

A.I.S. Class 4: Outline

- A.I.S. Registration Process
- Learning Objectives for Chapter 2
- Elements of Information Systems
- Discussion Questions and Problems
- Automated Procedures for Sales
- Group Contracts
- Group Project Stage 1 – Some Hints

A.I.S. Registration Process

- Some students did not register at all
- Many students did not provide all the required information
- Students who were not registered by the deadline must still register in order to receive any credit for the course

A.I.S. Registration Process

- 113 forms were completed and submitted
- (0) was completely blank this year!
- (4) were incomplete duplicates
- 1 A.I.S. student did not register yet
- 110 students are enrolled in A.I.S.
- 9 students are taking I.A. but not A.I.S.
- 12 students are taking A.I.S. but not I.A.

A.I.S. Registration Process

- Of the 110 AIS students who registered:
 - ★ 1 gave a fake student ID – do you expect any grades?
 - ★ 0 entered the wrong A.I.S. section – yay!
 - ★ 0 entered no A.I.S. section – yay! – so much smarter than usual!
 - ★ 3 entered the wrong I.A. section
 - ★ 13 entered no I.A. section even though they are enrolled
 - ★ 1 gave no email address
 - ★ 1 gave an address as a name
 - ★ 14 think that “NJ” is a Zip Code
 - ★ 1 was incapable of typing their names in CAPITALS
 - ★ 17 capitalized their other names also
 - ★ 6 had no first names of either sort
 - ★ 1 was neither Male or Female!

A.I.S. Registration Process

- The following students still need to complete the registration process if they plan to take the class:
 - ★ **MONSEES, Patrick**

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)
 - ★ Currency
 - ★ Date/Time
 - ★ Boolean
 - ★ Counters
 - ★ BLOBS

Record Keys

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

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 separate data preparation required
 - ★ faster access to master file data
- 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, develop agreed group solutions for Chapter 2 Problems 3, 4, 5 & 7
- Discuss the narrative and flowcharts in the Chapter 1 Appendix for automated sales
 - ★ Groups will be asked to present their solutions in class

Discussion Questions and Problems

- Working in your new groups, discuss the responsible behaviors that group members are expected to exhibit, which will be incorporated into the group contracts due September 21
- Review the Discussion Questions for Chapters 1 & 2 and identify any that the group collectively cannot answer

Group Contracts

- In defining your codes of conduct, consider:
 - ★ How to balance the rights of individuals against the needs of the group
 - ★ What needs to be unanimous and when the majority will prevail
 - ★ Policies on absence with or without notice, and tardiness
 - ★ Respect for each other's views and feelings
 - ★ Acceptable / unacceptable behaviors
 - ★ Policies on completion of tasks to be performed outside group meetings

Group Project Stage 1 – Some Hints

- Allocate different flowcharts to group members
 - ★ *There is no time for everyone to work on them all*
- Services and Finance are easy . . .
- General Ledger and Cash are trivial . . .
- The others are more serious . . .
- Don't leave any out by accident
- Most people have never done this before, and won't do perfect work – so plan to meet, review, compare, criticize and rework before submission

Group Project Stage 1 – Some Hints

- Substance matters most . . .
- . . . but neatness counts, too!
 - ★ bear in mind we have to grade over 200 diagrams from 18 groups! (*Sound of violins playing softly in the twilight . . .*)
- Aim for a consistent presentation regardless of which group members prepare a specific diagram
- Adopt a uniform size for symbols
- Check spellings carefully
- Name documents consistently
- Beware of documents that appear mysteriously from nowhere . . .
- . . . or that go into processes and are never seen again!

Flowcharting Software

- You may use whatever software is convenient for the Group to prepare flowcharts and other project diagrams
- However, we have recently installed Microsoft Visio 2003 in the Levin Labs for this purpose
 - ★ For Stage 1 of the project, use the Flowchart Template with the Basic Flowchart Stencil