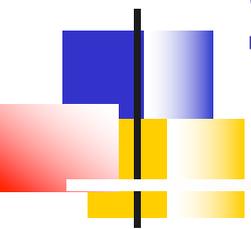


Information Systems Concepts

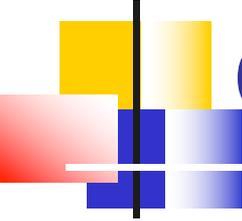
Software Development Processes



Roman Kontchakov

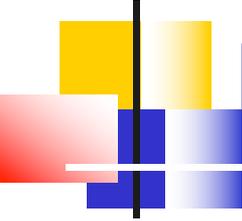
Birkbeck, University of London

Based on Chapters 3 and 21 of Bennett, McRobb and Farmer:
Object Oriented Systems Analysis and Design Using UML, (4th Edition), McGraw Hill, 2010



Outline

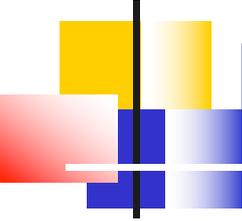
- Process, Method and Methodology
 - Section 3.4 (p. 77)
 - Section 21.2 (pp. 611 – 614)



Building a Doghouse

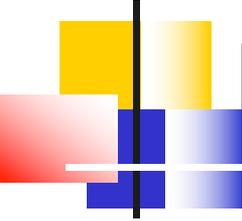
- Drive to the DIY store and buy some timber and nails
- ...
- By the end of the afternoon, you'll have a new house for Fido
- Oops, you forgot to provide for a door (or made some other mistakes)
- Well, it's not a big problem. You can fix it or even start over from the beginning.
- All you've wasted is part of an afternoon





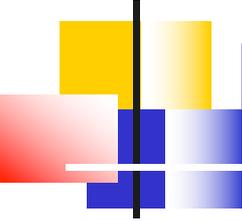
Building a House

- Now you want a new home for yourself.
- Draw outline on the ground. Order some timber, nails, plumbing and cables. Get tools. Start putting together wooden boards. Run plumbing and cables through the house.
- ...
- Oops, you suddenly realize that a wall is not in the right place. So you rip out the wall and move it to six inches away.



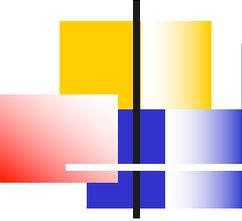
Building a House

- No! That's not the way to build a house.
 - You will waste a lot of money and a lot of time.
 - The house will probably collapse.
- Clearly you have to go further than just tools and techniques.
 - A fool with a tool ...
- You need something broader: a *methodology* (an overall philosophical and systematic approach to the problem)



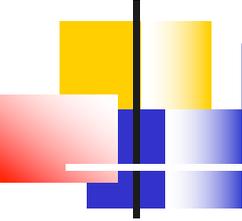
Process

- The loose approach to building a doghouse is appropriate for small software projects too. If you use the wrong design for 1000 lines of code, you can change or start over completely without losing much.
- However, when building a **house** or **larger software**, certain steps should be taken:
 - careful planning (to avoid collapsing buildings/failed software projects)
 - systematic approach (reasonable sequence of steps)
 - getting the right people (different areas of expertise)
 - financing the project
 - and so on



Process, Method and Methodology

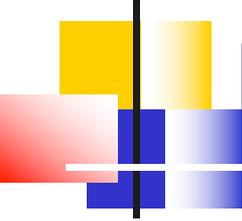
- Often confused, as if they were all the same thing, but actually these terms differ
- Some authors use *method* to mean *methodology*
- Some authors use *process* for both!



Process, Method and Methodology

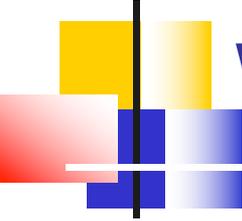
- Process/Method = a step-by-step description of the steps involved in doing a particular job.
Since no two projects are ever identical, any method is specific to one project.
 - Applying methods is like cooking by strictly following a recipe
- Methodology = a set of general principles that guide the choice of a method suited to a specific task or project.
 - Applying methodologies is knowing about why certain steps are taken while preparing a meal

UML itself contains nothing that helps to make this decision



Mixing Drinks: A Real-World Example

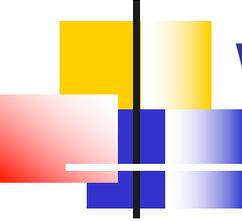
- **Tools:** cocktail shaker, jigger, juicer, measuring spoons, knife, . . .
- **Techniques:** stirring, shaking, blending, pouring, . . .
- **Process/Method:** following a strict recipe while preparing a drink
- **Methodology:** knowing about the philosophy
 - Running out of an ingredient, what to substitute?
 - Guest wants non-alcoholic version, what to use?



What Is a Methodology?

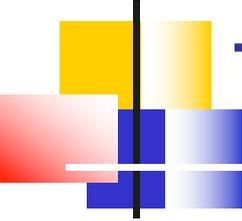
- A collection of
 - Procedures
 - Techniques
 - Tools
 - Documentation Aids
- Organized within a lifecycle or structure
- An underlying philosophy that captures a particular view of the meaning and purpose of IS development

--- Avison and Fitzgerald (2002)



Why Use a Methodology?

- Advantages:
 - Helps produce better quality product
 - Documentation standards
 - Acceptability to users
 - Maintainability of software
 - Consistency of software
 - Helps ensure user requirements are met completely
 - Helps the project manager
 - Better control of project execution
 - Reduction in overall development costs
 - Promotes communication between project participants
 - Encourage the transmission of know-how throughout



Take Home Messages

- Processes, Method and Methodology
- What Is a Methodology?
- Why Use a Methodology?