CH1

1) What are Integrated Enterprise Information Systems?

Enterprise

A business, an industrious effort, especially one directed toward making money

Information System

A set of interconnected channels for communicating knowledge of specific events or situations

Integrated

Joined together, united,
made into a whole
by having brought
all parts together

2) What does it mean to have stovepiped systems?

In a stovepiped system, data and processes within each system or software application are relatively isolated from each other and data is typically stored separately in each. Changes made in one system to data that is also stored in other systems do not get made in the others. Redundancy leads to inconsistency and to poor decision support

3) What does it mean to have a stovepiped enterprise?

In a stovepiped enterprise, each functional area is relatively isolated from the other functional areas and decisions may be made without a realization of how they may affect the other functional areas. The isolation of functional areas need not be physical; two departments that are physically located on the same floor of the same building may not fully understand each other's operations and objectives, nor how they fit together within the broad scope of the enterprise.

4) What is knowledge needed for integrated ES ?

Knowledge to create integrated ES

Representation in general

Enterprise operations, general and specific

Conceptual modeling tools

Knowledge to effectively use integrated ES (i.e., to be a power user)

All of the above PLUS

Information retrieval (querying) tools

Knowledge to effectively audit integrated ES

All of the above PLUS

Audit objectives, techniques, tools

Creativity and critical thinking! (for all of the above)

CH2

5) What is a model? Why do we build models of systems?

A model is a simplification of something in reality Created for a specific purpose Hides details that are not needed for that purpose

Examples: model car, architect's models – paper-based and 3-dimensional

Why do we build models of enterprise systems?

We build models so that we can better understand the system we are developing. Most enterprise systems are too large and complex for the average person to comprehend in entirety.

6) When creating or evaluating models, how do we determine what makes "good" models?

This is important because if a model provides an intermediate step toward a solution or developed tool, choices in modeling partially determine the solution or tool's effectiveness. Good models resemble their underlying reality as completely as possible Good models can be expressed at different levels of precision They can be broken down into smaller pieces for closer examination of some features and aggregated for holistic views

7) What is the difference between an object pattern and a script pattern?

Whereas object patterns focus on objects and the relationships between them, scripts patterns are sequences of events that typically occur in combination with each other.

8) What is an "ontology"?

An attempt to define what things exist in the world in general; a branch of metaphysics dealing with the nature of being

9) What is an "enterprise ontology"?

An attempt to define what kinds of things in enterprises need to be represented

10) Why do we need ontologies?

Ontologies improve communication, sharing, and reuse of information For current information systems and e-business, these three concepts are very important

11) What are the difference between Value System Level and Value Chain Level ?

Value System Level (object-based pattern)

Examines enterprise in context of its external business partners – The combination of value systems of business partners forms a supply chain

Value Chain Level (script-based pattern

Connects business processes of an enterprise via the resource flows between the processes..

12) What are the four levels of the REA ontology and what type of pattern (object or script) exists at each level?

Value system level – primarily an object pattern

Value chain level – primarily a script pattern

Business process level – primarily an object pattern

Task level – no pattern yet identified, would be primarily a script pattern

13) What is a business process*?*

Business processes are the activities associated with providing goods and services to customers. Sample business processes include acquiring and paying for various resources ,converting resources acquired into goods and services for customers, and delivering goods and services to customers and collecting payment

CH3

14) What are the Primary value activities?

Inbound logistics - activities associated with receiving, storing, and disseminating inputs to the products or services

Operations- activities associated with transforming inputs into the final products or services

Outbound logistics - activities associated with collecting, storing, and physically distributing the products or services

Marketing and sales - activities associated with providing a means by which customers can buy produce and the means for inducing them to buy

Service - activities associated with providing service to enhance or maintain the value of the products or services

15) What are the Support value activities?

Procurement - the function of purchasing inputs to firms value chain

Technology Development - the know-how, procedures, or technology embedded in processes that are intended to improve the product, services, and/or process

Human Resource Management - activities involved in recruiting, hiring, training, developing, and compensating all types of personnel

Firm Infrastructure - activities that support the entire value chain

16) Why is it Important to study Value System and Value Chain Levels in REA?

Helps keep perspective (gives the ability to “see the forest” without getting mired in the detail of the trees)

Provides the structure to guide lower levels of analysis

Requires consideration of the enterprise’s mission and strategy, which should ensure that business processes and activities are constructed in a manner consistent with the mission and strategy

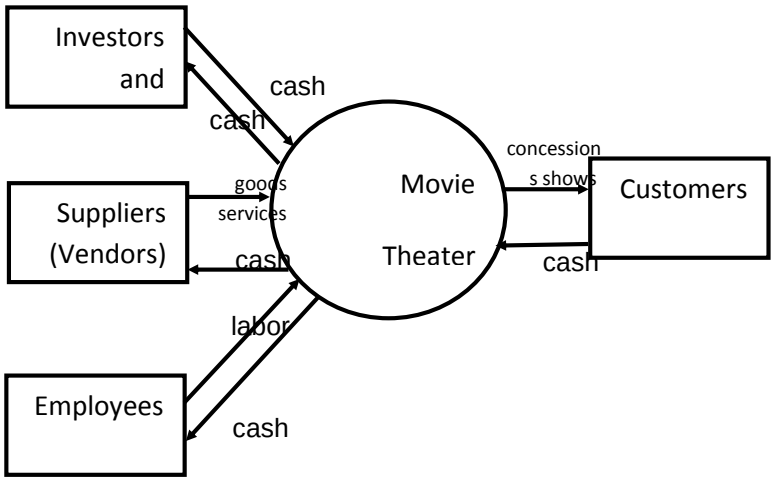
17) Visit a local movie theater. Observe what you can about the economic activities of the theater (e.g. ticket sales, concession sales, movie showing). Consider what must also happen that you are unable to observe (e.g. theater's purchase of concessions and ingredients for concessions from suppliers; acquisition of movies to show).

Required:

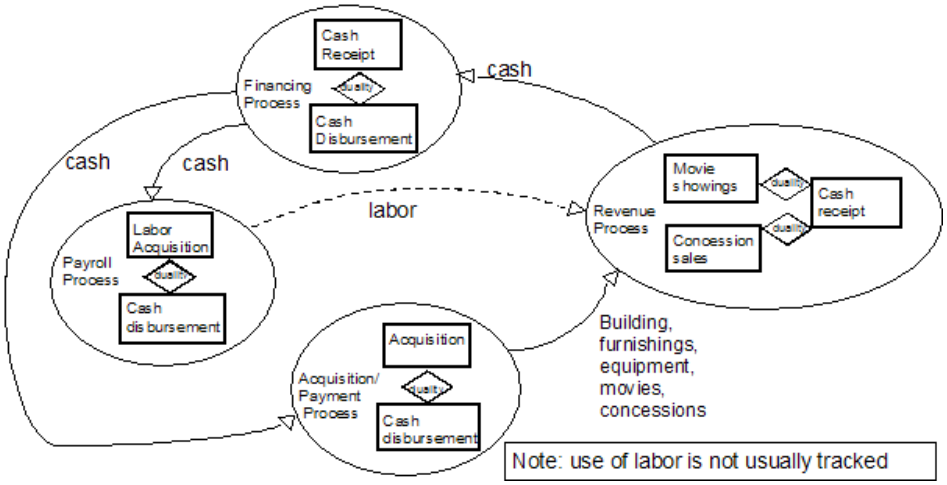
a. Create a value system level model for the movie theater

b. Create a value chain level diagram for the movie theater

a. Suggested movie theater value system level model



b. Suggested movie theater value chain level model



CH4

18) Define the following ?

Entities

Sets of real world objects – things that have a separate existence, either physical or conceptual Note SETS

Relationships

Sets of associations between entities Again, note SETS Degrees of relationships

Attributes

Characteristics or elementary properties of entities and/or relationships

Primary key attribute uniquely and universally identifies each instance of an entity or relationship set

Derivable attributes

Static – will not change if new data is entered into system

Volatile – will change if new data is entered into system

19) How are maximum cardinalities used when designing enterprise information systems?

Maximum cardinalities are used to communicate the maximum number of times an entity can participate in a relationship

20) How are minimum cardinalities used when designing enterprise information systems?

Minimum cardinalities are used to represent and model business rules; they indicate whether an entity's participation in a relationship is optional or mandatory

21) Give some examples of non-key attributes that would describe the entity customer?

Non-key attributes of the customer entity could include customer name, customer address, current credit line, customer phone number, and many others

22)What are the difference between Typification and Generalization ?

Typification

Specification of a relationship between a set of objects and a category to which the objects could be assigned on the basis of shared characteristics

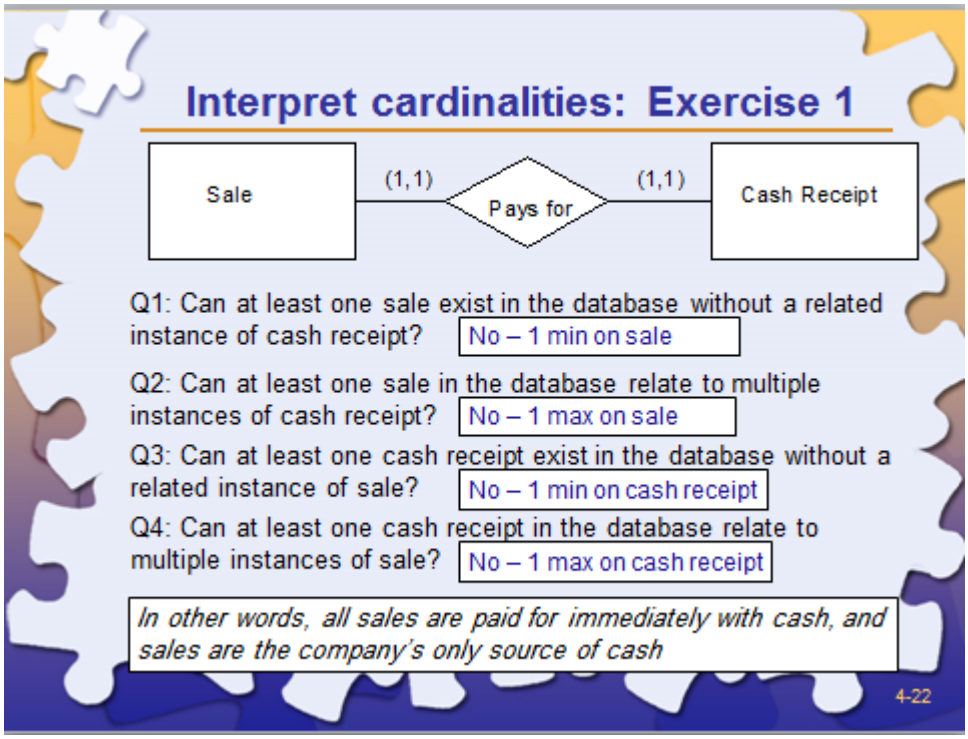
Allows storage of characteristics that apply at the category level of detail

Generalization

Specification of subclass-superclass relationships, I.e., “Is-A” relationships

Subclass entities include contain more specific instances of superclass entities

23) Example of Employee/Department cardinalities?



24) Memorize REA business process level with extensions

Entities

Agents Internal agents act on behalf of the enterprise External agents are external business partners

Relationships

Event-Event relationships

Duality (link increment and decrement economic events) Reciprocal (link increment and decrement commitment events) Is the commitment equivalent of duality Fulfillment (link commitment and economic events)

Event-Resource relationships

Stockflow (link economic events and resources or resource types) Reservation link commitment events and resources or resource types)

Event-Agent relationships

Participation (link events and the agents that participate in the events)

Agent-Agent relationships

Assignment (link internal agent to external agent) Use only when relationship between internal agent and external agent exists independently of their mutual participation in an event

Responsibility (link internal agent to internal agent) Use when one internal agent is responsible for another, independent of their mutual participation in an event

CH5

25) What does System Flowcharts mean ?

Graphically document information systems

Summarize pages of narrative in diagrammatic format

Focus on the physical aspects of information flows

26) Compering between good and bad flowchart ?

The Good

Flowcharts are relatively easy for information customers and managers to understand.

Flowcharts help auditors understand business and systems controls

The bad Flowcharts

Flowcharts are tied to physical information flows and system characteristics that hide procedural essence of Flowcharts may be art factual and tied to outdated information technology

27) Memorize File Types ?

Master files: Contain the balance or status of entities E.g. vendors

Transaction files: Contain activity data E.g. orders

History or archive files : Contain inactive past or historical data

Reference files: Contain information needed for reference purposes e.g., rates, prices, zip codes

Suspense files: Contain items awaiting action, errors, missing information

28) List the type of Storage and Access of Data ?

Sequential Storage and Sequential Access

Records are stored in order To access a record, the access device must read through all records that are stored previous to the desired record
Tape cartridges and open reel tapes require sequential storage and sequential access of data

Random Storage and Direct Access

Records are stored in Any record can be retrieved directly regardless of physical position on the media; the access device need not read all the records prior to the desired record Computer hard disks, floppy disks, zip disks, CD-ROMs, and DVD-ROMs allow random storage and direct access of data

29) List the types of media ?

Paper

Most common form of media , easily to use , Doesn't depend on electricity to access

Disadvantages

Bulk (for storage), Lack of search and automated processing capability Susceptibility to destruction

Magnetic tape

Audiocassette tapes, VHS videotapes, and 8mm video camera cassettes use magnetic tape , Sequential storage and sequential access , Sorting is important for processing (transaction file must be sorted to match the order of the master file), Separate physical media must be used for input and output in an update process , Old master file, new master file , Easy backups , Dependent on electricity and on hardware , Cannot be read or processed directly by a person

Digital (Disk) media

Computer hard disks, floppy disks, zip disks, CDs, DVDs, and memory cards

Random storage

Information may be stored anywhere on the media; may be broken up (fragmented) and stored in multiple places

"Defragging" a hard drive is the process of sorting the data to re-connect all the fragments for more efficient processing

Direct access

From index, hardware can jump directly to the desired information and proceed with processing

Same physical media may be used for input and output in an update process (unless disk is full) , Easy backups , Dependent on electricity and on hardware , Cannot be read or processed directly by a person..

30) Define Processing Methods ?

Batch: accumulates transaction data for a period of time. Then all of the transactions in the transaction file are posted to the master file in one processing run

Online: means the computer-input device is connected to the CPU so that master files are updated as transaction data are entered

Real-time: denotes immediate response to an information user; transaction data are entered and processed to update the relevant master files and a response is provided to the person conducting the business event fast enough to affect the outcome of the event

Report-time: the data used to generate the requested report is processed as the report is created

31) What are the Data Flow Diagrams (DFD) ?

DFD symbols are used for a variety of system analysis purposes, including graphically displaying the logical flows of data through a process.

Unlike flowcharts which represent the physical components of an information system, DFDs can provide a more conceptual, nonphysical display of the movement of data through a system

32) List the Data Flow Diagram Symbols?

Process

Circles are used to represent processes that take data inflows and transform them to information outflows

Each circle contains two labels

a process number

a process name

Alternate notations is rectangular box with rounded corners

Data Sources and Sinks

Rectangles (or squares) represent data (inflow) sources and (information outflow) sinks

Rectangle is labeled with the name of the data source or sink/destination

Sources and sinks are agents external to the system represented on the diagram, Delineate the boundaries of the system

Data Flow Lines

Data flow lines display the route of data inflow and information outflow
Lines can be straight or curved , Data flows are generally labeled with the name of the data, Arrow indicates the direction of the data flow

Data Stores

Two parallel straight lines are used to display a store or collection of data, Some people refer to data stores as data at rest, A description of the data store contents is entered on the symbol, Data stores are used anytime it is necessary to store the output from a process before sending it on to the next process, Alternative notation uses a rectangular box that is open at one end..

33)List and explain the various levels of data flow diagrams.

Data-flow diagrams are divided into levels to keep them manageable in size and complexity.

The highest level of data-flow diagrams is the context-level diagram.

The context level diagram provides the scope of the system being represented. The system under investigation is identified in a process symbol in the center of the diagram. Sources and destinations of data and information are shown in rectangular symbols around the process symbol. The data-flow lines describe the input data to the system and the output reports from the system. The process identified in the context-level diagram is divided into the more detailed processes performed within the system

The top level under the context-level diagram is called level zero

and depicts only the very high level processes. Each of the level zero processes may be subdivided into more detailed processes in subsequent levels of DFDs and these subsequent levels can even further divided to show high levels of detail..

CH6

34) What are the differences between conceptual, logical, and physical database models?

Conceptual model represents reality in an abstracted form that can be used in developing an information system in a wide variety of formats

It is hardware and software independent, It is independent of any logical model type

Logical model represents reality in the format required by a particular database model

Is still hardware and software independent, Depends on the chosen logical model type

Physical model is created specifically for a particular database software package , Is dependent on hardware, software, and on the chosen logical model type

35) What is the purpose of a foreign key?

Foreign keys are key attributes of an object that are posted into another object table. The sole purpose of foreign keys is to link tables so the tables can be used collectively to store business data and to generate useful information

36)Does every table in a relational database contain a foreign key? Explain.

No. Foreign keys can only be posted into tables for which the entity's participation in a relationship has a maximum of 1. Most resource and agent tables will not contain foreign keys because they can participate many times in the relationships with related events.

37)What type of data does each record in an event table contain?

Event data tables are much like expanded information age journals; they do not require the summarization and loss of detail required to record traditional accounting transactions. All the detailed documentation of business activity data is available in the event data stores. Each record in an event data table contains documentation of a particular business event.

38) What type of data does each record in a resource table contain?

Each resource data table includes data describing a corporate resource. Each record in a resource table contains data about one particular instance of a resource.

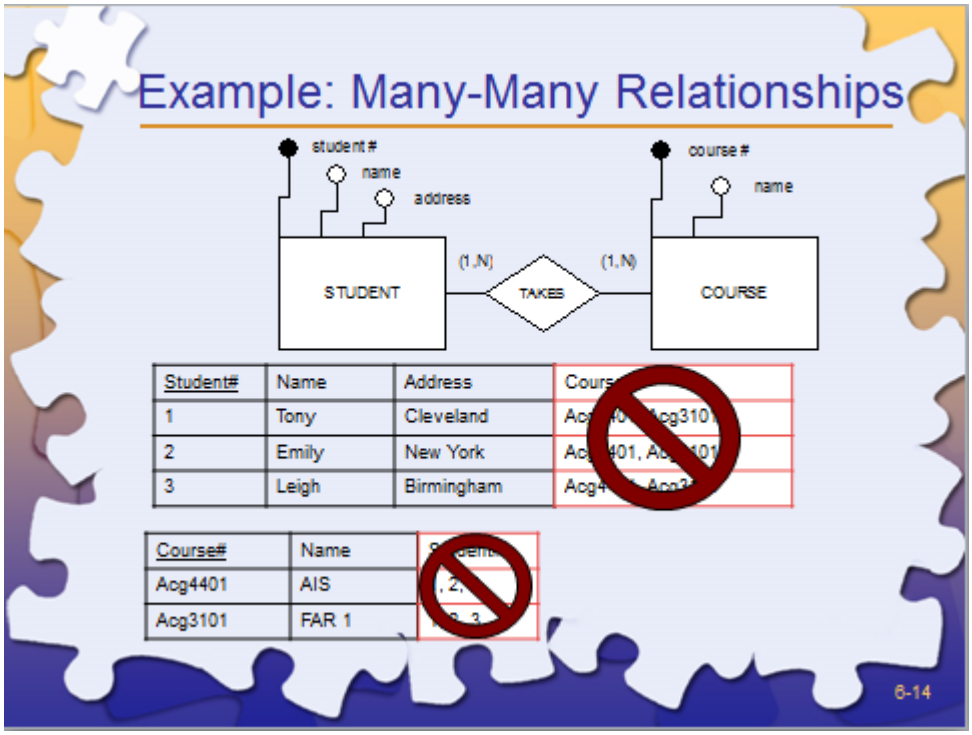
39) What type of data does each record in an agent table contain?

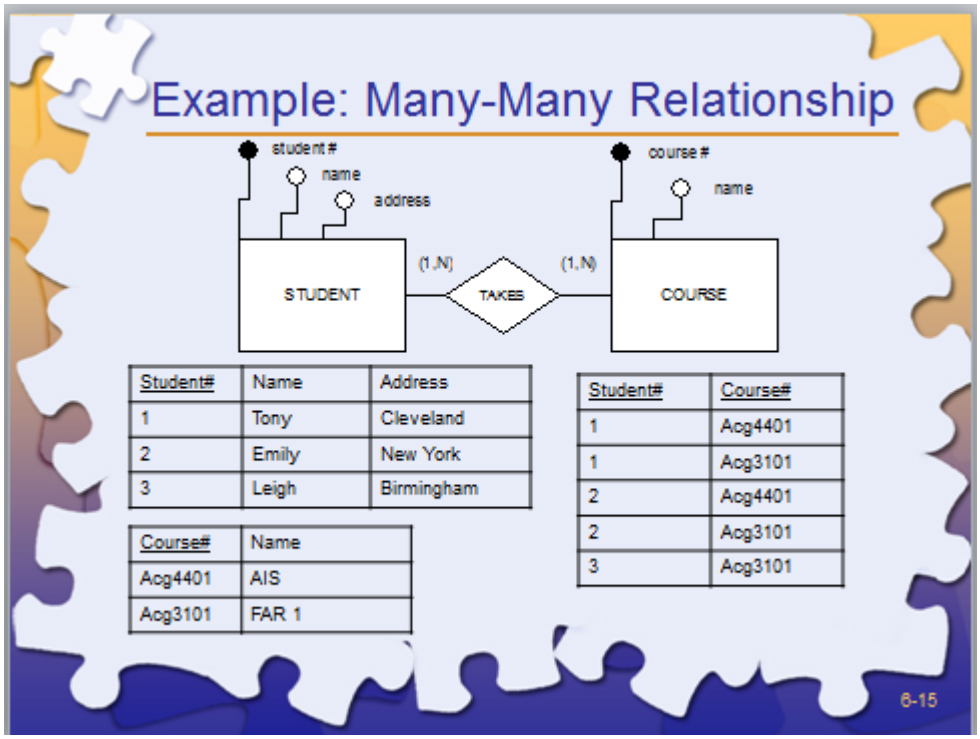
Each agent data table provides information about an internal or external person or entity category. Each record in an agent table contains data about one particular instance of an agent.

40) Define some principles of the relational model?

Entity Integrity
A primary key in a table must not contain a null value
Guarantees uniqueness of entities and enables proper referencing of primary key values by foreign key values
Referential Integrity
A value for a foreign key in a table must either
Be null (blank)
Match exactly a value for the primary key in the table from which it was posted
One Fact, One Place
Fact = a pairing of a candidate key attribute value with another attribute value
Facts are found in the extensional data

41) Solved example for many to many relationships .





All my wishes for success