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| http://www.etfos.unios.hr/new-images/ferit-web-200.png | **JOSIP JURAJ STROSSMAYER UNIVERSITY OF OSIJEK**  Faculty of Electrical Engineering, Computer Science and Information Technology Osijek |  |

Modelling and Design of Software Systems

Laboration assignment *3*

**Domain Modeling**

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Delta

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# Assignment 3.1

# Make a copy of the file with your UML model from Assignment 2 (to preserve it). Use a copy and modify the cases so that they also include new features.

# Assignment 3.2

Assess and report the necessary changes/additions to the system (MDR) considering the updated requirements. Briefly describe what should be updated/changed considering the requirements specification you already did (use-case models).

The first change to be made is that new actors are to be put in place. As the assignment states, two new actors should be introduced: medical technical staff and pharmacy. The updated use case model diagram would now look like this:

Diagram

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Beside the new actors, the use case diagram was updated with new use cases to further explain the MDR. Two new extensions were introduced: view incoming checkups and view prescribed drugs. Both of the use cases extend the Access patient records use case. The pharmacy can only see prescribed drugs and the technical staff can both see incoming checkups and view prescribed drugs. Information other than the aforementioned are not visible to either of the newly introduced actors.

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| **USE CASE 1** | Start diagnosis | |
| **Goal in Context** | Registered user-patients enters health parameters, expects diagnostic. | |
| **Scope & Level** | Medical diagnosis | |
| **Preconditions** | Registered user-patient has his login credentials. | |
| **Success End Condition** | Registered user-patient is diagnosed. | |
| **Failed End Condition** | Registered user-patients isn’t diagnosed. | |
| **Primary, Secondary Actors** | Registered user-patient, Doctor | |
| **Trigger** | Registered user-patient initiation | |
| **Description** | **Step** | **Action** |
|  | 1. | Registered user-patient selects diagnosis. |
|  | 2. | Registered user-patient enters parameters for diagnosis. |
|  | 3. | Basic diagnosis is extracted. |
| **EXTENSIONS** | **Step** | **Branching Action** |
|  | 2. | System offers Registered user-patient a guided set of questions.(Use case 6) |
|  | 2.a | Doctor requires additional input. |
|  | 3. | Send diagnosis to doctor.(Use case 2) |

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| **USE CASE 2** | Send data to doctor | |
| **Goal in Context** | A Registered user-patient sends inputs to the doctor requesting a diagnosis based on the inputs made in the application | |
| **Scope & Level** | Medical diagnosis | |
| **Preconditions** | A Registered user-patient has completed diagnosis. | |
| **Success End Condition** | Registered user-patients diagnosis is transferred to the Doctor | |
| **Failed End Condition** | Registered user-patient diagnosis failed to transfer | |
| **Primary, Secondary Actors** | Registered user-patient, Doctor | |
| **Trigger** | Registered user-patient initiates | |
| **Description** | **Step** | **Action** |
|  | 1. | Registered user-patient selects finished diagnosis |
|  | 2. | Registered user-patient chooses set Doctor |
| **EXTENSIONS** | **Step** | **Branching Action** |
|  | 1. | Registered user-patient sends unfinished diagnosis |
|  | 1.a | Doctor requires additional input |

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| **USE CASE 3** | Invite patient for checkup | |
| **Goal in Context** | The Doctor requests the Registered user-patient to come for a medical checkup after reviewing the diagnosis provided by the application | |
| **Scope & Level** | Medical diagnosis | |
| **Preconditions** | The Registered user-patient has been diagnosed. | |
| **Success End Condition** | Registered user-patient is invited for a checkup. | |
| **Failed End Condition** | Registered user-patient isn’t invited for a checkup. | |
| **Primary, Secondary Actors** | Doctor, Registered user-patient | |
| **Trigger** | Doctor initiates | |
| **Description** | **Step** | **Action** |
|  | 1. | Doctor reviews patient diagnosis(Use case 4) |
|  | 2. | Doctor checks patient record (Use case 5) |
|  | 3. | Doctor invites Registered user-patient for a checkup. |
| **EXTENSIONS** | **Step** | **Branching Action** |
|  | 1. | Doctor requires additional information |
|  | 2. | Doctor provides additional diagnosis |

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| **USE CASE 4** | Inspect diagnosis | |
| **Goal in Context** | The Doctor reviews the Registered user-patients diagnosis | |
| **Scope & Level** | Medical diagnosis | |
| **Preconditions** | The Registered user-patient has completed diagnosis | |
| **Success End Condition** | The Doctor accesses and inspects the diagnosis | |
| **Failed End Condition** | The Doctor doesn’t inspect the diagnosis | |
| **Primar, Secondary Actors** | The Doctor, Registered user-patient | |
| **Trigger** |  | |
| **Description** | **Step** | **Action** |
|  | 1. | Registered user-patient sends the diagnosis (Use Case 2) |
|  | 2. | The Doctor inspects the diagnosis |
|  | 3. | The Doctor updates the diagnosis |
|  | 4. | Prescribe drugs and dosage |
| **EXTENSIONS** | **Step** | **Branching Action** |
|  | 2. | The Doctor requires additional information |
|  | 3. | The Doctor invites registered user-patient for checkup |

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| **USE CASE 5** | Keep track of records | |
| **Goal in Context** | The Doctor has access and permission to update user records, The Medical technical staff have access to the incoming medical check, The Central Pharmacy can access only prescribed drugs and dosages | |
| **Scope & Level** | Medical diagnosis | |
| **Preconditions** | The Actors(Doctor, Medical Staff, Pharmacy) have valid credentials | |
| **Success End Condition** | The Actors can access records | |
| **Failed End Condition** | The Actors can’t access records | |
| **Primary, Secondary Actors** | The Doctor ,Medical Staff, Central Pharmacy | |
| **Trigger** | The Doctor Initiates | |
| **Description** | **Step** | **Action** |
|  | 1. | The Doctor access records |
|  | 2. | The Doctor edits records |
| **EXTENSIONS** | **Step** | **Branching Action** |
|  | 1.a | The Doctor accesses own records |
|  | 1.b | The Doctor doesn’t have permission to edit the record |
|  | 2.a | The Doctor accesses registered user-patient records |
|  | 2.b | The Pharmacy Issues prescribed medications |
|  | 2.c | The Technical Medical Staff views incoming checkup and prescribed drugs |

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| **USE CASE 6** | Answer guided set of questions | |
| **Goal in Context** | The Registered user-patient completes diagnosis | |
| **Scope & Level** | Medical diagnosis | |
| **Preconditions** | The Registered user-patient started diagnosis | |
| **Success End Condition** | The Registered user-patient finished diagnosis | |
| **Failed End Condition** | The Registered user-patient didn’t finish diagnosis | |
| **Primary, Secondary Actors** | The Registered user-patient | |
| **Trigger** | The Registered user-patient starts diagnosis | |
| **Description** | **Step** | **Action** |
|  | 1. | The Registered user-patient starts diagnosis ( Use Case 1) |
|  | 2. | The Registered user-patient selects guided diagnosis procedure |
|  | 3. | The algorithms extract the basic diagnosis. |
| **EXTENSIONS** | **Step** | **Branching Action** |
|  | 3. | The Registered user-patient can send the diagnosis to the Doctor.(Use Case 2) |

# Assignment 3.3

Create a conceptual class diagram (domain model) to describe the concepts/context of MDR. The diagram should contain classes (with names only), and simple associations (they must have names and cardinalities). Since the diagram has to be made at the conceptual level, do not add operations or attributes to the classes. Ideally, the classes should be shown on the diagram as rectangles with class names only, with no empty compartments for attributes and operations. Whatever assumptions and decisions you have made in Assignment 2 are also valid now.

Graphical user interface

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# Assignment 3.4

Model the workflow for the use cases "Prescribe a drug to the patient" (in the web interface) and "Start the diagnosis" (in the mobile app) and corresponding "include"/”extend” use cases, if any, using activity diagrams. The diagrams should be sub-diagrams of the model. You must use at least three different Swimlanes (Activity partitions, according to UML 2.X) to show the activities of the appropriate actor(s).

Diagram

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