MIS (Management Information System)

Department of Industrial Engineering
Sharif University of Technology

Session # 2

Session schedule

- Contents
  - Structured analysis and design
  - Information system development
    - Systems Analysis and Design
Structured analysis and design

- **Structured analysis**
  - Study the current business environment
  - Model the old logical system
  - Model the new logical system
  - Model the new physical environment
  - Evaluate alternatives
  - Select the best design
  - Create the structured specification

Structured design

- **Structured design**
  - Construct a structure chart
  - Examine the coupling (interdependency) relationships
  - Examine module cohesion
  - Refine the structure chart
  - Perform transform analysis
  - Perform transaction analysis
  - Create module specifications
  - Package the physical modules
### Information system development

- **Information system development project**
  - Complex ??

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### Information system development

- **Information system development project**
  - Realistic behavior

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Information system development

- Information system development project
  - Managerial perspective

  Management dictates how much time we have and shows no flexibility about running behind schedule

- Information system development project
  - The problem of managerial perspective fits into one of three scenarios:
    - Management is ignorant of the analysis and construction of systems and simply has no idea how much time is required to complete the project.
    - Management has little confidence in Development.
    - Unfortunately, bad management does exist.
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- Information system development project

System Development Life Cycle (SDLC)

- Tiers of Software Development
- User Interface
- Tools
- Productivity Through Automation
- Object Orientation
- Client/Server
- Internet/Intranet
Information system development

• Tiers of Software Development
  • User Interface
    • Systems cannot be effectively designed without an appropriate user interface.
    
    • The user-interface tier is often overlooked: Many software projects today move too quickly into development without the effort having been spent to determine what is really needed from the user community.

• Tools
  • Software systems require that analysts have the appropriate tools to do their job.
  
  • Even more significant challenge is understanding which of the many available tools to use at any given point.
  
  • Software development tools are often designed for specialized use rather than for general application, and using the wrong tool can potentially cause significant damage.
  
  • The sequence of use for each specialized tool is also critical to success.
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- Tiers of Software Development
  - Productivity Through Automation
    - Having the appropriate tools and knowing how and when to use them is only part of the formula for success. Analysts must also be productive.
  - Productivity can be accomplished only through the use of automation.
  - Automation is implemented using integrated computer aided software engineering (CASE) products.

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- Tiers of Software Development
  - Object Orientation
    - Successful projects employ the concepts of object orientation (OO).
      - OO is the foundation of the reusable components that can be incorporated into other applications later.
Information system development

- **Tiers of Software Development**
  - **Client/Server**
    - Client/server software processing, in its true implementation, involves the interaction of objects and defining the way in which they will communicate with each other.

- **Internet/Intranet**
  - The advent of Web-based technology, sometimes known as Internet/Intranet processing, has led the industry to the use of a new breed of software applications.
  - e-commerce will exert the strongest shaping influence on the analyst’s profession—a profession destined to become tomorrow’s integrators of systems development.

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Information system development

- **Information system development project**

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Information system development

- System Development Life Cycle (SDLC)
  - The basis for most systems analysis and design methodologies is the system development life cycle or SDLC.
  - It is sometimes called the waterfall method because the model visually suggests work cascading from step to step like a series of waterfalls.
  - In reality, there is considerable feedback between the various steps or phases.

SDLC

- Problem Definition
  - Analysis
    - Design
      - Development
        - Testing
          - Implementation
            - Maintenance
System Development Life Cycle (SDLC)

- **Problem definition**
  - The intent is to identify the problem, determine its cause, and outline a strategy for solving it.
- **Analysis**
  - The objective of analysis is to determine exactly what must be done to solve the problem (logical elements).
- **Design**
  - The objective of design is to determine how the problem will be solved (shift from logical to the physical).
- **Development (creation)**
  - The system is created during development.
- **Test**
  - Once the system is developed, it is tested to ensure that it does what it was designed to do.
- **Implementation**
  - After the system passes its final test, it is implemented and released to the user.
- **Maintenance**
  - The objective of maintenance is to keep the system functioning at an acceptable level.

Information system development

- **Information system development project**

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