MODELING THE RULES OF THE ORGANIZATION

"In fact, documenting rules and policies of an organization that govern data is exactly what data modeling is all about"
"Business rules and policies govern creating, updating, and removing data in an information processing and storage system; thus, they must be described along with the data to which they are related."
- For example, the policy "every student in the university must have a faculty adviser" forces data (in a database) about each student to be associated with data about some student adviser.

Your job as a database analyst is to:
- Identify and understand those rules that govern data.
- Represent those rules so that they can be unambiguously understood by information systems developers and users.
- Implement those rules in database technology.

Overview of Business Rules
A business rule is "a statement that defines or constrains some aspect of the business.
- It is intended to assert business structure or to control or influence the behavior of the business ... rules prevent, cause, or suggest things to happen"
- Examples:
  - "A student may register for a section of a course only if he or she has successfully completed the prerequisites for that course."
  - "A preferred customer qualifies for a 10 percent discount, unless he has an over due account balance."
- we are concerned with business rules that impact only an organization's databases
  - For example, the rule "Friday is business casual dress day" may be an important policy statement, but it has no immediate impact on databases.
  - the rule "A student may register for a section of a course only if he or she has successfully completed the prerequisites for that course" <u>is within</u> our scope because it constrains the transactions that may be processed against the database
- **What makes good business rules?**

TABLE 2-1 Characteristics of a Good Business Rule	
Characteristic	Explanation
Declarative	A business rule is a statement of policy, not how policy is enforced or conducted; the rule does not describe a process or implementation but rather describes what a process validates.
Precise	With the related organization, the rule must have only one interpretation among all interested people, and its meaning must be clear.
Atomic	A business rule marks one statement, not several; no part of the rule can stand on its own as a rule (i.e., the rule is indivisible, yet sufficient).
Consistent	A business rule must be internally consistent (i.e., not containing conflicting statements) and must be consistent with (and not contradict) other rules.
Expressible	A business rule must be able to be stated in natural language, but it will be stated in a structured natural language so that there is no misinterpretation.
Distinct	Business rules are not redundant, but a business rule may refer to other rules (especially to definitions).
Business-oriented	A business rule is stated in terms businesspeople can understand, and because it is a statement of business policy, only businesspeople can modify or invalidate a rule; thus, a business rule is owned by the business.

- Gathering business rules comes from, "asking questions about the who, what, when, where, why, and how of the organization", "interview notes from individual and group infor mation systems requirements collection sessions, organizational documents (e.g., personnel manuals, policies, contracts, marketing brochures, and technical instruc tions), and other sources".
  - You gather them by looking at resources related to the organization and asking questions
- Data names and Definitions
  - <u>Data names</u>:
    - Should be related to the business (not technical), meaningful, unique, ...

- ○ <u>Data Definitions</u>: is considered a type of business rule; a definition is an explanation of a term or a fact
  - ▪ A <u>term</u> is a word or phrase that has a specific meaning for the business.
    - □ Ex. Course, section, rental car, flight, customer
    - □ Often used to form data names
  - ▪ A <u>fact</u> is an association between two or more terms.
    - □ ""A course is a module of instruction in a particular subject area."
    - □ "A customer may request a model of car from a rental branch on a particular date."
      - ◆ We do not need to specify all the branches of facts in one fact like specifying that a customer cannot requests more than 1 car model at a time.
  - ▪ Data definitions can be hard to define so be careful and precise about how you make them taking into account various different angles about the definition.