



Next Lectures

October

23-Oct – 2 pm – Use Case diagrams

28-Oct – 2 pm – Yannis Velegrakis

November

06-Nov – 2 pm – Test: Use case + ER Diagrams

11-Nov – **2.30 pm** – Sequence, State, Activity Diag.

13-Nov – 2 pm – Class Diagram

27-Nov – 2 pm – Class Diagram

Exercise:

Reservation System

We want to build a system for the electronic reservation of seats of a group of movie theatres. The users can either buy tickets for a particular show or buy subscriptions, also by phone. Payments can be performed in cash or by credit card. A supervisor can print the list of seats available for a particular show and see the status of sales performed so far.

A secretary updates the list of shows (by adding/deleting/...)



Software Engineering

Reservation System: correction (3 solutions!)

(reserve.pdf)



Software Engineering

Organizing your Requirements

Organizing Your Requirements

To limit the number of Use Cases

- Make it an Iterative Process

Factorize Use Cases and Actors using relationships

- Organize and Classify your Use Cases

Package Diagram or Subsystem

“Strategic” and “System” Use Cases

Revise and Factorize UC/UCD

- **In the Use Case Diagrams**

- Include
- Extend

- **In the Use Case**

- Inclusion
- Extension
- Exceptions

1. The user executes any of the use cases “Save”, “Load”, ...

[extension 1] if The User chooses “Save As”, then he can specify a name for the file.

1. The user selects a name for the file **[exception 1]**

[exception 1] If the file name contains “/” an error is reported.

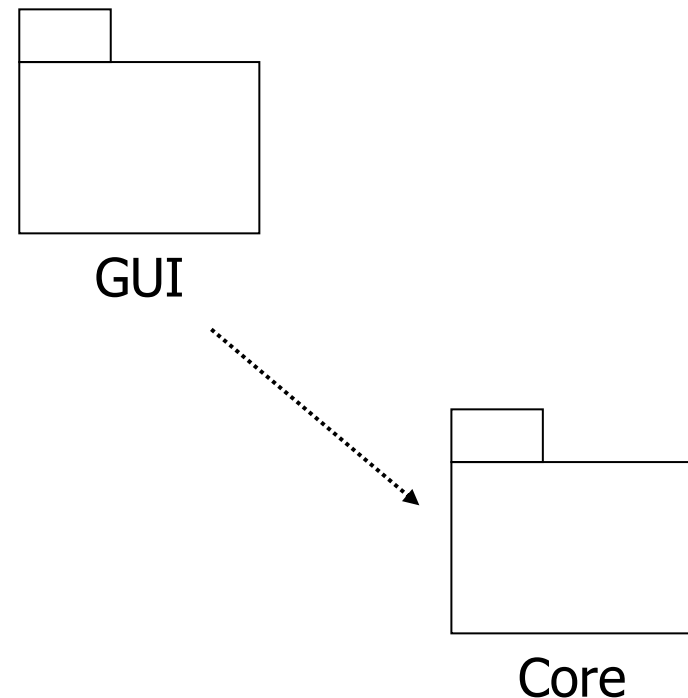
Organize and Classify UC/UCD

Package Diagrams or Subsystem

Packages allows to split diagrams in smaller parts.

Key Ingredients:

- Package or Subsystem
- Dependency



Organize and Classify UC/UCD

- Strategic Use Cases

High-level use cases. They provide an overview of the system.

Useful to communicate with the stakeholder.

- System Use Cases

Lower-level use cases. They refine the strategic use cases and provide a more fine grained view of the system.

Use them to decide how to allocate the work.

Organize and Classify UC/UCD

... caveat:

“Strategic” and “System” are just one of the ways
(possibly the simplest) to organize your
requirements.



Software Engineering

Organizing your Requirements: example

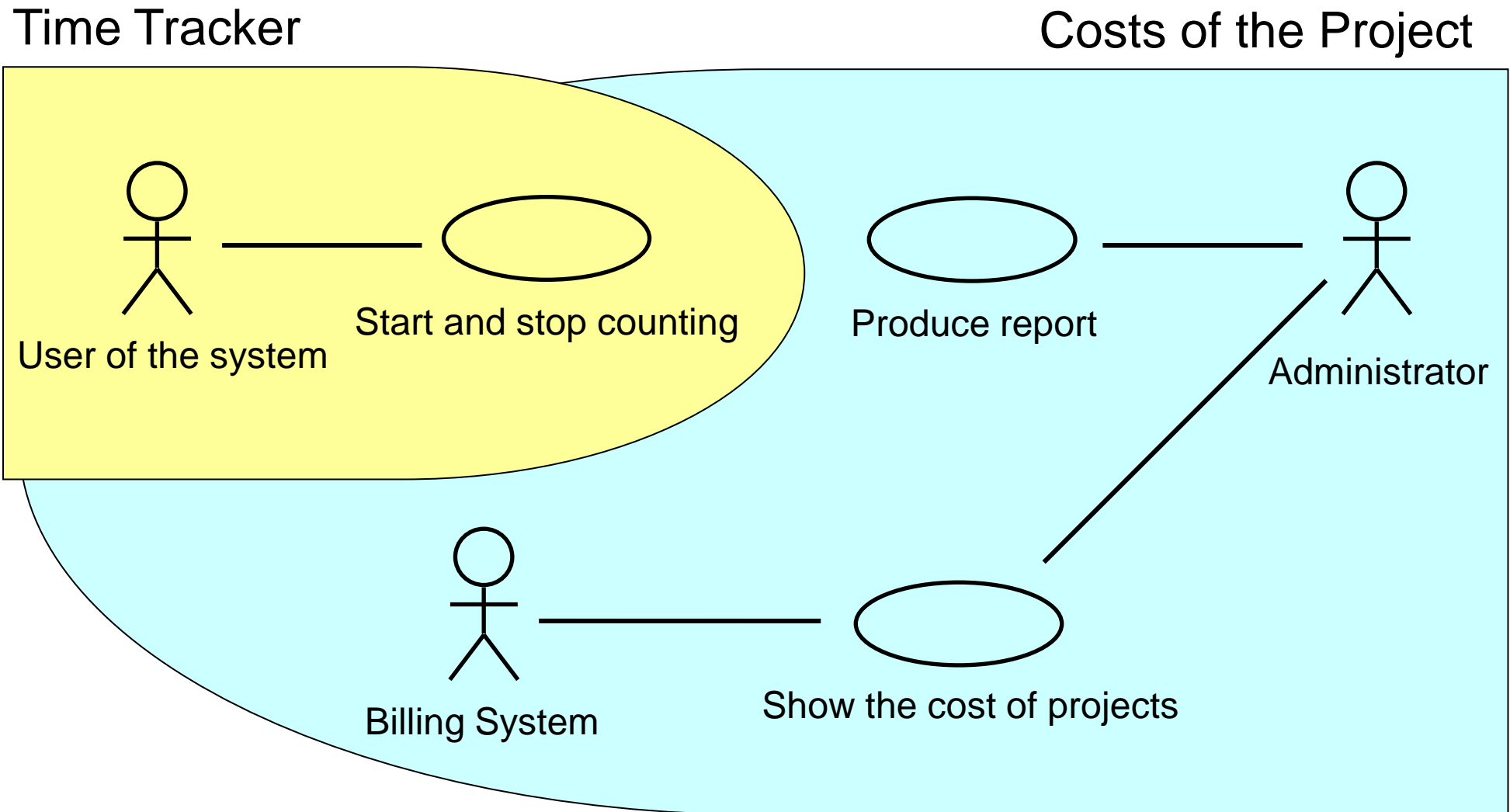
Example: Time Tracker

We have been contacted by a small software firm.

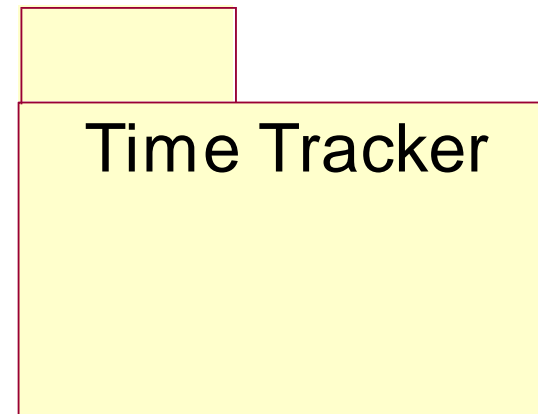
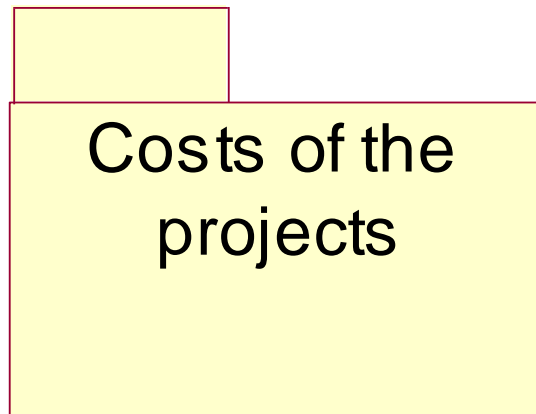
They want us to build a system for letting employees track how they spend their time when working on a computer. The idea is that of a stop-watch: the users of the system can start and stop counting the time spent on different activities; the system logs such activities and can be used to produce reports.

The system can also be integrated with a billing system. The billing system receives all the information about the time spent by programmers on the different projects and computes the cost of projects. This information is then used to charge clients.

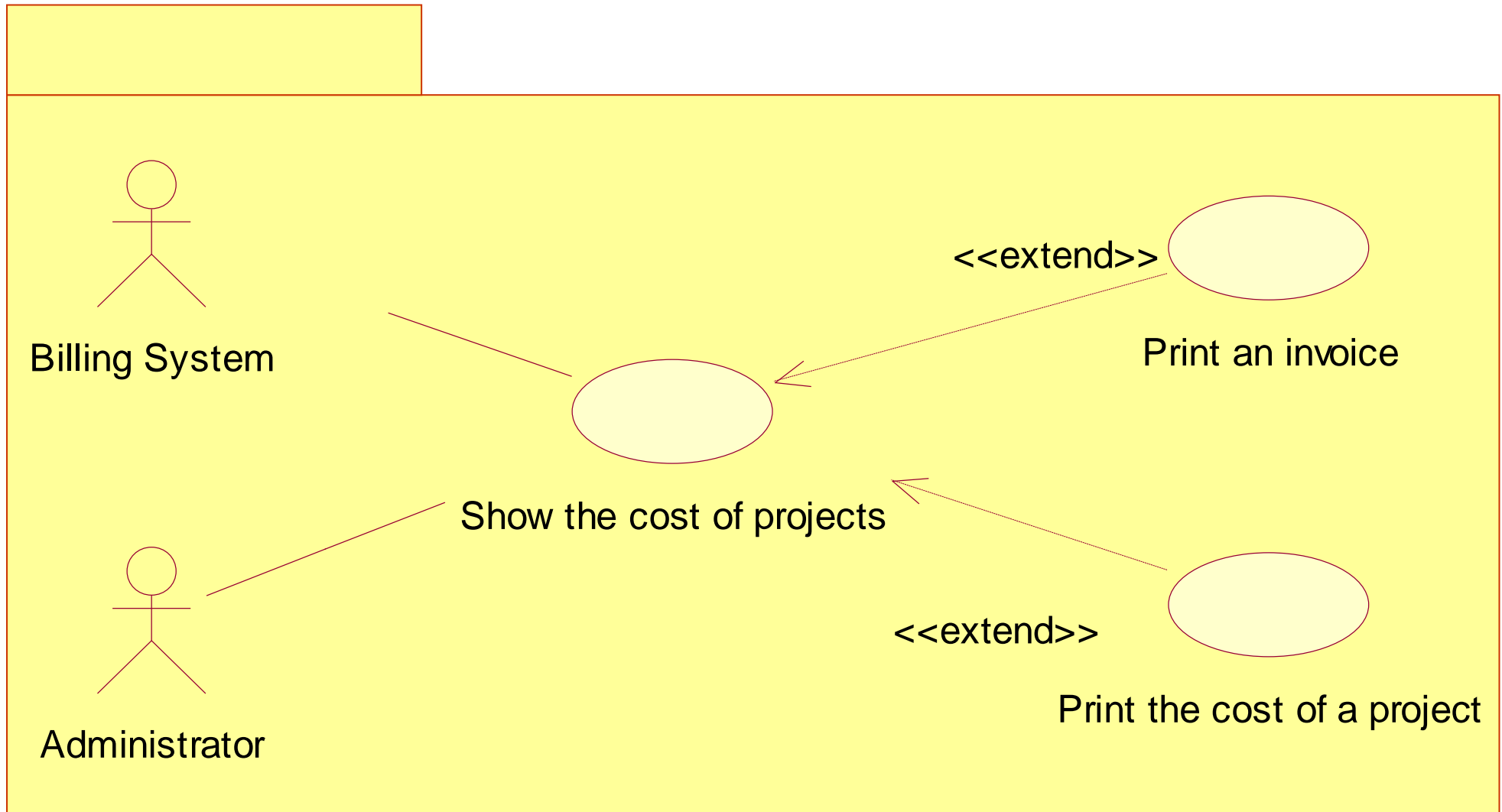
Use Case Diagram



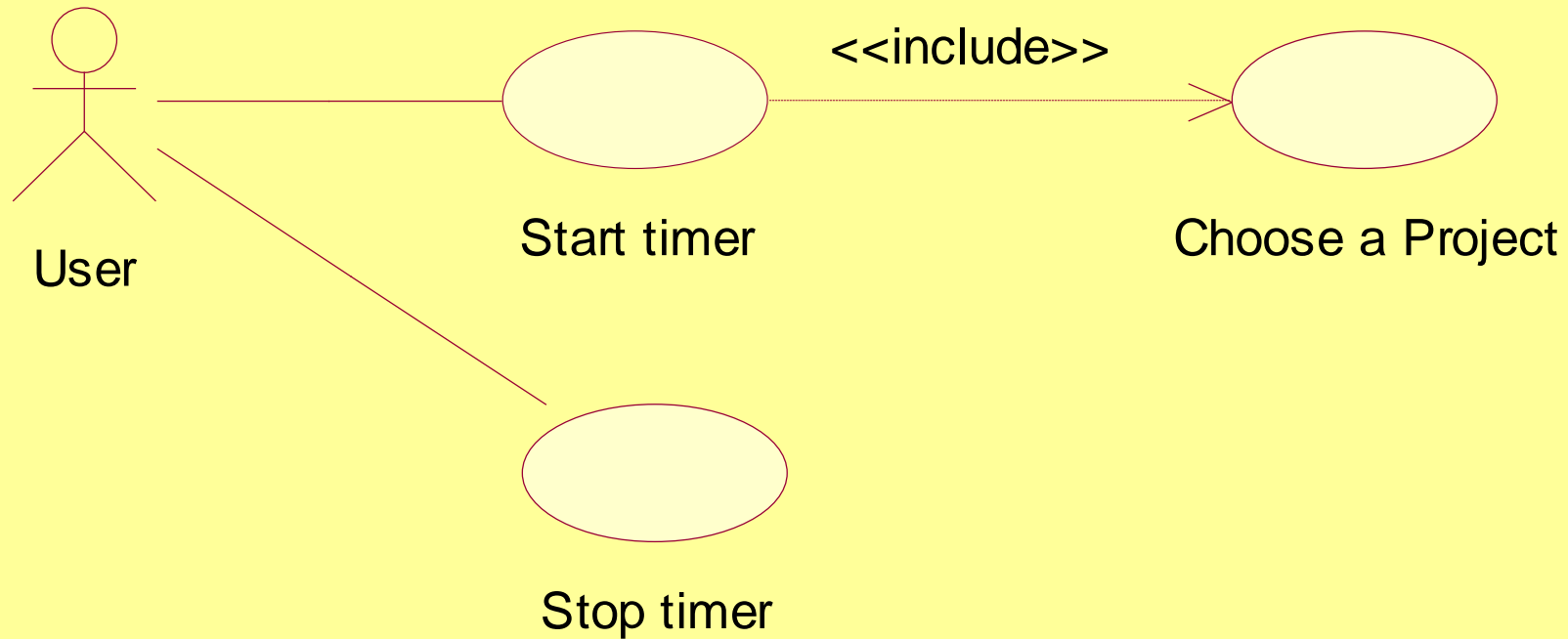
Use Case Diagram with Subsystems



Costs of the Projects



Time Tracker



Home Work

Graph Editor

We want to build a graph editor. The graph editor allows users to build graphs composed of nodes, arcs, and comments. Nodes and arcs may have labels. The user can add, move, and delete nodes and arcs to the diagram. When adding an arc, the user must select a point of the starting node and a point of the ending node. Arcs may be directional. When moving a node, the diagram also moves the arcs connected to the node. Comments can be placed anywhere in the diagram; when the user selects the comment tool, the cursor changes to a I-beam shape.