

- Object Oriented Design and Model Driven Architecture
 - Chapter 14 (somewhat)

Object Oriented Development

- object oriented analysis
- object oriented design
- object oriented programming

- think in terms of objects which encapsulate structure, behavior, not in terms of C++, Java...

Model Driven Architecture

- “an approach to IT system specification that separates the specification of the system functionality from the specification of the implementation of the functionality on a specific technology platform”

- pushed by OMG
- why do we need this?

- Model:
 - Representation of the functionality, behavior and structure of the system
 - well-defined: syntax, semantics, rules of analysis and inference
- Abstraction/Refinement/Viewpoint
- Zooming in and out
- Platform dependent and platform independent language

- computation-independent (business) model (CIM)
- platform-independent model (PIM)
- platform-specific model (PSM)
 - rely on Platform Profiles...
- code

- model transformations: PIM->PIM, PIM->PSM, PSM->PSM, PSM->PIM

Some issues...

- how are objects discovered?
- what about non-functional requirements?
- what about code, properties which cannot be captured easily with the model
 - easy – just provide hooks for handwritten (protected) code
- can this be automated?
- what about platform properties, underlying software stacks...
 - easy, all about compiling model to the right lower level representation... hm... right?

Design and Agile methods

- Is there design in XP?
- “is design dead”?
- Agile MDA
 - executable UML
 - groupings of data and behavior (class), behavior over time instances (state charts), precise computational behavior (actions)
 - ‘class’ may or may not be implemented as a class
 - state charts – can we really capture all interactions easily with state charts???

- MDA good:
 - common and useful visual notation, tools for code templates or reverse code to diagrams...
- MDA bad:
 - lack of tool interchange and interoperability, rely on metadata for additional description
- MDA ugly:
 - the “reality” of translation tools