System analysis design final

Management Information System (Prime University)

Q. Describe 3 types of interview/question structure / arranging questions.

Ans:

There are 3 ways by which we can organize interview questions.

1. Pyramid
2. Funnel
3. Diamond

Pyramid: Starting with closed questions and working toward open-ended questions.

- Begins with very detailed, often closed questions
- Expands by allowing open-ended questions and more generalized responses
- Is useful if interviewees need to be warmed up to the topic or seem reluctant to address the topic

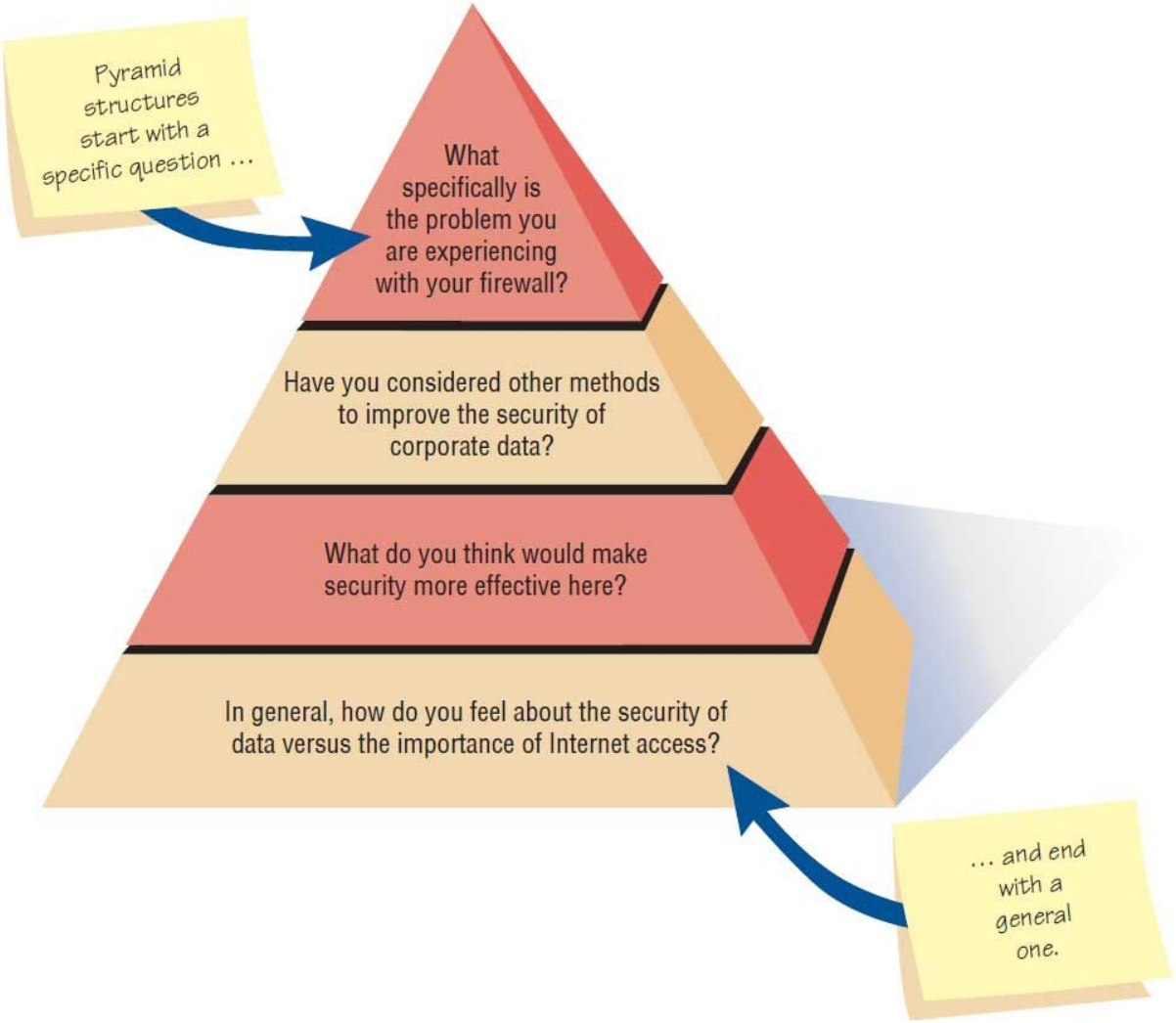


***Fig**: Pyramid Structure for Interviewing Goes from Specific to General Questions*

Funnel: Starting with open-ended questions and working toward closed questions.

- Begins with generalized, open-ended questions
- Concludes by narrowing the possible responses using closed questions
- Provides an easy, non threatening way to begin an interview
- Is useful when the interviewee feels emotionally about the topic

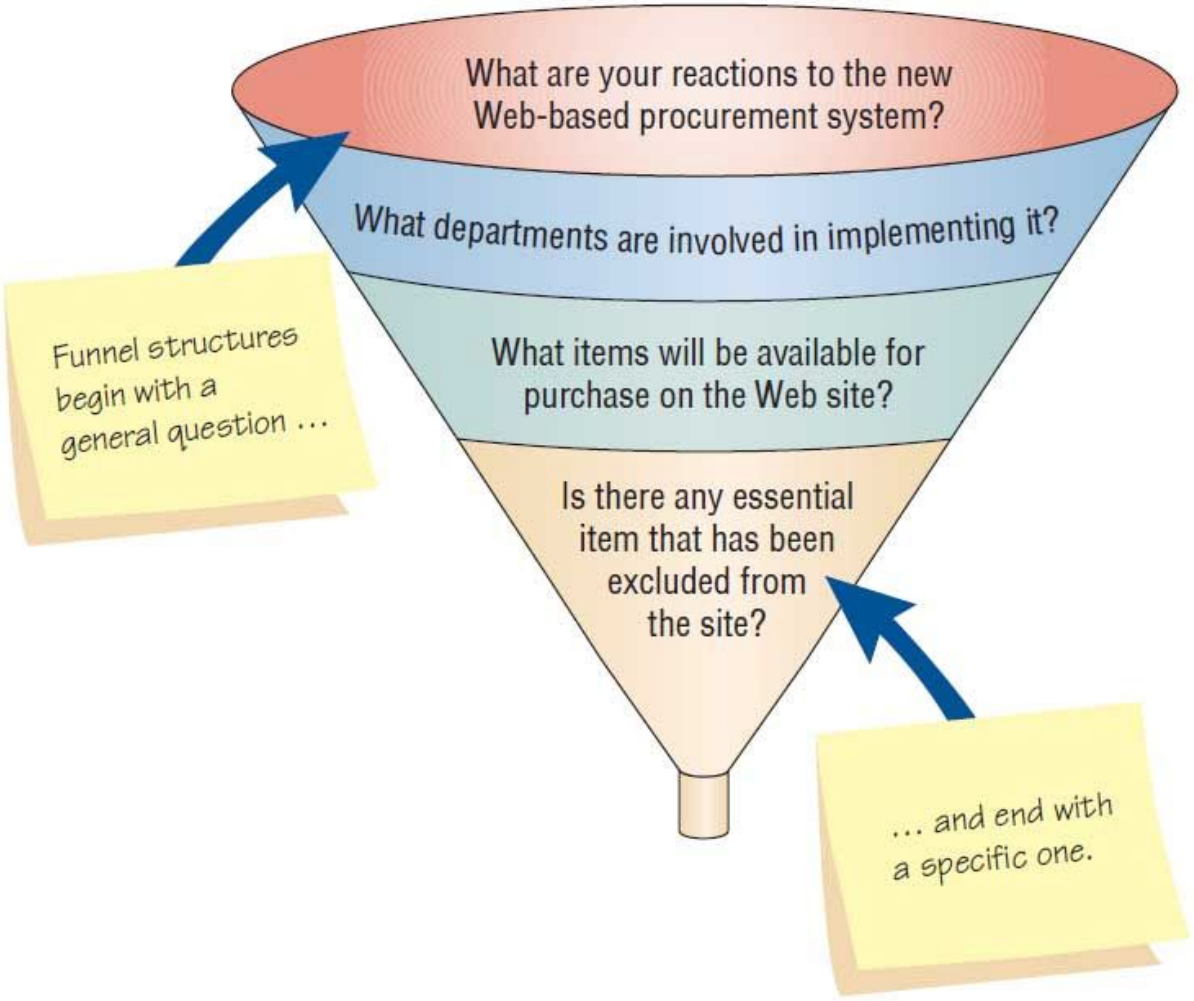


***Fig**: Funnel Structure for Interviewing Begins with Broad Questions then Funnels to Specific Questions*

Diamond: Starting with closed, moving toward open-ended, and ending with closed questions

- A diamond-shaped structure begins in a very specific way
- Then more general issues are examined
- Concludes with specific questions
- Combines the strength of both the pyramid and funnel structures
- Takes longer than the other structures

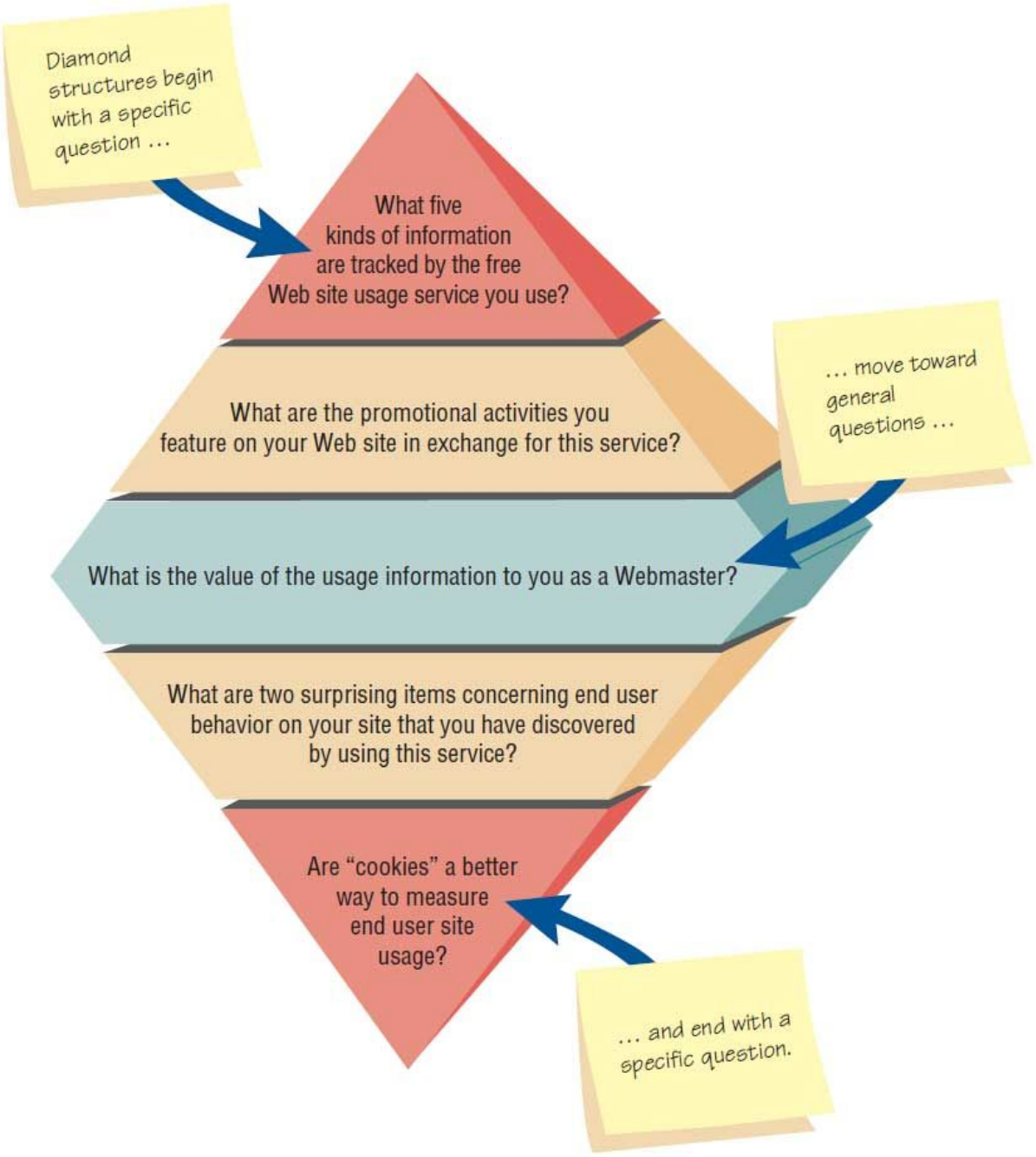


***Fig**:* Diamond-Shaped Structure for Interviewing Combines the Pyramid and Funnel Structures

Q. What kinds of information does a system analyst consider through the use of questionnaire or survey ?

Ans:

A questionnaire is defined as a research instrument that consists a set of questions or other types of prompts that aims to collect information from a respondent. These typically are a mix of close-ended questions and open-ended questions; long form questions offer the ability for the respondent to elaborate on their thoughts. Questionnaires were developed in 1838 by the Statistical Society of London.

A questionnaire may or may not be delivered in the form of a survey, but a survey always consists of questionnaire.

Questionnaires are useful in gathering information from key organization members about:

Attitudes:

It prepares interviewee to try doing new things

It is a mindset that visualizes and awaits favorable results.

Positive attitude centers on the positive side of life

Positive attitude means positive thinking.

Positive attitude helps believe that everything would turn good.

Beliefs:

Reliability, Beliefs is important thing, a analyst should also focus on beliefs because any system fall down because of employee. So honest employee is also an asset of an organization.

Behaviours:

Employee behaviour is defined as an employee's reaction to a particular situation at workplace

Consider respectness from others and also how to maintain a healthy work culture

Characteristics:

An analyst will focus on some characteristics of member/employee of organization. I.e: Passionate, Communication skills, Goal oriented, Organized and detail focused, adaptable, creative

Question type:

Questions are designed as either:

- **Open ended:** Open ended questions are questions that can be answered in depth and allow for original, unique responses, without being limited by multiple choice or a 'yes' or 'no' option.
- **Closed:** Closed questions are questions that can only be answered by selecting from a limited number of options, usually multiple-choice, 'yes' or 'no', or a rating scale (e.g., from strongly agree to strongly disagree).

Questionnaire Language:

- Simple
- Specific
- Short
- Not patronizing
- Free of bias
- Addressed to those who are knowledgeable
- Technically accurate
- Appropriate for the reading level of the respondent

Ways to Capture Responses When Designing a Web Survey:

1. One line text box: Used to obtain a small amount of text and limit the answer to a few words.
2. Scrolling text box: Used to obtain one or more paragraphs of text.
3. Check box: Used to obtain a yes-no answer.
4. Radio button: Used to obtain a yes no or true false answer.
5. Drop down menu: Used to obtain more consistent results.
6. Push button: Most often used for an action (Example: for submitting form, Reset the form)

Q. What is prototyping ? List the advantages, disadvantages of using prototyping to replace the traditional SLDC.

Ans:

Prototyping

Prototyping is an information-gathering technique useful in seeking user reactions, suggestions, innovations, and revision plans. It is useful for supplementing the traditional systems development life cycle. Prototyping is an attractive idea for complicated and large systems for which there is no manual process or existing system to help determining the requirements.

Two main problem with SDLC:

1. Extended time required to go through the development life cycle
2. User requirements changes over time

Rather than using prototyping to replace the SDLC use prototyping as a part of the SDLC.

Advantages:

- Users are actively involved in the development
- Since in this methodology a working model of the system is provided, the users get a better understanding of the system being developed.
- Errors can be detected much earlier.
- Quicker user feedback is available leading to better solutions.

- Missing functionality can be identified easily
- Confusing or difficult functions can be identified
  Requirements validation, Quick implementation of, incomplete, but functional, application.

Disadvantages:

- Leads to implementing and then repairing way of building systems.
- Practically, this methodology may increase the complexity of the system as scope of the system may expand beyond original plans.
- Incomplete application may cause application not to be used as the full system was designed
  Incomplete or inadequate problem analysis.

Q. When a PERT diagram useful for system design ? List 3 advantages of using a PERT diagram over a Gantt chart for scheduling system project.

Ans:

PERT:

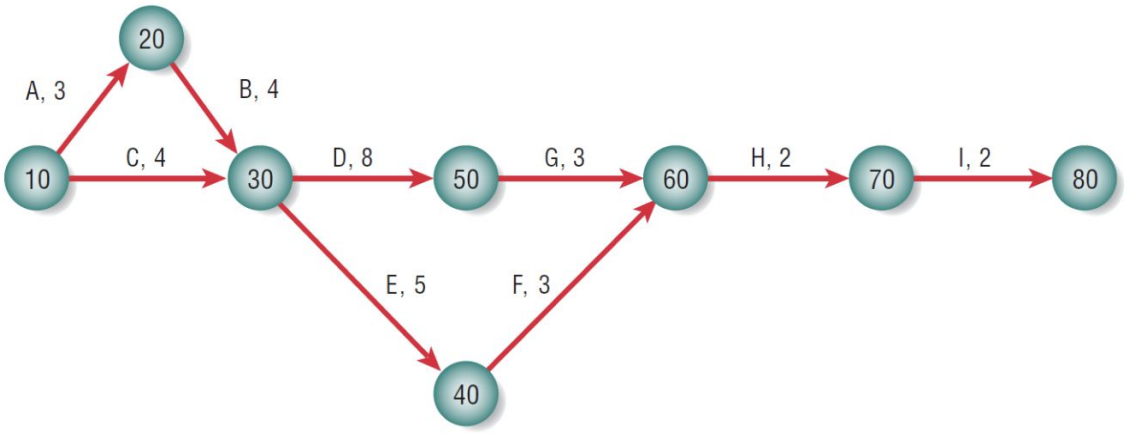
PERT is an acronym for Program Evaluation and Review Techniques. A program is represented by a network of nodes and arrows that are then evaluated to determine the critical activities, improve the schedule if necessary, and review progress once the project is undertaken.

PERT is useful when activities can be done in parallel rather than in sequence. The systems analyst can benefit from PERT by applying it to systems projects on a smaller scale, especially when some team members can be working on certain activities at the same time that fellow members are working on other tasks.

Advantages:

- Easy identification of the order of precedence
- Easy identification of the critical path and thus critical activities
* Easy determination of slack time

Activity		Predecessor	Duration
A	Conduct interviews	None	3
B	Administer questionnaires	A	4
C	Read company reports	None	4
D	Analyze data flow	B, C	8
E	Introduce prototype	B, C	5
F	Observe reactions to prototype	E	3
G	Perform cost-benefit analysis	D	3
H	Prepare proposal	F, G	2
I	Present proposal	H	2



In constructing the PERT diagram, the analyst looks first at those activities requiring no predecessor activities, in this case A (conduct interviews) and C (read company reports). In the example in Figure 3.22, the analyst chose to number the nodes 10, 20, 30, and so on, and he or she drew two arrows out of the beginning node 10. These arrows represent activities A and C and are labeled as such. Nodes numbered 20 and 30 are drawn at the end of these respective arrows. The next step is to look for any activity requiring only A as a predecessor; task B (administer questionnaires) is the only one, so it can be represented by an arrow drawn from node 20 to node 30. Because activities D (analyze data flow) and E (introduce prototype) require both activities B and C to be finished before they are started, arrows labeled D and E are drawn from node 30, the event that recognizes the completion of both B and C. This process is continued until the entire PERT diagram is completed. Notice that the entire project ends at an event called node 80.

IDENTIFYING THE CRITICAL PATH. Once the PERT diagram is drawn, it is possible to identify the critical path by calculating the sum of the activity times on each path and

choosing the longest path. In this example, there are four paths: 10–20–30–50–60–70–80, 10–20–30–40–60–70–80, 10–30–50–60–70–80, and 10–30–40–60–70–80. The longest path is 10–20–30–50–60–70–80, which takes 22 days. It is essential that the systems analyst carefully monitors the activities on the critical path so as to keep the entire project on time or even shorten the project length if warranted.

Q. Define system feasibility? Identify & discuss the 3 key elements of system feasibility ?

Ans:

Feasibility:
The Feasibility Study is the preliminary study that determines whether a proposed systems project is technically, financially, and operationally practical. The Alternatives Analysis, usually included as part of the Feasibility Study, identifies viable alternatives for the system design and development.
After an analyst determines reasonable objectives for a project, the analyst needs to determine if it is possible for the organization and its members to see the project through to completion. Generally, the process of feasibility assessment is effective in screening out projects that are inconsistent with the business's objectives, technically impossible, or economically without merit.
A project must show that it is feasible in all three of the following ways: technically, economically, and operationally.

Technical Feasibility:
- Can current technical resources be upgraded or added to in a manner that fulfills the request under consideration
- If not, is there technology in existence that meets the specifications

Economic Feasibility:

- Economic feasibility determines whether value of the investment exceeds the time and cost
- Includes:
- Analyst and analyst team time
- Business employee time
- Hardware
- Software
- Software development
- Operational Feasibility:
- Operational feasibility determines if the human resources are available to operate the system once it has been installed
- Users that do not want a new system may prevent it from becoming operationally feasible

Q. How you will manage inventory computer hardware in your organization?

Ans:

The systems analyst needs to work with users to determine what hardware will be needed. Hardware determinations can come only in conjunction with determining human information requirements. Knowledge of the organizational structure and how users interact with technologies in an organizational setting can also be helpful in hardware decisions.

Inventorying Computer Hardware

Begin by inventorying what computer hardware is already available in the organization. As will become apparent, some of the hardware options involve expanding or recycling current hardware, so it is important to know what is on hand. If an updated computer hardware inventory is unavailable, the systems analyst needs to set up one quickly and carry through on it. We need to know the following:

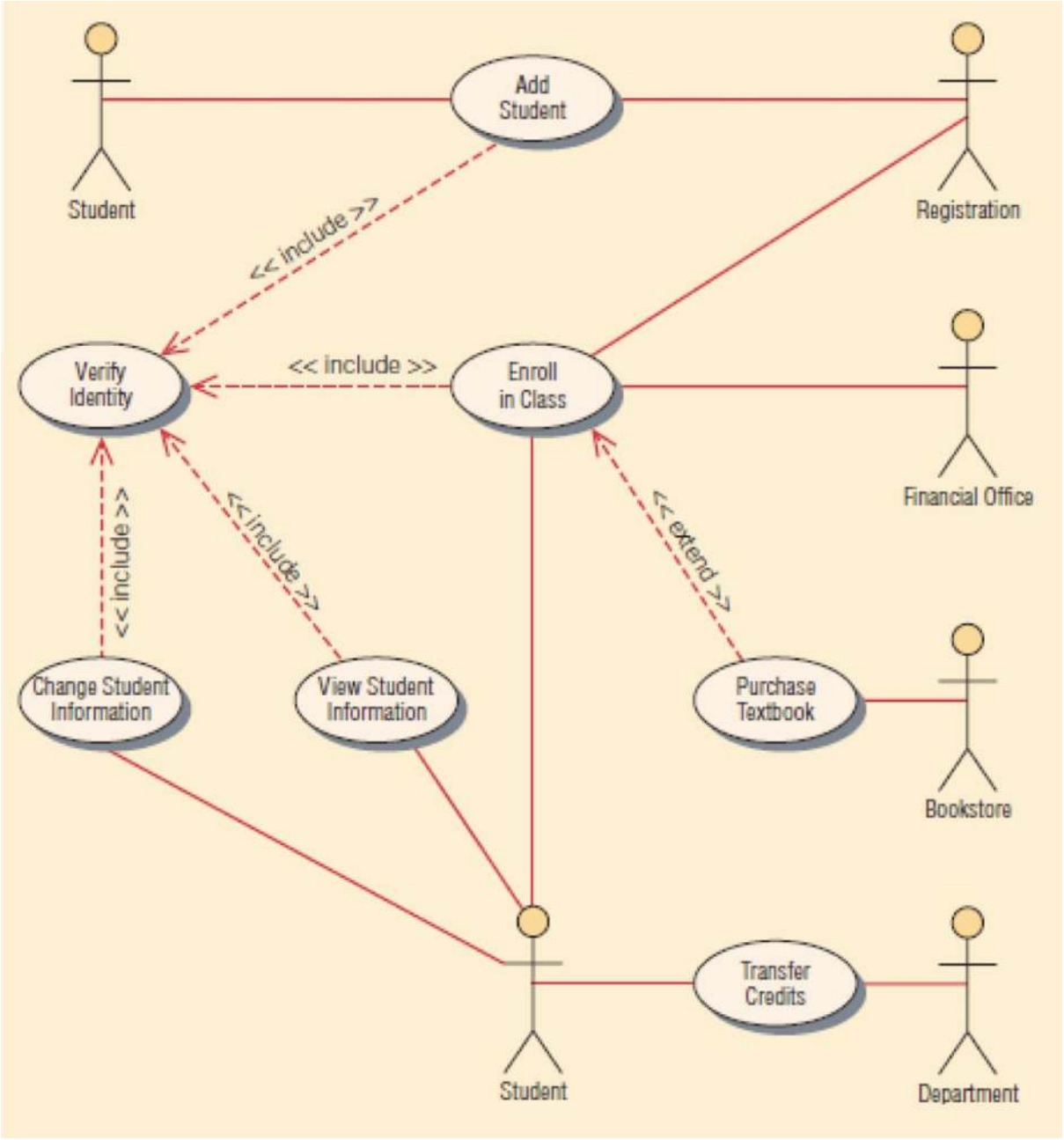
1. The type of equipment: model number, manufacturer.
2. The operation status of the equipment: on order, operating, in storage, in need of repair.
3. The estimated age of the equipment.
4. The projected life of the equipment.
5. The physical location of the equipment.
6. The department or person considered responsible for the equipment.
7. The financial arrangement for the equipment: owned, leased, rented.

Ascertaining the current hardware available will result in a sounder decision-making process when hardware decisions are finally made, because much of the guesswork about what exists will be eliminated. Through the earlier interviews with users, questionnaires surveying them, and research of archival data, which already know the number of people available for data processing as well as their skills and capabilities. Then analyst use this information to project how well the staffing needs for new hardware can be met.

Q. Define Use case diagram? Use case diagram to enroll student in an university.

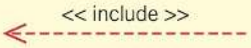
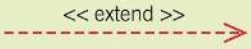
Ans:

Use case: In software and systems engineering, a use case is a list of actions or event steps typically defining the interactions between a role and a system to achieve a goal. The actor can be a human or other external system.



Notice that only the most important functions are represented. The **Add Student** use case does not indicate how to add students, the method of implementation. Students could be added in person, using the Web, using a touch-tone telephone, or any combination of these methods. The **Add Student** use case includes the **Verify Identity** use case to verify the identity of the student. The **Purchase Textbook** use case extends the **Enroll in Class** use case, and may be part of a system to enroll students in an online course. It may seem as if the **Change Student Information** use case is a minor system feature and should not be included on the use case diagram, but because this information changes frequently, administration has a keen interest in allowing students to change their own personal information. The fact that the administrators deem this to be important not only justifies, but calls for, the use case to be written up. Students would not be allowed to change grade point average, outstanding fees, and other information. This use case also includes the **Verify**

Identity use case, and in this situation, it means having the student enter a user ID and password before gaining access to the system. **View Student Information** allows students to view their personal information, as well as courses and grades.

Relationship	Symbol	Meaning
Communicates		An actor is connected to a use case using a line with no arrowheads.
Includes		A use case contains a behavior that is common to more than one other use case. The arrow points to the common use case.
Extends		A different use case handles exceptions from the basic use case. The arrow points from the extended to the basic use case.
Generalizes		One UML "thing" is more general than another "thing." The arrow points to the general "thing."