

## Users and Use Cases

- User Characterization
  - criterion and techniques
- Task/Scenario Development
  - goals and techniques
- Tasks and Requirements
  - XP user stories
  - UML use case diagrams
  - UML behavior diagrams (in next lecture)
  - comparing the representations

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## User Characterization

- User Characterization
  - identifying distinct sub-classes of users
- Common Criteria
  - product use roles (or intentions)
  - knowledge (domain or technology)
- Results in a profile for each user class
  - goals and expectations
  - knowledge and experience
  - typical usage scenarios

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## Use Case

A stylized story about how an end user (in a specified role) interacts with the system under a specific set of circumstances.

In requirements, it captures a contract that describes the way the system should behave in response to a specified user request.

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## Use Cases

- They are a good form for requirements
  - they tend to be concise
  - they tend to be very concrete
  - they are tied to real-world problems
  - they are expressed from the users' perspective
  - they describe functionality (vs. design)
  - they help us understand the user's world view
- They are also easy to develop/validate
  - ask people what they do, or simply watch them

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## Steps, Tasks & Scenarios

- Step ... smallest interesting unit of action
  - one individual action in a sequence
  - (e.g. entering a password)
- Task ... smallest interesting unit of work
  - sequence of steps culminating in useful a result
  - (e.g. scheduling an appointment)
- Scenario ... representative work session
  - a sequence of related tasks to solve a problem
  - (e.g. handle a customer phone call)

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## Developing Use Cases

- They can be based on existing processes
  - interview potential users
  - ask them to describe the things they do
  - identify the tasks within their scenarios
  - get descriptions of steps within those tasks
  - get descriptions of problems and exceptions
- Use these as a starting point
  - design to enable the same tasks & scenarios
  - design to deal with the problems & exceptions

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## Developing Use Cases

- They can be brain-stormed
  - who are the primary actors?
  - what tasks do they need to perform?
  - what information is needed to perform task?
  - what information is user interested in?
  - what could go wrong in performing task?
  - how would user want to be informed of these?
- These suppositions must be validated
  - by interviews
  - by usability testing with prototypes

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## Representing Use Cases

- Use cases represent product capabilities
  - describe what product should be able to do
  - may describe user/system interactions
- They can be represented at many levels
  - UML use cases actors, objects, operations
  - XP user stories overview of an operation
  - UML behavior detailed interactions
  - UML objects domain object descriptions
  - detailed textual requirements

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## UML Use Case Diagrams

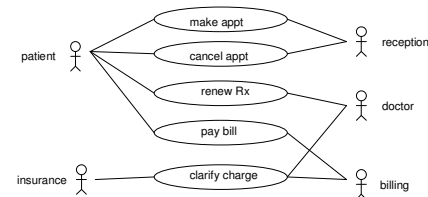
- A graphical overview of capabilities
  - a list of defined actions (use cases)
  - shows boundary between system and actors
- Use Case diagrams identify
  - classes of actors who can initiate actions
  - actions (use cases) each can initiate
  - other people (or objects) that will be affected
- They do not describe the interactions
  - that is left to behavioral models

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## Sample UML Use Cases



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## Using UML Use Cases

- an overview of system functionality
  - what are the general classes of users
  - what are the operations each can perform
- a summary of system capabilities
  - what are the basic things it can do
- a table of contents for the use cases
  - enumerating the things to be defined
- May be an introduction to the solution
  - external object classes and methods

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## XP User Story Cards

- Brief summary of a desired capability
  - name of story
  - brief general description of a useful behavior
  - user assigned priority
  - development estimated cost
- All on a single 3x5 card
  - just enough to capture the concept
  - specifically not a complete specification
    - this is established between user and developer

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## Sample User Story Card

Story #107: buy parking permit

Any registered student can buy a parking permit.

Can choose semester or annual.

Need to provide car license plate number.

Payment options:

credit card, PayPal, charge to student account

Priority: high

Estimate: 3 days

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## Using User Story Cards

- Product Descriptions
  - a product is a collection of features/capabilities
- Work planning tokens (the planning game)
  - each represents a requested development task
  - they can be laid out on a table
  - they can be laddered, grouped into releases
- Project Management metrics
  - completed cards record work accomplished
  - completion rate measures project velocity

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## How they compare

- Use Cases
  - enumerate the actors, objects and operations
  - a single snapshot of the major capabilities
- User Story Cards
  - summary of a specific functional capability
  - not a description, but a feature planning token
- Use Case/Scenario Descriptions
  - detailed descriptions of what should happen
  - basis for designs and acceptance tests

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## For Next Lecture

- Wikipedia: UML introduction
  - brief history, scope, criticisms
- Rational: UML activity diagrams
  - detailed, comprehensive, step-by-step
- Gooch: UML interaction diagrams
  - brief introduction to the basics
- Ambler: UML state diagrams
  - thorough introduction

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