# Course Retrospective
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CSE 403
Lecture 27

# Is software different?

- Methodology for building software very different
  - Fewer reviews
  - Fewer people involved in components
- Software is far more complicated
- Different change and update models

# Scalability

- Working with large software systems is inherently different than small systems
- What does 1000000 lines of code look like?
- Difficult to appreciate large scale issues working on a small scale

# The bigger picture

- Building software is rarely the true objective
  - Even for Microsoft!
- Answering to the customer
  - Complex set of economic and technical constraints

# Modeling the Software Process

- Software life cycles
- Waterfalls and Spirals
- Value of modeling
  - Understand process
  - Framework for work process
- Software construction only a portion of the process

# Tradeoffs

- Engineering is about resource tradeoffs
- Constraints
  - Money, Time, Resources, Personnel, Environment
- Where to cut back
  - Quality, Features, Bug fixes, Process, Generality, Schedule, . . .

## Risk Management

- Developing software is planning under uncertainty
- Source of risks
- Assessing and tolerating risks
- Risk Mitigation

## People factors - Teams

- Increased workforce
- Diversity of Skills
- Economics

- Team organization
- Team dynamics

## People factors - Motivation

- This single most important factor in determining team success / failure
- Ways to motivate
- Ways to demotivate

## Requirements

- Understand what to build
- Many different formal approaches
- Functional and non-functional requirements

## Design

- General understanding of design can help the design of software
- Basic design rules
  - Provide a good conceptual model
  - Make things visible
  - Principle of Mapping
  - Principle of Feedback

## Quality assurance

- Independence of QA
- Many different aspects of quality
- Deliverable of QA is information
- Write it down

## Testing

- Plan for testing from beginning of project
- Bug management process central in shipping a product

## What else????