



Systems Development Life Cycle

- The Analysis Phase
- Introduction to process modelling

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

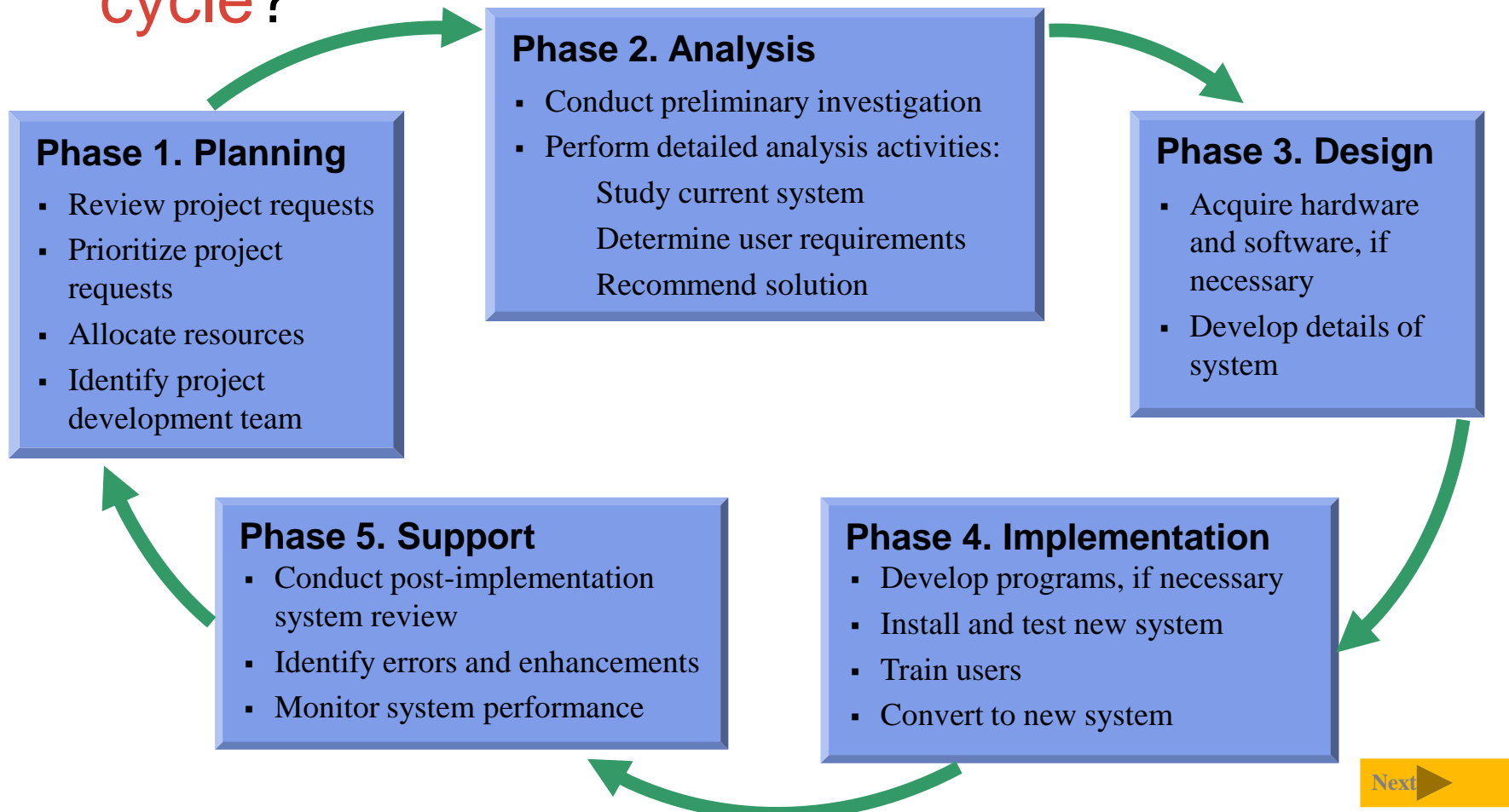
System—Set of components that interact to achieve common goal

Businesses use many types of systems

What is the System Development Cycle?



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



What is the System Development Cycle?



What are guidelines for system development?

Arrange tasks into phases

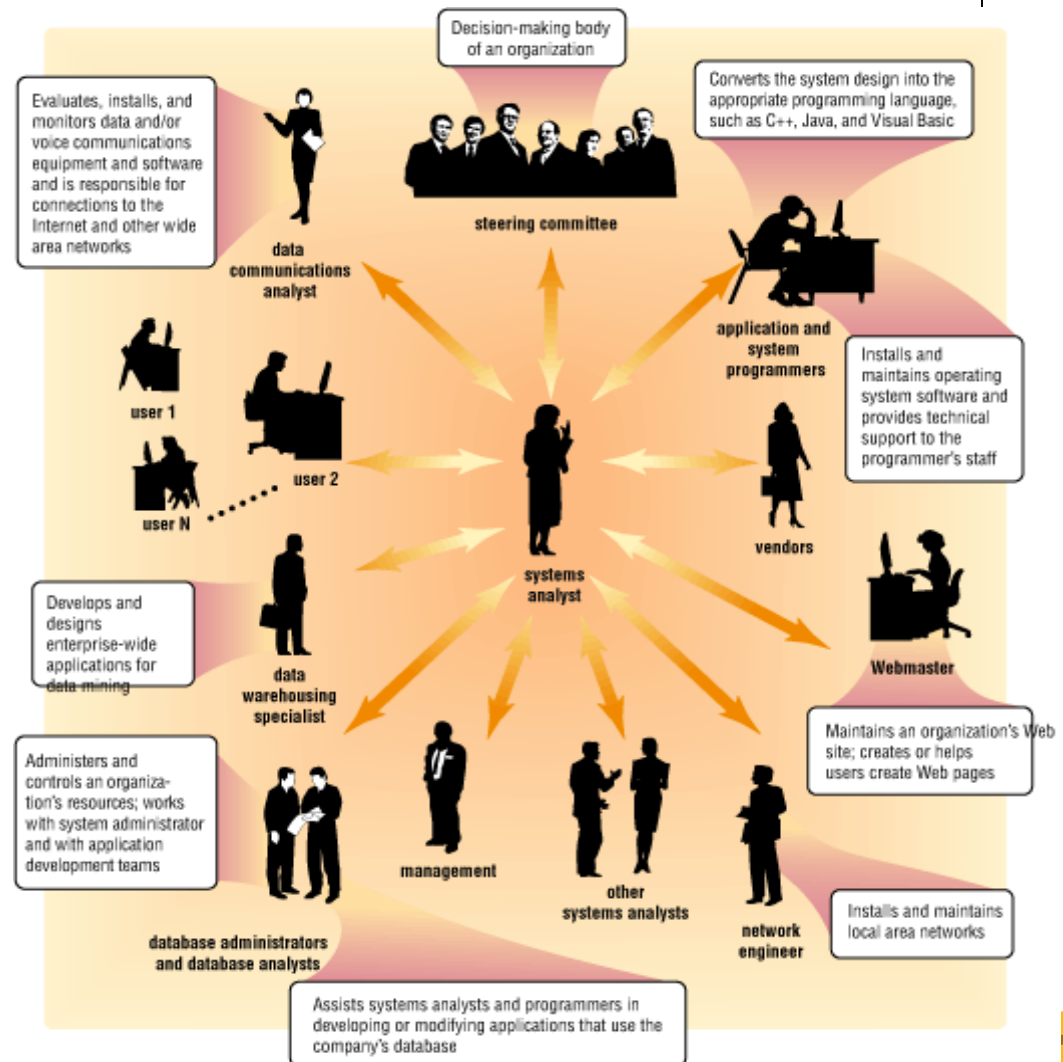
Involve *users* (anyone for whom system is being built)

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

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**

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

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

What is the System Development Cycle?



What is a Gantt chart?

- **Popular tool used to plan and schedule time relationships among project activities**

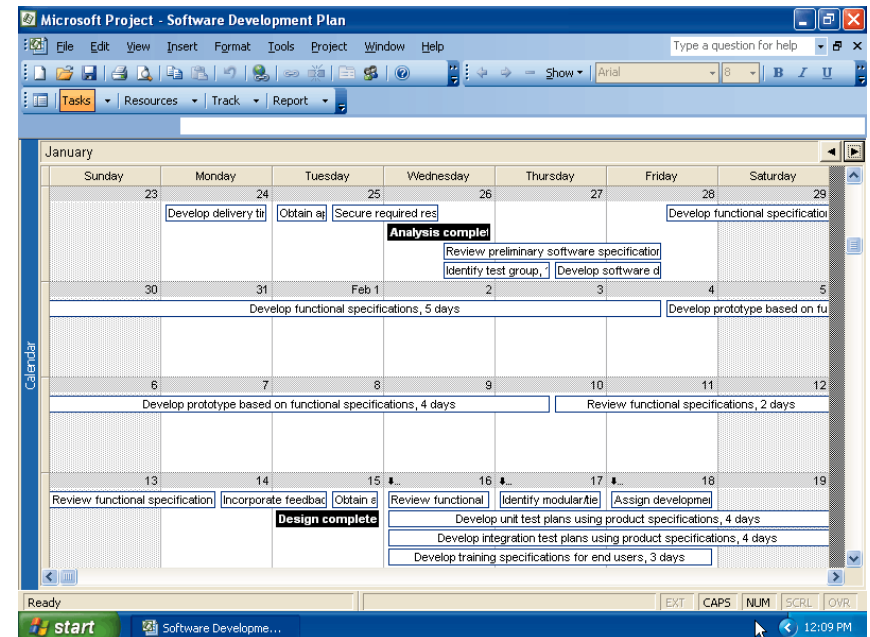
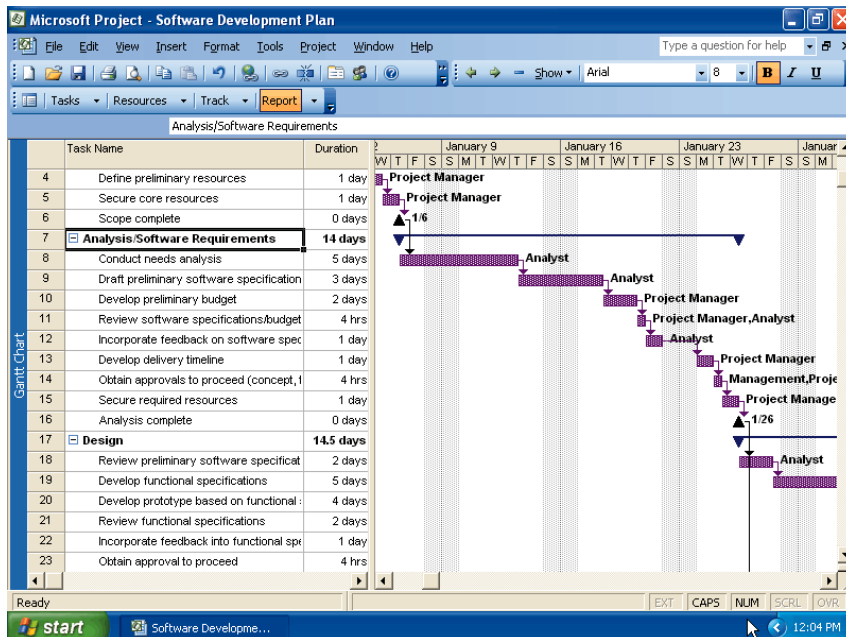
ID	Task Name	Duration	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
1	Planning	2w	1/20	2/1						
2	Analysis	12w		2/8				5/10		
3	Design	12w			3/20				6/15	
4	Implementation	3w						6/16		

What is the System Development Cycle?



What is **project management software**?

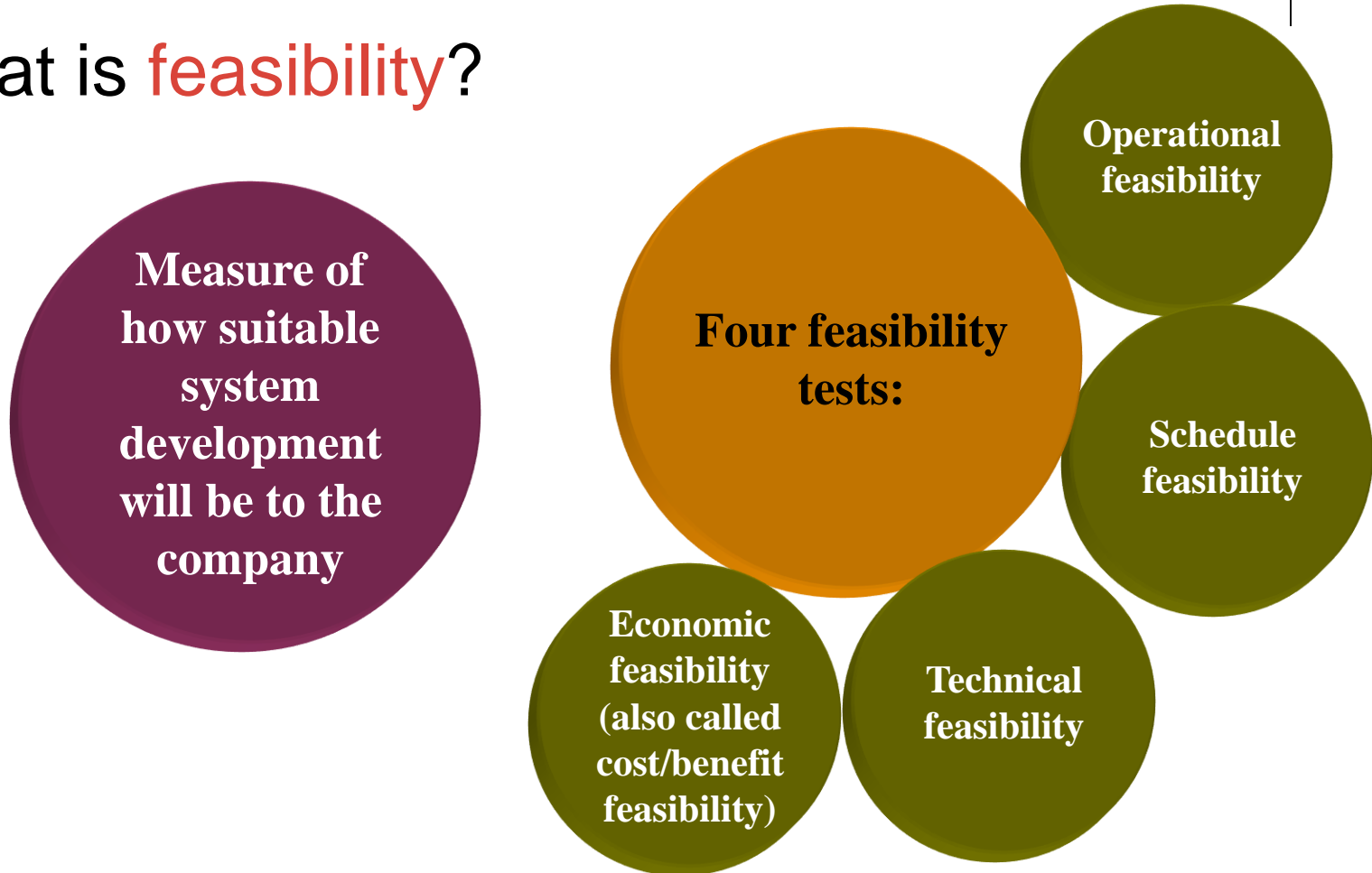
- Program (such as Microsoft Office Project 2003) used by project leaders to plan, schedule, and control projects



What is the System Development Cycle?



What is **feasibility**?



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

What is the System Development Cycle?



What are six data and information gathering techniques?

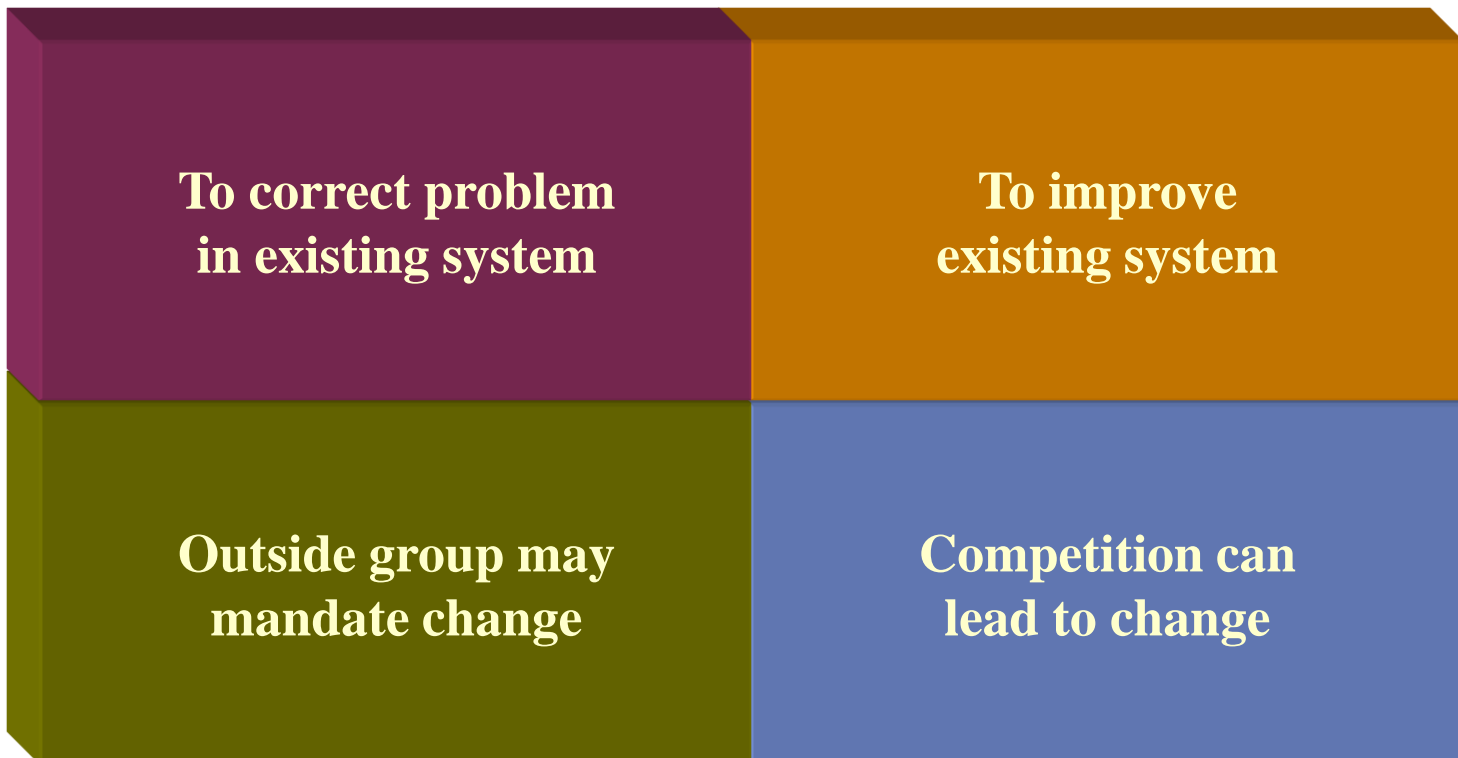
- **Review documentation**
- **Observe**
- **Questionnaire**
- **Interview**
- **Joint-application design (JAD) session**
- **Research**



What Initiates the System Development Cycle?



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



What is a request for system services?

- # Formal request for new or modified information system
- Also called project request

Project Request - Message

File Edit View Insert Format Tools Table Window Help

Send [Icons] Options... HTTP

This message has not been sent.

To: anna@evebox.com

Cc:

Subject: Project Request

[Icons] Arial 10 [Icons]

Bethany,

My staff is spending too much time copying and mailing materials to potential readers. Can your staff develop a solution for me?

Thanks,
Chad

Web Stop Cafe'

REQUEST FOR SYSTEM SERVICES

SUBMITTED BY: Day Vaidya **Form IT-001**

DEPARTMENT: Marketing **DATE:** 12-18-2008

TYPE OF REQUEST:

- ☐ New System
- ☒ Existing System Enhancement
- ☐ Existing System Modification

BRIEF STATEMENT OF PROBLEM:

The current data management system is not working properly and needs to be replaced or upgraded.

BRIEF STATEMENT OF EXPECTED SOLUTION:

The new system will allow for better data management and reporting. It will also be more user-friendly and secure.

NOTES: (To be completed by receiving information personnel)

Request Approved	Approved By: _____
Request Denied	Denied By: _____
Request Pending	Pending By: _____
Signatures: _____	DATE: _____





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**

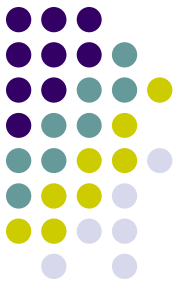


Analysis Phase

What is the **analysis phase**?

Conduct preliminary investigation, also called feasibility study

Perform detailed analysis



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

Web Stop Café

MEMORANDUM

To: Steering Committee
From: Karl Schmidt, Project Leader
Date: December 29, 2006
Subject: Feasibility Study of Vendor Web System

Following is the feasibility study in response to the request for a modification to our Web site. Your approval is necessary before the next phase of the project will begin.

FEASIBILITY STUDY
Page 2

Benefits of a New System

Following is a list of benefits that could be realized if the Web site at Web Stop Café were modified:

- Potential vendors would be more satisfied, leading to possible long-term relations
- Cost of supplies would be reduced by 30 percent
- Through a more efficient use of employees' time, the company could achieve a 20 percent reduction in temporary clerks in the marketing department
- Laser printers and copy machines would last 50 percent longer, due to a much lower usage rate

Feasibility of a New System

Operational
A new system will decrease the amount of equipment use and paperwork. Vendor information will be available in an easily accessible form to any vendor. Employees will have time to complete meaningful job duties, alleviating the need to hire some temporary clerks.

Technical
Web Stop Café already has a functional Web site. To handle the increased volume of data, however, it will need to purchase a database server.

Economic
A detailed summary of the costs and benefits, including all assumptions, is available on our FTP server. The potential costs of the proposed solution could range from \$15,000 to \$20,000. The estimated savings in supplies and postage alone will exceed \$20,000.

If you have any questions about the detailed cost/benefit summary or require further information, please contact me.

Recommendation

Based on the findings presented in this report, we recommend a continued study of the Vendor Web System.

Introduction

The purpose of this feasibility report is to determine whether it is beneficial for Web Stop Café to continue studying the Vendor Web System. The marketing manager has indicated his staff spends a considerable amount of time duplicating and distributing materials to potential vendors. This project would affect the marketing department and customer service. Also, any person that uses the Web site would notice a change.

Existing System

Background
One of the reasons for our financial success at Web Stop Café is we do not pay for the computers and equipment in our cafés. Instead, we allow computer vendors to use our cafés as a storefront for their products. This provides customers with the opportunity to try the hardware and software before making a purchase. When customers want to purchase computers, we direct them to the vendor's online storefront for discount pricing.

To showcase their hardware and software in the cafés, computer vendors request information from our marketing manager. The number of these requests is rising quickly. The cost of copying and mailing this material is becoming excessive.

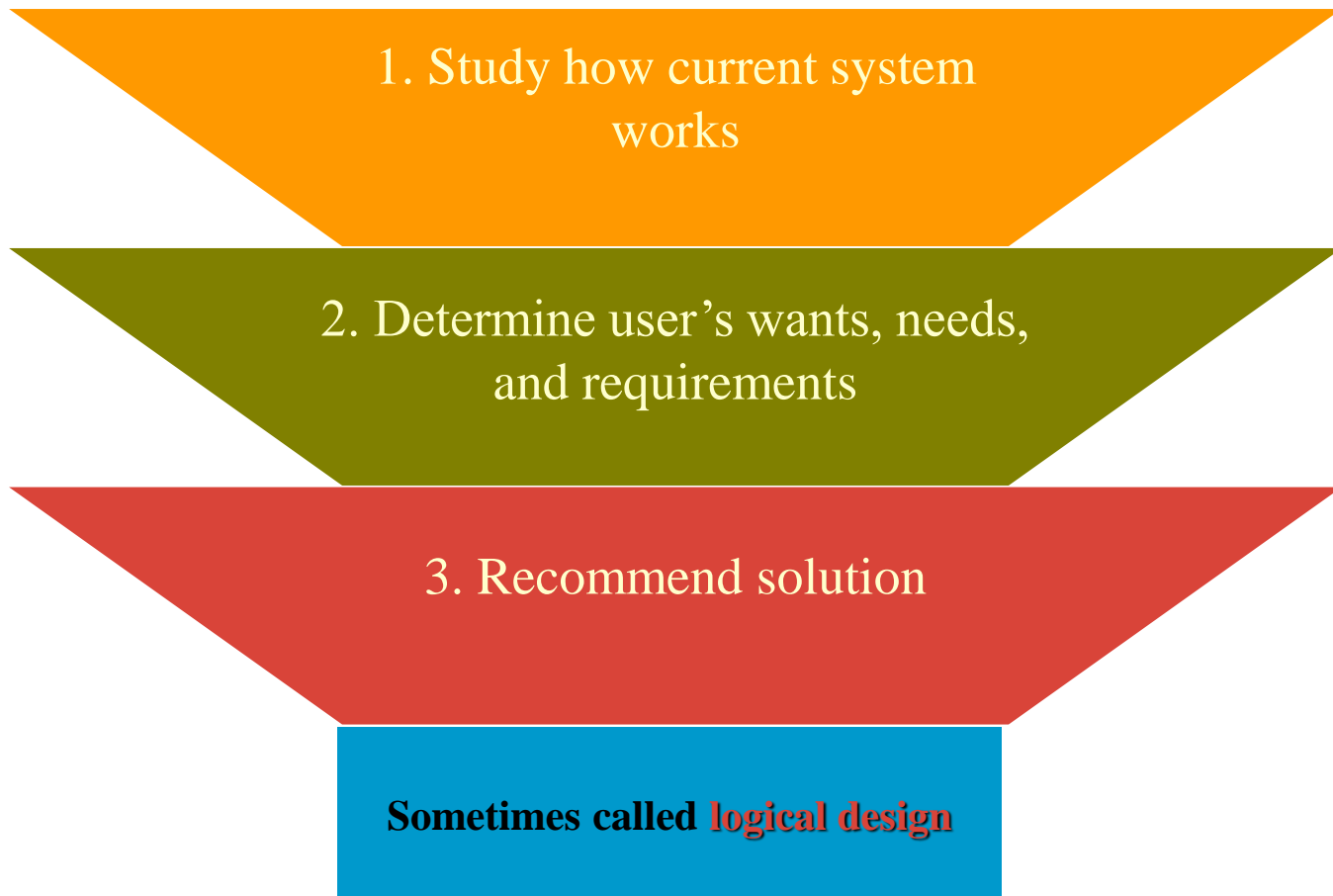
Problems
The following problems have been identified with the current information system at Web Stop Café:

- Employees spend too much time copying and duplicating vendor materials
- Potential vendors do not receive materials as quickly as in the past, which possibly could cause poor relations
- Resources are wasted including employee time, equipment usage, and supplies



Analysis Phase

What is detailed analysis?





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

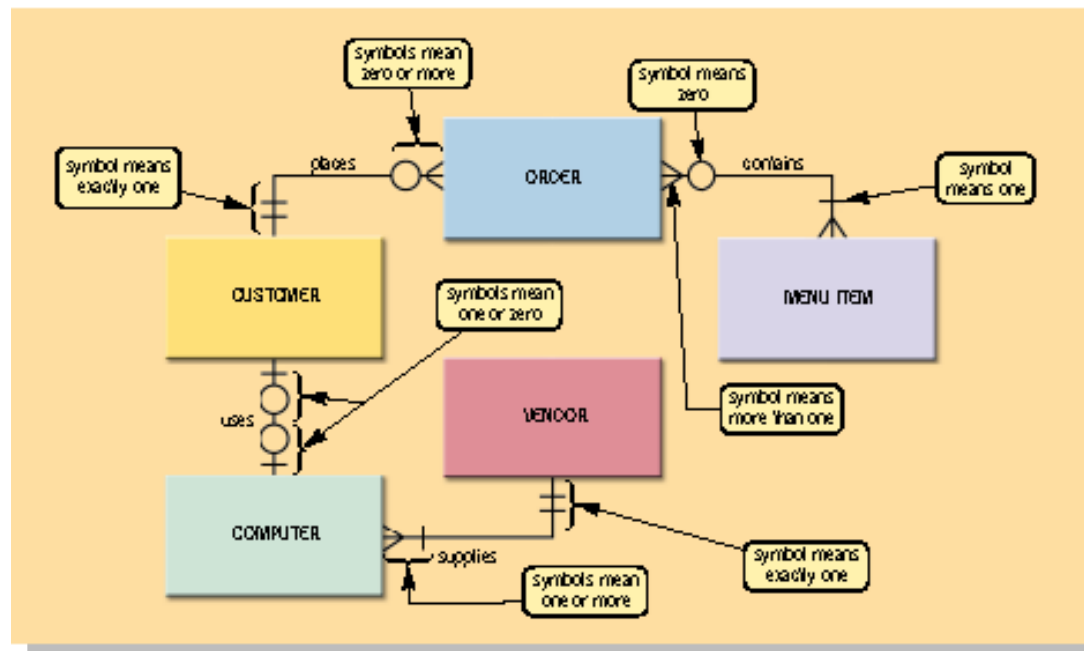
Project dictionary



Analysis Phase

What is an **entity-relationship diagram** (ERD)?

- **Tool that graphically shows connections between entities in system**

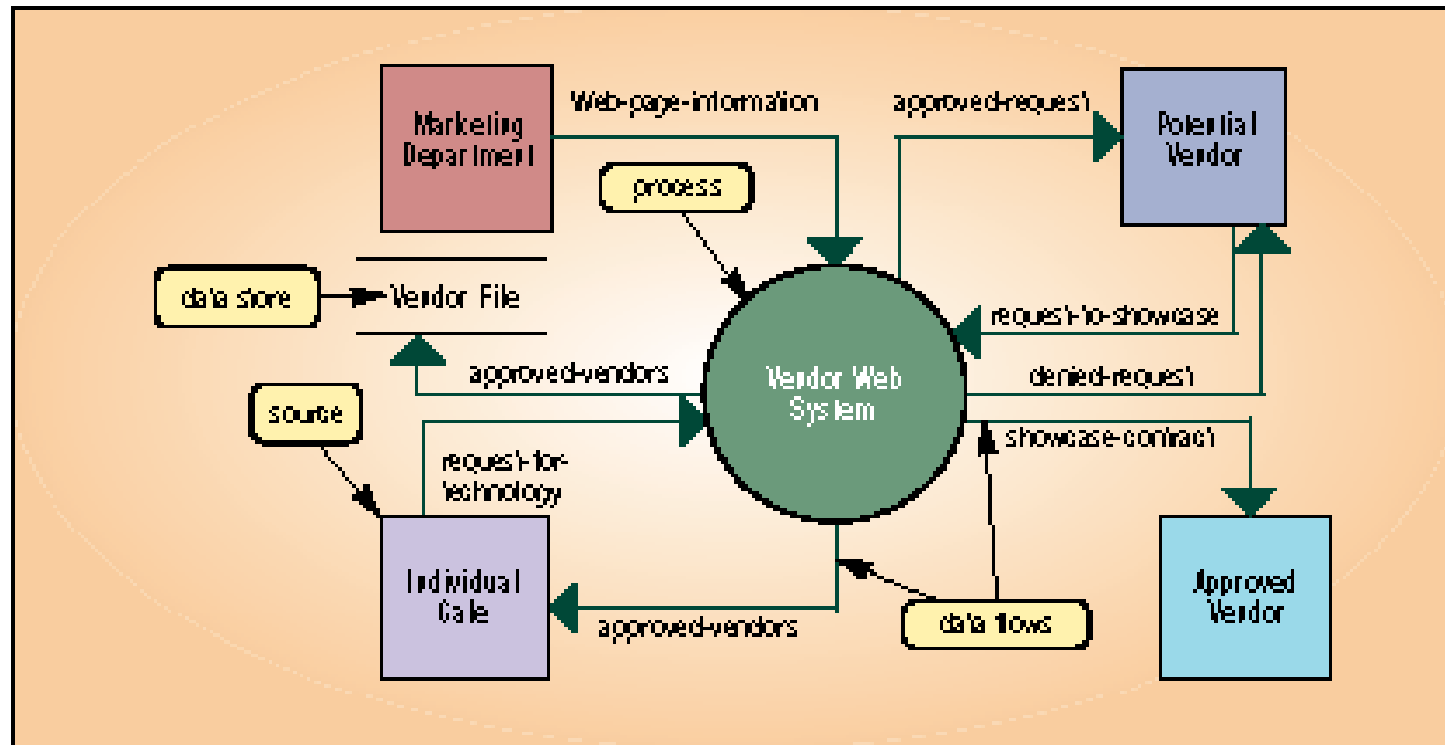




Analysis Phase

What is a **data flow diagram** (DFD)?

- **Tool that graphically shows flow of data in system**





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



Analysis Phase

What is Structured English?

- **Used to explain details of process in project dictionary**

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.



Analysis Phase

What is a **decision table**?

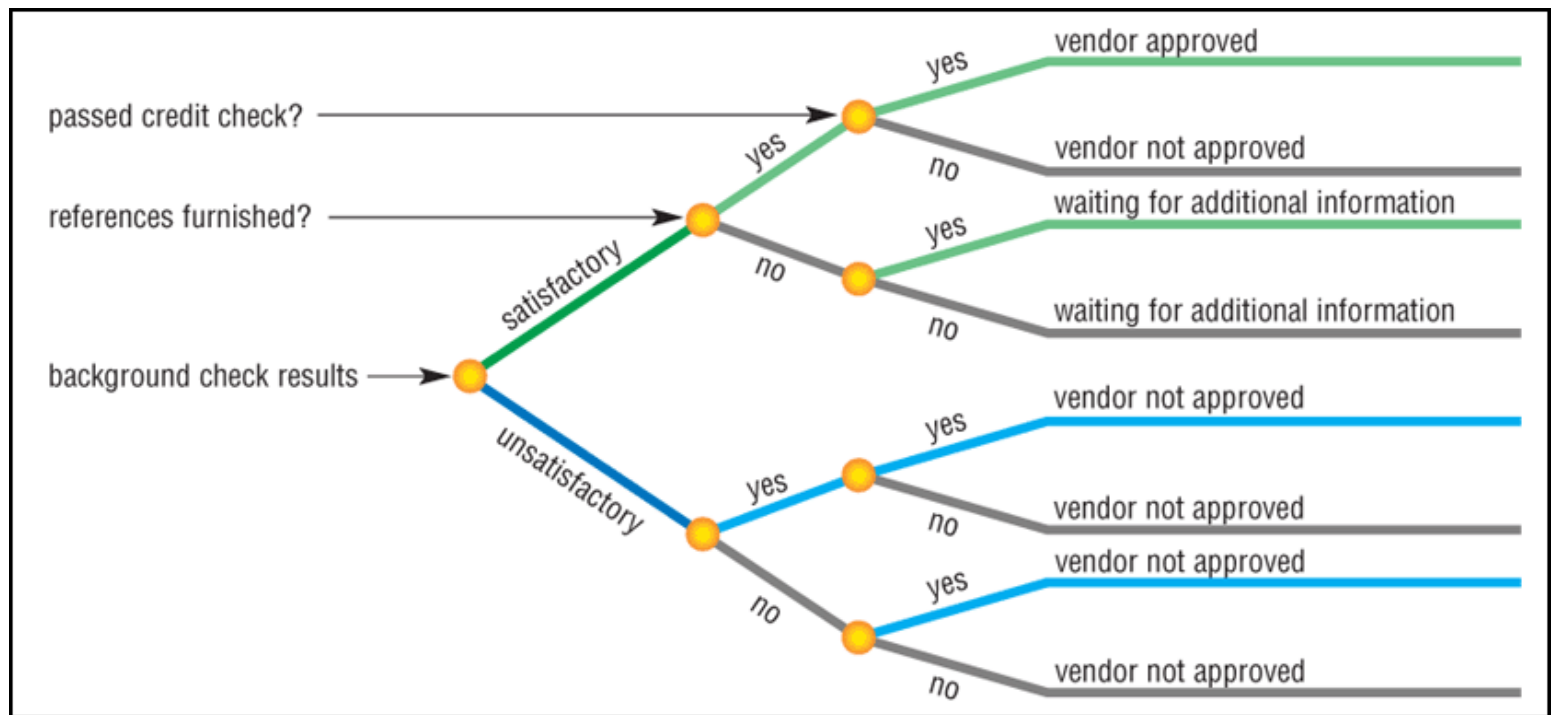
- **Lists variety of conditions and actions that correspond to each condition**

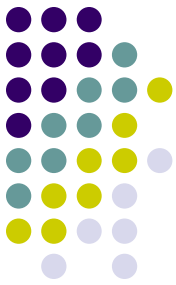
		1	2	3	4	5	6	7	8
	Background check results (S = Satisfactory, U = Unsatisfactory)	S	S	S	S	U	U	U	U
	References furnished?	Y	Y	N	N	Y	Y	N	N
	Passed credit check?	Y	N	Y	N	Y	N	Y	N
	Vendor approved	X							
	Vendor not approved		X			X	X	X	X
	Waiting for additional information			X	X				

Analysis Phase

What is a decision tree?

- **Shows conditions and actions graphically**





Analysis Phase

What is a **data dictionary**?

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

Date: 12/29/2006
Time: 10:36:28 AM

Project: WEB STOP CAFE

Page: 11

Detailed Listing -- Alphabetically
All Entries -- Data Flow Diagrams

Vendor ID	Data Element
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[Vendor File::Vendor ID](#)

Description:

A unique identification number assigned to each vendor.

Alias:

[Vendor Code](#)

Values & Meanings:

Required element

Cannot be blank

May not be duplicated

Data element attributes

Storage Type: Char

Length: 4

Display Format: AAAAA

Null Type: NotNull

Location:

File -->

[Vendor File](#)

Date Last Altered: 12/29

Date Created: 12/29



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

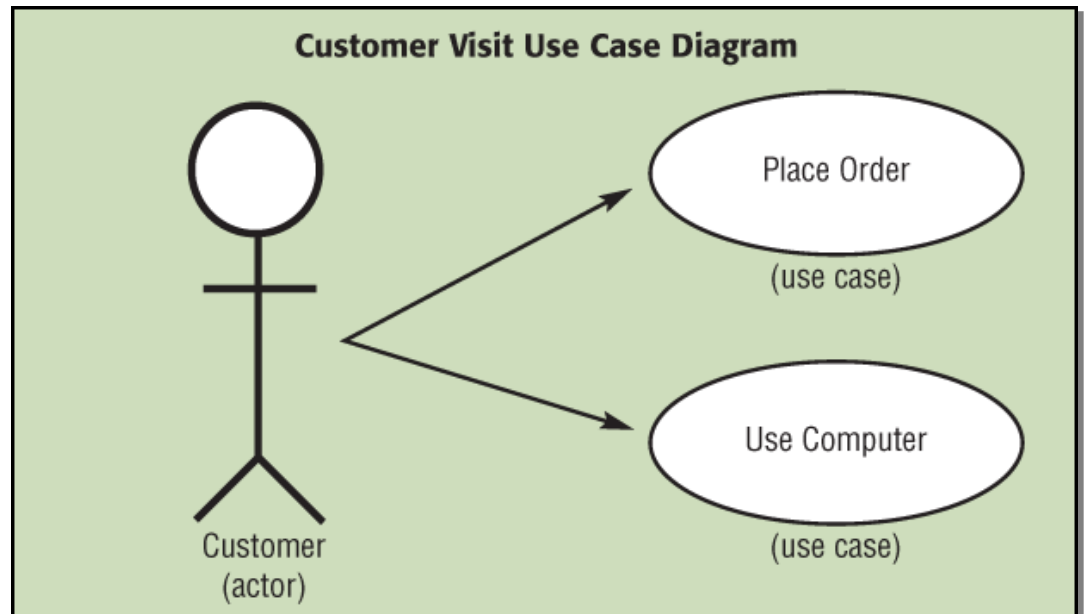


Analysis Phase

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



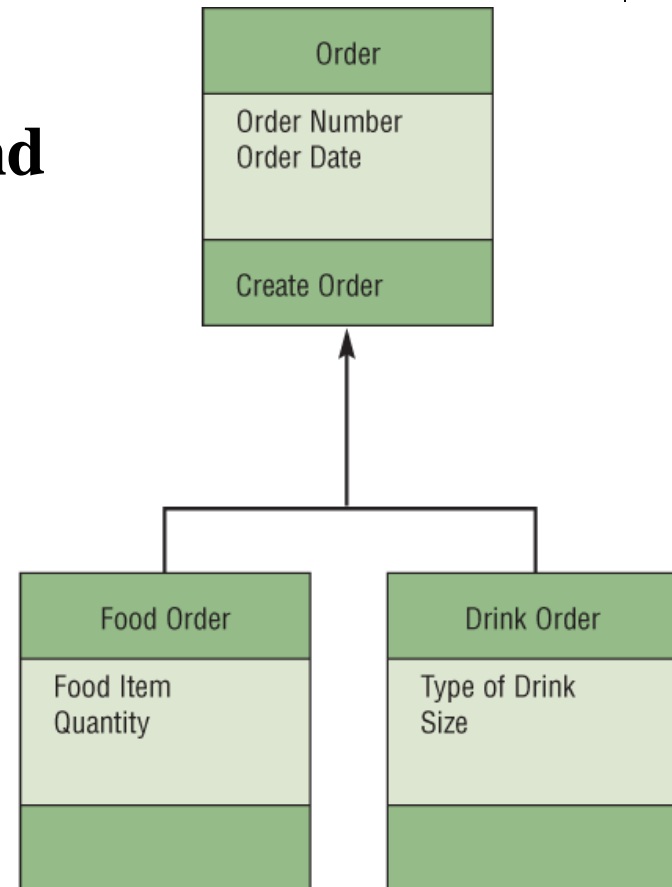


Analysis Phase

What is a **class diagram**?

➤ **Graphically shows classes and subclasses in system**

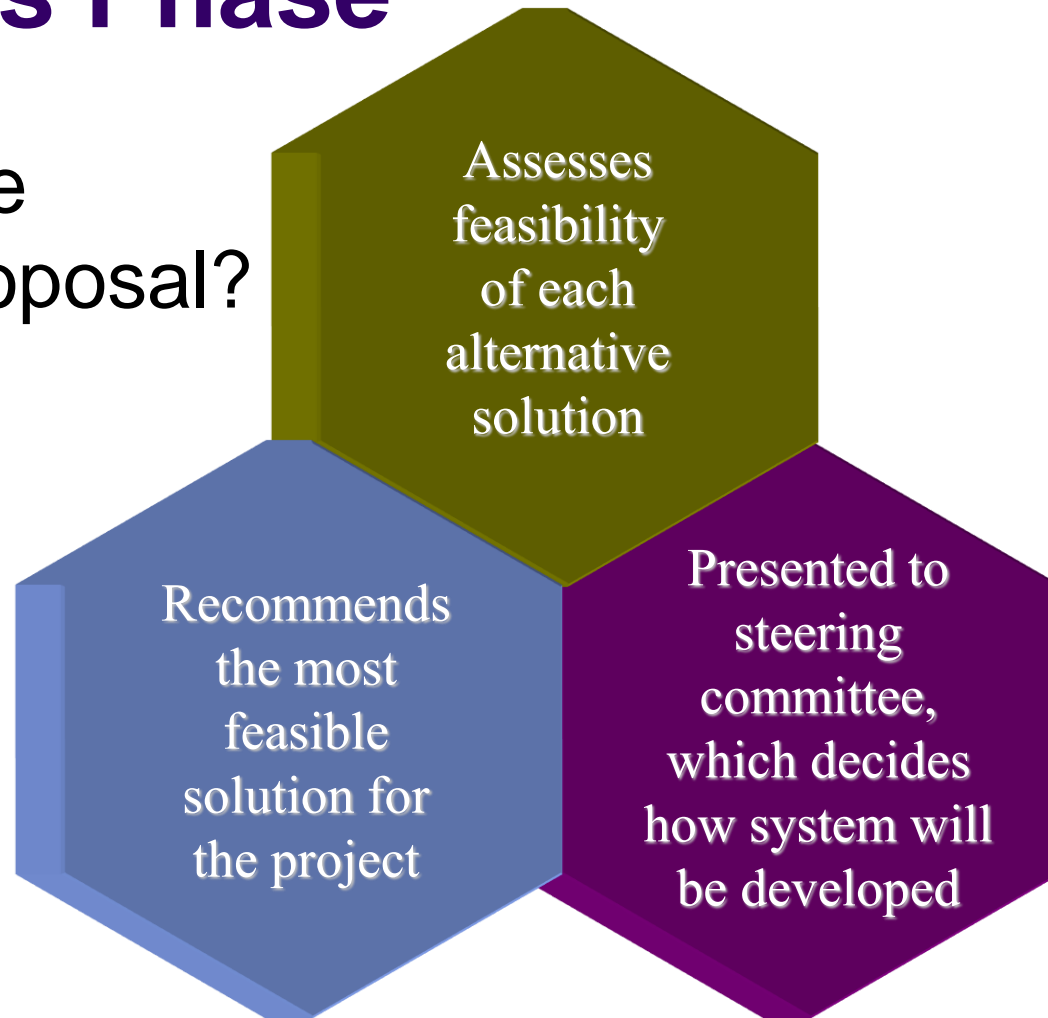
- Class is group of objects—
Can have lower levels
called subclasses





Analysis Phase

What is the system proposal?





Analysis Phase

What are possible software solutions?

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

Horizontal market software—meets needs of many companies

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

Vertical market software—designed for particular industry

Outsource—have outside source develop software