

Domain Modeling Exercises For a Gymnastics Scoring System

Problem Statement¹:

We are about to model a gymnastics scoring system. Our mission is to automate the definition, registration, scoring and record keeping of a gymnastics season.

Here is a quick description of a gymnastics league and one of their contests: A league is a group of clubs that compete against each other. Each team recruits members to participate in the contests.

A typical meet consists of several contests held in the course of one day. For example, there may be a woman's all-around, a woman's individual, a men's all-around, and so on. There may also be junior and senior competitions. When a team enters a meet, it enters all of the competitions. For each contest, each team enters the same number of members, who must participate in all parts of the competition.

Each competition is a series of events run on different equipment. For example, the women's competition involve balance beam, vault high bar and floor exercise. All pieces of equipment are in operation at the same time; each team's competing gymnasts perform on one piece of equipment and then rotate to the next.

Each event has a judging panel assigned to it. These people are qualified scorers for this event. Each judge rates each gymnast on the events and reports the score to a scorekeeper. The scorekeeper throws out the high and low scores and averages the rest. This is the gymnast's score for the event. The team score is the sum of all gymnasts scores.

Competition scores are the sum of all the scores for each of the events. Meet scores are the sum of the competition scores, and so on.

In addition to running the individual meets, the league prepares the schedule of meets for the season, ensures that qualified judges are assigned, registers teams and gymnasts, and publishes seasonal standings.

Summary of System Functions

- Register a team in a meet
- Register a team in a competition
- Change a gymnast's team membership
- Assign a judge to an event
- Score trials, events and competitions
- Compute seasonal standings
- Mail competition schedules to gymnasts and judges

Sample Outputs:

	Meet:	Town Invitational		
	Competition:	Women's Senior Team		
	Event Scores			
Club	Beam	Vault	Bar	Floor
Flippers	41.5	40.3	44.6	43.7
Acrobats	42.2	38.5	41.0	40.6
Tumblers	37.3	39.8	42.3	41.3
Jugglers	36.8	41.0	37.4	39.6

Team Exercises

- 1) Identify the conceptual classes (abstractions) in the problem domain – this week.
- 2) Assign attributes and associations – next week.

¹ White, Iseult, "Using the Booch Method: A Rational Approach", Benjamin Cummings Publishing Company, 1994