Systems Analysis and Design 11th edition Kendall Solutions Manual

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1Chapter 1
Systems, Roles, and Development Methodologies

Key Points and Objectives

1. Information is an organizational resource that must be managed as carefully as other resources.

2. The three primary roles of a systems analyst are:

   A. Supporting expert
   B. Consultant
   C. Agent of change

3. Qualities of a systems analyst are:

   A. A problem solver
   B. A communicator
   C. Strong personal and professional ethics
   D. Self-disciplined
   E. Self-motivated

4. Systems analysis and design is a systematic approach to identifying problems, opportunities, and objectives; analyzing the information flows in organizations; and designing computerized information systems to solve a problem.

5. User involvement throughout the systems project is a critical success factor.

6. The systems development life cycle is a systematic approach to solving business problems.

7. The human-computer interaction (HCI) is a human-centered approach that places an emphasis on human needs before the needs of an organization or a system.

8. The human-computer interaction should be included into every phase of the systems development life cycle.

9. The systems development life cycle is divided into seven phases:

   A. Identifying problems, opportunities, and objectives
   B. Determining human information requirements
   C. Analyzing system needs
   D. Designing the recommended system
   E. Developing and documenting software
   F. Testing and maintaining the system
   G. Implementing and evaluating the system

10. System maintenance is removing undetected errors and enhancing existing software.

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11. Systems are enhanced for the following reasons:

    A. Adding additional features to the system
    B. Business and governmental requirements change over time
    C. Technology, hardware, and software are rapidly changing
    D. Industry Update: Improving information security. Ongoing patching of security vulnerabilities in systems to prevent malware intrusions and data breaches are a critical part of systems maintenance.

12. CASE tools are software packages for systems analysis and design.

13. Reasons for using CASE tools are:

    A. To increase analyst productivity
    B. To facilitate communication among analysts and users
    C. To provide continuity between life cycle phases

14. The agile approach is based on:

    A. Values
    B. Principles
    C. Core practices

15. The four values of the agile approach are:

    A. Communication
    B. Simplicity
    C. Feedback
    D. Courage

16. Four resources may be adjusted for successful completion of an agile project:

    A. Time
    B. Cost
    C. Quality
    D. Scope

17. An agile project is interactive and incremental.

18. The agile development process has five distinct stages:

    A. Exploration
    B. Planning
    C. Iterations to the first release
    D. Productionizing
    E. Maintenance

19. The planning game spells out rules that help formulate the agile development team from their business customers.

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20. Scrum is an agile method focused on extremely quick releases.

21. Object-oriented (O-O) analysis and design is used to build object-oriented programs. This includes not only data, but the instructions about operations that manipulate the data.

22. The Unified Modeling Language (UML) is a standardized object-oriented modeling language.

23. Object-oriented methodologies focus on small, quick iterations of development.

24. Object-oriented phases include:

    A. Define the use case model
    B. Begin drawing UML diagrams
    C. Develop class diagrams
    D. Draw statechart diagrams
    E. Modify the UML diagrams
    F. Develop and document the system

25. Open source software (OSS) provides both software and the program source code used to create the software. Many users and programmers may provide modifications to the programs. Open source software may be categorized into four types of communities:

    A. Ad hoc
    B. Standardized
    C. Organized
    D. Commercial

26. Open source communities differ from each other on six key dimensions:

    A. General structure
    B. Environment
    C. Goals
    D. Methods
    E. User community
    F. Licensing

27. There are several reasons for participating in open source communities

    A. Rapidity with which new software can be developed and tested
    B. Faster to have a committed group of experts develop, test, and debug code
    C. This fosters creativity
    D. Have many good minds work with innovative applications
    E. Potential to reduce development costs
    F. Bolster their self-image
    G. Contribute something worthwhile to the software development community

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Systems Scenario (p. 3)

Presenting a Systems Scenario video at the beginning of class effectively gets students engaged with the material in each chapter. This new feature is meant to help students think critically about the issues raised in the chapter material. Students who have the print version can participate as well.

Delivering Service to the Client. To view the video for this scenario, see **eText Chapter 1**.

This chapter begins with the need for systems analysis, followed by a description of the roles of the systems analyst and the qualities a systems analyst must possess to do their job successfully. In this video, the topic of delivering sensational service is explored in a humorous way. As implied in the video, as a systems analyst you need to care for your clients, ask clients what they need and be responsive to those needs, anticipate the clients' needs (perhaps even surprise them), be efficient and take action. After viewing the video, please reflect on the following questions:

1. How can you, as a systems analyst, gain the trust of your clients?

2. How can you communicate your enthusiasm about working with your clients in ways other than in words?

3. What are some of the mistakes that the pet consultant in the video made in working with her client?

4. The systems analyst must be ethical. For example, you shouldn't promise features of software that you may not deliver. What are other ethical standards that forming a relationship with a client might entail?

Consulting Opportunity 1.1 (p. 4)

Healthy Hiring: Ecommerce Help Wanted
The qualifications that the systems analysis team should be looking for when hiring their new ecommerce development team member should focus on interpersonal skills as well as technical skills. The system development project is not analyzing an existing business area and does not have to focus on how the current system works or the problems present in the current system. This implies that the analysis team will have to do extensive work with the users to define the new system before writing any program code.

One of the primary qualities of the new analyst is to get along well with the other team members as well as users. A second quality is the ability to learn new languages rather than know specific languages. Because this is a new project and the software used to develop ecommerce websites as well as the other systems needed to support ecommerce is rapidly changing.

In this situation, it is important that the team members have some basic business understanding, because ecommerce is much more than just building a website. However, it is probably advantageous if the team members do not possess identical skills and competencies. Team member skills that complement one another will help the team as it encounters project complexities and has to draw on a broad base of experience and knowledge.

The personality traits that are desirable in a systems analyst who will be working in ecommerce development are good interpersonal and team player skills, good communication skills, curiosity, creativity, the ability to deal with stress and pressure, an understanding of how systems are put together,

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diagramming and design skills, and skills related to coding, testing, and debugging software.

Answers to Review Questions

1. *List the advantages of using systems analysis and design techniques in approaching computerized information systems for business.*

   System analysis and design techniques provide the analyst with a systematic procedure for analyzing data input, UML diagrams or data flow, and information output; furthermore, the techniques can improve the functioning of business.

2. *Why is security of information systems an important consideration in systems development and design*

   Developing privacy controls and security by design, from the outset of systems design, is much more desirable and effective than adding it to older, legacy systems.

3. *List three roles that the systems analyst is called upon to play. Provide a definition for each one.*

   The three roles of a system analyst are:

   A. Consultant—hired from outside an organization to address information systems issues within that organization.
   B. Supporting Expert—serves as a resource for those who are managing a systems project.
   C. Change Agent—an analyst who serves as a catalyst for change, develops a plan for change, and works with others in facilitating that change.

4. *What personal qualities are helpful to the systems analyst? List them.*

   Personal qualities helpful to systems analysts include:

   A. Problem-solving abilities
   B. Communication skills
   C. Computer experience
   D. Self-discipline and self-motivation
   E. Project management capabilities

5. *List and briefly define the seven phases of the systems development life cycle (SDLC).*

   The seven phases of the SDLC are:

   A. Identifying problems, opportunities, and objectives—recognizing problems and opportunities confronting the business and determining business objectives.
   B. Determining information requirements—understanding what information users need to perform their jobs.
   C. Analyzing system needs—structured analysis of information needs and decision making.
   D. Designing the recommended system—logical design of the information system.
   E. Developing and documenting software—structured development of software and documentation.
   F. Testing and maintaining the system—testing and revising the system.

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G. Implementing and evaluating the system—training users and reviewing system.

6. What are CASE tools used for?

The reasons for using CASE tools are:

A. Increasing analyst productivity
B. Improving analyst-user communication
C. Integrating life cycle activities

7. Define what is meant by the agile approach?

The agile approach is based on values, principles, and core practices. It values communication, simplicity, feedback, and courage.

8. What is the meaning of the phrase "the planning game"?

The planning game spells out rules that can help formulate the agile development team's relationship with their business customers. The rules are a basis for building and maintaining a relationship.

9. What are the stages in agile development?

The five stages in agile development are exploration, planning, iterations to the first release, productionizing, and maintenance.

10. What is Scrum?

Scrum is an agile method focused on extremely quick releases.

11. Define term object-oriented analysis and design.

Object-oriented analysis and design are techniques intended to facilitate the development of systems that must change rapidly in response to dynamic business environments.

12. What is UML?

UML is the Unified Modeling Language, a standardized object-oriented language used to break down a system into a use case model.

13. What are the benefits of implementing systems and software using cloud computing?

A. Organizations and individual users can use web services, database services, and application services over the internet without having to invest in corporate or personal hardware, software, or software tools.
B. Virtualized resources. Cloud computing provides the ability to grow and adapt to changing business needs. That is, they are scalable to suit growing (or changing) demand by users.
C. Users do not need to understand, control, or be experts in the technology infrastructure that composes the complex cloud infrastructure that enables them to accomplish their work.

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D. Often organizations that are using cloud computing do not find it necessary to make up-front capital expenditures on IT infrastructure, so it enables smaller companies with smaller and less predictable budgets to make advances in processing more quickly.
E. It allows larger corporations to invest in strategic projects rather than IT infrastructure
F. Sharing IT resources via cloud computing means that a large collection of corporate users share web services, but also then jointly bear the lowered cost of them, realizing increases in peak-load capacity and ensuring that underutilized systems are used more efficiently and widely.
G. Companies also hope to improve their ability to perform disaster recovery by using cloud computing, which provides many redundant sites.

14. What is a private cloud?

An internal one that can be realized by centralizing the organization's data centers through a privately configured cloud service. More critical data linked to strategic aims and corporate intellectual property are held in a private cloud.

15. What is the difference between a private cloud and a public cloud?

Private cloud: More critical data linked to strategic aims and corporate intellectual property are held in a private cloud.
Public cloud: Sometimes the decision to use a public cloud has to do with how critical it is for the company to strategically control data.

16. Explain why ERP systems served with a cloud platform might be more affordable to small and medium-sized businesses than traditional ERP installations.

Utilizing a cloud platform will not require capital expenditures. Small and medium-sized businesses can save money usually spent for on-premises data centers, their maintenance, and support personnel.

17. What is the cloud development life cycle (CDLC)?

Data gathering, development, launch, continuing operations, optimization, and improvement

18. What is open source software?

Open source software is when many users and programmers can study, share, and modify the code, or computer instructions.

19. What are two ways a programmer can begin to contribute to open source projects?

They can participate in open source development communities and also in the Third Design Space.

20. What is the role of a systems analyst in the development of open source software?

They must first prove themselves worthy members of the group, and then strike up and maintain relationships that are mutually beneficial.

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21. List two reasons an organization may want its analysts to participate in an open source community.

Two reasons that an organization may want its analysts to participate in an open source community are curiosity about software benefits and to achieve collective design.

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