# CS1 Task 7 Domain Model and Sequence Diagram

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# UML Domain Model

With help of Responsibility Driving Design were defined possible classes for our application. As a result was Domain Model Diagram created, which presents conceptual or domain classes and defines the binary relations between them.

* At first line were defined objects *Patient* and *Doctor*, because such persons play a central role in processes occurred within MNS-PMS. In advance was admitted that the objects of Patient and Doctor domain classes can have some common attributes, that is why was created conceptual class *Person* and the **generalisation** has been used to show relations between this three concepts (Person-Doctor-Patient).
* Because Patient and Doctor must collaborate with each other was the new domain class named *Case* defined. This is a central concept because interactions between Patient and Doctor are going through this class. The association between Doctor and Case is so defined that one doctor has many cases, and on the other hand on one case can work many doctors. The association between Patient and Case is like **composition** defined (there is no Case without Patient, if Patient does not exist anymore, Case also does not exist).

Patient

Case

* Every Patient must be treated by Doctor, that means should have diagnose and get some medication. To describe so exact how it is possible the collaboration within domain class Case were three more concepts defined, named *Diagnose*, *Treatment* and *Medication*. The association between domain Case and Diagnose is like **aggregation** defined, between Diagnose and Treatment, between Diagnose and Medication are associations with defined cardinality.

Case

Diagnose

The whole Domain Model is represented on Picture 1.

# UML sequence diagram

# Information update

Diagram 1

The sequence diagram of (diagram 1) describes the process when the user updates some information in our software. The user starts with:

1. Enter the PID and get access to Patient Information
2. With the PID,UID and Patient Information we get access to our database
3. The system tests if the user has permit to the information in our database
4. If the user has the necessary rights, information’s are shown out from our database in the Patient information system
5. If the user hasn’t the necessary rights, the information out of the database won’t shown on the user
6. On situation 4 the user has the right to edit patient Information’s.
7. New information’s will add in the database
8. The data base let the patient Information system known that information’s are now up to date.
9. The user gets am message, that all information are up to date.

# Information about some specific event

Diagram 2

The sequence diagram of (diagram 2) describes the process when the system alerts the user about a specific event. The user starts with:

Beispiele:

1.Neue Informationen sind verfügbar, welche die Sekretärin eingegeben hatte ->der Arzt wird informiert.

2.Der Arzt gab eine falsche Telefonnummer ein in der SMS-Benachrichtungsfunktion->der User kriegt eine Fehlermeldung(Event wurde ausgelöst, SMS kam nie beim Empfänger an)

Unser Sequenz Diagram sollte beide Fälle abdecken nicht nur der 1.Fall

-Vorschlag von mir getätigt für beide Fälle(Diagramm 2 ist angepasst)->roter Text wird noch gelöscht

1. Enter the PID and get access to Patient Information’s
2. With the PID, UID the Patient Information system check on database if new information’s are available.
3. The system tests if the user has permit to the information in our database
4. If no new information’s are available, the data base tells that fact on the patient information system. No system alert has to turn on to the user.
5. If the user hasn’t the necessary rights, the information out of the database won’t shown on the user
6. If the user has the necessary rights, and new information’s are available, the database tells that fact on patient information system and then on the user.
7. The patient information system checks if it has to trigger a system alert. If yes, Data will save at database
8. The user will receive a system alert message from the patient information system who has data from the data base.
9. If in the patient information system the condition for system alert isn‘t given, no action is necessary

# Refined UML domain model

After creating two sequence diagrams describing two different situations the Domain Model has been refined.

There are attributes and operations which can be used at a later stage – creation of classes’ diagram.

**Attributes**:

PID –patient’s identification number (belongs to class Patient)

*UID*- user’s identification number (belongs to class Doctor)

Under *Info* (sequence diagram) was defined a row of attributes belonging to class Person – *Lastname*, *Firstname*, *DateOfBirth*, *Address* etc., also a row of attributes belonging to other classes (for example *diagnose* from class Diagnose, the *name of medication* from class Medication).

**Operations can be used later as methods of classes**:

*viewInfo()*

*edit(argument)*

*getInfo()*