

# Software Processes Part II

## CS4003 - Systems Modeling

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# Systems Modeling

System modeling is the process of developing abstract models of a system, with each model presenting a different view or perspective of that system.

# Types of System Models

- Context models
- Interaction models
- Structural models
- Behavioral models
- Model-driven engineering

# Sequence Diagram

Sequence diagrams are part of the UML and are used to model the interactions between the actors and the objects within a system.

# Designing Sequence Diagrams

- Design based on actor in a linear fashion (left to right)
- Show interaction of objects based on data and application
- Layer classifiers

# Requirements Engineering

- User requirements
- System requirements

# User Requirements

- Statements in natural language plus diagrams of the services the system provides and its operational constraints. Written for customers.

# Systems Requirements

- More technical literature that defines things like the tech stack. Written for developers.



# Functional vs non-functional requirements

- Functional statements are statements of services the system should provide.
- Non-functional statements are constraints on the services of functions offered such as timing constraints. It's not based on state but rather processing.

# Metrics for specifying nonfunctional requirements

- Speed
- Size
- Ease of use
- Reliability
- Robustness
- Portability

# Requirements processes

- Elicitation
- Analysis
- Validation
- Management

In practice, the processes are an iterative activity in which these processes are interleaved.