Exercise 2

Vision of the IS
Repetition of the UML

2021/2022

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Semester project

IS design and implementation

- Minimized scope.
- More complex architecture.
- Limited use of technology.
- Integration task.
- Minimal (complete) documentation.
- 2 different UIs and 2 different storage.
- **Final version of Vison up to 6.10.2021 (submit into elearning).**

Vision of semestral project

Vision of Information system

- **Project initiation phase**
  - **Understanding what is to be created. Identify all external elements of the system (actors) and their main requirements for the emerging system (key use cases)**
  - Determining at least one possible solution. At least one potential architecture is selected to enable the system to be built. The risk elements of this architecture shall be implemented and verified.
  - Identification of potential risks. At the end of the initiation phase, there must be a rough idea of the problems that may arise in the development of the system.
  - Clarification of the cost, schedule, resources required and economic value of the project.
  - Determination of the software process and tools to be used.

Vision - document describing the system from the customer's point of view.

- Range approx. ½-1 page of text.
- Answers questions
  - **WHAT, WHO, WHEN, HOW, WHERE, WHY**
  - **Clear, simple wording**
- Discussion of the visions presented.

Scooter rental IS

What?

Who?

When?

How?

Why?

We design an information system for comprehensive management of electric scooter rental. Four categories of users will work with this system. A customer who wants to rent a vehicle accesses the system remotely through a web interface. The customer can have a customer account created in the system, which allows him to reserve a specific scooter, pay cashless and receive a bonus on repeat rentals. The IS is also operated by a staff member at the branch who makes bookings/orders of scooters and works on a desktop computer in a windows application. She enters the status of the vehicle into the IS when it is handed over to the customer and when it is taken back. May make adjustments to user orders, cancel them and check for payment. The system is operated by a supervisor who can obtain information on the economics of the operation and set discounted prices for customers or issue invoices for damage to the vehicle. The last type of IS user is the technical department worker, who enters information about detected faults into the system and blocks the possibility of renting a scooter.

Scooter rental IS

The IS monitors information on customer bookings, customer payments, technical condition of scooters, allows for price advantages for regular clients and generates documents for the economic department. The system is essential for the fulfilment of the business plan.

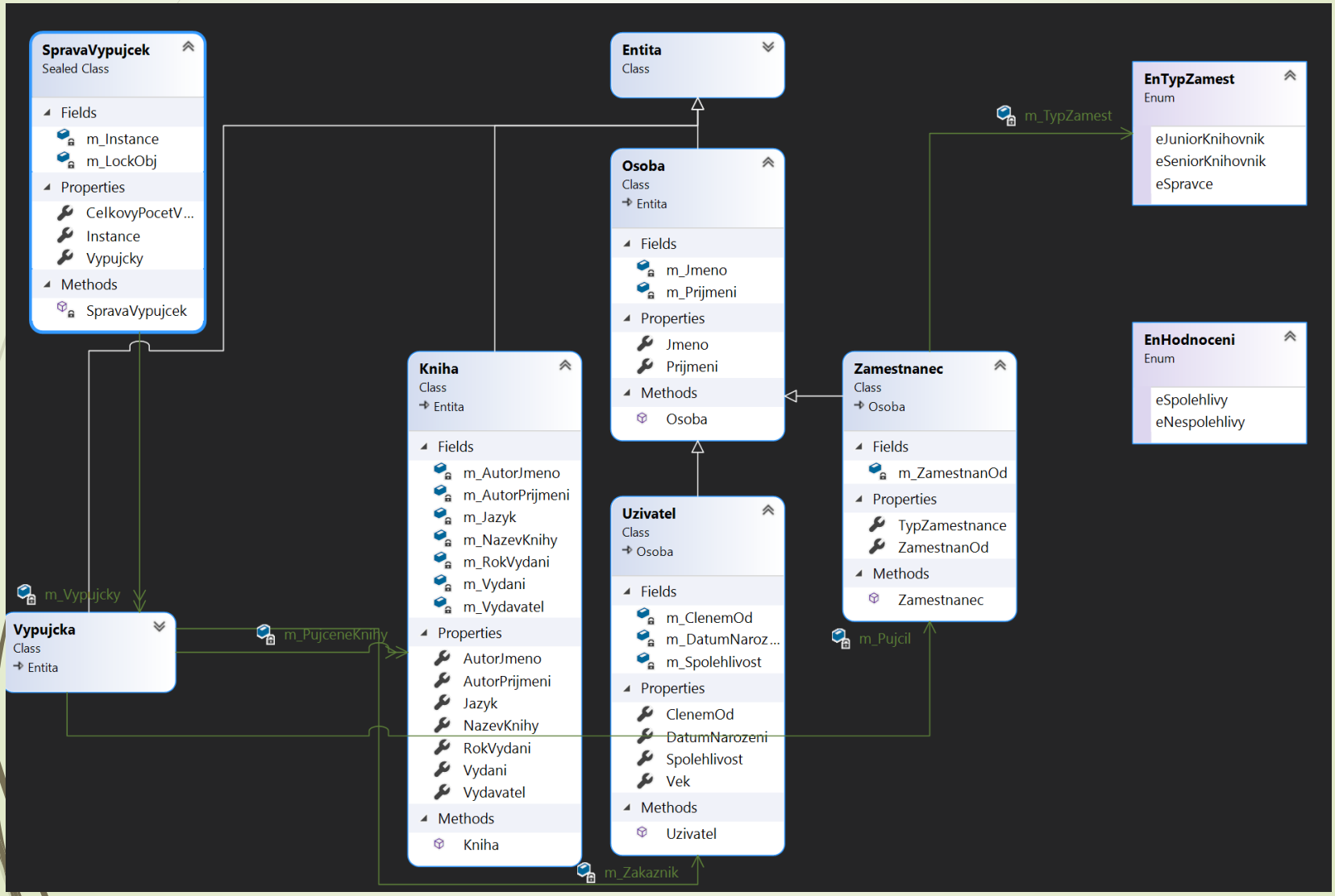
The IS is available 24 hours a day via the Internet for customer needs and including data is located on the local company server.

UML
for artefacts

UML

- UML is a universal language for visual modelling of systems. It is primarily associated with the modeling of object-oriented software systems.
- https://www.visual-paradigm.com/editions/
- Umple https://github.com/umple/umple
- **Umlet** https://www.umlet.com/
- Modelio https://www.modelio.org/
- Draw.io https://www.diagrams.net/

VS 2019 class diagram

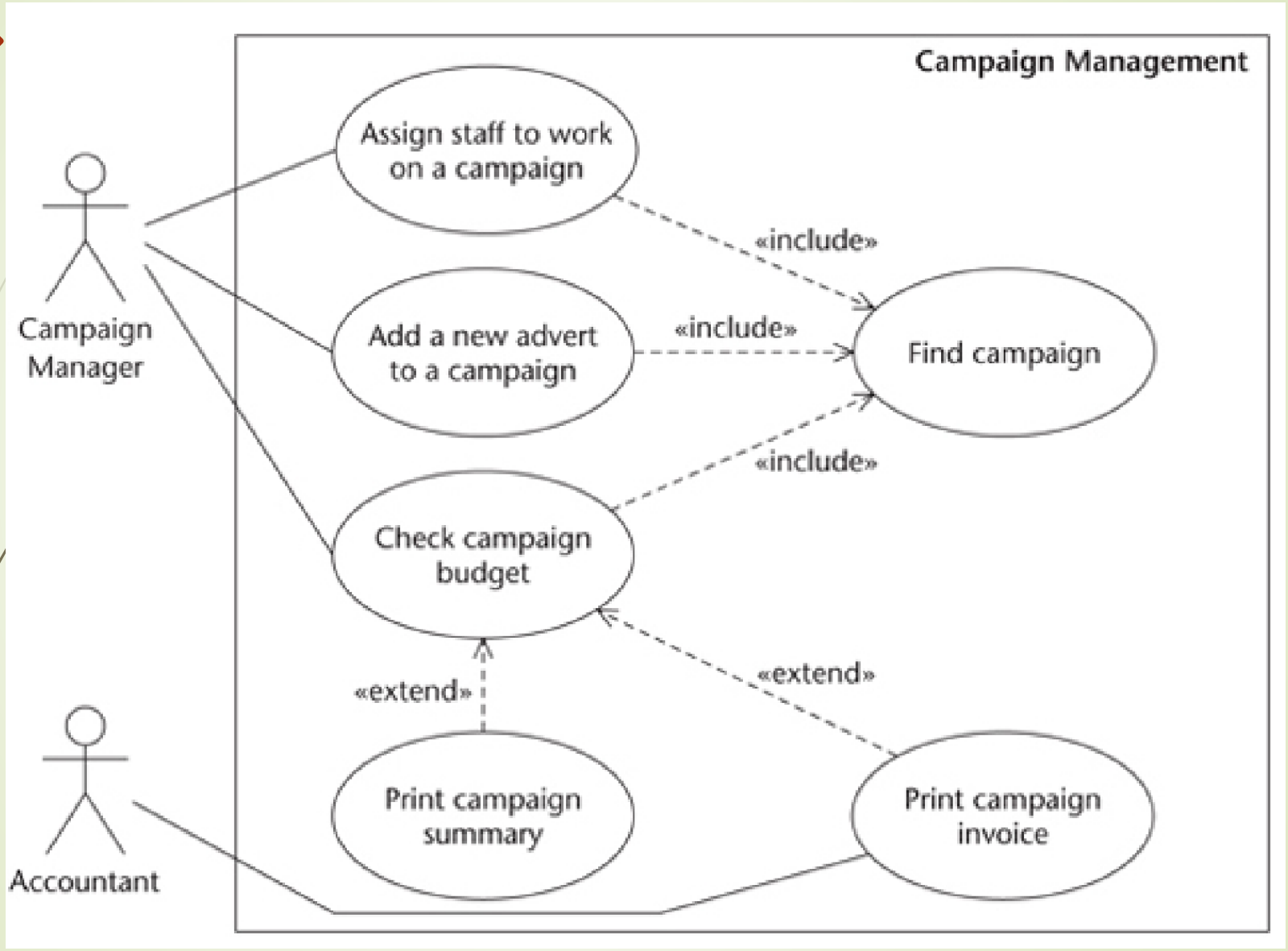


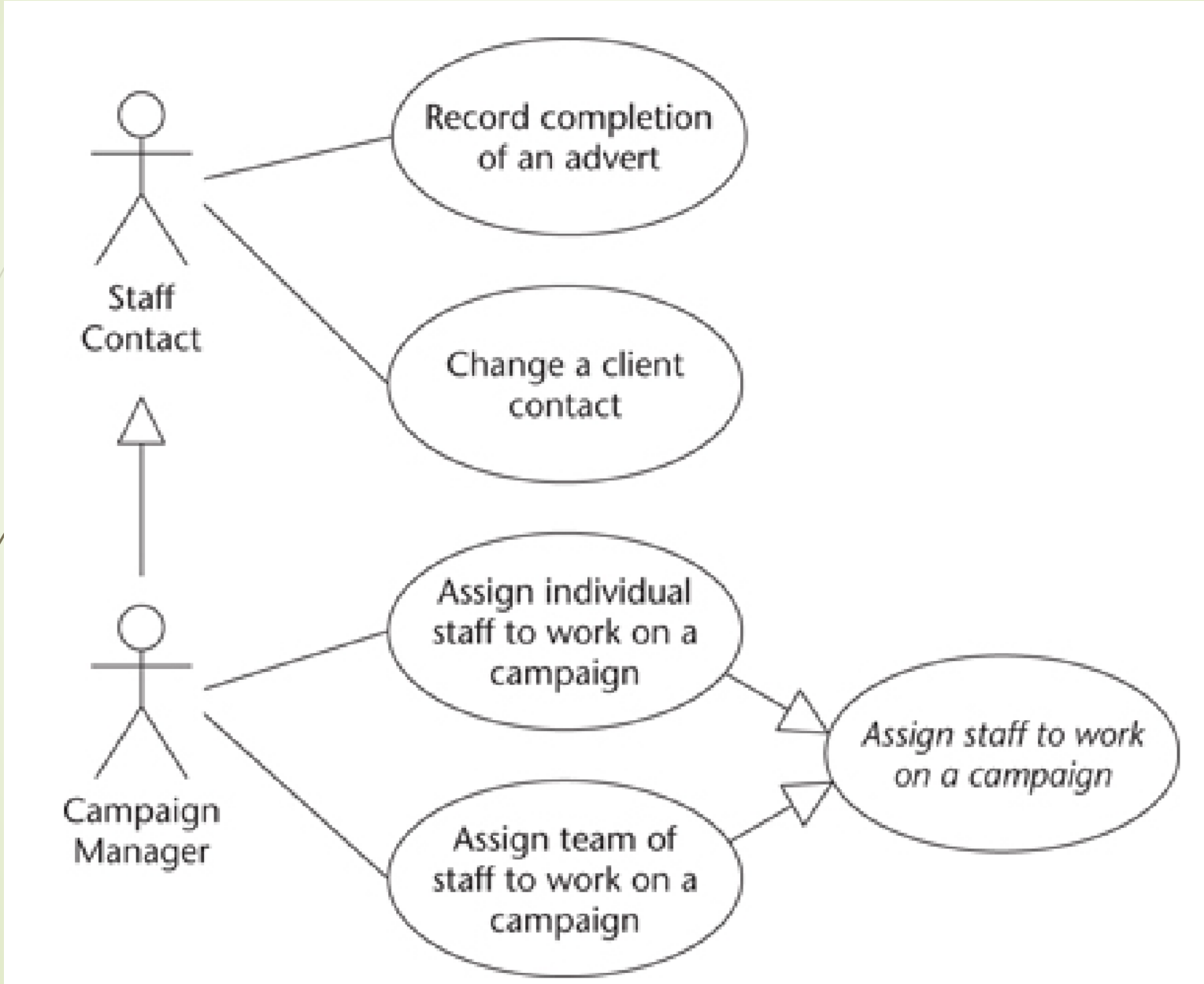
UML diagrams for Artefact 2

- Use case diagram, Use case description
- Activity diagram (dynamics)
- Sequence diagram (timing)

Use-Case

Use cases are descriptions of the functionality of the system from the users' perspective. Use-case diagrams are used to show the functionality that the system will provide and to show which users will communicate with the system in some way to use that functionality.


Campaign Management
Assign staff to work on a campaign
Add a new advert to a campaign
Check campaign budget
Print campaign summary
Find campaign
Print campaign invoice
«include»
«include»
«include»
«extend»
«extend»
Campaign Manager
Accountant


Record completion of an advert
Staff Contact
Change a client contact
Assign individual staff to work on a campaign
Assign staff to work on a campaign
Campaign Manager
Assign team of staff to work on a campaign

Use case description (scenarios)

Scenarios are an essential part of use case diagrams, especially for complex activities or when the name of the use case does not clearly indicate its functionality.

Scenarios or use-case description:

- System status before the start of the use case.
- The sequence of events after a use case is triggered by an actor in the baseline scenario.
- The sequence of events in the alternative scenario/scenarios.
- System state after the end of the use case.

Use case scenario - an example

Use case:	UC01: Search doc – full text
Goal:	Finding and viewing a document on the web.
Actor:	Site user
Anothers actors:	System
Pre-conditions:	Fulltext index over web site
Post-conditions:	

Main run:

1. **Site user -** enters the search text in the search field.
2. **System -** performs a full-text search.
3. **System -** displays a list of found files with the Download option and displays a Preview.

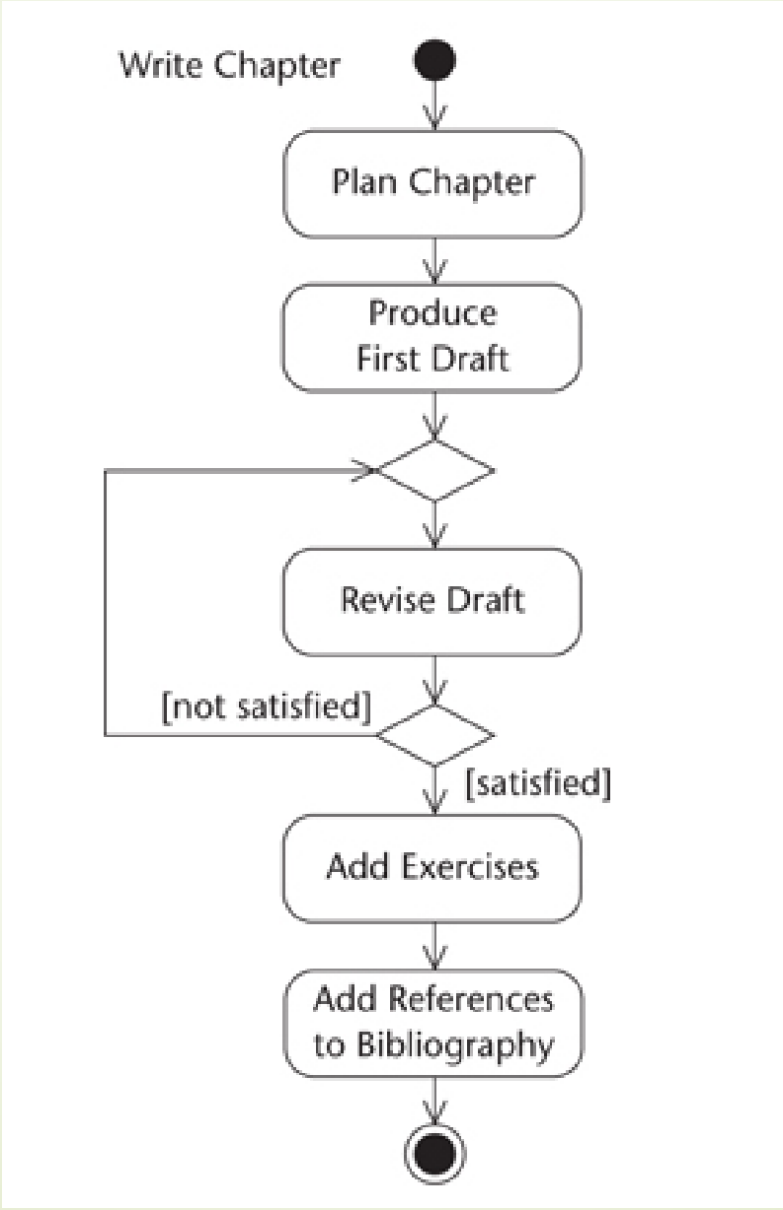
Alternative run: ???

Activity diagram

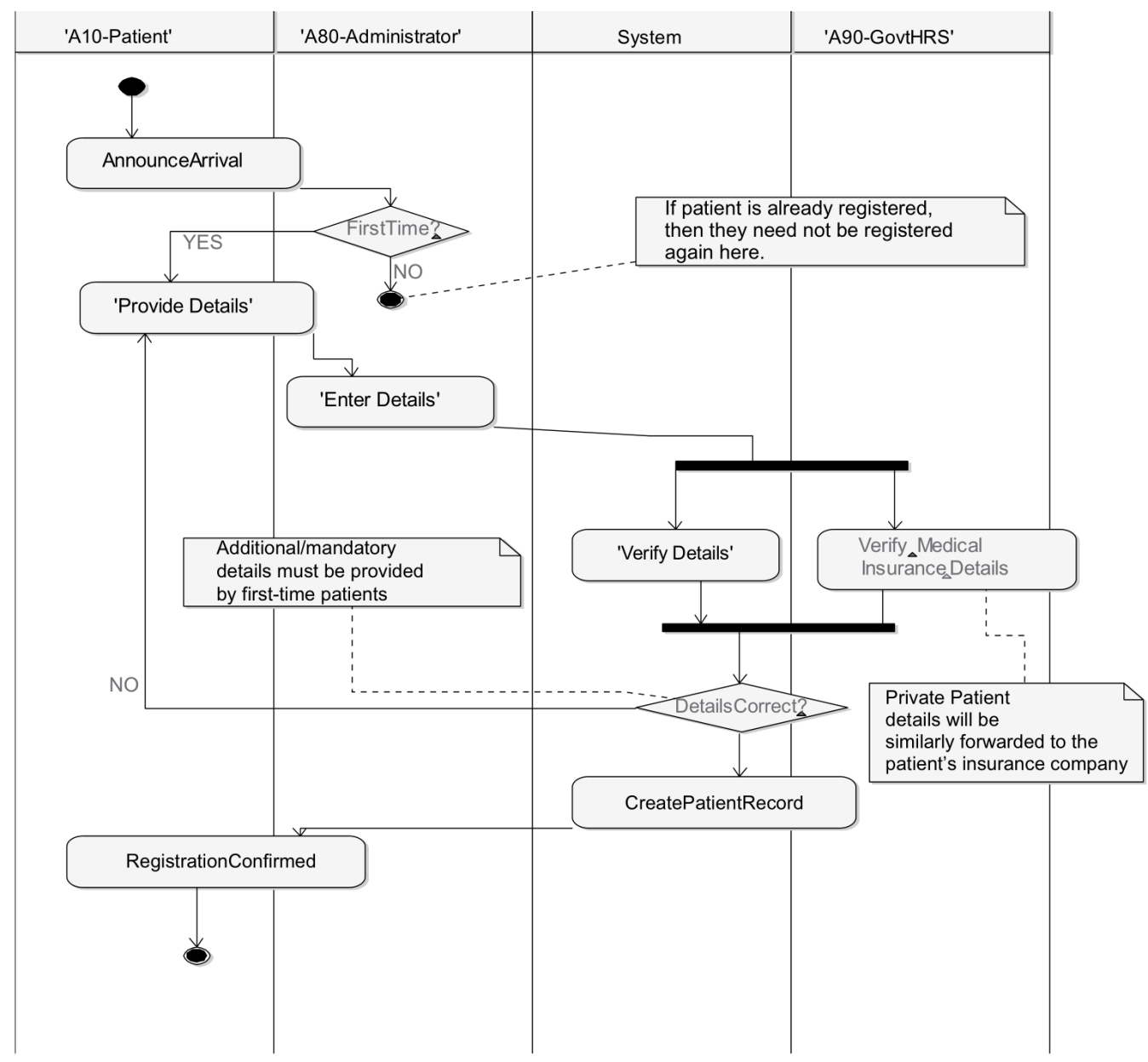
Activity diagrams can be used to model different aspects of a system. At a high level, they can be used to model business processes in an existing or potential system.

- For this purpose they may be used early in the system development lifecycle. They can be used to model a system function represented by a use case, possibly using object flows to show which objects are involved in each use case. This would be done during the phase of the lifecycle when requirements are being elaborated.
- They can also be used at a low level to model the detail of how a particular operation is carried out, and are likely to be used for this purpose in later analysis or system design activities

Activity diagram Write chapter



Activity diagram for Register patient

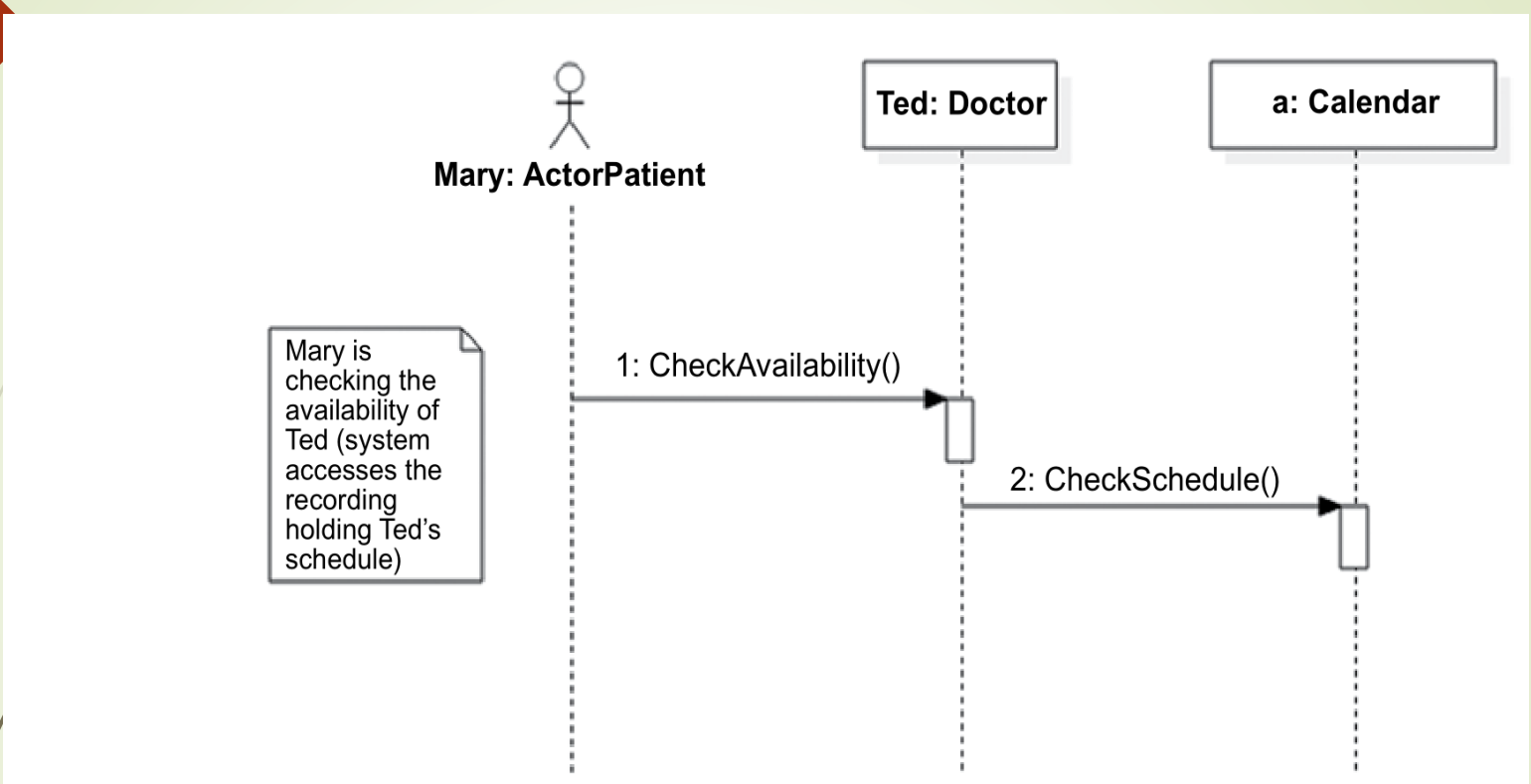


Sequence diagram

Sequence diagrams represent the detailed interaction between actors and a system or between collaborating objects within a given time block.

- However, information as to what happened before the interaction started and what happens after the time block stops is not shown in the sequence diagram. While messages shown in the sequence diagram can have preconditions and postconditions, these conditions are not directly visible in the diagram.
- Despite this limitation, the "time"appearing in the diagram is far more precise than in the activity diagram. Therefore, it is possible to show what happens between two messages and to ascertain what happens as time progresses.
- The sequence diagrams are thus considered dynamic-behavioral in nature.
- Sequence diagrams cannot show conditions ("if-then-else").

Sequence diagram – dynamic behaviour



Simple sequence diagram showing how an actor (Mary:Patient) checks for the availability of a particular doctor (Ted:Doctor). The Doctor object, in turn, has to go to the Calendar object in order to check the availability of the doctor.