

A.I.S. Class 5: Outline

- Learning Objectives for Chapter 2
- Elements of Information Systems
- Discussion Questions and Problems
- Automated Procedures for Sales and Collections

Learning Objectives for Chapter 2

- After studying this chapter you should be able to:
 - ◆ distinguish between data and information
 - ◆ explain the hierarchy of data
 - ◆ describe alternative field formats, record keys, and coding systems
 - ◆ explain various types of files
 - ◆ discuss the steps in the data processing cycle
 - ◆ discuss data input options
 - ◆ explain the various file organization, file access, and file update options
 - ◆ discuss the relative merits and drawbacks of batch versus on-line processing
 - ◆ describe and discuss the systems approach

Data versus Information

- Data represents raw facts
- Information is data made meaningful
- Meaningful data is:
 - * relevant - able to affect the user's decision
 - * reliable
 - * timely
 - * accurate, free from errors
 - * complete

Hierarchy of Data

- Bit (Binary digit)
- Byte (usually 8 bits)
- Field (multiple bytes making a unit of data - e.g., a name, a value)
- Record (group of related fields - e.g., an individual customer)
- File (group of records - e.g., all customers)
- Database (multiple logically related files)

Data Representation

- EBCDIC v ASCII
- Field Sizes
- Field Formats
 - * Numeric
 - * Text (alphanumeric)
 - * Date/Time
 - * Currency
 - * Boolean
 - * Counters
 - * BLOBS

Record Keys

- Primary key
- Candidate keys
- Secondary key
- Composite keys (concatenated keys)
- Foreign keys (will appear in Chapter 6)
- Non-key attributes

Coding Systems

- Sequence code - each item sequentially numbered
- Block code- ranges of numbers reserved for each category of items
- Group code - each digit or group of digits signifies a different aspect
- Mnemonic code - letters suggestive of the item being coded

File Types

- Master files - permanent information
- Transaction files - used to update
- Reference files - used for lookup
- Table files - same as reference
- History files - old archives
- Backup files - duplicates for security
 - * Grandfather - father - son
- Suspense files – temporary storage pending resolution

The Data Processing Cycle

- ◆ Data input
 - ➔ batch
 - ➔ on-line
- ◆ Data preparation
 - ➔ validation
 - ➔ sorting
- ◆ Data processing
 - ➔ batch
 - ➔ real-time
- ◆ File maintenance
- ◆ Information output

File Access

- Sequential files
- Random (or direct) access files
- Hashing algorithms
- Clashes
- Overflow areas
- Indexed files (ISAM)

File Maintenance

- Batch processing
 - * efficiency
 - * control
- On-line processing
- Real-time processing
 - * master file up-to-date
 - * no data preparation required
 - * faster access
- Report-time processing

The General Systems Model

- A system is a set of elements which operate together to achieve some objective
 - * Recall our definition of organizations!
- Systems have
 - ◆ inputs
 - ◆ processes
 - ◆ outputs
 - ◆ boundaries
 - ◆ environments

Factoring Systems

- Factoring - subsystems
- Interfaces
- Independence
- Decoupling (e.g. inventory)
- Buffers
- Control systems
 - ◆ sensor
 - ◆ standard
 - ◆ comparison
 - ◆ activation

Reminder

- Learning Objectives
- Discussion Questions: Group responsibility
- Key Terms
 - * be sure you can explain what each of these is

Discussion Questions and Problems

- Working in your groups, review the Discussion Questions for Chapter 2 and identify any that the group collectively cannot answer
- Develop agreed group solutions for Problems 3, 4, 5 & 7
- Discuss the narrative and flowcharts in the Chapter 1 Appendix for automated sales and collections cycles
- Groups will be asked to present their solutions in class