



Design of Software Systems

Winter 2017, BSc Software Engineering

Introduction

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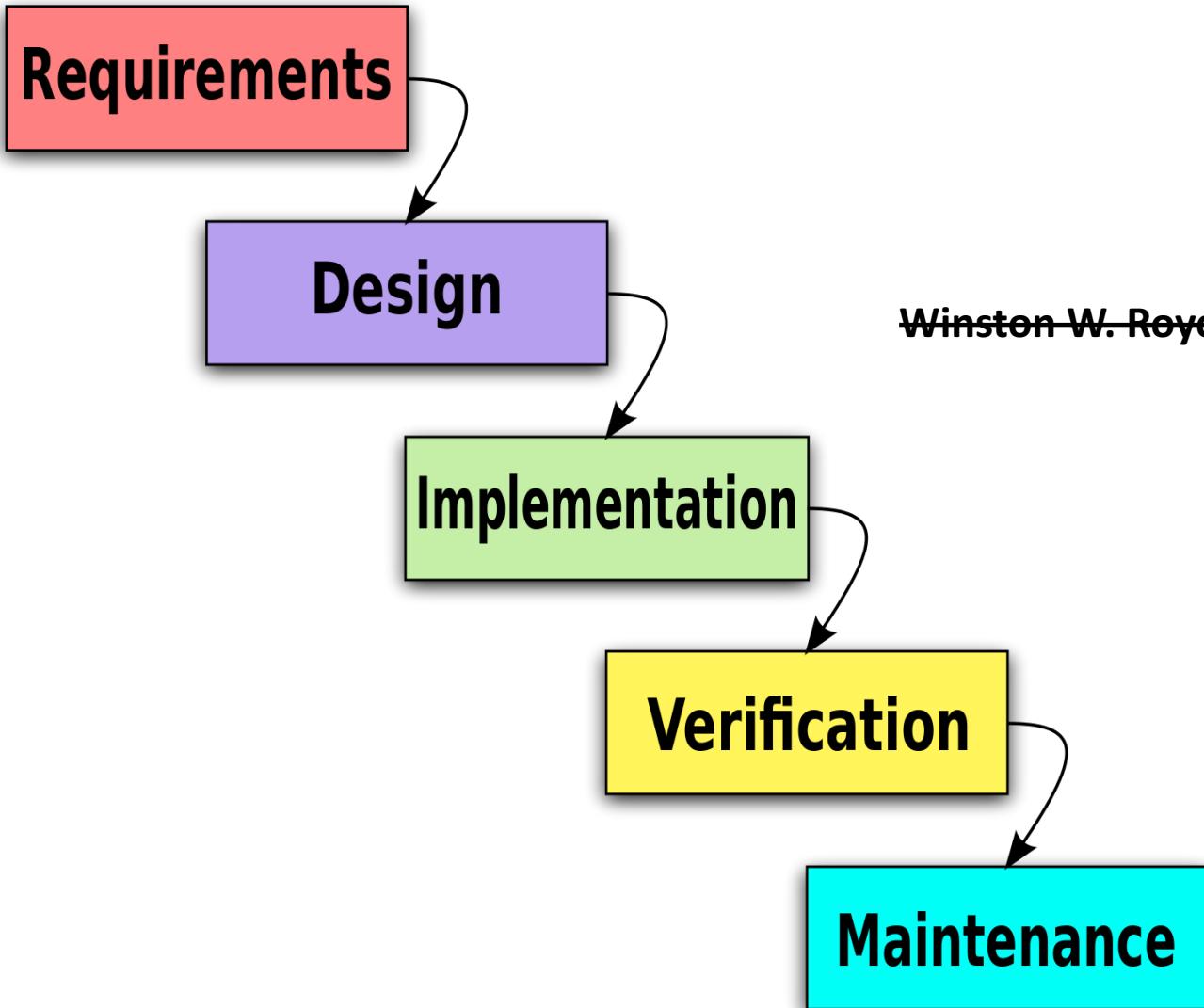
Agenda

- Overview of Agile
- Reflection on scrum
- Introduction to design of software systems

AGILE

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First... Waterfall Approach



Agile

- It is focused on few but basic values and principles
 - “Manifesto for Agile Software Development”
- For example:
 - Working software over comprehensive documentation
 - Customer collaboration over contract negotiation
 - Responding to change over following a plan
- Encourages:
 - Welcoming change late
 - Continuous testing
 - Refactoring



Impact/Effect of Agile: Discuss

- **Project scope (amount work to be carried out)**
- **Quality**
- **Schedule of the software development project (productivity, time, etc)**
- **Budget for the software development project**
- **Communication (e.g., teamwork)**

Impact/Effect of Agile: Discuss

Interesting research paper: Indira Nurdiani, Jürgen Börstler, Samuel A. Fricker, “The impacts of agile and lean practices on project constraints: A tertiary study”, Journal of Systems and Software, Volume 119, 2016, Pages 162-183

SCRUM

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Reflection: Scrum

- How many (main) Scrum roles are there?**
- What are the roles?**
- What is a Product Backlog?**

Reflection: Scrum

- **How many Scrum main roles are there?**
 - 3
- **What are the roles?**
 - Product owner, the Team member(s), and Scrum-master
- **What is a Product Backlog?**
 - List of functional and nonfunctional requirements that captures the stakeholders vision of the final product

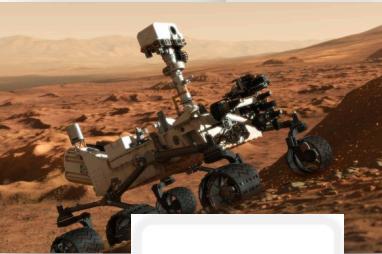
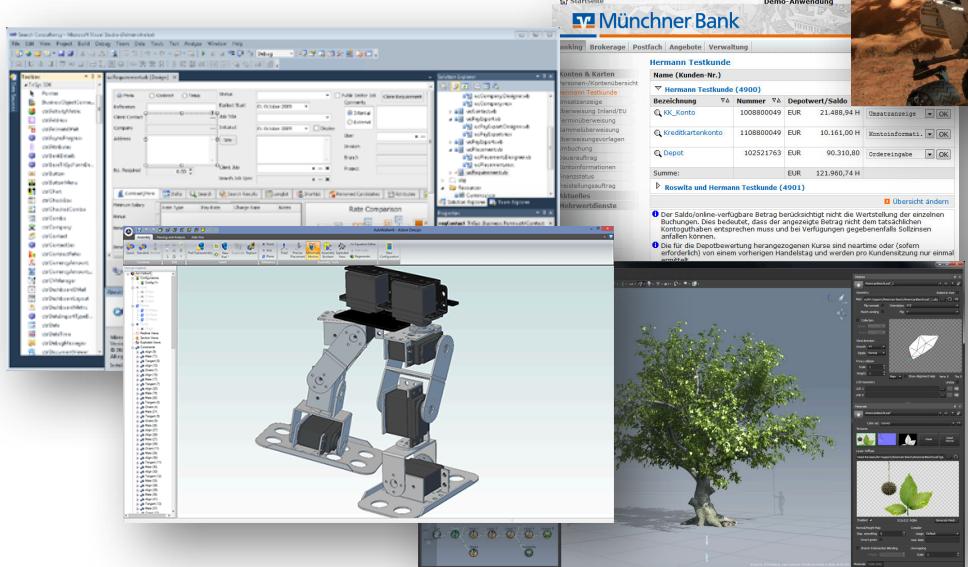
DESIGNING OF SOFTWARE SYSTEMS

Design of Software Systems

Design of Software Systems

- First, software – it's everywhere
- It's crucial in our daily lives
- It's complex

How do we build Software?



NEM ID

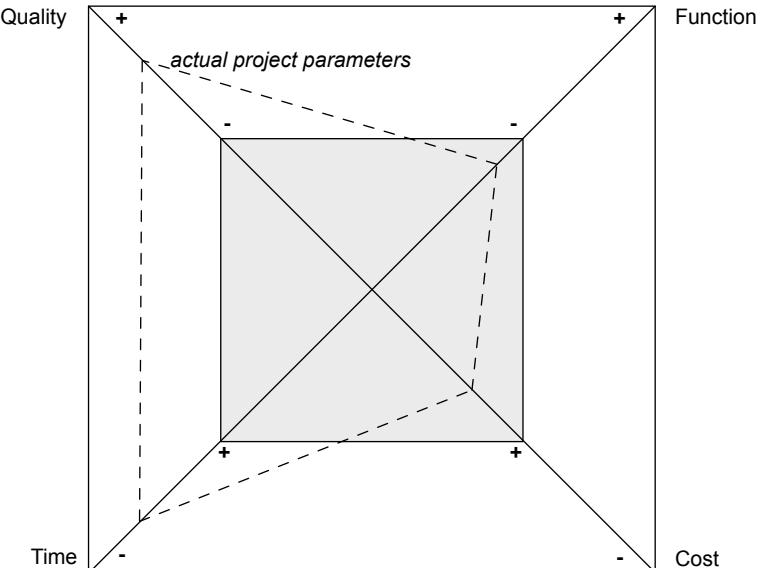


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- Software Engineer vs Computer Science?
- “Where **computer science** is about taking complex problems and deriving a solution from mathematics, science and computational theory, ...
- “... **software engineering** is very much focused around designing, developing and documenting beautiful, complete, user-friendly software.”
- See: <https://code.berlin/en/blog/computer-science-software-engineering/>

Design of Software Systems

- Software architecture is often considered the principal activity in **Software Engineering**
- What is Software Engineering?
- Software Engineering aims to:
 - Software development is an engineering discipline →
 - High-quality software in time, in budget, and with specified functionality
 - Comprises: software technology, and software management



H. Sneed: The “Devil’s Square”

Observation: Software engineering is still in its early stages...

PROGRESS CONTROL

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The course so far

- Today:
 - Introduction: About the course, and typical development and design processes
 - Lab: Crush course on UML
- Next class and Lab:
 - Lecture:
 - Reflect on todays Lab
 - Introduction to Software Architecture
 - Lab: Assignment 1