

A.I.S. Class 26: Outline

- Learning Objectives for Chapter 5
- Advanced Information Systems
- Group Work for Chapter 5
- College Computing
- Group Evaluation Forms
- Final Examination

Learning Objectives for Chapter 5

- After studying this chapter you should be able to:
 - ◆ describe and discuss the hierarchy of decision making that occur in transaction processing systems, decision support systems and executive information systems
 - ◆ describe the input, processing and output characteristics of a decision support system
 - ◆ describe the various components of decision support systems
 - ◆ describe the benefits and drawbacks of a decision support system

Learning Objectives for Chapter 5

- ◆ discuss concepts of the data warehouse, data mart, and data mining, which are methods of garnering intelligence from the volumes of data in transaction processing systems
- ◆ explain the characteristics of expert systems
- ◆ differentiate between transaction processing systems, decision support systems, and expert systems
- ◆ explain the various components of expert systems
- ◆ describe the knowledge representation methods used in developing expert systems

Learning Objectives for Chapter 5

- ◆ discuss the process of developing expert systems with specific reference to the knowledge acquisition and system validation steps
- ◆ explain the benefits and drawbacks of expert systems
- ◆ discuss the criteria for identifying applications that might benefit from expert systems technology
- ◆ discuss the accountant's role in expert systems

Advanced Information Systems

- Transaction Processing Systems (TPS)
- Decision Support Systems (DSS)
- Executive Information Systems (EIS)
- Data warehousing, marts and mining
- Expert Systems (ES)

Transaction Processing Systems

- Highly structured decisions
- Routine, fully programmable, repetitive
- Little judgment
- Easy to develop
- Low level employees
- Internal data
- Simple processing rules

Decision Support Systems

- Semi-structured decisions
- Non-routine, partially programmable
- Middle management
- Internal and external data
- Complex rules and models

Executive Information Systems

- Variant of DSS
- User-friendly, GUI-based
- Designed for top executives
- Information rich
- Drill down facilities

Data warehousing, marts and mining

■ Data warehouse

- ★ repository of historical business transaction data organized to facilitate efficient querying for decision support

■ Data mart

- ★ repository of data from operational and other sources designed to meet needs of specific users

■ Data mining

- ★ analysis of data for previously undiscovered relationships

Expert Systems

- Unstructured decisions
- Non-routine, heuristic reasoning
- Top level or middle management
- Internal and external data
- Expert rules

Expert Systems

- User Interface
- Domain Database
- Knowledge Base
- Inference Engine
 - ★ Forward chaining
 - ★ Backward chaining
- Explanation facility

Expert Systems

- Knowledge-based systems
- Rule-based expert systems
 - ★ Expert system shells
 - ★ AI programming languages
 - ◆ LISP
 - ◆ PROLOG
- Frames, Semantic Nets, Objects
- Case-based reasoning

Expert Systems

■ Knowledge engineering

★ Knowledge acquisition

- ◆ Books, Manuals etc

- ◆ Knowledge elicitation

 - ➔ Interviews

 - ➔ Verbal Protocol Analysis

★ Knowledge representation

■ Verification and validation

Expert Systems

■ Benefits

- ★ Scarce human expertise
- ★ Releases human experts for more difficult cases
- ★ Improved accuracy of judgments
- ★ Greater consistency and consensus
- ★ Training of novices
- ★ Preserves expertise within a firm

Expert Systems

■ Disadvantages

- ★ Suitable human experts hard to find
- ★ Experts disagree
- ★ Knowledge elicitation difficult and time-consuming
- ★ Expensive to maintain and modify
- ★ Potential for deskilling jobs
- ★ Hard to validate fully
- ★ User acceptance

Expert Systems - Accounting

- Risk Assessment
- Internal Control Evaluation
- Audit Program Generation
- Financial Disclosures
- Loan Evaluation
- Tax Accrual and Planning
- Financial Planning

Group Work for Chapter 5

- Discussion Questions
- Problems 1 & 3

College Computing

■ Stage 7

- ★ Produce final report on the project as described in the original assignment note
- ★ Remove Stage 6 materials only
- ★ Produce new reports for Sales (see next slide for details) based on supplied database CollegeComputingSalesGroup0.mdb available from Blackboard (Course Documents: Resources) – renamed with your Group number
- ★ Design reports with parameters for ANY Period Start and Period End dates
- ★ Print finished reports for period 1/1/05 to 1/31/05
- ★ Add Stage 7 materials to binder and submit single database via Digital Dropbox by December 12

College Computing

■ What kind of reports do we need?

* E.g. Sales

- ◆ Sales Inquiries
- ◆ Quotations
- ◆ Sales Orders
- ◆ Pro-forma Invoices
- ◆ Remittance Advices
- ◆ Invoices
- ◆ Shipping Notices
- ◆ Bills of Lading – NOT APPLICABLE TO COLLEGE COMPUTING IN 2005
- ◆ Sales Revenue
- ◆ Sales Tax
- ◆ Accounts Receivable – N.B what about credit balances?
- ◆ Aged Debts – USE 0-15 DAYS, 16-31 DAYS, OVER 31 DAYS
- ◆ Sales Analyses
 - ➔ Month – NOT APPLICABLE TO THIS DATA
 - ➔ Type of customer (BUSINESS CUSTOMER #S BEGIN WITH A '2')
 - ➔ Type of computer
 - Processor
 - ➔ Delivery Method

College Computing

■ Stage 6 Problems:

- ★ A/R all –ve
- ★ Job Orders - too little detail
- ★ Many reports do not really support decision needs, and analyses especially are superficial
- ★ Invoices and Checks – only lists provided, not actual documents for sending to Customers
 - ◆ Amount in words???

Group Evaluation Forms

- Group Project Evaluation forms are due in class December 12 and are MANDATORY
- You cannot get credit for the Group Project without completing and submitting this form!
- Evaluations will be held confidential
- You will find that peer evaluations are a feature of professional life – treat them with seriousness, honesty and respect

Final Examination

- Common Examination
- 4:00 - 7:00 on December 22, 2005
- Beck Auditorium
- The examination will be designed to last 167 minutes
- You will have 13 minutes extra to finish, to fill in Scantron forms, and to turn work in at the front desk
After this there will be a 6 points per minute penalty
- Be sure to write your name & ID where required
- BE SURE TO TURN YOUR PAPERS IN ON THE CORRECT PILES FOR YOUR EXAMINATION!!!

Final Examination

- The Final Examination will have the following sections (points estimated):
 - ★ A: Multiple Choice Questions – 50 x 3 points
 - ★ B: Essay - 30 points
 - ★ C: Definitions and Terminology - 10 x 2 points
 - ★ D: Short Questions / Problems - 4 x 10 points (?)
 - ★ E: System Flowcharting - 10 x 2 points
 - ★ F: REA Modeling - 120 points
 - ★ G: Relational Databases and ACCESS
 - 7 questions, 120 points altogether