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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 *2*

**Use Case Modeling**

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# Assignment 2.1

### Identify at least two actors and the 6 (maximum of 9) most important use cases. One of the use cases should be "start diagnosis".

**Doctor** – A doctor is a user providing additional diagnosis, requiring additional input form the patient and inviting patients for a medical checkup. He accesses the system using the web application and can only access medical records of his own patients.

**Registered user-patient** – A registered user is a patient using the mobile diagnostic app to provide important parameters or answer a guided set of question to self-diagnose. Additionally he can send his diagnosis to the Doctor

Cases:

1. Start diagnosis: The system must enable the Registered user-patient to diagnose themselves based on their symptoms and their general health status.

2. Send data: The system must enable transferring the Registered user-patients data to their Doctor.

3. Inspect diagnosis- The system must enable the Doctor to review the diagnosis and provide feedback.

4. Invite patient for a medical checkup – The system must enable the Doctor to invite their Registered user-patients for a medical checkup.

5. Keep track of records-The system must enable the Doctors to keep track of the Registered user-patients record, with past diagnoses, treatments, prescribed drugs, etc. Allowing only authorized Doctors to gain access.

6. Answer guided set of questions – The system must enable the Registered user-patient to answer a guided set of questions and diagnose them appropriately.

# Assignment 2.2s

Document the 6 most important use cases using a textual specification, for example, Alistair Cockburn's. Full Alistair Cockburn’s notation is available [**here**](https://moodle.srce.hr/2022-2023/pluginfile.php/7529486/mod_assign/intro/Use%20Case%20Template%20%28Cockburn%29.pdf). It is important that the chosen specification contains the name of the use case, initiating actor(s), basic path (scenario), and alternative path(s)/extension(s).

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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 |
| **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 | |
| **Scope & Level** | Medical diagnosis | |
| **Preconditions** | The Doctor has valid credentials | |
| **Success End Condition** | The Doctor can access records | |
| **Failed End Condition** | The Doctor can’t access records | |
| **Primary, Secondary Actors** | The Doctor | |
| **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 |

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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 *2*.3

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| Non-functional property | Description |
| Security | The system needs to be resilient to any kind of attack made with the purpose of obtaining any information about the registered user-patient and the diagnosis as the system is dealing and managing sensitive information. |
| Transparency | The system needs to clearly display information whether they are inputs from the registered user-patient itself or the diagnosis from the doctor. Information about the treatment or the diagnosis and symptoms should be clearly visible and easy to spot. |
| Data integrity | Data should remain accurate and consistent over its life cycle. Previous symptoms and diagnoses can help determine the cause and treatment of future illnesses so validity is key. |
| Privacy | Information found inside the system should only be available to those who are authorized to view it. System should thereby deal with regulation, storing and using personal information with care. |
| Scalability | The system needs to work the same whether being used by a thousand or million users as it targets everyone. System of this kind that can perform its duty only to a handful of users wouldn’t be useful. |

# Assignment *2*.4

Draw the use case diagram(s).

Diagram, engineering drawing, schematic

Description automatically generated