Business Rules

**Types of business rules**

* Structural Assertion
  + A defined concept or fact of an aspect of the structure of an enterprise.
  + **Terms:** A word of phrase with specific meaning for an enterprise
    - Course, section, rental car, passenger.
  + **Facts:** an association between two or more terms. A simple declarative statement.
  + **Example:** A customer may request a model of car from a rental branch on a particular date.
* Action Assertion
  + A statement of **constraint** or condition that limits the action of the enterprise.
  + **Example:** A car **must** have a registration number
* Derivation
  + A statement of knowledge that is derived from other knowledge in the business
  + **Derived Fact:** this is created by inference or mathematical calculations from terms, facts, etc.
  + **Example:** The total cost of the rental is calculated from the sum of its insurance amount, rental amount and late charge.

**Business Rules Overview**

* A rule that defines or constrains one aspect of your business that asserts business structure or influences the behavior of the business.
* **Constraints:** Conditions that must hold true in specific situations
* Defines the conditions under which a process is carried out.
* Defines what **MUST** be the case. It is **NOT** a description of the process.
* List of statements of what you may or may not do.
* Helps make decisions.

**Business Rule Functions**

* Often Focus on access control issues (Teachers are allowed to modify student marks, but only their students.)
* May pertain to business calculations. (A teacher must convert a mark to a letter grade)
* Focus on policies of your organization.

**Power of Business Rules**

* They have the ability to make direct business-level statements that become part of an operational system.
* They are multiple simple statements that are grouped together to have a great impact.

**Analyst’s Job**

* To specify a series of clear logic statements for a business.
* Making the business logic understandable
* Don’t use technical terms. Keep it simple.

**Business Rule Rules…**

Business Rules must be:

* Atomic: Cannot be broken down any further without losing information
* Precise: Have only one obvious interpretation
* Declarative: statements of policy
* Compact: Single short sentence
* Consistent: Together provide a coherent description
* Distinct: Not redundant
* Compatible: Use same terms as the rest of the business model.

**Gathering Business Rules**

* Organizational documents such as manuals, policies, contracts, marketing brochures.
* Interview notes from individual and group information systems.
* Description of business functions, events, policies, units, etc.
* Ask questions such as
  + Is this always true?
  + Are there circumstances when an alternative occurs?
  + Is there a need to keep history of those?

**Expressing Rules**

* <Subject> must <constraint>
* The subject and constraint can be complex
* Start to form the entities that are used to create your classes

**Potential Problems**

* Using facts
  + Avoid vague terms like “there”. There may be no more than …..
  + Avoid obscure facts or terms. Must identify party involved
  + Question the terms used. Make sure they match the business.
  + Use a fact model. Rules can relate to other parts of the business model.
* Simple constraints
  + Avoid starting with “if”
  + Avoid complex rules
  + Avoid “and” and “or”.
  + Avoid padding. (adding extra words that mean nothing)
* Quantification and qualifications
  + Avoid plural forms.
  + Use “each” and “every”
* States and events
  + Avoid events as subjects
    - By close of business, all withdrawals must be notified to the head office
  + Avoid ambiguous states
    - The outstanding balance on a secondary account that is being closed must be transferred to the primary account before it is terminated.
  + Avoid ambiguous time frames
    - A new account must be approved by at least two managers in the final quarter
  + Avoid “when”.
* Actors
  + Question actors. Are they necessary?
  + Avoid actors as subjects because actors change and roles that do certain jobs change as well.
    - A customer representative may issue a replacement charge card only if the old card expired within the last 30 days.
* Dangerous verbs
  + Avoid command verbs
  + Avoid action verbs that create unclear definitions
  + Look carefully at CRUD words.
    - Words that imply implementations
    - update the account balance… the account balance is…
* Computation
  + Avoid embedded computations
    - Make them 2 separate rules.
  + Make computations the subject of the rule.
* Structure and consistency
  + Check for overlapping, duplications, inverted rules
  + Check for contradictory rules as well.