University of Groningen

Software Engineering

Evidencio

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1 Introduction

Evidencio is an open library that holds quality-controlled medical prediction models and is continuously growing. These prediction models can be used to translate results from clinical studies towards patient-specific probabilities, therewith supporting medical decision-making for individual patients. These models are used by medical professionals to aid the prognosis of a medical condition and treatment for individual patients.

As of now its user-base consists only of medical professionals, one of our goals of the project is to design a front-end platform for patients. To represent Evidencio calculated models to patients in a friendly and understandable way, this will be done by making the input variables for the calculation of the models in to a workflow questionnaire that patients can easily follow. At the end patients should be able to see the result of the specific Evidencio probability models, calculated on their medical conditions in an understandable graphical representation. The other goal for the project is to create an environment for medical professionals to create and edit these workflows based on the models developed on Evidencio.

2 Terms

1. **Workflow**: Decision-tree like flow-model made by medical specialist for patient
2. **Step**: Level in the Workflow. Each workflow can have several steps (levels), after which the final result is reached
3. **Option**: Point in workflow that could possibly be reached by the patient at some point, are part of steps (as in, each step has one or more options that could be reached)
4. **Types of Options**: Result-option (used for showing final results), Input-option (used for requesting extra input from patient

3 Functional Requirements

3.1 Critical

- Fill in workflow model

  - Patient user should be able to search for and complete selected workflow models
- Display workflow results in a graphical representation
  - Completed workflow models should display result in a graphical representation
- Design/create workflow model
  - Medical professionals should be able to design and create workflow models and be saved in a database
- Log-in for medical professionals for creating workflow model
  - Medical professionals that want to create or edit workflow models need to first register and be verified by an administrator
- Communicates with Evidencio API for possible results
  - Models should get the results calculated through API connection with Evidencio API
- Create workflow model: Medical professionals should be able to create a new
  - Manage steps
    - Steps can be added, edited, deleted
  - Manage options
    - Options can be added, edited, deleted
- Show the overview of the workflow
  - For both the workflow creation and verification you have to be able to see the overview of the workflow
- Show details of an option
  - Show the overview of a single option. This shows the variables, logic and connecting options for this option

3.2 Important

- Verify completed models before making them available for patients
  - Verification is important to ensure the quality of the workflows

- Download results of workflow in pdf-file
  - Users that have completed workflow models are capable of downloading the results of the model as a pdf
- Edit workflow model
  - Designers can edit the workflow and add
- Edit medical professional's account data
  - Registered medical professionals can edit their personal data
- Data input method dialogue
  - The designer can pick a method of inputing data (e.g. slider, text box, radio box, etc.)

3.3 Useful

- Expanding the app with the patient front-end
  - Possibly make an expansion with the patient interface for the currently existing Evidencio app
- Delete medical professional's account
  - Have a possibility to delete existing account of a medical professional
- Delete workflow model
  - Have a possibility to delete existing workflow model
- Add brief workflow model description
  - Have a description of a model which can help all users of the systems
- Edit brief workflow model decription
  - Edit the existing brief workflow model description
- Save workflow as a draft
  - Save the workflow on which the user is currently working as a draft in order to have the possibility to work on it in multiple sessions

- Grant and revoke permission to review workflows and new users
  - Granting and revoking permission to users to review workflows and new users in order to expand the team of reviewers
- Feedback for Models
  - A way to let patients provide feedback based on their experience with the model

4 Non-Functional Requirements

- Security
  - Communication should be secure (i.e. the patients' privacy must be guaranteed)
- Privacy
  - Patient's information of the resulting model will not be saved
- User friendly
  - Simplicity - website should be easy to understand and flow
  - Responsive design
- Usability
  - The system must be usable
- Speed
  - The system must be fast
- Availability
  - Website should function on browser IE11
- Open Source
  - The system must be open-source for future development

5 Won't Do

- Integration into other medical systems

6 Use cases

6.1 Patient

These are the general use cases for patient users, they cover the uses that a general patient would like to achieve using the product. They cover the searching for a workflow model from the saved workflow model saved in a database. Covers the use, if the patient user wants to give feedback on a workflow they have completed. Covers the use, if a patient user wants download the pdf version of their results of the workflow model they have completed. Covers the use, of a patient completing a workflow model.

6.1.1 Searching for workflow

Scope: User side
Level: User Level
Primary Actor: Patient
Stakeholders and Interests:

- *Patient:* Searches for the workflow

Preconditions:

- A workflow is created.

Success Guarantee (Postconditions): A list of workflows are returned by the system for the Patient to choose
Main Success Scenario (Basic Flow):

1. The Patient enters the search term
2. The Patient clicks on the submit button
3. The System searches for workflows that matches the search term
4. The System redirects the Patient to the result page
5. The System displays all the workflows that matches the Patient's search term.

Alternate Flow:

1.1 The Patient did not enter any search term

1.2 The Patient clicks submit

1.3 The System prompts the user to enter the search term

1.4 Resume flow at Step 2

Special Requirements: Display warning message
Technology And Data Variations List: None
Frequency of Occurrence: Frequent
Open Issues: None

6.1.2 Provide Feedback

Scope: User side
Level: User Level
Primary Actor: Patient
Stakeholders and Interests:

- *Patient:* Gives feedback

Preconditions:

- None

Success Guarantee (Postconditions): System records the feedback provided by the Patient into the database.
Main Success Scenario (Basic Flow):

1. The Patient clicks on the Submit Feedback button
2. System redirects the Patient to the feedback page
3. The Patient enters the details in the feedback form
4. The Patient submits the form
5. The System records the feedback in the Database
6. The System display a success message

Alternate Flow:

3.1 The Patient did not enter all required details

3.2 The System display an alert message to prompt the Patient

3.3 Resume flow at Step 3

5.1 System attempts to submit the form

5.2 Error encountered during submission due to, but not limited to, connection issue with the database.

5.3 System prompts the Patient to resubmit the form again

5.4 Resume flow at Step 4

Special Requirements:

1. Display warning message

2. Display error message

Technology And Data Variations List: None
Frequency of Occurrence: Infrequent
Open Issues: None

6.1.3 Save (Export to PDF)

Scope: User side
Level: User Level
Primary Actor: Patient
Stakeholders and Interests:

- *Patient:* id patient want to save the results

Preconditions:

- A completed model, with the display of results.

Success Guarantee (Postconditions):A PDF file containing the results of the model that the patient had just completed.
Main Success Scenario (Basic Flow):

1. System display an "Export to PDF" button

2. User clicks on the button

3. The Patient enters the details in the feedback form

4. System generates the PDF file

5. 1. User's browser will prompt user to download the file to the User's computer

6. System displays a successful message

Alternate Flow:

4.1 User decides to not click on the "Export to PDF" button

3.2 Workflow ends

Special Requirements:

1. Display warning message

2. Display error message

Technology And Data Variations List: None
Frequency of Occurrence: Infrequent
Open Issues: None

6.1.4 Complete Workflow Model

Scope: User side
Level: User Level
Primary Actor: Patient
Stakeholders and Interests:

- *Patient:* patient preforms and completes workflow model

Preconditions:

- System has retrieved a list of Workflows that matched the User's search term.

Success Guarantee (Postconditions):A completed model, with the display of results.
Main Success Scenario (Basic Flow):

1. User selects a workflow model

2. System asks for input for a variable of model

3. User inputs required data
4. System displays Graphical representation of the result of workflow model

Repeat step 2-3 for more variables
Special Requirements: none
Technology And Data Variations List: None
Frequency of Occurrence: frequent
Open Issues: None

6.2 Designer

Below you can see the use-cases related to the design of workflows. They deal with the creation, changing and deleting of workflows.

6.2.1 Create new workflow

Scope: Designer side
Level: User Level
Primary Actor: Designer
Stakeholders and Interests:

- *Designer:* wants to create new workflow
- *Evidencio team:* want new models which are valid and verified

Preconditions:

- The user is verified and logged into the designer app

Success Guarantee (Postconditions): The new workflow window is added
Main Success Scenario (Basic Flow):

1. The user select the option to create a new workflow
2. The system generates a warning and shows it to the user, saying that the current workflow will be saved as a draft and closed
3. The systems saves the open workflow (if applicable) as a draft and stores it in the database for the user

4. The system closes the workflow

5. The system opens a new workflow

Special Requirements: None
Technology And Data Variations List: None
Frequency of Occurrence: Whenever a user wants to start a new model
Open Issues: None

6.2.2 Edit existing workflow that has been made

Scope: Designer tool
Level: User Level
Primary Actor: Designer
Stakeholders and Interests:

- *Designer:* wants a workflow to be verified
- *Verifier:* wants the workflows to be verified and valid

Preconditions:

- The workflow to be edited has been created and exists ether as a draft or as a verified workflow. Furthermore, the user has permission to edit the workflow.

Success Guarantee (Postconditions): The workflow is edited, if needed verified and added to the database
Main Success Scenario (Basic Flow):

1. The system opens the workflow to be edited
2. The user edits the workflow
3. Reference to the Use Case where the use cases are verified in order to be available to the patients or saves it as a draft

Special Requirements: None
Technology And Data Variations List: None
Frequency of Occurrence: Whenever a user wants to edit a workflow
Open Issues: None

6.2.3 Verify workflow to allow for it to be available for patients

Scope: Designer side
Level: User Level
Primary Actor: Designer
Stakeholders and Interests:

- *Designer:* Wants his workflow to be verified
- *Verifier:* wants the workflows to be verified and valid

Preconditions:

- The workflow has been made, including all the rules, steps and options Success Guarantee.

Success Guarantee (Postconditions): The workflow is verified and added to the database.
Main Success Scenario (Basic Flow):

1. The user sends the workflow to the system for verification
2. The model is saved in the database for pending workflows
3. The system shows/sends the workflow to the verifier
4. The verifier reviews the workflow
5. The verifier verifies the workflow
6. The system stores the workflow in the database for verified workflows
7. The system sends the user the notification that the workflow has been verified

Alternate Flow:
5a. The verifier rejects the workflow:

1. The verifier writes a message to the user stating what needs to be changed/why the model is rejected
2. The verifier rejects the model
3. This workflow will be started again after the user has made the changes suggested by the verifier

Special Requirements: None
Technology And Data Variations List: None
Frequency of Occurrence: Around 1 time a day, 3 days per week.
Open Issues: None

6.2.4 Add brief description of workflow

Scope: Designer tool
Level: User Level
Primary Actor: Designer
Stakeholders and Interests:

- *Designer:* wants to add the description to the workflow
- *Verifier:* wants to know what the workflow is about
- *Patients:* want to know what the workflow is about

Preconditions:

- The workflow has been made

Success Guarantee (Postconditions): The workflow has a brief description of the workflow
Main Success Scenario (Basic Flow):

1. The user selects option to add the brief description
2. The user inputs the brief description into the system
3. The user selects the option to store the brief description
4. The system stores the inputted information into the workflow

Special Requirements: None
Technology And Data Variations List: None
Frequency of Occurrence: Whenever a brief description to the model is added
Open Issues: None

6.2.5 Edit brief description of workflow

Scope: Designer tool
Level: User Level
Primary Actor: Designer
Stakeholders and Interests:

- *Designer:* wants to edit the description to the workflow
- *Verifier:* wants to know what the workflow is about
- *Patients:* want to know what the workflow is about

Preconditions:

- The workflow has been made and has a brief description

Success Guarantee (Postconditions): The workflow has a new, edited brief description of the workflow
Main Success Scenario (Basic Flow):

1. The user selects option to edit the brief description
2. The user inputs the brief description into the system
3. The user selects the option to store the brief description
4. The system stores the inputted information into the workflow

Special Requirements: None
Technology And Data Variations List: None
Frequency of Occurrence: Whenever a brief description to the model is added
Open Issues: None

6.2.6 Save workflow as a draft

Scope: Designer tool
Level: User Level
Primary Actor: Designer
Stakeholders and Interests:

- *Designer:* Wants to save the workflow as a draft for future reference

Preconditions:

- The workflow has to be open

Success Guarantee (Postconditions): The workflow is saved as a draft
Main Success Scenario (Basic Flow):

1. The user selects the option for the workflow to be saved as a draft
2. The system stores the workflow in the database along with the creator data
3. The user is notified that it has been stored as a draft

Special Requirements: None
Technology And Data Variations List: None
Frequency of Occurrence: Whenever a user wants to save a workflow as a draft
Open Issues: None

6.2.7 Show an overview of the workflow

Scope: Designer tool
Level: User Level
Primary Actor: Designer
Stakeholders and Interests:

- *Designer:* wants to see the overview of a workflow
- *Verifier:* wants to see the overview of a workflow which has been submitted

Preconditions:

- The workflow has to have been created

Success Guarantee (Postconditions): The workflow overview is shown
Main Success Scenario (Basic Flow):

1. The user selects the workflow for which it shows the overview
2. The system retrieves the data for the workflow in question
3. The data for the workflow is displayed for the user

Special Requirements: None
Technology And Data Variations List: None
Frequency of Occurrence: Whenever a user wants to see an overview of a workflow
Open Issues: None

6.2.8 Show brief description of workflow

Scope: Designer tool
Level: User Level
Primary Actor: Designer
Stakeholders and Interests:

- *Designer:* wants to see the brief description of a workflow
- *Verifier:* wants to see the brief description of a workflow which has been submitted

Preconditions:

- The workflow has to be created

Success Guarantee (Postconditions): The workflow brief description is shown
Main Success Scenario (Basic Flow):

1. The user selects the workflow for which it shows the brief description
2. The system retrieves the data for the workflow in question
3. The brief description of the workflow is displayed for the user

Special Requirements: None
Technology And Data Variations List: None

Frequency of Occurrence: Whenever a user wants to see a brief description of a workflow
Open Issues: None

6.2.9 Add step to workflow

Scope: Designer side
Level: User Level
Primary Actor: Designer
Stakeholders and Interests:

- *Designer:* Wants to add a new step to the workflow so new options can be added and, additionally, connected

Preconditions:

- A workflow is created.

Success Guarantee (Postconditions): A new step is added and displayed.
Main Success Scenario (Basic Flow):

1. The user chooses and option to add another step.
2. The system creates a new step and displays the empty step underneath the previous step, or on the top if it is the first step that is created.
3. The System notifies the Coordinator that the data is stored.

Alternate Flow: None
Special Requirements: None
Technology And Data Variations List: None
Frequency of Occurrence: Around 1 time a day, 3 days per week.
Open Issues: None

6.2.10 Delete Step From Workflow

Scope: Designer Side
Level: User Level
Stakeholders and Interests:

- *Designer:* Wants to delete an existing step.

Preconditions:

- The user should be logged in
- The user should have already created a workflow.
- The workflow must contain at least one step.

Success Guarantee (Postconditions): The user has one less step in his/her workflow.
Main Success Scenario (Basic Flow):

1. While the user is designing his workflow, he decides to delete one of the existing steps that he had added previously.
2. The system prompts a message asking the user whether he is sure that he wants to delete that step.
    - The user presses the "Yes" button if he is sure that he wants to delete that step.
    - The user can also press the "No" button to stop this process.
3. The system deletes the step and the options on that step. Displays the new workflow on the screen.

Special Requirements: None
Technology And Data Variations List: None

Open Issues: None

6.2.11 Add Option to Given Step in Given Workflow

Scope: Designer Side
Level: User Level
Primary Actor: Medical Specialist (MS)
Preconditions: MS is authenticated, has created a Workflow with at least one Step.
Success Guarantee (Postconditions): The Option is added to the given Step in the given workflow.
Main Success Scenario (Basic Flow):

1. MS requests to add an Option to a given Step in a given Workflow

2. System asks for type of Option to be added to the given Step
    (a) MS replies that he/she wants to add an Input-option
        i. Use-case 'Ask for method of data input for given Option in given Step in given Workflow'
        ii. Continue to step 3
    (b) MS replies that he/she wants to add an Result-option
        i. Use-case 'Ask for method of data representation for given Option in given Step in given Workflow'
        ii. Continue to step 3
3. System asks for description for Option, depending on the chosen method
4. MS inputs description of Option
5. System shows success message, adds the created option to the given Step in the given Workflow and shows the Workflow

Special Requirements: Database
Technology And Data Variations List: None
Open Issues: None

6.2.12 Connect Steps Using Logic and Store them in a Rule Engine

Scope: Designer Side
Level: User Level
Primary Actor: Designer
Preconditions:

1. The user should be logged in.
2. The user should have already created a workflow.
3. The workflow must contain at least two steps.
4. Selected two steps must contain at least one option each..

Success Guarantee (Postconditions):

1. The two options that the user had chosen are connected.
2. The rule engine is storing the new rule.

3. The detailed view of both options are updated.

Main Success Scenario (Basic Flow):

1. The user picks the two options that he wants to connect.
2. The system does not let the user continue until he picks two options that are not on the same step. If the user fails to do so, the system prompts an error message.
3. The system prompts a form for the user.
4. In this form, the user specifies the rule. This rule can be applied using the data of the previous step. After that, he indicates for which value of the rule, the option in the lower step is prompted. The system does an input check.
   (a) If the value of the rule and the data type of the input of the previous step is inconsistent, or the value is not in the domain of the input, the system prompts an error message and does not proceed until a correct value is entered.
   (b) If it is consistent, proceed to next step.
5. The system stores the rule in a rule engine.
6. The system makes necessary updates in the detailed view of each option.
7. The system displays the updated workflow to the user.

Special Requirements: None
Technology And Data Variations List: None

Open Issues: None

6.2.13 Ask for method of data input for given Option in given Step in given Workflow

Scope: Designer side
Level: User-goal
Primary actor: Medical Specialist (MS)
Stakeholders and interests:

- Designers

Preconditions:

- MS is authenticated
- MS has created a Workflow with at least one Step and has started the process of creating an Input-option

Success Guarantee (Postconditions): The given Option has its data input method set to the method requested by the MS.
Main Success Scenario (Basic Flow):

1. MS requests for the option to be an input-option
2. System shows the MS the different categories of input-methods possible and asks for MS to choose one
   (a) MS picks number input (#)
      i. System shows different types of number inputs (slider, textbox, numpads, etc.)
      ii. MS picks a type of number input
      iii. System asks for identification of the number input, for use in further logic
      iv. MS enters identifier for number input
      v. Continue with step 3
   (b) MS picks multiple-choice input (ABC)
      i. System shows different types of multiple-choice inputs (radio, multiple, large textboxes, multiple small textboxes within one large box, etc.)
      ii. MS picks a type of multiple-choice input
      iii. Use case: 'Create multiple-choice input'
      iv. System asks for identification of the multiple-choice input, for use in further logic
      v. MS enters identifier for multiple-choice input
      vi. Continue with step 3
   (c) etc.
3. System sets the input-method of the Option to the chosen method

Special Requirements:

1. Database

Frequency of Occurrence: At leat once for every Option-creation, several times for each Workflow-creation
Open Issues: None

6.2.14 Show details of given Option in given Step in Workflow

Scope: Designer side
Level: User-goal
Primary actor: Medical Specialist (MS)
Stakeholders and interests:

- Designer
- Administrator

Preconditions:

- MS is authenticated
- MS has created a Workflow with at least one Step and one Option

Success Guarantee (Postconditions): The detail of the given Option in the given Step of the given Workflow are shown to the MS
Main Success Scenario (Basic Flow):

1. MS requests System to show him/her the details of the given Option in a given Step
2. System retrieves the requested information and shows MS the details (description, method of data input, logic) of the given Option

Special Requirements:

1. Database

Frequency of Occurrence: Several times for each Workflow-creation
Open Issues:

6.2.15 Edit given Option in given Step in given workflow

Scope: Designer tool
Level: User Level
Primary Actor: Designer
Stakeholders and Interests:

- *Designer:* wants to edit the given option of a workflow

Preconditions:

- The workflow has was created and contains at least one option

Success Guarantee (Postconditions): The given Option is edited in the given Step in the given workflow
Main Success Scenario (Basic Flow):

1. MS requests to edit a given Option in a given Step in a given Workflow
2. System shows the options that can be edited and prompts the MS what he/she wants to edit.
   (a) MS wants to edit the description of the method
      i. System shows editable textbox for MS to edit
      ii. MS edits the description
      iii. Continue to step 2
   (b) MS wants to change the logic between this Option and another connected to it
      i. Use-case 'Edit logic between two given Options'
      ii. Continue to step 2
   (c) MS wants to change the method of data input for the option
      i. System asks if MS is sure he/she wants to change the method of data input for the given Option
         A. Yes, Use-case 'Ask for method of data input for given Option in given Step in given Workflow'
         B. No, continue
      ii. Return to step 2

(d) MS wants to change the type of Option to Result-option
    i. System asks if MS is sure, change will delete any logic connecting this option to any further Options
        A. Yes, Use-case 'Ask for method of data representation for given Option in given Step in given Workflow'
        B. No, continue
    ii. Return to step 2
(e) MS indicates he/she is finished with editing the given Option
    i. Continue to step 3

3. System shows updated Option

Special Requirements: None
Technology And Data Variations List: None
Frequency of Occurrence: Zero or more times for each Workflow-creation
Open Issues: None

6.2.16 Delete given Option in given Step in given Workflow

Scope: Designer side
Level:
Primary actor: Medical Specialist (MS)
Stakeholders and interests:

- Designer

Preconditions:

- MS is authenticated
- MS has created a Workflow with at least one Step and one Option

Success Guarantee (Postconditions): The given Option (including all logic connected to this Step) is deleted from the given Step in the given Workflow
Main Success Scenario (Basic Flow):

1. MS requests for the deletion of a given Option in a given Step in a given Workflow
2. System prompts MS for confirmation, warning that all connected logic will also be deleted

(a) Yes, System deletes the given Option and the connected logic-connections and continues to step 3

(b) No, continue to step 3

3. System shows the (updated) Workflow

Special Requirements:

1. Database

Frequency of Occurrence: Zero or more times for each Workflow-creation
Open Issues:

6.3 Rest

Use cases relating to designer registration and authentication as well as managing designer's account permissions.

6.3.1 Register a new designer's account

Scope: Authentication side
Level: User level
Primary actor: Medical Professional (MP)
Stakeholders and interests:

- *MP:* Wants to be able to create new workflow models.
- *Administrator:* Wants to verify Medical Professionals before they can create new workflow models.

Preconditions:

- MP is not logged in.

Success Guarantee (Postconditions): A new, unverified designer account is created.
Main Success Scenario (Basic Flow):

1. MP provides his personal data and password as well as proofs (images or document files) that he is a medician.
2. System verifies provided data and creates an account in the database and sets "email verified" flag to false.
3. System sends a verification email to the address specified by the MP.

4. MP opens the verification page provided in the email.
5. System sets the "email verified" flag to true and sets flag "verified by administrator" to false for the new account.
6. System shows a confirmation to the MP.
7. (Optional) System notifies administrator(s) about the need to verify the new account.

Alternate Flows:
2a. System finds wrong data after verification.

1. System notifies the MP of wrong data and asks him to correct them.
2. System proceeds from step 2.

4a. MP doesn't open the email in a specified amount of time

1. System removes created account from the database.

Special Requirements:

- Secure database
- Encrypted connection
- SMTP server

Frequency of Occurrence: Once for new account.
Open Issues: None

6.3.2 Verify a designer's registration

Scope: Designer side
Level: User Level
Primary actor: Administrator
Stakeholders and interests:

- *Designer:* Wants to be able to create workflow models.
- *Administrator:* Wants to verify Medical Professionals before they can create new workflow models.

Preconditions:

- Administrator is authenticated.
- Designer's account awaits verification.

Success Guarantee (Postconditions): Designer's account is positively verified.
Main Success Scenario (Basic Flow):

1. Administrator notifies the system that he/she wants to verify a designer's account.
2. System shows the administrator proofs that designer provided during his registration process.
3. Administrator verifies the document and notifies the system that he/she wants to approve the account.
4. System sets flag "verified by administrator" to true for a designer's account.
5. System shows confirmation for the administrator.
6. System sends notification to the designer that his account was positively verified.

Alternate Flows:
3a. Administrator decides not to approve the account

1. Administrator notifies the system that he/she didn't approve the account.
2. System deletes the account.
3. System shows confirmation to the administrator
4. System notifies the designer that his account wasn't approved.

3b. (Optional extension) Administrator finds the proofs not enough and wants to ask for more documents.

1. Administrator notifies the system what he/she wants to receive from the designer for the account to be approved.
2. System redirects the message to the designer.
3. Designer provides new documents.

4. (Optional) System notifies the administrator about new upload of the documents.

5. Administrator proceeds from step 1.

Special Requirements:

1. Secure database

2. Encrypted connection

Frequency of Occurrence: Once for each new account.
Open Issues: None

6.3.3 Designer log-in

Scope: Authentication side
Level: User Level
Primary actor:
Stakeholders and interests:

- *Administrator:* Wants designer to authenticate themselves before they can access their account.

- *Designer:* Wants to access his account.

Preconditions:

- Designer should be already registered in the system.

- Designer's account should be active.

Success Guarantee (Postconditions): Designer is successfully logged into the system.
Main Success Scenario (Basic Flow):

1. The designer requests log-in page.

2. The system returns log-in page.

3. The designer submits username and password.

4. The system checks if the designer entered correct username and password.

5. The system starts the designer's session.

6. The system redirects the designer to previous page with notifying success.

Alternate Flows:
4a. The system does not verify typed-in username and password.

1. The system notifies the designer typed wrong username or password.
2. Main scenario continues from step 3.

Special Requirements:

1. Secure database
2. Encrypted connection

Frequency of Occurrence: A few times a week for every user.
Open Issues: None

6.3.4 Designer log-out

Scope: Designer side
Level: User level
Primary actor: Designer
Stakeholders and interests:

- *Designer:* Wants to prevent third-parties to access his account.

Preconditions:

- Designer is logged into the system

Success Guarantee (Postconditions): Designer is successfully logged out of the system.
Main Success Scenario (Basic Flow):

1. The designer requests log-out.
2. The system ends the user's session.
3. The system redirects the designer to home page.

Alternate Flows: None
Special Requirements:

1. Secure database
2. Encrypted connection

Frequency of Occurrence: A few times a week for every user.
Open Issues: None

6.3.5 Delete (Deactivate) designer's account

Scope: Designer side
Level: User Level
Primary actor: Designer
Stakeholders and interests:

- *Designer:* Wants to delete his data from the site.

Preconditions:

- Designer is authenticated.

Success Guarantee (Postconditions): Designer's account gets deactivated and cannot be logged into again.
Main Success Scenario (Basic Flow):

1. Designer indicates that he/she wants to delete his/her account.
2. System informs the designer about consequences of deleting an account and asks the designer to verify him/herself by providing a password.
3. Designer provides the password and indicates that he/she is aware of what he/she is doing.
4. System verifies the password.
5. System logs the designer out.
6. System removes personal data from the account and marks it as deactivated.
7. System shows a confirmation to the designer.

Alternate Flows:
4a. Password is wrong.

1. System notifies the designer about a wrong password.
2. Designer proceeds from step 3.

Special Requirements:

- Secure database
- Encrypted connection

Frequency of Occurrence: Whenever a designer wants to delete his account.
Open Issues: None

6.3.6 Delete (Deactivate) designer's account by an administrator

Scope: Designer side
Level: User Level
Primary actor: Administrator
Stakeholders and interests:

- *Administrator:* Wants to make unable for the designer to create new models.

Preconditions:

- Administrator is authenticated

Success Guarantee (Postconditions): Designer's account gets deactivated and cannot be logged into again.
Main Success Scenario (Basic Flow):

1. Administrator indicates that he/she wants to delete a designer's account.
2. System informs the designer about consequences of deleting an account.
3. Administrator indicates that he/she is aware of what he/she is doing.
4. System removes personal data from the designer's account and marks it as inactive.
5. System shows a confirmation to the administrator.

Alternate Flow: None
Special Requirements:

- Secure database
- Encrypted connection

Frequency of Occurrence: Whenever an administrator wants to delete designer's account.
Open Issues: None

6.3.7 Update designer's data

Scope: Designer side
Level: User Level
Primary actor: Designer
Stakeholders and interests:

- *Designer:* Wants to update his data.

Preconditions:

- Designer is authenticated.

Success Guarantee (Postconditions): New data provided by the designer is successfully updated in the database.
Main Success Scenario (Basic Flow):

1. The designer requests to update their data.
2. The system asks the designer's password.
3. The user enters the password.
4. The system checks if the password is correct.
5. The system redirects the designer to personal data page to modify data.
6. The designer enters new data.
7. The system verifies new provided data.
8. The system accepts and stores new data.
9. The system notifies the data is successfully stored.

Alternate Flows:
4a. The system does not verify the password is correct.

1. The system notifies the designer of wrong password.
2. Main scenario continues from step 2.

7a. The system finds wrong data after verification.

1. The system notifies the user of wrong data and asks him to correct them.

2. Main scenario continues from step 5.

Special Requirements:

1. Secure database

2. Encrypted connection

Frequency of Occurrence: Whenever a user wants to update his data.
Open Issues: None

6.3.8 Grant designer permission to verify models

Scope: Administrator side
Level: User Level
Primary actor: Administrator
Stakeholders and interests:

- *Administrator:* Wants to spit the job of reviewing the workflow models among more people.

- *Designer:* Wants to be able to review workflow models.

Preconditions:

- Administrator is authenticated.

Success Guarantee (Postconditions): The system grants selected designers permission to verify workflow models.
Main Success Scenario (Basic Flow):

1. The administrator requests to grant a designer permission to verify workflow models.

2. The system returns list of all designers.

3. The user selects a designer from the list.

4. The user verifies the designer.

5. The system asks the password of the user (administrator).

6. The user enters password.

7. The system checks the password is correct.

8. The system sets "authorisation to verify workflow models" flag to true for the selected designer.
9. The system notifies selected ddesigner to have a authorisation to verify models.
10. The system notifies administrator that the process is succeeded.

Alternate Flows:
4a. The administrator decides not to permit the selected designer and change to select.

1. The administrator notifies the system to cancel the selected designer.
2. System releases the selected designer.
3. Main scenario continues at step 2.

7a. The system does not verify the password is correct.

1. The system notifies the administrator of wrong password.
2. Main scenario continues from step 5.

Special Requirements:

1. Secure database
2. Encrypted connection

Frequency of Occurrence: Whenever administrator wants to grant review permissions to a designer.
Open Issues: None

7 Meeting Log

7.1 First meeting (28-02-2018)

Main Goals

Currently, Evidencio is focused for the use by medical professionals/healthcare personal. However, it can also be valuable tool for communication with patients, but it will have to be understandable and personalized for the patients. The goal is to design and create an open-source stand-alone patient interface, through which the patient can fill in their own data/used medication/etc. Personalised and simplified models for the patients can then be used, specifically based on the data entered. The Evidencio API can be used for these models. The tool is meant to be a self-help tool.

Plan

Start with the structure of the application (rough idea, Course Design Document, will be sent later), the actual models will come later. We are going to work in PHP, specifically the Laravel Framework.

Monday (05-03-2018) some/most of us will travel to Haaksbergen to meet with the developers. We will have to decide on a time, but 1PM seems to work best for most of us.

7.2 Second meeting (05-03-2018)

In this meeting we focused on understanding the goals of the project precisely and agreeing on the technical requirements.

Goals of The Project

Since Evidencio is currently aimed at the medical professionals and the given models are not suitable for patients. The percentages are not easily understandable and something more efficient is needed.

The main team of developers is solely focused on the core platform, so we are asked to expand on their idea.

Goal of the project was defined as making a platform which on one side provides the ability for medical professionals to design the patient-friendly representations of the models, and on the other side provides the place for patients to fill the models made in the designer side and receive understandable feedback.

The project is to be available on GitHub upon completion so that other developers can expand it and integrate it into different systems.

Technical Requirements

Mainly we have discussed the way to design the system and which approach to use. As mentioned above, the system will consist of two main parts. The patient, and the designer side. In the core of the system, a rule engine will be implemented. This is for future development. Along with this, a database needs to be implemented and the system needs to contact the Evidencio API.

For the languages we have agreed on PHP, and for the database on MySQL. We have agreed that we can use any technologies and libraries as long as they are open source and can be accessed by developers who will be

working on this project in the future. Also, the we will need to make the system such that it can support multiple natural languages in the future.

Furthermore, it was left to us to think of a good way to represent the data, and we were told to focus on the technical, and not on the medical part. Also, a disclaimer similar to that on the Evidencio website needs to be added.

Plan

After the end of the sprint (13-03-2018) we will provide the developers with the Requirements and the Design documents and will discuss upon it further. Furthermore, some of the developers will visit Groningen, and we will agree on the time and place for the next meeting beforehand.

In the meantime, they gave us permission to contact them if we have any question or need help.

8 Changelog

Contributors	Date	Section	What Was Done
All	27-02-2018	All	The initial document layout was added; Assumed requirements were added; Meeting log updated
All	13-03-2018	All	The layout was updated; Agreed requirements were added and the wrong ones were discarded; Meeting log updated
All	14-03-2018	Use-case	Use-cases made (split for the three groups)