

Systems Analysis Key Technical Terms

A list of defined key terms with examples that are important in the field of systems analysis:

1. **Elementary Business Process (EBP):** A fundamental task that is usually performed by one person in one place at a given time in response to a business event. Commonly represented by use cases in the system development life cycle; for example, an online store may have *Add item to cart*, which is a good example of an EBP.
2. **Affordance:** The appearance of a specific control (e.g., icon, button) suggests its function (i.e., the purpose for which the control is used). For example, the classic play, stop, and track seek buttons in digital media players like iTunes are ubiquitous because decades of use in VHS, cassette tape, CD, and DVD players provided context for users to implicitly know what function they serve.
3. **Double-barrelled questions:** When a question has two implied meanings but only allows for one answer.
4. **Open-ended questions:** Questions that encourage discussion or explanation, which enables a large number of requirements to be covered fairly quickly. For example, “*How do you do this function?*”
5. **Closed-Ended questions:** Questions that elicit specific facts, which provide the nitty-gritty detail to develop correct solutions. For example, “*How many forms a day do you process?*”
6. **Stakeholders:** People who have an interest in the successful implementation of the system.
 - **Internal stakeholders:** people within the organisation who interact with the system or have a significant interest in its operation or success.
 - **External stakeholders:** people outside the organisation’s control and influence who interact with the system or have a significant interest in its operation or success.
 - **Operational stakeholders:** people who regularly interact with a system in the course of their jobs or lives.
 - **Executive stakeholders:** people who don’t interact directly with the system but who either use information produced by the system or have a significant financial or other interest in its operation and success.
7. **Synchronisation bar:** an activity diagram component that either splits a control path into multiple concurrent paths or recombines concurrent paths.
8. **Swimlane:** an activity diagram component that divides the workflow activities into groups showing which agent performs which activity.
9. **User goal technique:** a technique used to identify use cases by determining what specific goals or objectives must be completed by the system for the user.
10. **Event decomposition technique:** a technique to identify use cases by determining the business events to which the system must respond.
11. **Automation boundary:** the boundary between the computerised portion of the application and the users who operate the application but are part of the total system.
12. **FURPS:** an acronym that stands for functional, usability, reliability, performance, and security requirements.
13. **Problem domain:** the specific area (domain) of the user’s business need that is within the scope of the new system.
14. **Use case:** an activity that the system performs in response to a request by a user.

15. **Cardinality:** a measure of the number of links in a particular relationship between a thing (database data entity) and one or more other things (database data entities).
16. **Multiplicity:** in UML, a measure of the number of links in a particular association between a thing (object) and one or more other things (objects).
17. **Perfect technology assumption:** the assumption that a system runs under perfect operating and technological conditions.
18. **System controls:** checks or safety procedures to protect the integrity of the system and the data.
19. **Event:** something that occurs at a specific time and place, can be precisely identified, and must be remembered by the system.
 - **External event:** an event that occurs outside the system, usually initiated by an external agent.
 - **Temporal event:** an event that occurs as a result of reaching a point in time.
 - **State event:** an event that occurs when something happens inside the system that triggers some process.
20. **Brainstorming technique:** a technique used to identify problem domain classes in which developers work with users to identify classes by thinking about different types of things they use in their work.
21. **Noun technique:** a technique used to identify things in the problem domain by finding and classifying the nouns in a dialog or description.
22. **ERD (Entity Relationship Diagram):** a diagram consisting of data entities, their attributes, and their relationships.
23. **Semantic net:** a graphical representation of an individual data entity and its relationship with other individual data entities.
24. **Association class:** an association that is also treated as a class; often required in order to capture attributes for the association.
25. **Generalisation / specialisation:** a type of hierarchical relationship in which subordinate classes are subsets of objects of the superior classes; an inheritance hierarchy.
26. **Superclass:** the superior or more general class in a generalisation/specialisation relationship.
27. **Subclass:** the subordinate or more specialised class in a generalisation/specialisation relationship.
28. **Inheritance:** the concept that specialisation classes inherit characteristics of the generalisation class.
29. **Abstract class:** a class that only exists in a model so subclasses can inherit from it.
30. **Concrete class:** a class that allows individual objects or instances to exist.
31. **Whole-part relationship:** relationships between classes in which one class is a part or a component portion of another class.
32. **Aggregation:** a type of whole-part relationship in which the component parts also exist as individual objects apart from the aggregate.

33. **Composition:** a type of whole-part relationship in which the component parts cannot exist as individual objects apart from the total composition.
34. **State:** a condition during an object's life when it satisfies some criterion, performs some action, or waits for an event.
35. **Compound attribute:** an attribute that consists of multiple pieces of information but is best treated in the aggregate.
36. **Concurrency / concurrent states:** the condition of being in more than one state at a time.
37. **CRUD technique:** an acronym for **Read/Report, Update, and Delete**—a technique to validate or refine use cases.
38. **Lifeline:** the vertical (dashed) line under an object on a sequence diagram to show the passage of time for the object.
39. **Precondition:** conditions that must be true before a use case begins.
40. **Postcondition:** what must be true upon the successful completion of a use case.
41. **Guard-condition:** a true/false test to see whether a transition can fire.
42. **Metaphors:** analogies between features of the user interface and aspects of physical realities with which users are familiar.
43. **Human-computer interaction (HCI):** field of study concerned with the efficiency and effectiveness of user interfaces vis-à-vis computer systems, human-oriented input and output technology, and psychological aspects of user interfaces.
44. **Usability:** the degree to which a system is easy to learn and use.
45. **Human-interface objects (HIOs):** icons and other objects on a screen that can be manipulated by the user and cause some action to occur.
46. **Breadcrumb navigation:** the technique of displaying the sequence of pages traversed to allow easy backing out to a previous page.
47. **Mobile responsive:** designing Web sites so that the pages are responsive to being displayed on small, mobile devices.
48. **Executive reports:** reports used by high-level managers to assess overall organisational health and performance.
49. **Drill down report:** user-interface design technique that enables a user to select summary information and view supporting detail.
50. **System sequence Diagram (SSD):** a diagram showing the sequence of messages between an actor and the automated part of the system during a use case or scenario.