Types of Systems

* Soft – difficult to define precisely
  + Depends on viewpoint of person describing it
  + Difficult to agree on boundaries and behaviour
  + Eg, all human activity systems
* Hard – well defined
  + Easy to agree on boundaries
  + Eg, mechanical operation of car

Problem statement – clear and concise description of the issue(s) that need(s) to be addressed by a problem solving team. Issues, Goals and Objectives, Method, and Scope.

Requirements engineering – set of activities concerned with identifying and communicating the purpose of a software-intensive system and the context in which it will be used

Requirement analyst must identify the problem/opportunity

* Which problems need to be solved? (problem boundaries)
* Where is the problem? (context/problem domain)
* Whose problem is it? (stakeholders)
* Why does it need solving? (goals)
* How might a software system help? (scenarios)
* When does it need solving? (development constraints)
* What might prevent us solving it? (feasibility/risk)

Typical problems in requirement specifications:

* Noise
* Silence
* Over specification
* Contradiction
* Ambiguity
* Forward reference

Things you want:

* Valid/correct
* Unambiguous
* Complete
* Understandable
* Consistent
* Ranked
* Verifiable
* Modifiable
* Traceable

Requirements Specification – Purpose

* Communication
* Contractual
* Baseline for evaluating the software
* Baseline for change control

Requirements Specification – Audience

* Customers and users
* Systems analysts
* Developers/programmers
* Testers
* Project managers

Specification should include

* Functionality
* External influences
* Required performance
* Quality attributes
* Design constraints

Critical System – a computer, electronic or electromechanical system that the failure of which may have serious consequences

* Safety-critical systems eg, human death/injury
* Mission-critical systems eg, failure of goal directed activity
* Business-critical systems eg, financial loss/failure of business