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COP 4710 Database Systems

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Checkpoint 8.1:

1) In this diagram, BUILDING is used as a category to group other entities; An office requires a building, and a class does as well. The instructor therefore uses an office, and a course uses a classroom. Many students may live in (Have a room number associated with) a building.

2) Because the room number in which they live in has very little to do with the courses students may be enrolled in.

3) When an attribute is pertinent or important to both entities it must be put in the relationship that connects them so it therefore can be used knowing it is information that links them. If the attribute is not needed by one of the two related entities then it has to be put on either entity.

4) Since not all buildings have to house offices, it states that one building but not all buildings houses an office for instructors. Same applies to classes and students. However it does say that there are N number of buildings for housing M number of students.

5) All students must be enrolled in a course, however not all courses must have students enrolled.

6) An instructor only has to teach at least one course, but all courses must have one instructor.

7) All instructors have to teach at least one course.

8) All courses must be taught by only one instructor.

9) A course can only be taught by one instructor.

Checkpoint 8.2:

1) A recursive relationship is that in which entity relations may come back to the initial entity.

2) If the relation gives indication of a hierarchy of the same type of entity, such as personnel and supervisors, a personnel may be another’s supervisor.

Checkpoint 8.3:

1) Full participation requires a lower bound higher than zero.

2) That it must have a full participation of at least one and at most one as well.

3) A (0, 1) ratio implies partial participation.

Checkpoint 8.4:

1) In this recursive relation one employee may supervise many other employees, as well as every employee has only one supervisor. For the example I took sample names from the text.

Employee:

|  |  |
| --- | --- |
| Employee Name: | Supervisor Name: |
| Sudip Bagui | null |
| Roop Mukerjee | Sudip Bagui |
| Korak Gupta | Tim Vaney |
| Tim Vaney | Sudip Bagui |

2) In such case, every employee would have N number of supervisors, and every supervisor would have M number of employees to supervise. If it were true, I would need a supervisor entity that would then supervise every employee.

Chapter 8:

8.1) STUDENT:COURSE::M:N

Every Student enrolls in M courses. Every course harbors N amount of students.

This relation shows full participation from both the STUDENT entity and the COURSE entity.

COURSE:INSTRUCTOR::M:1

Every Course has one instructor, however one instructor may teach up to M courses.

This relation shows full participation from the COURSE entity and partial participation from the INSTRUCTOR entity.

STUDENT:BUILDING::M:N

Every student has the possibility to live in N buildings, and every building may have M number of students living in it.

This relation shows full participation from both the STUDENT entity and the BUILDING entity.

COURSE:BUILDING::M:1

Every course can only be on one building, however one building may harbor many courses.

This relation shows full participation from the COURSE entity and partial participation from the BUILDING entity.

INSTRUCTOR:BUILDING::M:1

Every instructor has up to one office, however a building may have M number of offices.

This relation shows full participation from the INSTRUCTOR entity and partial participation from the BUILDING entity.

The only relationship that did not make much sense in this diagram was the STUDENT:BUILDING relationship whose cardinality was M:N. The reason for my disagreement was that a person or in this case a student cannot decide to live in more than one place at a time.