

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

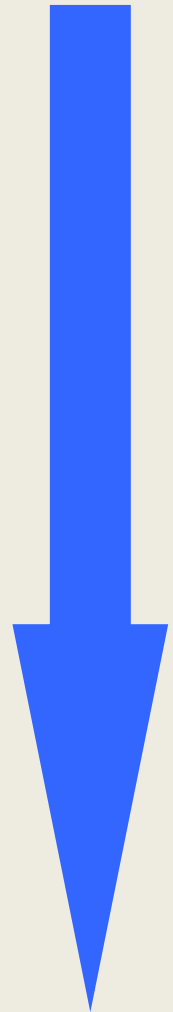
Why do we need UML tools?

- 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:
<http://www.pm.inf.ethz.ch/education/theses>
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