UNIVERSITY OF COPENHAGEN

DEVELOPMENT OF INFORMATION SYSTEMS

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Assignment 3

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1 Objective

1.1 Objective and Premise of the Design

'*Min Sunhedsplatform*' is a subsidiary of the larger platform '*Sundhedsplatformen*'. This particular division is preserving their focus on the patients and their relatives.
Particularly, interested in optimizing the patients' use of the platform and how they can get the best treatment possible so that they can live as normal a life as possible without any avoidable apprehensions.

The participatory aim of this assignment is to find where there is a need for improvements and whether it is achievable using the MUST-method.[1] To narrow the focus of our assignment down we have a focal point on diabetics and their peculiar use and needs for the platform.

For this we are developing a prototype with two minimum requirements:

- A GUI where diabetics can access their data regarding blood glucose level in a optimized way
- A prototype database that is in contact with GUI

1.2 Main points of the in-line analysis phase

During our in-line phase we started out by making a document analysis of the strategy of *MinSP* which provided us with fundamental knowledge of how the platform was meant to be used. Using the finding in our in-situ interview[2] where we first hand got to experience how a user from our target group uses the platform.
In other words, this made sure that we had a genuine user participation[3] and first hand experience with work practices[4], by securing visions that preserves the users needs and mutual learning, but also to make sure that the observed needs are in fact executed.

Furthermore, this experience gave us insight into the workings of the platform and highlighted some issues that hindered the user when using the platform. Most noticeable was that some functions were missing which would have made

[1] Keld Bødker, Finn Kensing and Jesper Simonsen, *Participatory IT Design - Designing for Business and Workplace Realities* (MIT Press 2004), 17
[2] Bødker, Kensing, Simonsen, Participatory IT Design, 228
[3] Bødker, Kensing, Simonsen, Participatory IT Design, 58
[4] Bødker, Kensing, Simonsen, Participatory IT Design, 65

sense for out target group to have, e.g. a graph depicting the changes in a diabetics blood glucose levels over time. Currently the user of the platform would need to go through each test result in order to see the change.

As the data was present but not utilised indicates a systemic issue that touched on many more facets, for instance how the contact list of health professionals was only implemented superficially, i.e. holding only a single health professional by means of only showing their name and no other contact information.

As our target group is in contact with numerous health professionals the patients had to make use of external tools in order to find the desired contact information of their practitioners.

In addition to this we also found that some functions were never used by our interviewee, an example of this could be how he never used the platform to book an appointment. The reason being that this was handled at the end of each consultation, where a new date was agreed upon. So by collaborating with the user we gained a coherent vision[5] as this get the best possible basis for decisions.

Goals for *MinSP*

- Strengthened patient involvement
- Improved quality
- Reduced Resource Usage

Challenges and problems for *MinSP*

- Getting patients to use its' functionality is not easy
- Getting the health professionals to use it
- There are missing key functionalities
- It has a poor interaction design

1.3 Main Points of the In-Depth Analysis Phase

In our in-depth analysis phase we made use of a more thorough approach to the assignment and target group. This was for instance done by a round of surveys where we tried to get as many diabetic users to participate. Amongst others, we made use of this approach to find out if our initial findings was a general tendency among our target group. Again, this provided a first hand experience with

[5] Bødker, Kensing, Simonsen, Participatory IT Design, 53

the user's work practices[6] as we gained relevant and coherent descriptions of the interviewees perspective of *MinSP*.

Overall, the survey showed that our initial findings was in agreement with the general tendency as well as shining a light on issues that we had not yet considered in our in-line analysis. e.g. the of usability for our target group where a significant number had opted out of using the platform altogether and continued as they had before the beginning of *MinSP*.

Though, the regular users was somewhat satisfied with the functionality that were present on *MinSP*, for example the ability to view appointments from within the app, but less so with how their data was presented which was something that was noticed in the first in-situ interview.

Based on the gathered information we created a series of user stories to describe the functionality to be implemented to help improve the platform and to gain a superficial insight in how it would work on an abstract level.

The unutilized functionalities could with the proper work place reorganization educate the health professionals in how to take full advantage of the unused functionality such as *'mine prøvesvar'*. This might incorporate the users own tests answers that is currently only needed for the specific consultation in paper form, but is not admitted into the users actual test results. This would give the patient the opportunity to revisit his or her previous test results.

How to fulfil goals for *MinSP*

- Interview with users
- Preparation / distribution of questionnaire
- Design of mock-ups for use in interviews with users and stakeholders

2 Visions for Overall Change

Based on the findings and knowledge that we gained during the preceding phases we have created an outline of our vision for overall changes in a mock-up of our prototype. This was furthermore used to narrow in, the changes that our final prototype will be adapted to, making this a more iterative process. e.g:

- Developing an interactive prototype in Power Point

[6] Bødker, Kensing, Simonsen, Participatory IT Design, 65

- Presenting it to a representative from our target group, getting feedback that is used to make adjustments
- Adjusting the prototype based on the given feedback
- Ensuring that our vision is anchored in the users' experience

In which the parts that will be developed from scratch are

- A GUI for the graph, with the option to select the range of dates
- The logical flow handling the queries to the database
- A comprehensive contact list

Overall our vision is to make changes in how a graph is produced based on personal data and statistics so that we can make it a more serviceable tool for diabetics to use. Not to mention making the available utensils and functionalities easier to use while also more self-explanatory. If successful and the patients, and potential users of *MinSP*, starts taking the platform more seriously than presently, it would reduce the administrative burden for health professionals as they then can focus their time on much more needed tasks.

2.1 Technology

2.1.1 IT Systems and IT Platform

The above mentioned changes will by implemented using `Flask` as a framework, implementing a `database` handled by `SQLs` and create a graphical user interface in `HTML`.

2.1.2 Functions

The core areas of changes for *MinSP* will be the search function to make it easier for the user to find their desired data, a graphical tool which allows the users to get an overview presented as a graph that represent their desired data, and at least a contact list which should contain the diabetics numerous doctors and their respective contact information, e.g. telephone number and address.

For our solutions we have the following criteria for the platform, *MinSP*

- An easy and intuitive interactive design
- Search function

  - Test results
  - Appointments
  - Questionnaires

- Graphical tool to gain overview of test results
- Better access to health professionals associated to the users unique treatments
- Reminder for upcoming appointments

2.1.3 User Interfaces

There are a lot of issues with the present version of the platform, mainly that there are a lot of pristine key features that are buried in different sub-menus, which require that the user knows exactly where to find them.

Accordingly we aim to minimize the number of clicks by merging buttons/functionalities that lead towards the same destination. Along these lines it would be easier to access the different functionalities and no one would be confused by the names of the functions, etc.

2.2 Work Organization

After a successful implementation the user would swiftly experience a simple passage to the different functionalities, together with utensils such as our graph tool, to make their data easier to view and understand.

Subsequently, this would strengthen their daily work process and likewise demand less contact with the health professionals regarding superfluous questions and test results.

The overall work process would not be distorted by the implementations, quite opposite it would hopefully improve upon it and create less complications for all parties involved.

On behalf of the health professionals this would take a slight amount of [getting use to] in regards to updating data on the platform, however, long term it would benefit them and cut down time spent on administrative work.

2.3 Qualification Needs

A few qualifications are needed for *MinSP* to perform efficiently; The user will need to be able to operate a computer or any other device with internet access in order to interact with the platform. Furthermore, the health professionals would need clear instructions in how to upload the correct data into the right places. This also includes that the health professionals are able to answer the patients questions and being able to explain how to see, upload or read data displayed on *MinSP*.

Apart from these qualifications there are no other necessities as the platform is not an actual working environment.

3 Advantages and Disadvantages

3.0.1 The Company's Business and IT Strategies

4 Recommendations and Priorities

As mentioned above, it would be an immense addition if the health professionals were educated in the newly implemented functionality of the platform. More specifically, it was discovered that a utensil that could easily have been used to facilitate taking test results at home and transferring them directly to their physician. It is not clear why this was not utilized in *MinSP*'s current version, however, with a small change to the work practise - from both the health professionals and the target group - it could remove an unnecessary burden and automate the collection of data.

5 Implementation Strategy and Plan

The implementation of the new version of *MinSP* would not change the work practise directly of neither the health professionals nor the patients, as the framework of the platform would be maintained, though improved in certain aspects.

As the implementations succeed, a group of both parties, health professionals and patients, could work together to test and see if our solution is a viable solution to the issues we have discovered.

Also, it is highly recommended that the steps in implementation follows the SCRUM method[7] to constantly ensure that the target group and health profes-

[7] https://www.scrum.org/resources/what-is-scrum

sionals get a product that can be used sufficiently and in a way that suits their respective work practises without overwhelming them with new tools to learn.

5.1 Technical

5.2 Organizational

For those health professionals who have contact with our target group it would require a course in how the platform works from the user's perspective, so that they can inform the user with the tasks they have to perform, such as sending data from a measurement in a proper manner.

6 Conclusion

In this report we have formulated our proposed changes and extensions for the platform, which are based upon our findings from the in-line analysis and the in-depth phase. Drawing upon genuine user participation to create a coherent vision for change, while anchoring it in first hand experiance.

7 Appendix

7.1 E/R diagram

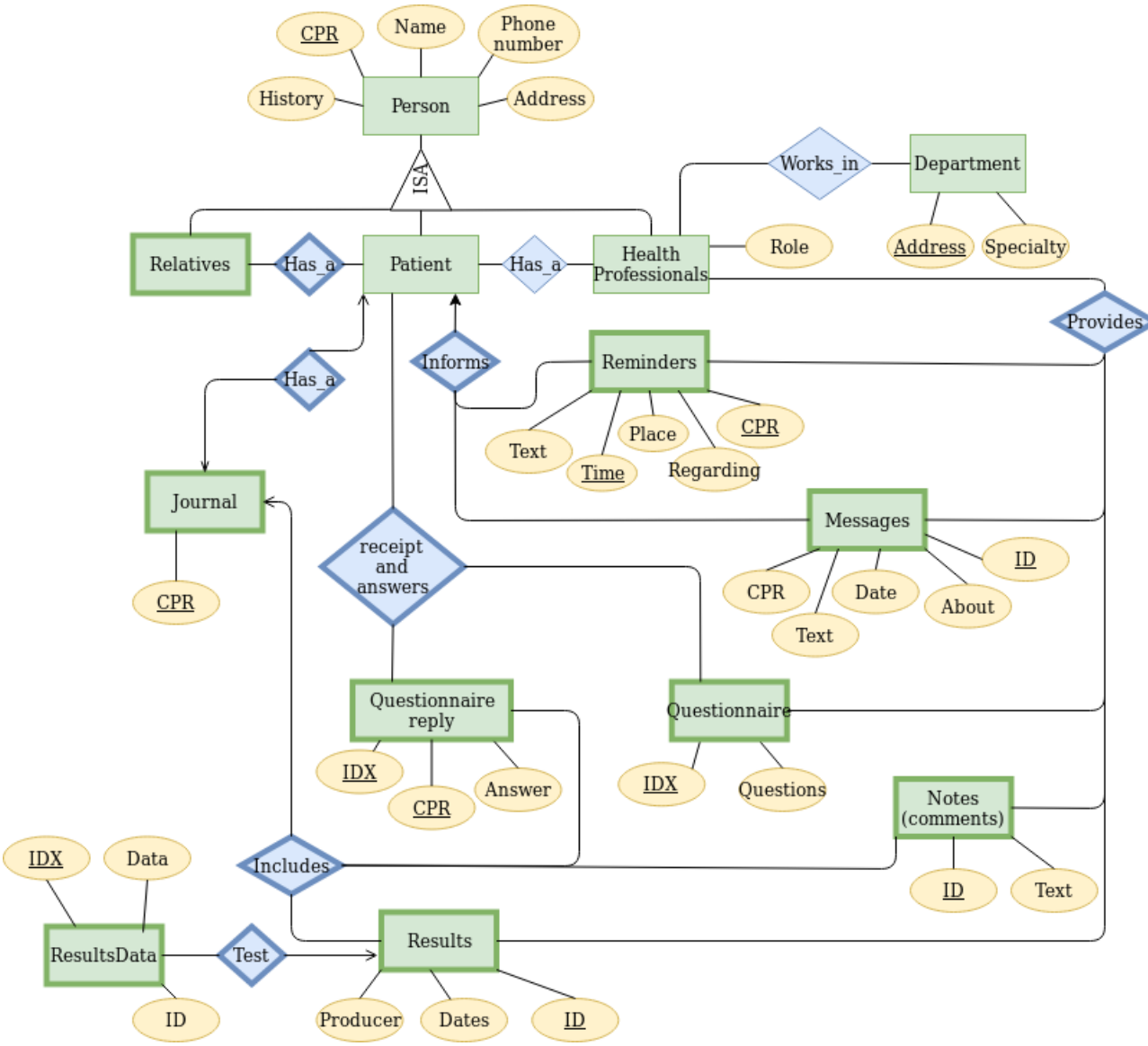

Figure 1: E/R diagram (thick frames around entities and relation means that they are weak.)

8 Bibliography

- Keld Bodker, Finn Kensing, Jesper Simonsen - Participatory IT Design - Designing for Business and Workplace Realities-The MIT Press(2004)