CECS 323 Term Project 3

# **Introduction**

Please consult the general requirements for Term projects [here](http://web.csulb.edu/~mopkins/cecs323/TermProjectConsiderations.docx). This project will run in MySQL.

# **Business Rules**

You are running a coaching clinic.

1. For each player, we track their last name, their first name, their date of birth, and the date that they joined the clinic. We do not assume that the combination of first and last name is necessarily unique.
2. Several of our players have multiple talents, so they receive coaching in more than one sport. Each sport can have any number of players receiving coaching in that sport.
3. For each coach and assistant coach, we keep track of their first and last name, but we do not assume that the combination of first and last name is necessarily unique.
4. Each player has exactly one coach assigned them for each sport that we coach them in.
5. Both the coaches and the assistant coaches have one or more sports that they coach in, and a given sport could have several coaches who coach in that sport.
6. A given player will only be coached by a given coach for a given sport if that coach coaches in that sport.
7. There are assistant coaches as well, but they don’t have players assigned to them.
8. Each **assistant** coach has one and only one coach as a mentor.
9. Both the coaches and the assistant coaches can have any number of skills, and a given skill could be attributed to any number of coaches and assistant coaches. These skills might be “endurance training”, “passing”, “team leadership” or the like.
   1. Both coaches and assistant coaches share from the same set of skills.
   2. The **head** coaches have a **single** skill that is their “headline” skill. The headline skill is the one skill that the given coach is best at. We pride ourselves on those headline skills and advertise them broadly.

## **Denormalization**

Remember that denormalization is a conscious decision to step away from a fully normalized model during the implementation phase. Usually the design team makes this decision to improve the application’s performance or to make navigation through the data easier. There are several types of denormalization that you can do for this assignment:

* Categorization roll up
  + All the associations and attributes of all the categories move into the generic parent.
  + You need to write triggers to make sure that any row of that generic parent does not have some associations/attributes from more than one of the original categories.
  + And you need triggers to ensure that if a given instance of the generic parent falls into a category, that **all** the appropriate associations/attributes have values.
* Migrating non-key attributes from one or more “ancestor classes” into a “descendant class”.
  + Make sure that no one can change those migrated attributes/associations in the child.
  + Make sure that changes to those migrated attributes/associations in the parent are propagated as necessary so that they are in sync.
* Multi-valued attribute
  + Maintain both the junction table **as well as** the multi-valued attribute.
  + Only allow changes to the multi-valued attribute through inserts/deletes to the **junction table**.

### **Trigger Code for Denormalization**

Denormalization generally introduces redundancy, or a requirement for constraints that we can no longer capture directly in the database structure. Write the necessary trigger code to either make sure that the redundant data copies never get out of sync with each other, or that your rolled-up categorizations do not violate the semantics of the categorization.

## **Triggers**

Write triggers to ensure the following:

1. No player can receive coaching in more than three sports.
2. If we remove a skill from a coach, that coach must still have at least two skills.
3. Players must be at least ten years of age before they can join our coaching clinic.

# **What to Turn In**

## All the deliverables required for term projects in general

* Code for the Triggers
* Queries and sample data for the following

1. List all of the headline skills that are shared by two or more coaches, and list the names of the coaches who have that skill. One row of output for each skill. List the headline skills in alphabetical order.
2. List each assistant coach’s first name, last name, their mentor’s first name, last name, and any skills that the two coaches have in common. One row of output for each assistant coach. List the assistant coaches sorted by last name, then their first name.
3. For each player, list their first name and last name, each sport that we coach them in, and the coach’s first name and last name. One row of output for each player. List them by their last name, then their first name.