

# UML CASE Tools



Your friendly assistant

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Chair of Programming Methodology

# Agenda for Today

1. Why do we need UML tools?
2. Some UML tools
3. Visual Paradigm for UML
4. Requirements Analysis exercise

# Brief re-cap of UML

- Modeling language used in **analysis**, **design** and **implementation** phases.
- **Textual** and **graphical** notation to document specification.
- Main diagram types:
  - **structural**: **class**, component, deployment
  - **behavioral**: **use case**, **sequence**, **statechart**

# Why do we need UML tools?

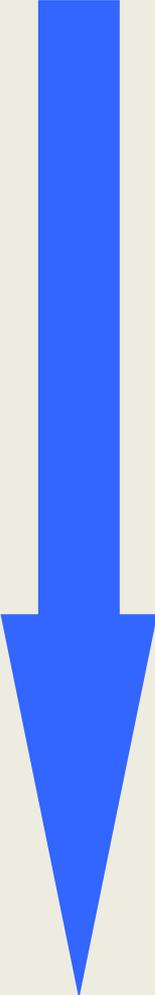
- Advantages of “e-design” over “paper-design”:
  - **modifications** made easier
  - **communication** between designers easier
  - **coordination** and handling of large projects easier

# Why do we need UML tools?

- Advantages of **UML tools** over **drawing tools**:
  - **uniform** notation
  - certain **checks** provided (e.g., control flow in sequence diagrams, missing methods)
  - UML tools provide powerful **add-ons**

# Add-ons

- Document generation
  - HTML, PDF, etc.
- Round-trip engineering
  - code generation from diagram (forward engineering)
  - diagram generation from code (reverse engineering)
- Test generation
- Simulation
- Model validation and verification



Level of sophistication

# UML tools

- **Big competition** among UML tool vendors
- Many **free tools/editions** with limited capabilities
- **Compatibility** ensured by XML dialect
  - XMI – XML Metadata Interchange
  - may contain diagram layout info (Diagram Interchange Standard)

# Some UML tools

- **Commercial**
  - Rational Rose (IBM)
  - Borland Together
  - Poseidon for UML (Gentleware)
  - Visual Paradigm (Visual Paradigm)
  - ...
- **Open source**
  - Eclipse UML2 Tools
  - UMLet
  - ArgoUML
  - StarUML
  - ...

# Choosing a UML tool

- Platform support
- UML 2.0 and XMI support
- Support all diagram types
- Intuitive and clear GUI
- Add-ons
- Actively maintained
- Document generation and printing support

# Visual Paradigm (demo)

# Other tools you could use

- Any drawing tool (e.g., Paint or Gimp)
- Visio
- NetBeans' or Eclipse's UML plug-ins
- ArgoUML
- UMLet
- StarUML

# Tool demo via a Case Study

- Digital sound-recorder (Dictaphone)
- Based on:
  - *Ivan Porres Paltor, Johan Lilius:*
  - **Digital Sound Recorder: A case study on designing embedded systems using the UML notation**



# Next Week

- **Topic:** Requirements Analysis exercise (*continued*)
- **Homework:**
  - Prepare questions regarding analysis phase of the project.
  - Be prepared to make a presentation on your first deliverable.
  - We are going to complete the “Dictaphone” case study. Look through the “Dictaphone” requirements so we are able to proceed with the case study.

# Student Projects in our group

- Research interests:
  - program verification
  - specification of object-oriented programs
  - software development tools
  - advanced type systems
  - test automation
  - abstract interpretation
- Topics:  
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