Analiza si Modelarea Sistemelor Software - Intro

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Welcome

► Course: Analiza și Modelarea Sistemelor Software (AMSS)

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Agenda

- 1. Introductions
- 2. Course overview
- 3. Why analysis & modeling?
- 4. Interactive exercise
- 5. Mini modeling challenge
- 6. Logistics & next steps

Who We Are

- Name
- Program / year
- ▶ One fun fact about you
- ▶ Your experience with software / modeling

Course Scope & Objectives

By the end of the course, students will be able to get better at:

- Analyzing requirements of software systems
- Creating structural and behavioral UML models
- Applying (some) design patterns effectively
- Evaluating models for consistency and completeness

Course Structure

- Structural diagrams: class, package, component, deployment
- ▶ Behavioral diagrams: use case, state, activity, interaction
- Model evaluation & testing
- Documentation & design patterns
- Project

Assessments

- ▶ Project: 100%
 - teams consisting of 4-5 students (recommended)
 - ▶ there will be a single note for the entire team
 - documentation (50%) and presentation (50%)
- ► Participation: 10% bonus

Why Analysis & Modeling?

- Software projects fail due to poor communication and unclear requirements
- Models help us:
 - Visualize systems
 - Detect errors early
 - Improve maintainability
 - Communicate across teams

Icebreaker: Model Your Morning Routine

Task: Draw a simple diagram of how you got from waking up to arriving in class.

- 5 minutes individual work
- ► Share with a neighbor
- Volunteers present their models

Mini Modeling Challenge

Scenario: A university library system.

- ► Users: students, faculty, external
- ▶ Operations: borrow, return, renew, reserve
- Constraints: borrowing limits

Task: Sketch a simple class diagram and at least one use case.

Discussion

- Compare different group solutions
- What entities and relationships emerged?
- ▶ What use cases are most critical?
- What was challenging?

Logistics & Next Steps



- ► Teams page:
- ► Course materials: Teams
- ► Communication: Teams / email
- ► Next class: UML Class diagrams
- ► Homework:
 - Readings:
 - Chapters 1 and 2 (and maybe 3) of Martin Fowler's UML Distilled
 - Familiarize with some design patterns (and associated humour)
 - ► Setup: Install/find some software for drawing UML diagrams you are comfortable with
 - PlantUML (also available as VSCode extension)
 - Mermaid, 4 Github, a la Markdown. Sintaxă diagrame de clasă
 - Lucidchart
 - app.diagrams
 - Visual Paradigm
 - Microsoft Paint / Word / nencil and naner

Thank You

- ► Today: introductions, overview, first modeling exercises
- ► Next: dive deeper into UML class diagrams

Questions?