Université de Paris

Génie Logiciel
Initiation to UML

Sylvain Lobry

07/10/2022

Initiation to UML

Introduction to UML

- UML = Unified Modeling Language
- **Graphical** language to model systems and processes
- Comes from Object Oriented Programming community
- Unified as it comes from 3 different graphical notations:
  - OMT from James Rumbaugh
  - Booch method from Grady Brooch
  - OOSE from Ivar Jacobson
- Publish UML 1.0 in 1997
- From 1.1, UML developed and standardized by the Object Management Group (OMG)

Initiation to UML

Introduction to UML

- UML 2.0 (2005): major evolution with new types of diagrams
- UML 2.5.1 (2017): latest version as of 2021

Initiation to UML

Introduction to UML

- Graphical modeling language
- Objectives:
  - Providing a description of a software
  - Allowing the visualization of the different aspects of a software
  - Analyzing the software
  - Allow for communication inside and outside a project; with technical and non technical people
  - Verification of completeness, consistency and correctness
- General purpose modeling language
  - Process independent
  - Can be used to represent information on the **structure**, the **behaviour**, or the **interaction**

Initiation to UML

Views

- A model is composed of several views
- A view describes a system from different perspectives.
- Example of views:
  - Structural view: gives information on the structure of the model
  - Behavioral view: gives information on the behavior of the model
  - Interaction view: gives information on the way different parts of the model behave **with respect to each other**

Initiation to UML

Types of diagrams

- UML defines 13 diagrams in 3 categories which can define a system according to different points of view
- Structure diagrams
  - Class Diagram, Object Diagram, Component Diagram, Composite Structure Diagram, Package Diagram and Deployment Diagram
- Behavior diagrams
  - Use Case Diagram Activity Diagram and State Machine Diagram
- Interaction diagrams
  - Sequence Diagram, Communication Diagram, Timing Diagram and Interaction Overview Diagram