Exercise 3

Artifact 2
List of functional requirements

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Artifact 2

List of functional requirements as a set Use-case scenarios.

- Use case diagram of the whole IS (minimum 10 UC (15 suggested))
- Use case model - description of individual cases
- Three selected non-trivial use cases min. 5 steps
- Alternative scenario min. 5 steps
- Three activity diagrams for selected UCs.
- Optional sequence diagram if needed to understand the use case.
- IS login and reporting is not allowed as Use-Case

What is the content of Artefact 2 ?

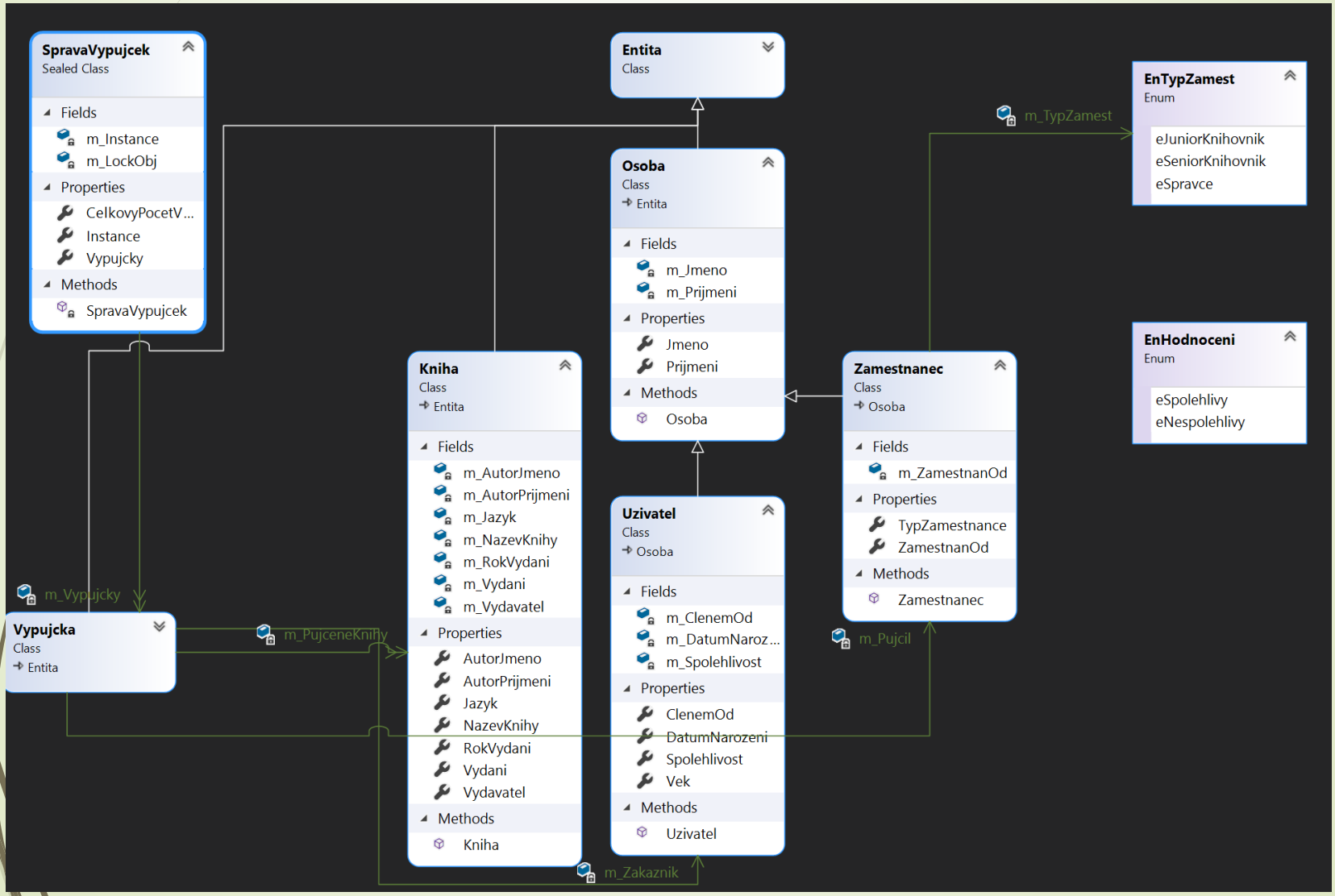
- A Single image of Use-Case diagram of developed IS.
- Three selected Use-Case described in greater detail in Use-Case description (Scenarios) 3 pages of text.
- Three images of activity diagram for selected Use-Cases

UML diagrams for artifacts

UML

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

VS 2019 class diagram

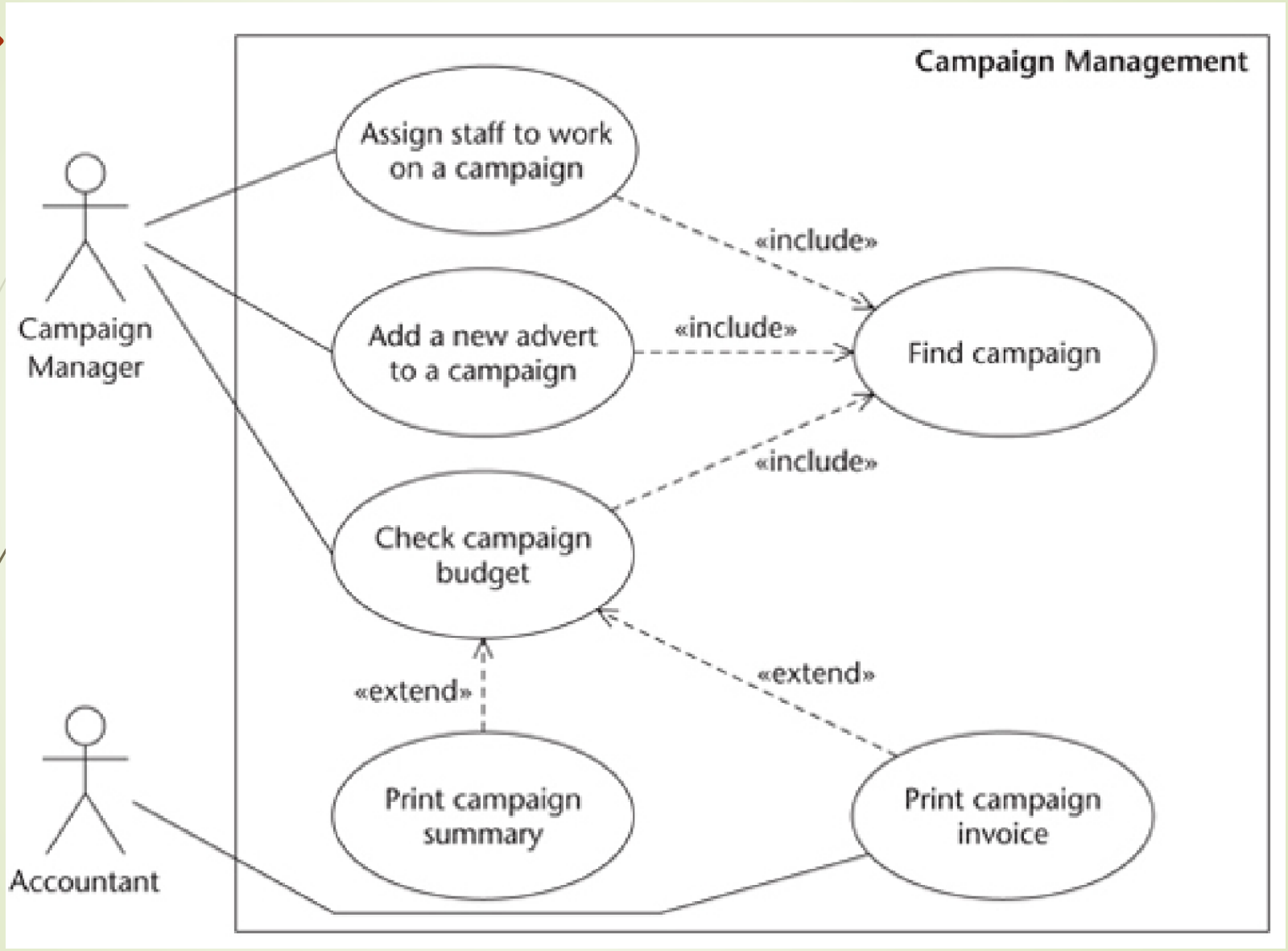


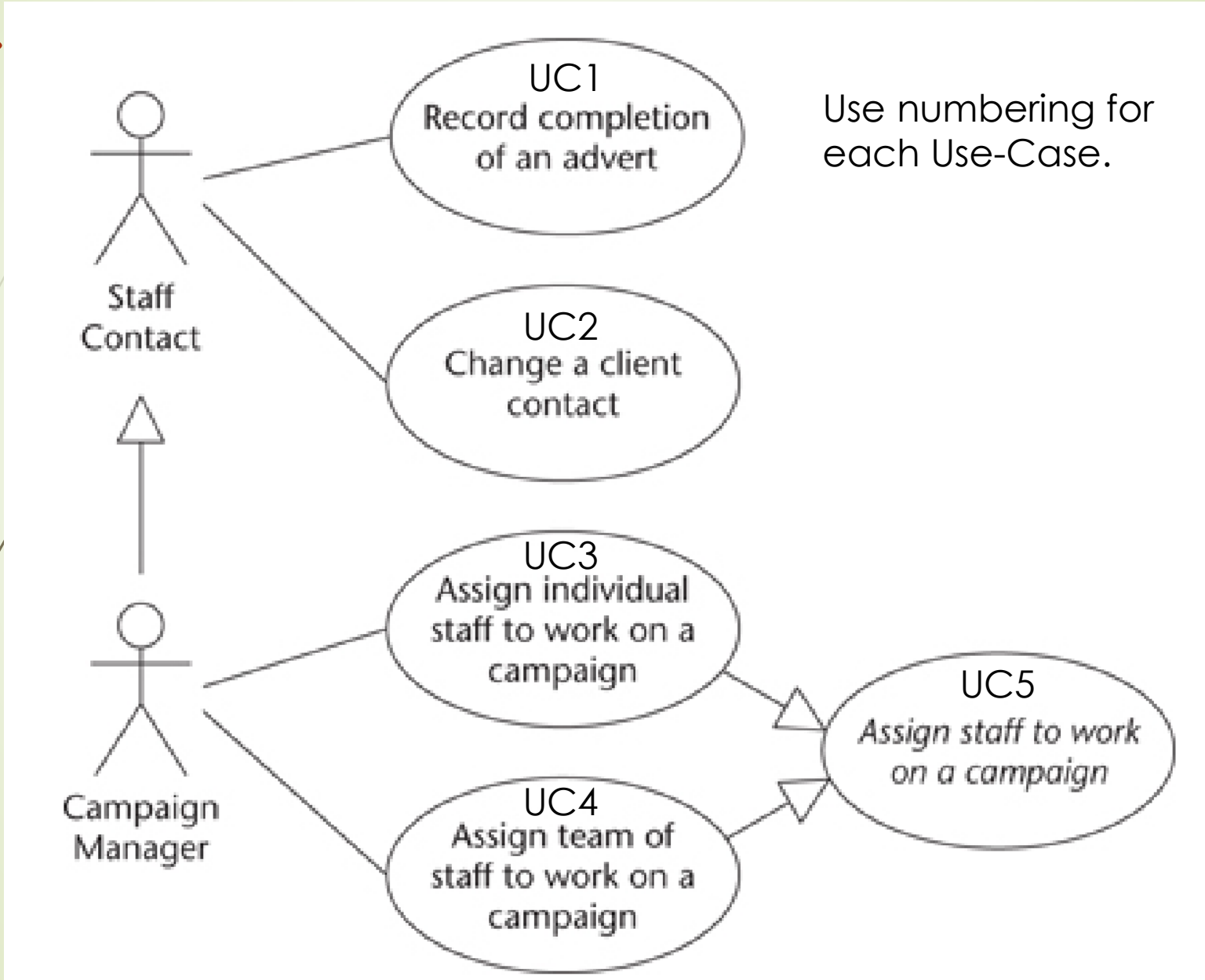
UML diagrams for Artefact 2

- 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



Use numbering for each Use-Case.

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 flow:

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.

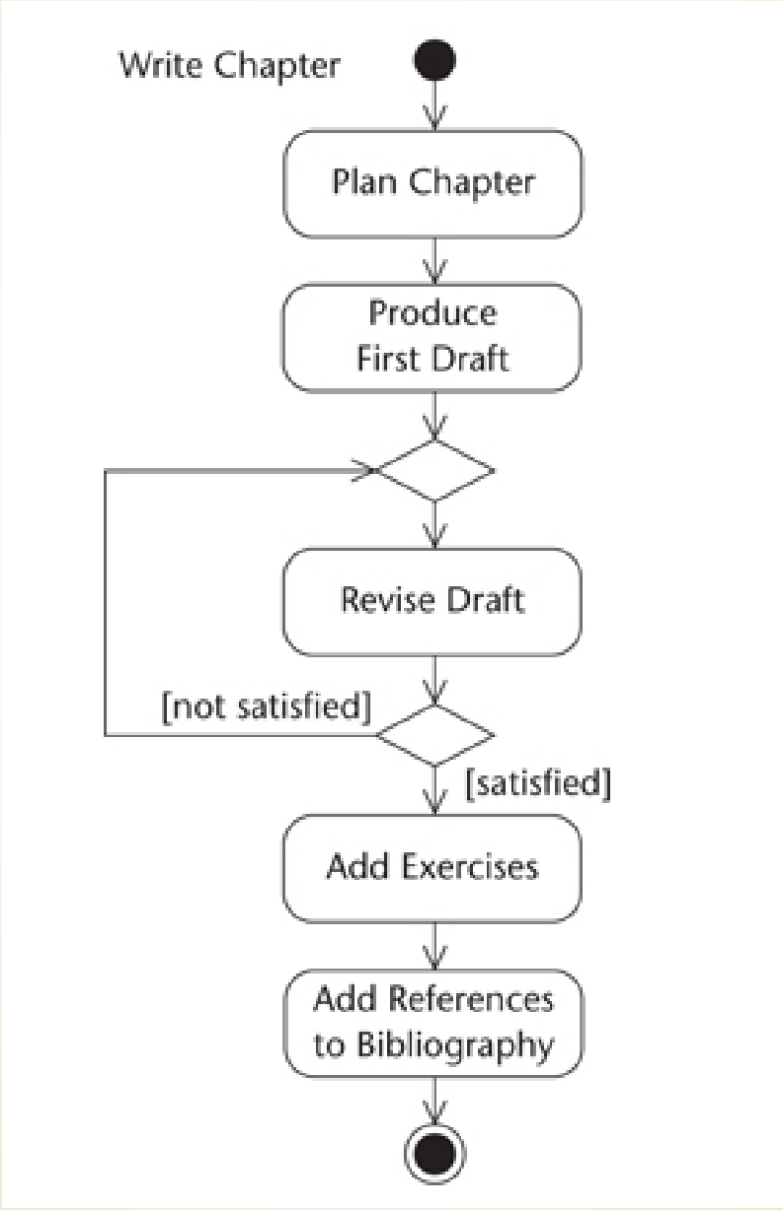
Alternative flow: ….

Activity diagram

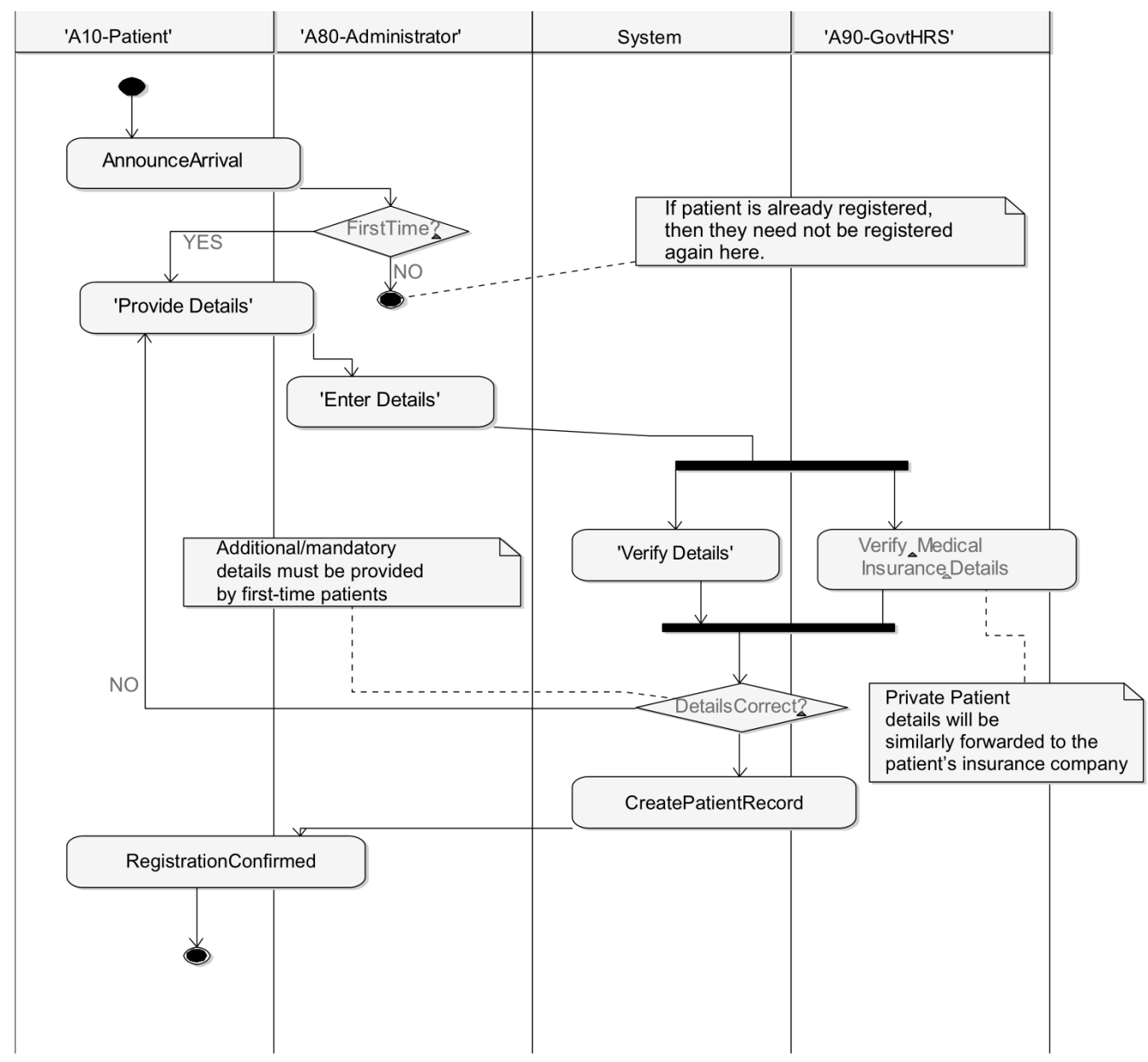
Activity diagrams can be used to model different aspects of a system. At a high level, they can be used to model business processes in an existing or potential system.

- 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

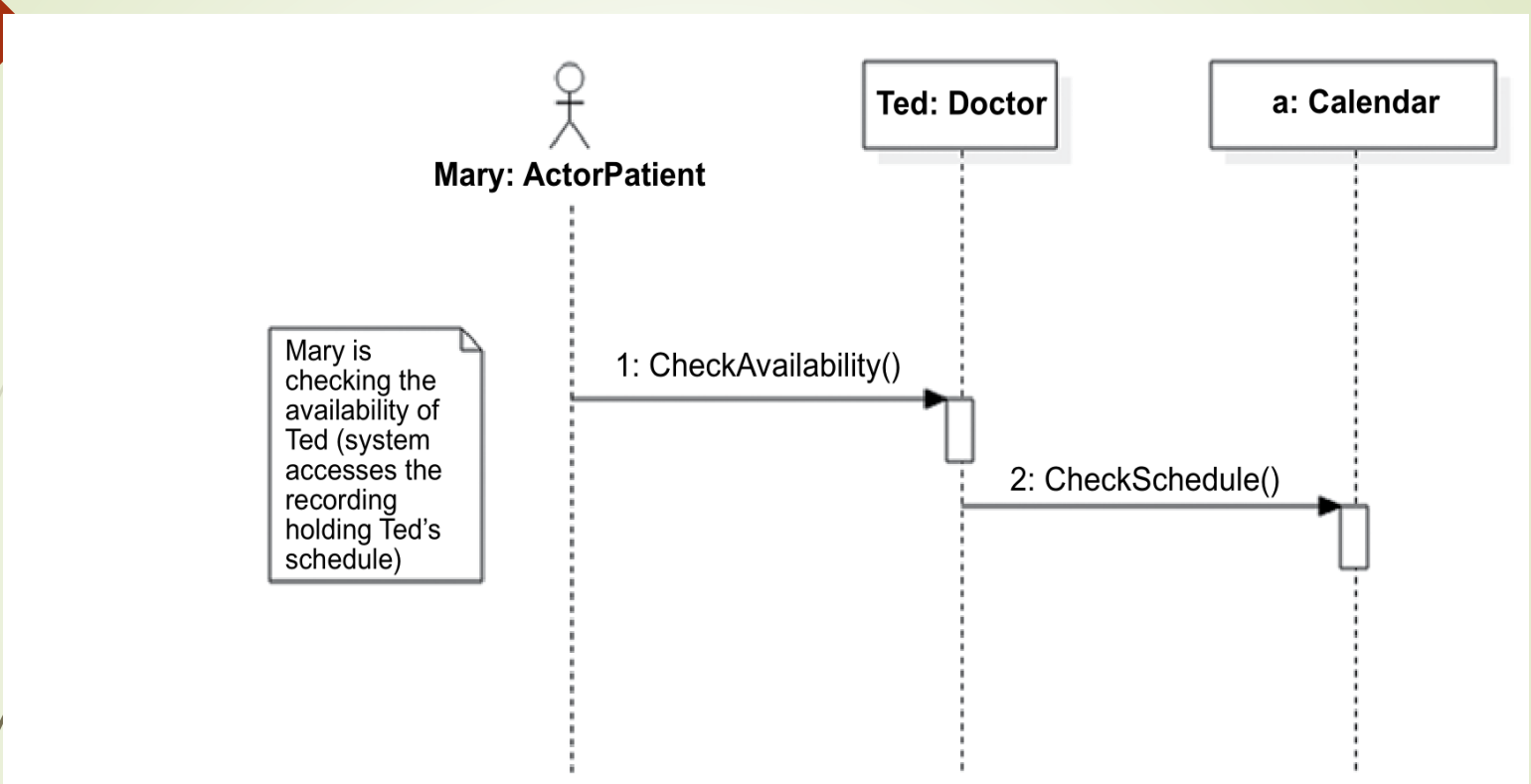


Sequence diagram

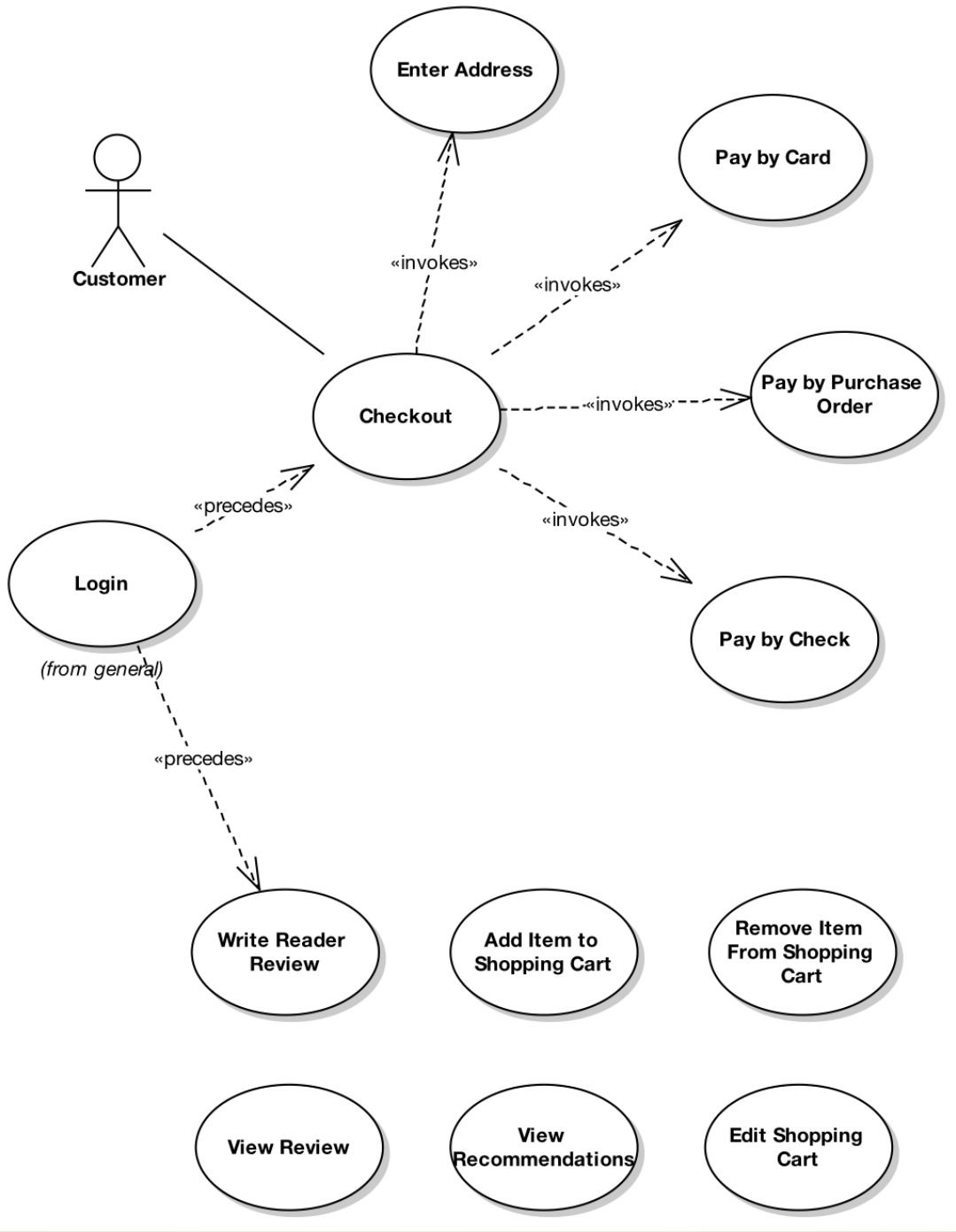
Sequence diagrams represent the detailed interaction between actors and a system or between collaborating objects within a given time block.

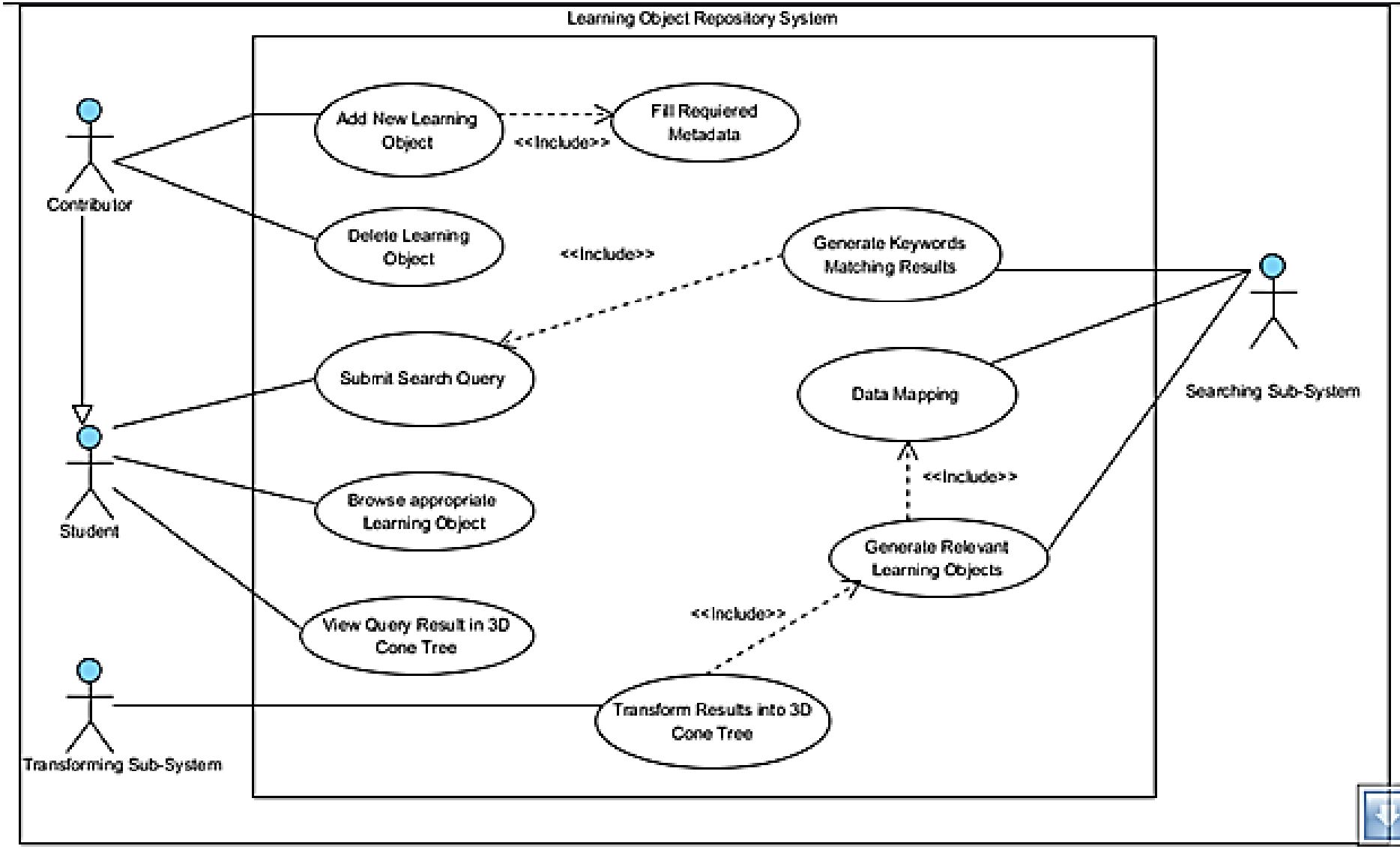
- However, information as to what happened before the interaction started and what happens after the time block stops is not shown in the sequence diagram. While messages shown in the sequence diagram can have preconditions and postconditions, these conditions are not directly visible in the diagram.
- 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.


Enter Address
Pay by Card
Customer
«invokes»
«invokes»
Checkout
«invokes»
Pay by Purchase Order
«precedes»
«invokes»
Login
Pay by Check
(from general)
«precedes»
Write Reader Review
Add Item to Shopping Cart
Remove Item From Shopping Cart
View Review
View Recommendations
Edit Shopping Cart


Learning Object Repository System
Contributor
Add New Learning Object
<<Include>>
Fill Requiered Metadata
Delete Learning Object
<<Include>>
Generate Keywords Matching Results
Searching Sub-System
Submit Search Query
Data Mapping
Student
<<Include>>
Browse appropriate Learning Object
Generate Relevant Learning Objects
View Query Result in 3D Cone Tree
<<Include>>
Transforming Sub-System
Transform Results into 3D Cone Tree

Use Case ID:	3
Use Case Name:	Deposit check
Actors:	Customer
Description:	Deposit cash without using ATM card by using E-Card system.
Preconditions:	1- The Customer has an activated E-Bank username and password. 2- The agreement should be signed by the customer. 3- The check must be valid.
Postconditions:	1- Customer account balance is increased by the amount of the deposit check.
Normal Flow:	1- Open the application. 2- The application shows welcome screen. 3- Log in to the application. 4- Choose the account. 5- Choose the transaction then deposit check service. 6- Enter the amount of money of the check and submit it. 7- Receiving the barcode. 8- Scan the barcode. 9- Take pictures for the front and back of the check 10- Receive notification. 11- Log out of the application.
Alternative Flows:	7a. if the customer didn't receive the barcode : 4- Customer will click on the get barcode bottom. 5- Bank sends a new barcode. 6- Use case resumes on step 8 of normal flow.
Exceptions:	8a. In step 8 of the normal flow, if the customer cannot scan the barcode 4- Transaction is disapproved 5- Customer rescan the barcode correctly 6- Use Case resumes on step 9 of normal flow.