

# Business Rules

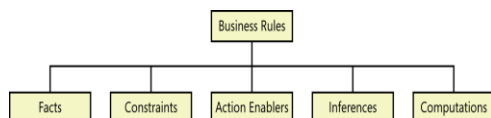
LECTURE # 7  
Chapter 9 – Karl Wiegiers  
Chapter 6 - Reference

## Business Rules

- **From the business perspective:** “A business rule is guidance that there is an obligation concerning conduct, action, practice, or procedure within a particular activity or sphere.”
- **From the information system perspective:** “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.”

## Business Rules Taxonomy

- Broadly five types of business rules will fit into most situations.
- A sixth category is terms “**defined words, phrases and abbreviations that are important to the business**”



## Facts

- *Facts* are simply statements that are true about the business at a specified point in time.
- A fact describes associations or relationships between important business terms.
- **Examples:**
  - Every chemical container has a unique bar code identifier.
  - Every order has a shipping charge.
  - Sales tax is not computed on shipping charges.

## Constraints

- A *constraint* is a statement that restricts the actions that the system or its users are allowed to perform.
- **Examples:**
  - A library patron may have a maximum of 10 items on hold at any time. (Organizational policy)
  - Airline pilots must receive at least 8 continuous hours of rest in every 24-hour period.
  - Rules and roles constraints

Roles and Permissions Matrix		Employee	Administrator	Circulation Staff	Library Aide	Non-Employee	Volunteer	Patron
<b>System Operations</b>								
Log on to library system		X	X	X				
Set up new staff members		X						
Print hold pick list		X	X	X				
<b>Patron Records</b>								
View a patron record		X	X					
Edit a patron record		X	X					
View your own patron record		X	X	X			X	X
Issue a library card		X	X					
Accept a fine payment		X	X					
<b>Item Operations</b>								
Search the library catalog		X	X	X			X	X
Check out an item		X	X					
Check in an item		X	X	X			X	
Route an item to another branch		X	X	X			X	
Put an item on hold		X	X	X			X	X

## Action Enablers

- A rule that triggers some activity if specific conditions are true is an *action enabler*.
- A statement in the form “If <some condition is true or some event takes place>, then <something happens>” is a clue that someone might be describing an action enabler.
- **Examples:**
  - If the expiration date for a chemical container has been reached, then notify the person who currently possesses that container.
  - If the customer ordered a book by an author who has written multiple books, then offer the author’s other books to the customer before completing the order.

## Inferences

- Sometimes called *inferred knowledge* or a *derived fact*, an *inference* creates a new fact from other facts.
- **Examples:**
  - If the vendor cannot ship an ordered item within five days of receiving the order, then the item is considered back-ordered.
  - Chemicals with an LD<sup>50</sup> toxicity lower than 5 mg/kg in mice are considered hazardous.

## Computations

- Computations transform existing data into new data by using specific mathematical formulas or algorithms.
- **Examples:**
  - The total price for an order is the sum of the price of the items ordered, less any volume discounts, plus state and county sales taxes for the location to which the order is being shipped, plus the shipping charge, plus an optional insurance charge.
  - The unit price is reduced by 10 percent for orders of 6 to 10 units, by 20 percent for orders of 11 to 20 units, and by 30 percent for orders of more than 20 units.

Using a table to represent computational business rules

ID	Number of units purchased	Percent discount
DISC-1	1 through 5	0
DISC-2	6 through 10	10
DISC-3	11 through 20	20
DISC-4	More than 20	30

## Atomic Business Rules

- Composite business rules are hard to understand and maintain.
- To facilitate reuse, modification and combining rules in different ways, business rules should be written at atomic level.
- **Example:**

ID	Rule
Video.Media.Types	DVD discs and Blu-ray Discs are video items.
Video.Checkout.Duration	Video items may be checked out for one week at a time.
Renewal.Video.Times	Video items may be renewed up to two times.
Renewal.Video.Duration	Renewing a checked-out video item extends the due date by three days.
Renewal.HeldItem	A patron may not renew an item that another patron has on hold.

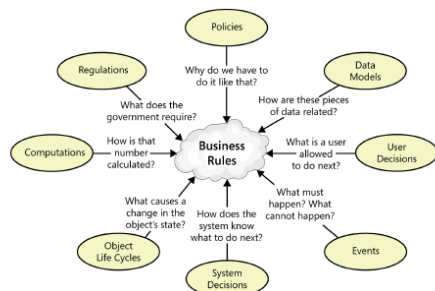
## Documenting business rules

- Various tools and techniques can be used including business rule catalog, decision trees, decision tables, CRUD Matrix (depending on the complexity of the rules) and these rules can also be referred in use cases.
- **Example:**

Some sample business rules catalog entries

ID	Rule definition	Type of rule	Static or dynamic	Source
ORDER-5	If the customer ordered a book by an author who has written multiple books, then offer the author's other books to the customer before completing the order.	Action enabler	Static	Marketing policy XX
ACCESS-8	All website images must include alternative text to be used by electronic reading devices to meet accessibility requirements for visually impaired users.	Constraint	Static	ADA Standards for Accessible Design
DISCOUNT-13	A discount is calculated based on the size of the current order, as defined in Table BR-060.	Computation	Dynamic	Corporate pricing policy XX

## Discovering Business rules



## END OF LECTURE # 7

-COMING UP!!!!!!

-Midterm Exam II

-Stakeholder Analysis (contd)

-Requirement Analysis & Specification