RUTGERS

Rutgers Business School
Newark and New Brunswick

33:010:458
Accounting Information Systems

Dr. Peter R. Gillett

Associate Professor
Department of Accounting, Business Ethics and Information Systems
Rutgers Business School–Newark and New Brunswick

A.I.S. Class 14: Outline

- Identifying Attributes – Step 6
- COBIT
- Learning Objectives for Chapter 3
- Chapter 3 Quiz
- Database Foundations
- Group Work for Chapter 3
- ACCESS Classes
- Mid-Term Examination Review

Identifying Attributes – Step 6

- Cash Account
  - Cash Account Number
  - Cash Account Name / Description
  - Bank Name
  - Bank Account Number
  - *Balance ?*

These items are each stored once per record

Identifying Attributes – Step 6

- Raw Materials Order
  - Purchase Order #
  - Purchase Order Date
  - Requisition #
  - Purchase Order Clerk
  - Vendor #
  - Target Delivery Date

  These items are each stored once per record

  - {Raw Materials #, Order Quantity, Order Price}

  These sets of three items are each stored multiple times per record

Identifying Attributes – Step 6

- Shipper
  - Shipper #
  - Shipper Name
  - Shipper Address Line 1
  - Shipper Address Line 2
  - Shipper City
  - Shipper State
  - Shipper Zip
  - Shipper Telephone Number
  - Shipper Contact Person Name

These items are each stored once per record – note that there are two distinct address lines, each stored once

Identifying Attributes – Step 6

- Shipper
  * Shipper #
  * Shipper Name
  * {Shipper Address Line}
  * Shipper City
  * Shipper State
  * Shipper Zip
  * Shipper Telephone Number
  * Shipper Contact Person Name

  These items are each stored once per record

  – except that there may be an unknown number of address lines

Identifying Attributes – Step 6

- Shipper
  - Shipper #
  - Shipper Name
  - Shipper Address
  - Shipper City
  - Shipper State
  - Shipper Zip
  - Shipper Telephone Number
  - Shipper Contact Person Name

  These items are each stored once per record

COBIT

- Internal Control Frameworks
  - SAS 55, 78, 94 – COSO
    - Internal Control is a process effected by an entity's board of directors, and other personnel, that is designed to provide reasonable assurance regarding the achievement of objectives in the following categories:
      - effectiveness and efficiency of operations
      - reliability of financial reporting
      - compliance with applicable laws and regulations
  - Sarbanes-Oxley Act (SOX) focuses on internal controls over *financial reporting*
  - COBIT
  - ISO/IEC 17799:2005 (The Code of Practice for Information Security Management)

COBIT

- Control OBjectives for Information and related Technology
- Information Systems Audit and Control Association
- Management "best practices"
- 34 high level control objectives
- 215 detailed control objectives
- IT processes in four domains
  - Planning & organization
  - Acquisition & implementation
  - Delivery & support
  - Monitoring & evaluation

COSO / COBIT

- COSO
  - Effectiveness
  - Efficiency
  - Reliability
  - Compliance
- COBIT
  - Effectiveness
  - Efficiency
  - Confidentiality
  - Integrity
  - Availability
  - Compliance
  - Reliability

COBIT 4.1 – May 2007

- The complete COBIT package is a set consisting of six publications:
  * Executive Summary
  * Framework
  * Control Objectives
  * IT Assurance Guide (formerly Audit Guidelines)
  * Implementation Tool Set
  * Management Guidelines

COBIT – High level Control Objectives

- Plan and Organize
  - PO1 Define a Strategic IT Plan and direction
  - PO2 Define the Information Architecture
  - PO3 Determine Technological Direction
  - PO4 Define the IT Processes, Organization and Relationships
  - PO5 Manage the IT Investment
  - PO6 Communicate Management Aims and Direction
  - PO7 Manage IT Human Resources
  - PO8 Manage Quality
  - PO9 Assess and Manage IT Risks
  - PO10 Manage Projects

COBIT – High level Control Objectives

- Acquire and Implement
  * AI1 Identify Automated Solutions
  * AI2 Acquire and Maintain Application Software
  * AI3 Acquire and Maintain Technology Infrastructure
  * AI4 Enable Operation and Use
  * AI5 Procure IT Resources
  * AI6 Manage Changes
  * AI7 Install and Accredit Solutions and Changes

COBIT – High level Control Objectives

- Deliver and Support
  - DS1 Define and Manage Service Levels
  - DS2 Manage Third-party Services
  - DS3 Manage Performance and Capacity
  - DS4 Ensure Continuous Service
  - DS5 Ensure Systems Security
  - DS6 Identify and Allocate Costs
  - DS7 Educate and Train Users
  - DS8 Manage Service Desk and Incidents
  - DS9 Manage the Configuration
  - DS10 Manage Problems
  - DS11 Manage Data
  - DS12 Manage the Physical Environment
  - DS13 Manage Operations

COBIT – High level Control Objectives

- Monitor and Evaluate
  - * ME1 Monitor and Evaluate IT Performance
  - * ME2 Monitor and Evaluate Internal Control
  - * ME3 Ensure Compliance with External Requirements
  - * ME4 Provide IT Governance

Learning Objectives for Chapter 3

- Important topics covered include:
  * Differences between double-entry bookkeeping and database accounting systems
  * Advantages and disadvantages of database accounting systems
  * Business activity classifications
  * Transaction cycles
  * The relationship between accounting systems and database systems
  * A brief history leading to the development of database management systems (DBMS's)
  * Functions of database management systems

Learning Objectives for Chapter 3

- Important topics covered include:
  * Theory and application of relational database management systems (RDBMS's)
  * The structure of database objects to capture accounting events
  * The importance of normalizing tables
  * Performing database selections, projections, and joins
  * How accountants use the REA model when designing accounting databases

Chapter 3 Quiz

?

Accounting Databases in Transaction Cycles

- Advantages of Database Accounting Systems
  * Reduce data storage costs
  * Eliminate data redundancy
  * Eliminate data inconsistencies
  * Avoid duplicate processing
  * Facilitate add, delete, and update maintenance tasks
  * Make data independent of applications
  * Centralize data management
  * Centralize data security

Accounting Databases in Transaction Cycles

- Advantages of Database Accounting Systems
  - Make report modifications and updates easier
  - Provide *ad hoc* query capabilities
  - Facilitate cross-functional data analysis
  - Permit multiple users simultaneous data access

Accounting Databases in Transaction Cycles

- Disadvantages of Database Accounting Systems
  * Greater hardware requirements
  * Database software itself
  * Employing a database administrator
  * System operation becomes critical
  * Incorrect data entry corrupts many users' work
  * Territorial disputes over data ownership

Accounting Databases in Transaction Cycles

- Service Firms
  - Income and expenses
- Merchandising Firms
  - Income, cost of goods sold, and expenses
- Manufacturing Firms
  - Income, cost of goods sold, cost of goods manufactured, and expenses

Transaction Cycles

- Revenue
  - Events
    - Customer orders
    - Sales
    - Customer payments

Transaction Cycles

- Revenue
  * Reports
    - Sales orders
    - Invoices
    - Shipping documents
    - Remittance advices
    - Cash receipts summaries
    - Sales analyses
    - Balances owed by customers

Transaction Cycles

- Revenue
  - Tables
    - Cash receipt
    - Customer
    - Finished goods inventory
    - Sales
    - Sales order
    - Salesperson

Transaction Cycles

- Purchase
  - Events
    - Purchase orders
    - Receipt of goods ordered
    - Payments to vendors

Transaction Cycles

- Purchase
  - Reports
    - Backorder reports
    - Balances owed to vendors
    - Checks
    - Goods received summaries
    - Purchase orders
    - Purchase summaries
    - Receiving reports

Transaction Cycles

- Purchase
  - Tables
    - Cash disbursement
    - Purchase orders
    - Raw materials inventory
    - Raw materials inventory receipt
    - Vendor

Transaction Cycles

- Payroll
  - Events
    - Employees earn pay
    - Payment to employees
    - Payment of payroll taxes, etc

Transaction Cycles

- Payroll
  - Reports
    - Checks
    - Employee commission reports
    - Employee earnings records
    - Employee time reports
    - Payroll registers

Transaction Cycles

- Payroll
  - Tables
    - Cash disbursement
    - Employee
    - Time worked

Transaction Cycles

- Production
  - Events
    - Materials inventory costs flow into production
    - Labor costs flow into production
    - Overhead costs flow into production
    - Total production costs flow into finished goods inventory

Transaction Cycles

- Production
  - Reports
    - Bills of materials
    - Job cost reports

Transaction Cycles

- Production
  - Tables
    - Finished goods inventory
    - Job
    - Raw materials inventory
    - Time worked

Database Foundations

- Functions of a DBMS
  * Efficient data maintenance
  * User-accessible catalog
    - the data dictionary is itself a database file accessible by the user
  * Concurrency control
    - proper lock-out of multiple users
  * Transaction support
    - an entire transaction is processed, or none of it is (in the event of a system failure)
  * Recovery services
  * Security and authorization services
  * Integrity facilities
    - conditions or restrictions on valid data in database

Database Foundations

- Terminology
  - Relation, tuple, attribute
  - Table, row, column
  - File, record, field

Database Foundations

- Other main topics already covered
  * Historical v. Modern information systems
  * Advantages and disadvantages of DBMS
  * RDBMS terminology
  * Database Normalization
  * Entity-Relationship Models

Database Foundations

- SQL
  - Select
    - Determines which rows are included in dyansets
  - Project
    - Determines which columns are included in dynasets
  - Join
    - Combines data from different tables

Database Foundations

- Equijoins (p. 144)
- Outer Joins (p. 144)
- Recursive relations (p. 150)

Group Work for Chapter 3

- Discussion Questions 1, 2

ACCESS Classes

- The next three classes, on October 22, 27 & 29, will all be held in Levin Lab 003
- From now on, there is no purpose in reading the ACCESS textbook by itself – it is vital you read at the computer, and follow the exercises with the keystrokes given
- If you have not done this, you will find the Lab classes a waste of your time, and may wish to consider how best to use your limited time . . .

Mid-Term Examination Review