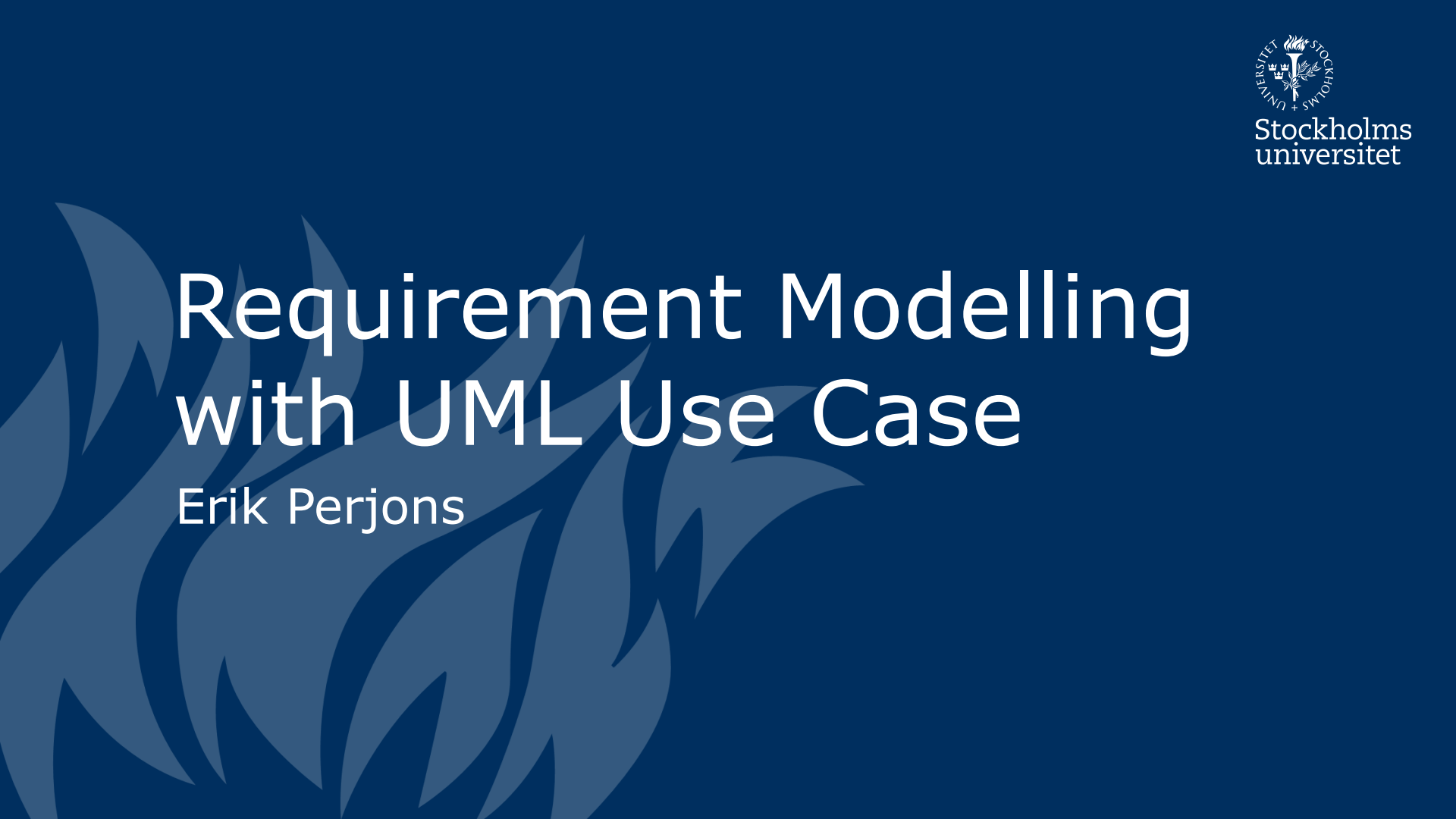

Requirement Modelling with UML Use Case

Erik Perjons

Questions to answer

- What is requirement engineering?
- Why is requirement engineering important?
- How can you use models to support requirement engineering?

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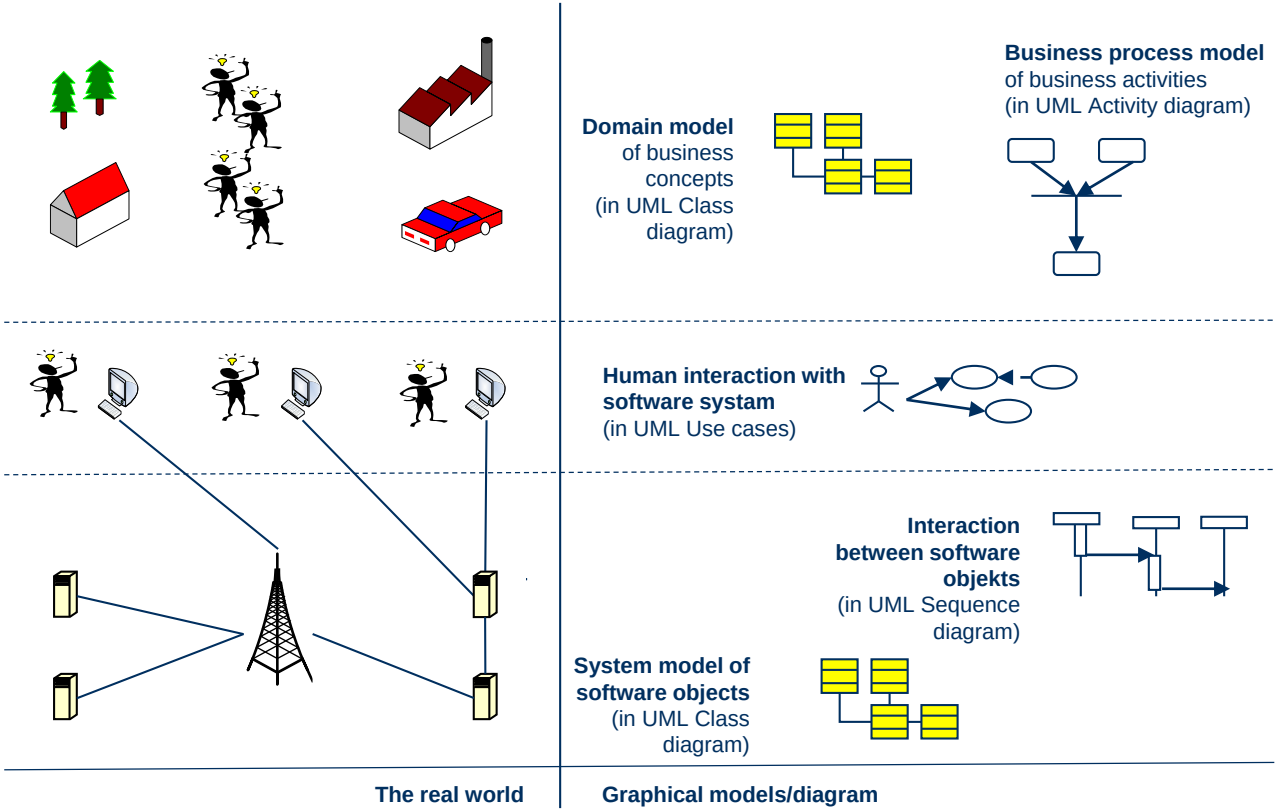
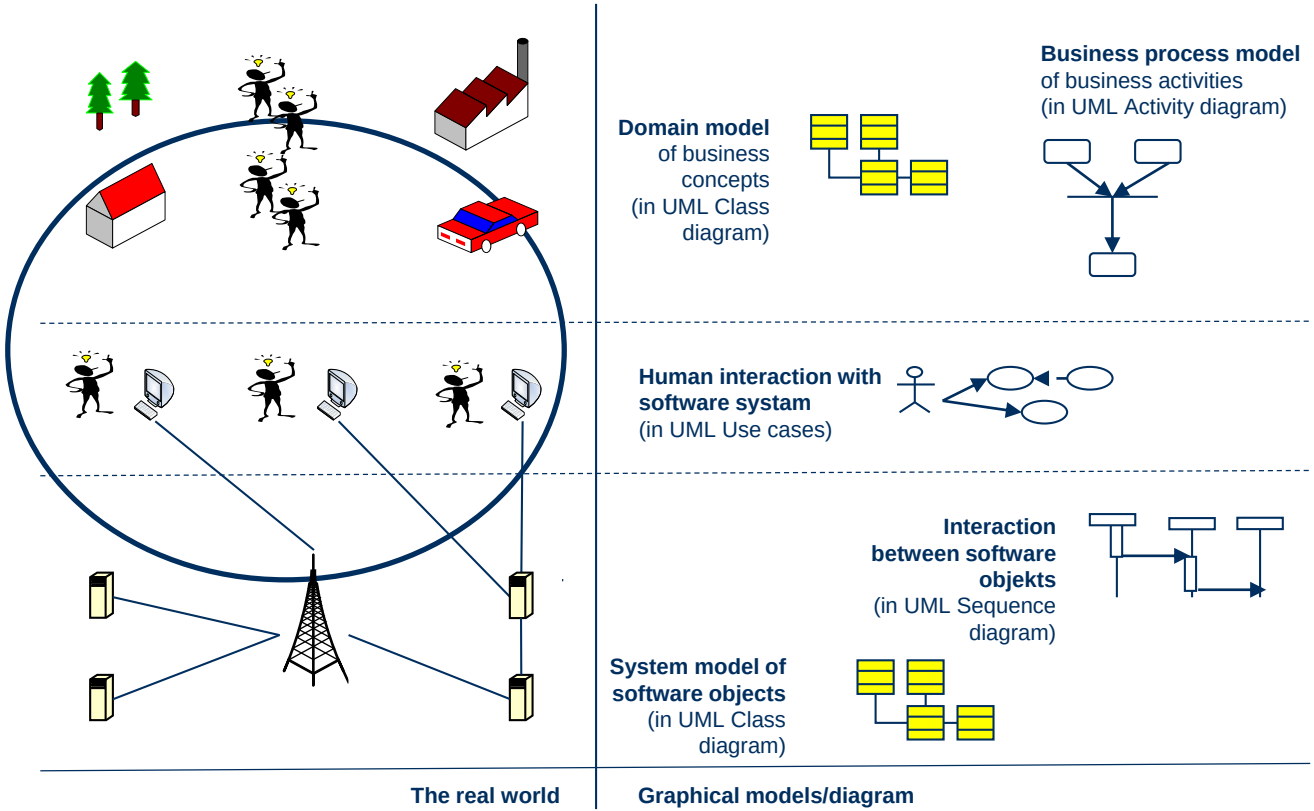
Requirements and Models

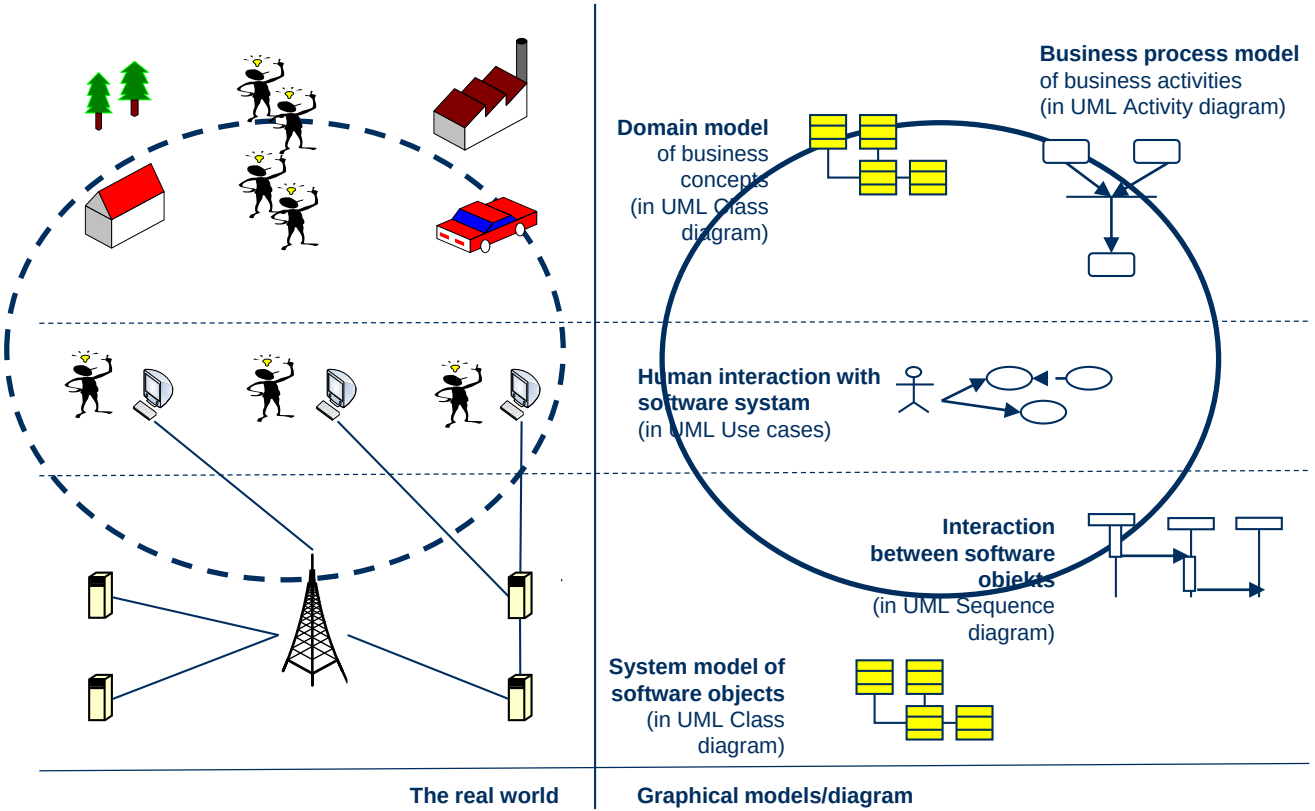
Real World and Models



Requirement Engineering (in Real World)



Requirement Engineering Models



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Requirement Engineering (in the Real World)

Requirement Engineering

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- **Requirement Engineering** is the process of gathering, defining, organizing, prioritizing, documenting, quality assuring and maintaining requirements

Requirement

- **Requirement** is a desirable property/feature/attribute/quality/capacity of a system

Functional Requirement

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- Requirements can be categorized into functional and non-functional requirements
- **Functional requirements** – are functions that a system should perform. That is, ”what” a system should do
- Examples of functional requirements:
  - The sytem should be able to register an order
  - The sytem should be able to register an new customer
  - The system should be able to find a customer when searching after a registered customer in the system by using customer id or customer name

Non-functional Requirement

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- **Non-functional requirements** – are requirements of how a system should perform the functions of the system
- Non-functional requirement are related to performance, reliability, usability, security, platform constraints, etc
- Examples of non-functional requirements:
  - The system must be able to handle 100 orders in parallel
  - The system must be able to integrate with systems in a Microsoft platform

Requirement Specification

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- **Requirement specification** is a document specifying the requirements of a system.
- The core of the requirement specification is, therefore, the **functional and non-functional requirements**
- Usually the requirement specification also describe the **context of the requirements**, such as which business problems should be addressed by the system and/or the business processes that should be supported by the system

Requirement Specification and Models

- The requirement specification can consist of only text or both text and models:
  - Functional requirements can be listed in form of text or as a combination of diagram and text (e.g. UML Use Case Diagram and Use Case Description)
  - The context of the requitements can be be described in form of text and/or models, e.g. business process models

Why Requirement Engineering?

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- The major reason for failure in system development is shortcoming in requirement engineering, such as:
  - no requirements have been gathered at all
  - not all users (or other stakeholders) have been involved in the requirement gathering
  - users do not know what they want before they use the system in actual business process instances
  - the requirements are vaguely stated
- The requirements are central in the development of a system and are often the things that drive the development process

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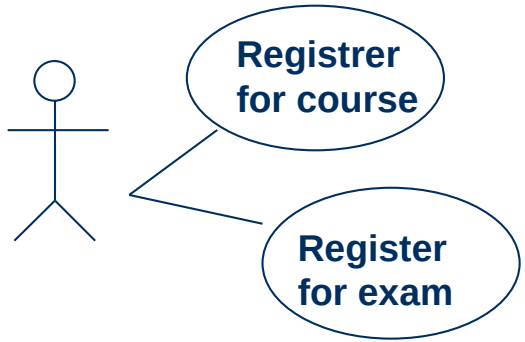
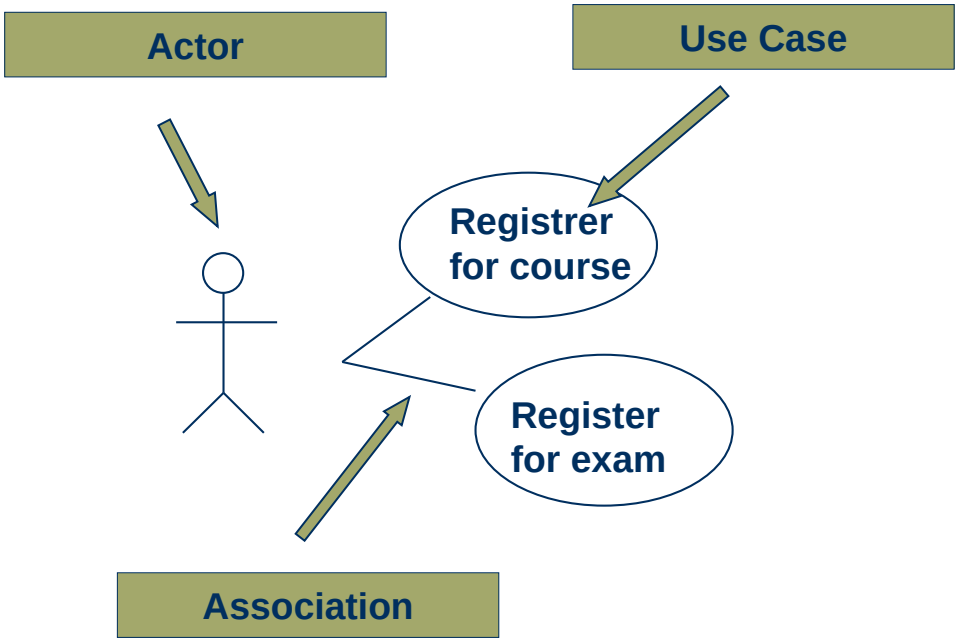
UML Use Case

UML Use Case Diagram



UML Use Case Diagram



Use Case Description

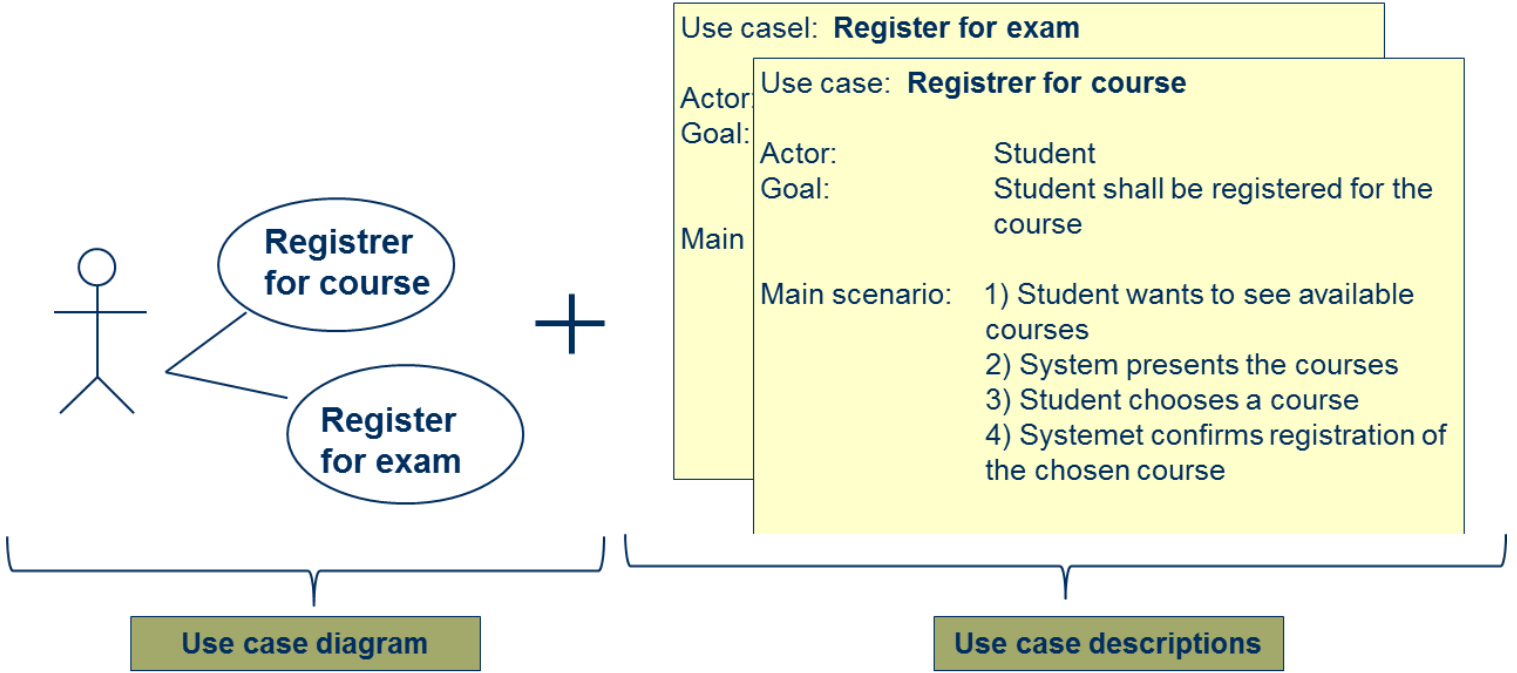
- **Use case description** describe the interaction between a user and the system
- The look of the use case description is not specified in UML

Use case: **Registrer for course**

Actor:	Student
Goal:	Student shall be registered for the course
Main scenario:	1) Student wants to see available courses 2) System presents the cources 3) Student chooses a course 4) Systemet confirms registration of the chosen course

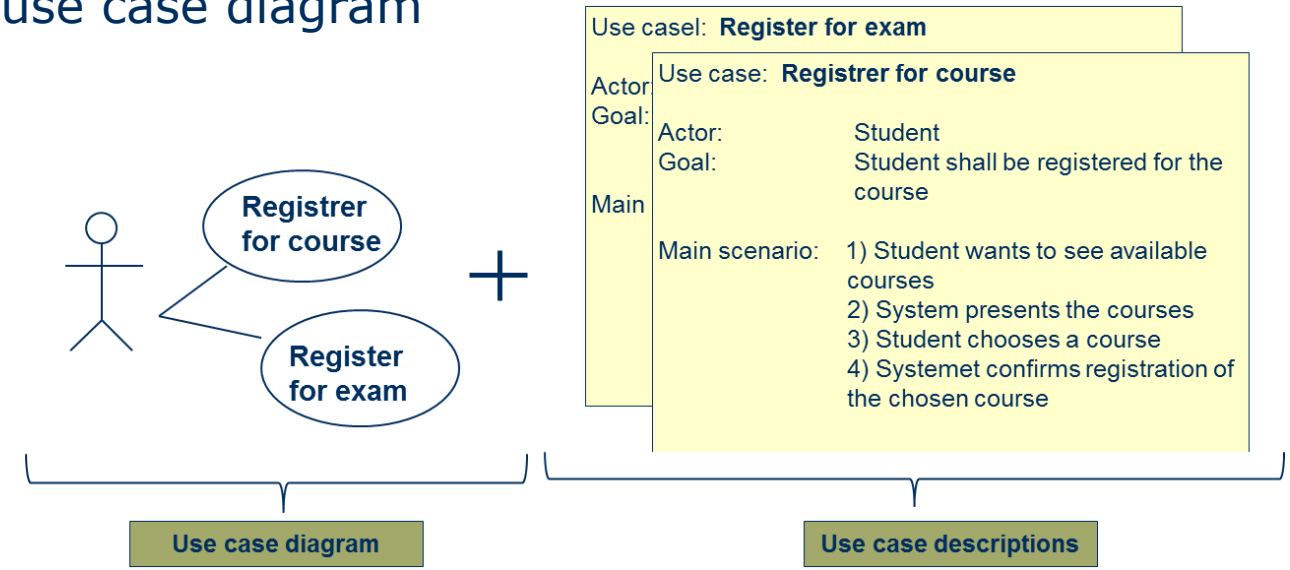
Use Case Model

- **Use case model –** consists of **Use case diagram** and **Use case descriptions**



Guidelines for the Use Case Model

- **Guideline:** Create one Use case description for each use case in the Use case diagram
- **Guideline:** Use the same name of the use case in the descrption as in the use case diagram



More about Use Case Description

- **Guideline:** The main scenario shall be divided into a set of steps, which each need to:
  - start with who is carrying out the step (the actor or the system)
  - be simple and precise statements of what are communicated between the actor and the system

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Actor:	Student
Goal:	Student shall be registered for the course
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Questions to answer

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Medverkande

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