draw.io, LucidChart, or Visio). Do not submit the source file, export your document to PDF format and submit the ".pdf" file. Hand drawn diagrams, even if scanned in, will not be accepted. If you find another diagramming tool, make sure you follow the notation used in this course. There are alternative notation styles out there that other tools may use for ER diagrams, but **for this course we will only use the Crow's foot notation and style shown in Chapters 4 & 5 of the course textbook**.