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CPSC 5021 02

Homework 2

**Chapter 2 Problems:**

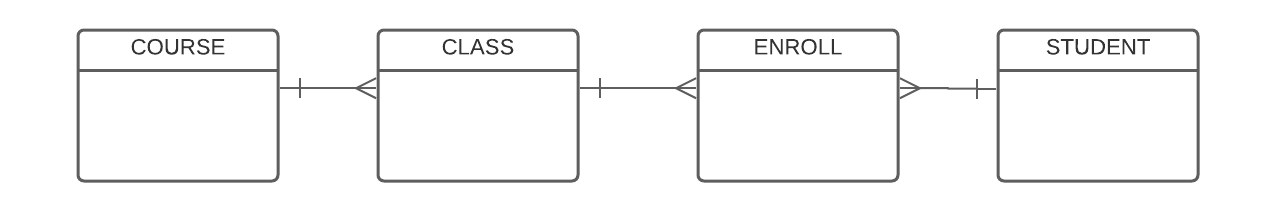
1. The importance of data models lies in their use as a communication tool. They can be used to convey the interaction and relationships of entities within a company to managers, employees, other database designers, or end users. For example, a database that shows a one to many relationships between invoices and vendors conveys the business rule that each vendor can issue many invoices, but each invoice can be for one specific vendor.

3. Business rules describe the relationships and constraints on the entities in a database. They be used to model these relationships. For example, there may be a business rule that a university’s class may enroll a maximum of thirty students. This rule could be used place a cardinality on the many-to-many relationship between students and classes.

5. The entity relationship model helped to produce a more structured relational DB environment by providing designers with a graphical representation of the databases they were creating. Having these models to describe the database’s entities, attributes, and relations at a conceptual level helped to provide a clearer picture of how the entire database worked. For example, a relationship between two entities may be implemented by having foreign keys in the tables. To understand this relationship, an end-user or designer would need to look at the two tables, see the foreign keys, and try to interpret what this relationship meant. An ERM can display the entities as boxes, create lines between them with appropriate line ends, and provide some text describing the relationship. This lets the viewer understand the relationship at a single glance.

11. A relationship is a description of how two entities may be related to each other in a relational database. The three types of relationships are one-to-many, many-to-many, and one-to-one. An example of a one-to-many relationship is an invoice and a vendor; an invoice will list a single vendor, but each vendor could issue many invoices. A many-to-many relationship is a student to class relationship; each student can take many classes, and each class can have many students. A one-to-one relationship is a front door and a house; each house has one front door, and each front door is for one house.

**Problems:**

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