

**FAKULTAS EKONOMI UNIVERSITAS BUDI LUHUR**

# **SISTEM INFORMASI MANAJEMEN**

Oleh :  
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# **INFORMATION SYSTEM DEVELOPMENT**

## What is the System Development Cycle?

- What is an **information system (IS)**?

Hardware, software, data, people, and procedures that work together to produce quality information

**System**—Set of components that interact to achieve common goal

Businesses use many types of systems

p. 620

Next

## The System Development Life Cycle

- What are the phases of the **system development cycle**?

### Phase 1. Planning

- Review project requests
- Prioritize project requests
- Allocate resources
- Form project development team

### Phase 2. Analysis

- Conduct preliminary investigation
- Perform detailed analysis activities:
  - Study current system
  - Determine user requirements
  - Recommend solution

### Phase 3. Design

- Acquire hardware and software, if necessary
- Develop details of system

### Phase 4. Implementation

- Develop programs, if necessary
- Install and test new system
- Train users
- Convert to new system

### Phase 5. Operating, Support, and Security

- Perform maintenance activities
- Monitor system performance
- Assess system security

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## What is the System Development Cycle?

- What are guidelines for system development?

Arrange tasks into phases  
(groups of activities)

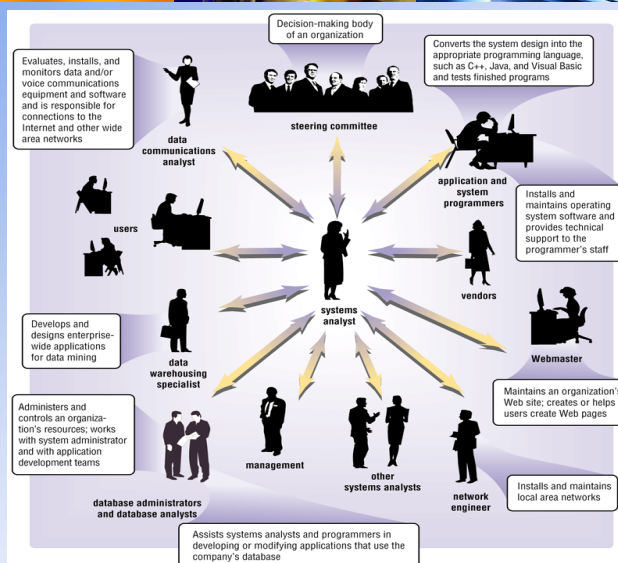
Involve **users** (anyone for whom  
system is being built)

Develop clearly defined **standards** (procedures  
company expects employees to follow)

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## What is the System Development Cycle?

- Who participates in the system development life cycle?



## What is the System Development Cycle?

- What is a **systems analyst**?

Responsible for designing and developing information system

Liaison between users and IT professionals

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## What is the System Development Cycle?

- What is the **project team**?

Formed to work on project from beginning to end

Consists of users, systems analyst, and other IT professionals

**Project leader**—one member of the team who manages and controls project budget and schedule

p. 623

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## What is the System Development Cycle?

- What is **project management**?
  - Process of planning, scheduling, and controlling activities during system development cycle
  - **Project leader** identifies elements for project

Goal, objectives, and expectations, collectively called scope

Required activities

Time estimates for each activity

Cost estimates for each activity

Order of activities

Activities that can take place at same time

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## What is the System Development Cycle?

- What is a Gantt chart?
  - Popular tool used to plan and schedule large, complex projects

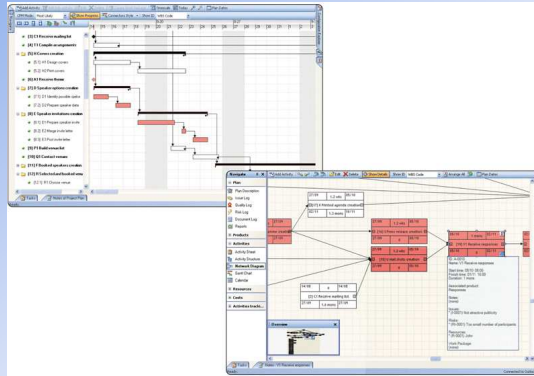
ID	Task Name	Duration	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
1	Planning	2w	1/20	2/1						
2	Analysis	12w		2/8			5/10			
3	Design	12w			3/20			6/15		
4	Implementation	7w						6/16		8/9

p. 623 - 624 Fig. 12-3

Next ▶

## What is the System Development Cycle?

- What is **project management software**?
  - Program used by project leaders to plan, schedule, and control development projects



p. 624 Fig. 12-4

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## What is the System Development Cycle?

- What is **feasibility**?

Measure of how suitable system development will be to the company

Four feasibility tests:

Operational feasibility

Schedule feasibility

Economic feasibility (also called cost/benefit feasibility)

Technical feasibility

p. 625

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## What is the System Development Cycle?

- What is **documentation**?

Collection and summarization  
of data and information

Includes reports, diagrams,  
programs, and other deliverables

Project notebook contains all  
documentation for single project

p. 625

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## What is the System Development Cycle?

- What are six data and information gathering techniques?

- **Review documentation**
- **Observe**
- **Questionnaire**
- **Interview**
- **Joint-application design (JAD) session**
- **Research**

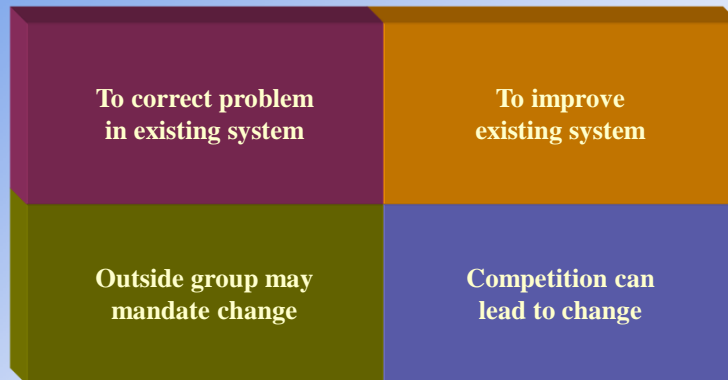


p. 625 - 626 Fig. 12-5

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## What Initiates the System Development Cycle?

- What are some reasons to create or modify an information system?



p. 626

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## Planning Phase

- What is the **planning phase**?

Begins when steering committee receives project request

Steering committee—  
decision-making  
body for the  
company

### Function of committee:

Review and  
approve project  
requests

Prioritize  
project requests

Allocate  
resources

Form project  
development  
team for each  
approved  
project

p. 629

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# Analysis Phase

## What is the analysis phase?

Conduct preliminary investigation, also called feasibility study

Perform detailed analysis

p. 630



# Analysis Phase

## What is the preliminary investigation?

### Determine exact nature of problem or improvement and whether it is worth pursuing

- Findings are presented in feasibility report, also known as a feasibility study

**Cyber Coast Café**  
MEMORANDUM

**To:** Executive Committee  
**From:** Bart Hendrick, Manager/Leader  
**Subject:** Feasibility Study of a New or Modified System

This memorandum provides information to the Executive Committee regarding the proposed system for Cyber Coast Café. The system is a new or modified system that will be used to manage the café's operations. The system is a new or modified system that will be used to manage the café's operations. The system is a new or modified system that will be used to manage the café's operations.

**Background:** The purpose of this memorandum is to provide information to the Executive Committee regarding the proposed system for Cyber Coast Café. The system is a new or modified system that will be used to manage the café's operations. The system is a new or modified system that will be used to manage the café's operations.


**Findings:** The findings of the feasibility study are as follows: The system is a new or modified system that will be used to manage the café's operations. The system is a new or modified system that will be used to manage the café's operations.

**Recommendations:** Based on the findings presented in this report, we recommend a modified copy of the proposed system.

p. 630 Fig. 12-8



## Analysis Phase




- What is detailed analysis?
  1. Study how current system works
  2. Determine user's wants, needs, and requirements
  3. Recommend solution

**Sometimes called logical design**

p. 631 Next ▶

## Analysis Phase

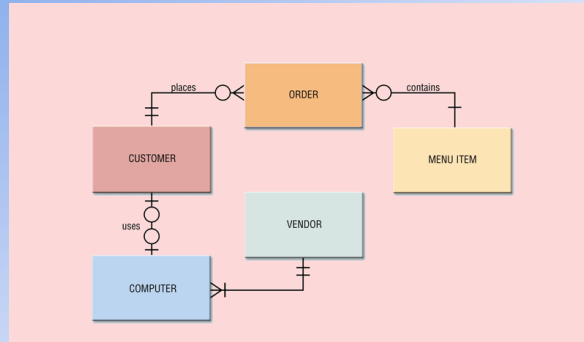


- What is **process modeling**?
  - Technique that describes processes that transform inputs into outputs  
Also called structured analysis and design
  - Three tools used for process modeling
    - Entity-relationship diagrams
    - Data flow diagrams
    - Project dictionary

p. 632 - 633 Next ▶

## Analysis Phase

- What is an **entity-relationship diagram (ERD)**?
- Tool that graphically shows connections among entities in system

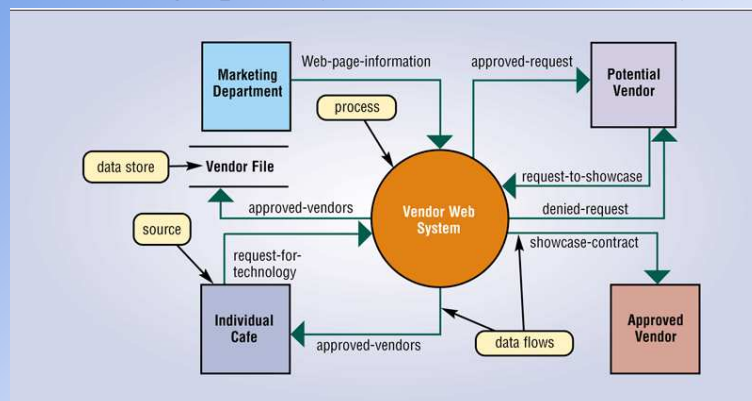


p. 632 Fig. 12-9

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## Analysis Phase

- What is a **data flow diagram (DFD)**?
- Tool that graphically shows flow of data in system



p. 632 - 633 Fig. 12-10

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## Analysis Phase

### What is a **project dictionary**?

Contains all the documentation and deliverables of project

Helps keep track of huge amount of details in system

Variety of techniques to enter items in project dictionary

Structured English

Decision tables

Decision trees

Data dictionary

p. 633 - 635

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## Analysis Phase

### What is **Structured English**?

- Used to explain details of process

#### **UPLOADING VENDOR INFORMATION**

For each item containing vendor information, perform the following steps:

If the item is not a computer file then

Use the scanner to convert it into a file format.

Copy the file into the Vendor Information folder on the hard disk.

Zip all new files in the Vendor Information folder into a single file.

Save the zipped file in a Web folder.

E-mail the Webmaster with the name of the zipped file.

p. 633 Fig. 12-11

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## Analysis Phase

- What is a **decision table**?
  - Lists variety of conditions and actions that correspond to each condition

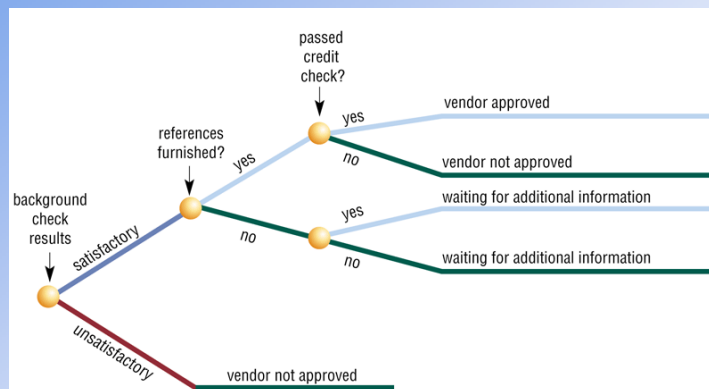
		RULES							
		1	2	3	4	5	6	7	8
CONDITIONS	Background check results (S = Satisfactory, U = Unsatisfactory)	S	S	S	S	U	U	U	U
	References furnished?	Y	Y	N	N	Y	Y	N	N
	Passed credit check?	Y	N	Y	N	Y	N	Y	N
ACTIONS	Vendor approved	X							
	Vendor not approved		X			X	X	X	X
	Waiting for additional information			X	X				

p. 634 Fig. 12-12



## Analysis Phase

- What is a **decision tree**?
  - Shows conditions and actions graphically



p. 634 Fig. 12-13



## Analysis Phase

- What is a **data dictionary**?

- Stores name, description, and other details about each data item

Date:	12/29/2008	Project:	CYBER COAST CAFE	Page:	11
Time:	10:36:28 AM	Detailed Listing -- Alphabetically		All Entries -- Data Flow Diagrams	
Vendor ID			Data Element		
<a href="#">Vendor File - Vendor ID</a>					
Description:					
A unique identification number assigned to each vendor.					
Alias:					
<a href="#">Vendor Code</a>					
Values & Meanings:					
Required element					
Cannot be blank					
May not be duplicated					
Data element attributes					
Storage Type: Char					
Length: 4					
Display Format: AAAA					
Null Type: NotNull					
Location:					
File --> <a href="#">Vendor File</a>					
Date Last Altered: 12/29			Date Created: 12/29		

p. 635 Fig. 12-14

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## Analysis Phase

- What is **object modeling**?

Combines data with the processes that act on data into single unit called an **object**

**Object**—an item that can contain both data and procedures that read or manipulate the data

Sometimes called **object-oriented (OO)** analysis and design

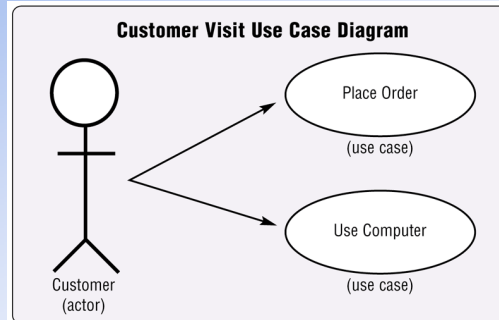
Uses **Unified Modeling Language (UML)**—graphical tool for documenting system

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## Analysis Phase

- What is a **use case diagram**?
- Graphically shows how actors interact with information system

- **Actor**—user or other entity
- **Use case**—function that actor can perform



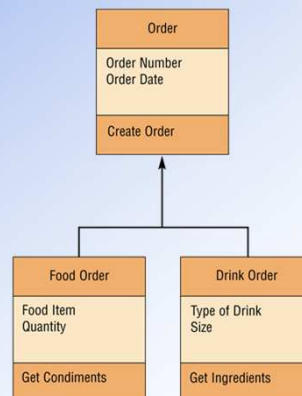
p. 636 Fig. 12-15

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## Analysis Phase

- What is a **class diagram**?
- Graphically shows classes and subclasses in system

- Class is group of objects—  
Can have lower levels called **subclasses**

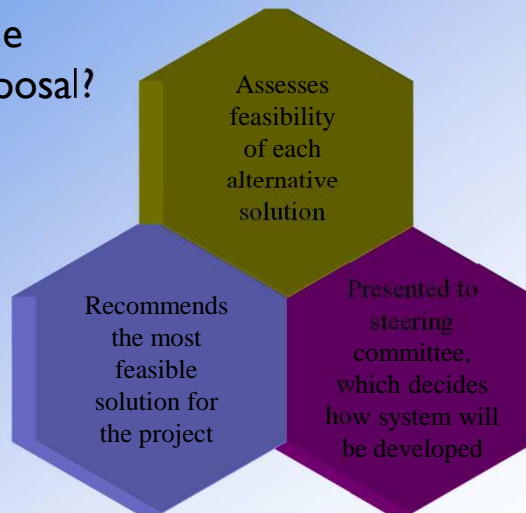


p. 636 Fig. 12-16

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## Analysis Phase

### What is the system proposal?



p. 636

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## Analysis Phase

### What are possible solutions?

Buy **packaged** software—prewritten software available for purchase

Write own **custom software**—software developed at user's request

Outsource—have outside source develop software

Horizontal market software—meets needs of many companies

Vertical market software—designed for particular industry

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## Analysis Phase

- What is an example of outsourcing?
  - Using Internet solutions provider
    - Internet solutions provider provides Web hosting services



p. 637 Fig. 12-17



## Design Phase

- What is the design phase?

Acquire hardware and software

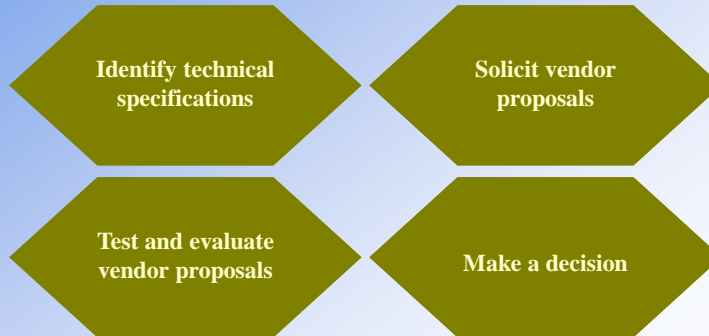
Develop all details of new or modified information system

p. 639



## Design Phase

- What is needed to acquire new hardware and software?
  - **Identify all hardware and software requirements of new or modified system**

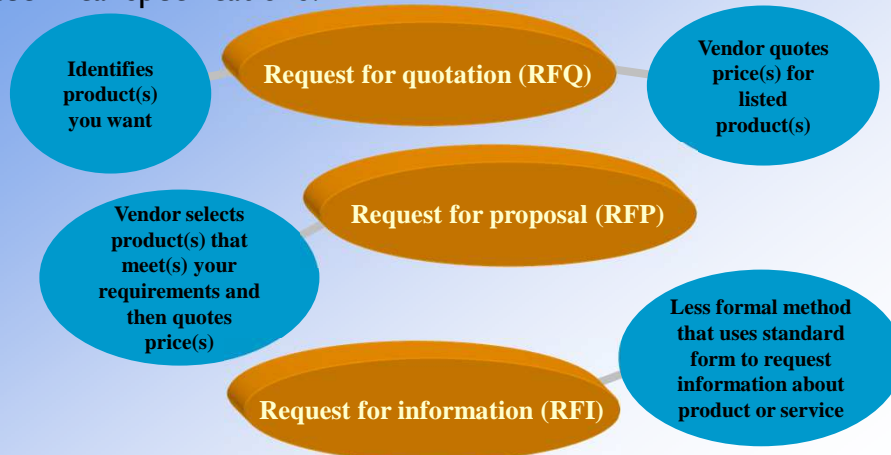


p. 639

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## Design Phase

- What are three basic documents used to summarize technical specifications?

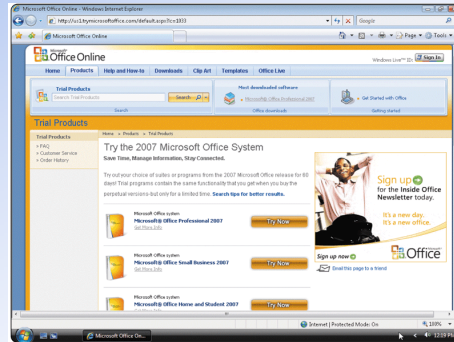


p. 639

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## Design Phase

- How do systems analysts test software products?
  - References from vendor
  - Talk to current users of product
  - Product demonstrations
  - Trial version of software
  - Benchmark test measures performance



p. 640 Fig. 12-19



## Design Phase

- What is a detailed design?

Detailed design specifications for components in proposed solution

Sometimes called  
physical design

Includes several activities

Database  
design

Input and  
output design

Program  
design

p. 641



## Design Phase

- What is a mockup?
  - Sample of input or output that contains actual data

Vendor Maintenance Form

Vendor ID:	TEER	E-Mail Address:	dh@earth.net
Vendor Name:	Tech Center	Telephone Number:	321-555-4555
Address:	23 Second Street	Fax Number:	321-555-4556
City:	Chicago	Product Line:	printers, scanners, cameras
State:	IL	Notes:	Closed Sunday
Postal Code:	60606		
Contact Name:	Debbie Holstein		

p. 641 Fig. 12-20

Next

## Design Phase

- What is a layout chart?
  - Input or output that contains programming-like notations for data items

Vendor Maintenance Form

Vendor ID:	AAAA	E-Mail Address:	X(30)
Vendor Name:	X(25)	Telephone Number:	999-999-9999
Address:	X(25)	Fax Number:	999-999-9999
City:	X(20)	Product Line:	X(50)
State:	XX	Notes:	X(100)
Postal Code:	99999-9999		
Contact Name:	X(30)		

p. 641 Fig. 12-21

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## Design Phase

- What is a **prototype**?

Working model of proposed system

Beginning a prototype too early may lead to problems

p. 642

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## Design Phase

- What is computer-aided software engineering (CASE)?
  - **Software tools designed to support activities of system development cycle**

**Project repository**—Stores diagrams, specifications, descriptions, programs, and other deliverables

**Graphics**—Enables drawing of diagrams

**Prototyping**—Creates models of proposed system

**Quality assurance**—Analyzes deliverables for accuracy

**Code generators**—Create actual computer programs from design specifications

**Housekeeping**—Establishes user accounts and provides backup and recovery functions

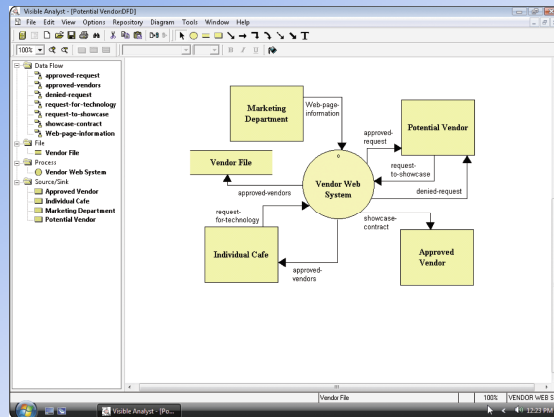
p. 642 - 643

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## Design Phase

- What is integrated computer-aided software engineering (I-CASE)?

- Integrated case products

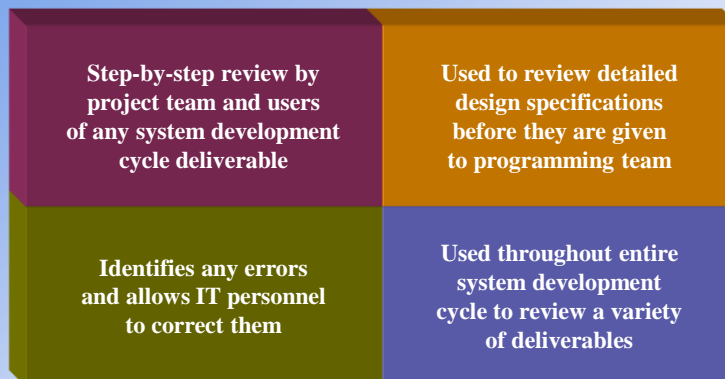


p. 642 - 643 Fig. 12-22

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## Design Phase

- What is an inspection?



p. 643

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## Implementation Phase

- What is the **implementation phase**?
  - Purpose is to construct, or build, new or modified system and then deliver it to users

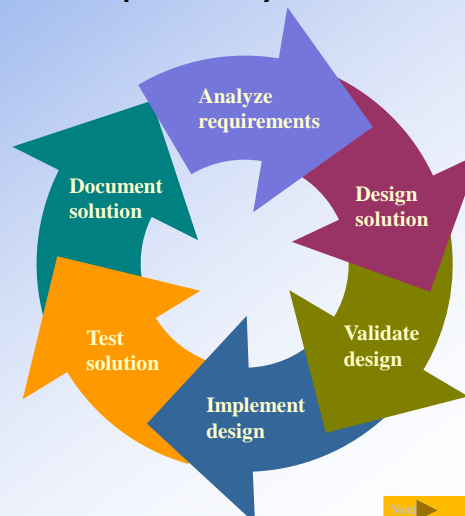


p. 643

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## Implementation Phase

- What is the **program development cycle**?
  - Programmers write programs from specifications
  - Follows six steps



p. 643

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## Implementation Phase

■ What are the four types of tests performed by system developers?

<p><b>Unit Test</b></p> <p>Verifies each individual program works by itself</p>	<p><b>Systems test</b></p> <p>Verifies all programs in application work together</p>
<p><b>Integration Test</b></p> <p>Verifies application works with other applications</p>	<p><b>Acceptance Test</b></p> <p>Verifies the new system works with actual data</p>

p. 644 Next ▶

## Implementation Phase

■ What is **training**?

- Showing users exactly how they will use new hardware and software in system

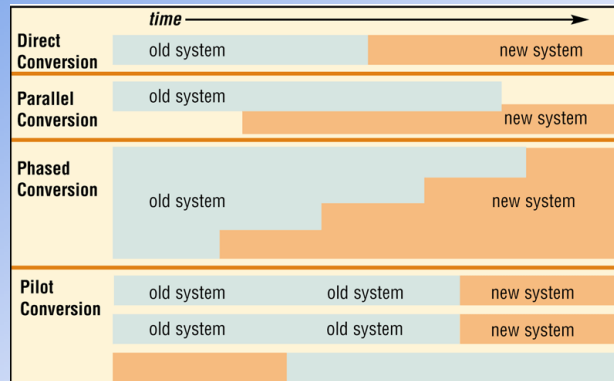


p. 644 Fig. 12-23 Next ▶



## Implementation Phase

- What are conversion strategies?
  - Used to change from old system to new system

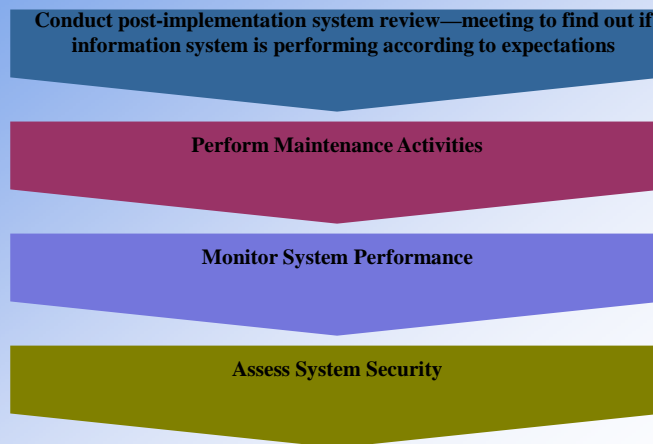


p. 644 - 645 Fig. 12-24

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## Operation, Support, and Security Phase

- What is the **operation, support, and security phase** phase?
  - Provides ongoing assistance after system is implemented



p. 646

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## Operation, Support, and Security Phase

- What is a **computer security plan**?
  - Summarizes in writing all of the safeguards that are in place to protect a company's information assets



p. 646

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