Sample ERD Models

Model 1 - ERD

Construct an Entity Relationship Diagram, using Chen Notation, for the following case. Be sure to note weak entities and minimum and maximum cardinalities for each relation.

We wish to model a small university in order to build a system that will store important information about the school.

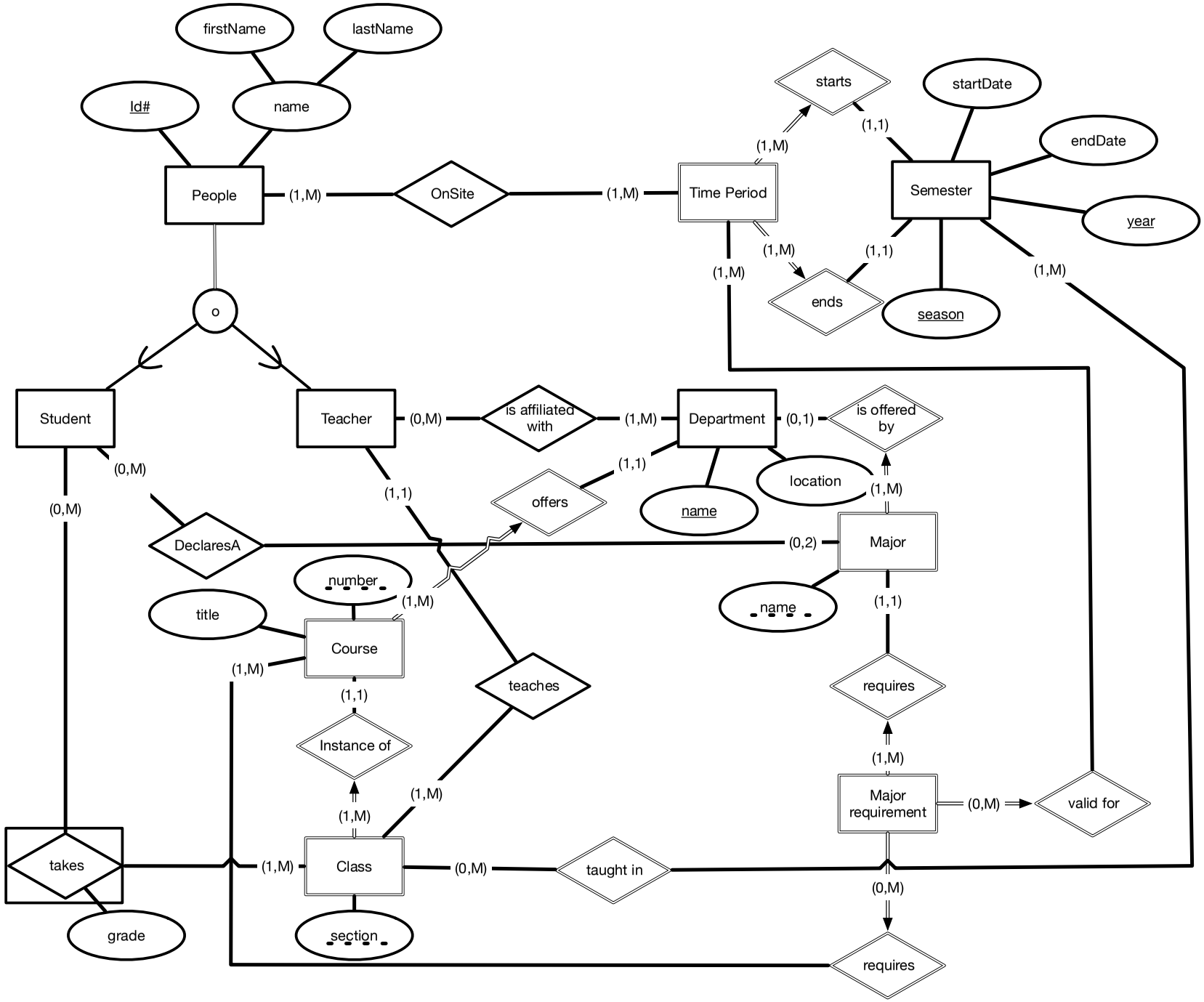
We sit down with some administrators and department heads, and at length we talk with them and are able to get the following picture of the university.

There are two types of people that we care about: students and teachers. People are identified by an ID number and have a first and a last name. In general, people are at the university for a certain time period. Actually, people can come to the university and leave and come back again, and so on, many times. Students tend to come and go more than teachers, but, in general, everyone we're concerned with is there for some period of time (possibly more than 1 period of time). As far as the school cares, every such time period is bookended by two semesters. A semester is identified by a year and a season, but also has a start date and an end date.

Each semester, each teacher teaches one or more classes. Courses at this university don't have unique IDs. Instead, they are uniquely identified by the department, and the course number. For example, a course might be Computer Science 533. A class is a course offering. Classes are identified by the course, a section identifier, and the semester. A class offering of this course could be Computer Science 533, Section 1, Spring, 2018. Each course also has a title. Each class is taught by exactly one teacher. Not every class is taught every semester, but each has been taught at least once.

Students take at least one class each semester and get a grade in each class.

Teachers are affiliated with departments. Departments have a name and a location, which is simply a text description. Students, on the other hand, are affiliated with departments only indirectly. Each student declares a major, which in turn is offered by a department. Students can have a double major as well. Note that sometimes, it is possible for two departments to offer the same flavor of major. For example, the Department of Computer Science offers a "computer engineering" major as does the Electrical Engineering deparment. However, despite having the same name, the two majors are fundamentally different. The main reason they are different is that each major has a set of required courses. The set of required courses can change over time. In other words, a course is required to complete a major only if you were admitted as a student during the time the course was listed as required. For a given major, this set of required classes evolves with time, and we want to be able to track this evolution to be able to tell students exactly what they need to take in order to graduate.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