my-AHA
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My-AHA

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CSCW & CSCL Social Technology Design II

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Abstract

This task concerns the development of collaboration techniques that support information flows among different stakeholders. To successfully support end users, this task will provide them with languages and tools tailored to their specific needs and daily practices, offering a repository of pre-defined components (data, services and tools). These components can be resources providing data on prevention of dementia, collaboration artifacts for improving communication with other peers and welfare services for collecting user data and health plans as well as sharing them with other stakeholders. According to End-User Development approaches (referred to the personal information space in task 2.3), users will be able to flexibly integrate existing components and to create new components that supply additional knowledge, thus playing an active role in their own care. In this way they will be enabled to collaboratively (e.g., citizens, social networks, sport clubs and also caregivers if needed) define new functionalities that can support their own health and care.

Disclaimer

[Full project title] MY-AHA – my **A**ctive and **H**ealthy **A**geing

[Short project title] MY-AHA

[Number and title of work-package] WP2 Practice Based Design and Requirement Analysis

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Executive summary

This deliverable is an update of the deliverable CSCW & CSCL Social Technology Design I.

CSCL (Computer Supported Cooperative Learning) and CSCW (Computer Supported Cooperative Work) depend on the accuracy of the data it is fed with.

Sometimes it is necessary to for the stakeholder such as doctors, nurses or supervisors to add or edit data if the patient is not able to do so or did enter wrong data.

The my-AHA system will offer this opportunity via a back-end for secondary stakeholders in order to adjust the data entry to ensure, that the provided information for the patient will be as exact as possible.

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1 Introduction

Even though the authorization of the individual person is most important within My-AHA these kind of technological health systems can cater for much more. Adding secondary stakeholders in the right way will open up the full potential of such a health platform. We will be looking at each person that is professionally included in the health care system: care takers, doctors, physiotherapists, nutritionists but also health insurances, NGOs and politics. All of these can potentially us My-AHA in benefit of their work e.g. treatment of their patient with the help health related data in relation to plan their work and carry out their tasks.

Including health experts into My-AHA it is essential to add the needs of secondary stakeholders to the platform directly within the concept and development phase. The work processes of these stakeholders are complicated and new technologies need to fit their needs to find their acceptance. The multifaceted work among these stakeholders makes it impossible to only look at one of these group alone. A design catering for the needs of these target groups is key for an efficient and qualitative way of their work. Thus it is important to investigate every stakeholder group, find patterns that spread across the groups and identify requirements for the design concept.

The requirements of primary end-users, the seniors is the area on conflict. Their ideas and needs should have the highest priority for the design of a health platform that is mainly created for them. Different interests between primary end-users and secondary stakeholders especially within data exchange are to be expected. It would be good to create a system that caters to the needs of both groups.

My AHA as a system will be of big use to all caregivers such as patients and peers to professional caregivers when data and knowledge is shared among each other. This paper concentrates on the importance of the correct data input and how to ensure this through a further supervisory body.
This also prevents the patient from palliating data; intentionally or not.

1.1 Procedures and Goals

The possibilities to include secondary stakeholders into a health platform are endless - but what is it that the different groups are interested in and tempts them to use such a system and what are the challenges and fears? To find this out you need to get in contact with the secondary and primary users. The goal is to identify the ideas and challenges for such a system and find solutions with mutual benefit that can be be used in real life scenarios. To achieve this goal, we look at the procedural model of the Design Case Study (Wulf et al. 2011) that take a pre study of the target group, the design process within ICT and the evaluation into account. In order to understand the needs of the target group, a focus group was conducted, involving both primary and secondary stakeholders. Afterwards, interviews were conducted with various secondary stakeholders in order to discuss some topics in greater detail and to identify target group-specific requirements more precisely. The goal is to design a system that can meet the needs of senior citizens and health professionals as much as possible.

2 Methodology

The aim is to develop a design for the My-AHA platform and its secondary stakeholders, as well as to adjust the current design for the primary end users. It is necessary to find out what secondary stakeholders expect from such a platform and how they imagine interacting with it. The primary end users should be included in this process. It is essential to come into direct contact with the appropriate groups of people in order to get to know their needs and values.

In particular, qualitative research offers the potential to gain deep insight into the ideas of potential users and to understand their needs. One needs to consider, that the qualitative research approach is characterised by subjectivity, which means that individual cases are observed and the results will be evaluated. The consideration of individual cases goes hand in hand with a lack of representativeness but makes it possible to gain deep insight into the needs, wishes and fears of individuals, which can provide important insights for the entire target group.

With the help of different qualitative methods, the target groups of this work are approached. In addition, the research methods that were already applied in the history of this project and that provide important insights (but are not considered separately in this paper), further research methods were applied to investigate the target groups. This includes a focus group and the implementation of interviews. In the following chapters both of the methods, as well as the methods considering the data evaluation and processing will be presented.

2.1 Focus group

The focus group method was applied as a part of the user research and requirements engineering of the secondary and the primary stakeholders. Focus groups are group discussions, in which 5 to 10 participants with different perspectives on the discussed question are represented. Moser (2012) suggests to choose the participants in a way that an interesting mix of points of view is created:

“On the one hand similar enough to develop a constructive discussion, on the other hand, different enough for not everyone to agree right away”

The discussion should last 1 to 2 hours and be guided by a moderator using predetermined open questions.

Central interest groups of a technical health platform such as My-AHA were invited to the focus group: Senior citizens, doctors, nurses, politicians, NGOs, nutritionists, health insurance companies and physiotherapists. The last of the two listed stakeholders could not be present.

Although the focus group should primarily focus on the needs an perspectives of the secondary stakeholders, senior citizens were also invited. They should always remain primary users at the center of My-AHA´s developments and be involved in the discussion on expanding the platform. This is to ensure that the platform does not develop in an unwanted direction by the primary end users, which is not accepted later in reality and makes My-AHA useless as a platform.

The focus group focused on the following points:

1. Discuss opportunities and risks as well as challenges and fears of using My-AHA with the help of health professionals.
2. Find out concrete ideas for use, potential applications and expectations from secondary stakeholders for the My-AHA platform.
3. Discuss the needs and requirements of primary users that arise from connecting secondary stakeholders.
4. Identify potential areas of conflict between the ideas for the use of secondary and primary end users.

In order to create a common understanding of the project and the platform My-AHA, a presentation was held to explain it. Afterward, the participants divided into two groups: Group 1 consisted of nurses, a nutritionist, a doctor and senior citizens; Group 2 consisted of politicians, NGOs and senior citizens, with a nursing scientist later joining them. The distribution was based on the similarity of the secondary stakeholders to each other in order to be able to conduct a targeted and yet controversial discussion. Among each group, seniors mingled so that they could always respond to statements made by health experts.

Both groups received the same questions to discuss. The time frame for a topic was set for 10 minutes. In practice, the questions were not dealt with in strict order and the time limit was exceeded in both groups. The following three topics were discussed:

1. Benefits and expectations of My-AHA
   a) What benefits do you see in a technology like My-AHA?
   b) How could My-AHA help you in your daily work/life?
   c) What would you specifically use My-AHA for?
2. Data transfer and data protection
   a) *Secondary Stakeholders*: Which data of your patients/ customers are interesting for you and why?
      Seniors: Which data would you like to share with whom and which not?
3. Risks, challenges and fears
   a) What risks and challenges do you see in My-AHA?
   b) Are there any fears when you think of using My-AHA?

The comments of the group members were written down on small pieces of paper and attached to a whiteboard. This made it possible to keep the results visible during the discussion and to archive them for later use.

2.2 Interviews

Subsequently, since the focus group with the primary and secondary stakeholders could only answer parts of the questions posed, individual interviews with health experts were conducted. This also allowed the validation of the data collected from the focus group.

Interviews are a method of ethnographic field research. They inform the researcher about people's points of view and help to obtain information from respondents on a specific topic. As a result of interviews, subjective and detailed information were collected from a small number of people.
In order to conduct a semi-standardised interview, which was used in this work, an interview guideline is drafted on the basis of open questions, which serves as the basis in the interview. The

open nature of semi-standardised interviews makes it possible to respond to new impulses from the interviewee. Therefore, the interview does not follow a fixed form.

One or more persons from each secondary stakeholder group were interviewed by telephone and, if they agreed, recorded for better evaluation. The interviews lasted about 15 to 60 minutes; the big difference is due to the different lengths of the interview guidelines, which were adapted to the target group and the communicativeness of the interviewees. Since not every stakeholder group was represented in the focus group, the missing contacts were also made, including a representative of a statutory health insurance company and a physiotherapist. Furthermore, an employee of the state-financed local alliance was interviewed from the participants of the focus group, who is regarded as an NGO. The reason for this is that the interviewee is, among other things, the organiser of events and assumes tasks that are considered central to NGOs in this work. For evaluation, the audio recordings were transcribed and coded with the data and text analysis software MaxQDA18 from VERBI GmbH.

All the questions for the interview were based on what information were not answered clearly enough in the focus group. In addition, topics were included which came up in the focus group as answers to certain questions, which were to be further explored in the interviews. The following blocks of topics were roughly dealt with:

1. Introduction of the interviewee and his profession

2. Data interest
   a) Which (health) data of the customer/patient are required for the practice of the profession?
   b) Which data is missing or would be helpful for your own work?
   c) Are individual data and/or long-term data of interest?
   d) Are personalized or anonymized data of interest?

3. Events
   a) Which events are already taking place and how is attention being drawn to them?
   b) Is the current address fraught with problems?
   c) Would a digital event calendar that displays offers according to the needs of customers/patients be of interest?

4. Communication
   a) Is there interest in connecting a communication platform in order to get in touch with certain customers/patients?

As the interviews were semi-structured, this allowed a certain flexibility of the interview leader. In addition, the interview guide was adapted according to the stakeholder group; some questions were omitted or added. For health insurance, the additional question was whether the fear of senior citizens was justified that health insurance companies would use their data to their disadvantage. The policy group's guide has been adapted to reflect the respondents´ attitude towards technical health platforms and the conditions that need to be met for the platform to receive policy support.

3 Results

The results below are presented in terms of the requirements of the target groups on My-AHA. The results also include the empirical evidence from the project history, which provides valuable insights into user views.

Subsequently, resulting user roles are presented, which in turn are defined in tangible personas. The findings in this chapter form the basis for designing the prototypes for the secondary stakeholder platform and adapting the platform for the primary users.

3.1 Primary end user requirements for My-AHA data sharing requirements

Requirements for data transfer

The senior citizens interviewed have clear ideas about how data should be passed on to health experts. They want full control over who can view their data. This means that they only want to pass on their data to specific actors and do not want to make it available for general inspection. One senior woman also said that she wanted to see her data herself first and then decide whether it could be released. It is important to the seniors that they receive understandable information about their data protection and a security guarantee about the handling of their data. This means they want to be sure that their data will not be passed on to third parties without their consent.

However, the Living Lab studies of the project history also showed that seniors who are familiar with the operation of technical devices are less sensitive to the topic of data protection. The focus group similarly revealed that if the software concerned is of high benefit to the user, privacy concerns are secondary and neglected.

"Personally, I would be very happy if somehow there would be a way for the doctors where I am going to be able to log into a system where they can retrieve all my data. [...] I don't give a damn about data protection in my situation. " - Senior, severely impaired

Data annotation by doctors

Some of the senior citizens interviewed would like doctors to annotate and update their profile or data. If certain diagnoses were made, these could be stored, for example, in the My-AHA profile. The hope is that attending physicians could provide faster services and duplicate examinations would be avoided.

"And if they [the doctors] have new insights, then enter the data that they're being corrected. " - Senior

Anxieties

The use of a platform like My-AHA is accompanied by some fears from the seniors' point of view. Cybercrime and the loss of privacy and autonomy are factors that could inhibit the use of the platform. Seniors do not want to be controlled by all sorts of people and be plagued with reminders and advertisements that disturb them by telling them how to behave. The misuse of data by health insurance companies, which could use health data to the detriment of senior citizens, is also feared.

“I no longer walk my 10,000 steps a day and all of a sudden the health insurance company says “What do you want- you want to have your varicose veins operated on? You haven’t done anything all this time, so I’m not giving away my data.”-Senior

Challenges

Another factor that may prevent the willingness to share data is that seniors are reluctant to admit their own weaknesses. Therefore, it could be that some seniors do not want to pass on their data to certain people out of shame.

According to the interviewees, the use of technical equipment by senior citizens still poses a challenge resulting from a lack of technical affinity. However, frailty also complicates proper operation at the same time.

Main benefits of My-AHA
Seniors can imagine many advantages for a technical health platform like My-AHA. These are not initially related to the involvement of secondary stakeholders. On the one hand, they expect a higher quality of life through their use. On the other hand, they see a social advantage in My-AHA. Since loneliness in old age is a big problem according to the seniors, they wish to be able to use the platform as a networking medium. Games and events could also be offered. Seniors also see the expansion of their abilities and their knowledge of health as positive, which can lead to more self-control. At the same time, the evaluated health data in their profile can encourage them to visit a doctor and thus increase safety through early intervention.

Regarding the data transmission, the seniors believe that a more efficient help receiving and the avoidance of double investigation would be advantageous. At first sight, it seems as if there were only a few users, who would be ready to pass their health data. On request, they are particularly afraid of the misuse of their data, e.g. by health insurance companies. Giving personal data to a doctor is less problematic, but rather seen as helpful.

“I believe, that most people generally enable their data, but not to the health insurance companies”- Senior

3.2 Requirements of secondary stakeholders on My-AHA

The insight of data: Advantages and requirements

If health experts had access to more health data of their patients or customers, they could imagine different advantages. In general, this would lead to an increased safety for the patient, since more data can be used for more accurate diagnoses or to intervene quickly in emergencies. In this respect, caregivers wish that there were advice and alarm systems inside My-AHA. Thus, caregivers could react promptly to critical data.

“...where you can then determine exactly where the current sensitivities are by means of appropriate signals. [...] and when a warning signal comes on, you are able to react accordingly. " - Caregiver

“I think it's quicker to find out things to help someone promptly. " - Nursing scientist

Caregivers and doctors speak about an increase in efficiency since some data does not need to be measured again. This again could relieve the caregivers and doctors.

Nurses also wish to be able to use the platform to observe the success or failure of preventive measures and to use the health data to initiate or plan specific measures. Physiotherapists similarly say that since they could advise more individually with more data. NGOs could improve their

planning as well with the insight of data, if they monitor the needs of seniors and respect those purposefully in their planning of e.g. events.

"... if we could get it right, that only in the city the seniors would simply transfer a certain amount of data somewhere, which means that A) one can limit the age a little, then the previous illnesses, the mobility and the interests. These would be the four most important pillars for us so that we can adjust the supplies accordingly. This would definitely make planning a lot easier because that is how you always have to plan a shot in the dark."- NGO

For the various stakeholders, all the different data is of interest to them. Politicians and health insurance companies need anonymised data. While politicians have no interest in personalised data and are only able to benefit from access to "macro data", legislators generally do not allow the analysis of personal data within statutory health insurance companies. NGOs also tend to speak of the use of anonymised data.

"From the municipality´s view, individual data are not relevant at all. Data from a whole community would rather be relevant. I believe that the loneliness of elderly people is more of a topic. I mean, if one would recognise that there is a high proportion of the population, which will most likely grow lonely, the municipality definitely has to try to counteract, maybe also with associations and charities[...]. Individual [data] are completely irrelevant to us."- Mayor

"However, the data belong to the customer, the place where they should still remain and the data should neither be passed to third persons, nor to the health insurance companies, so not to ourselves as well." - Statutory health insurance company

On the other hand, doctors and caregivers are interested in personalised data and do not need access to anonymised data. Physiotherapists and nutritionists have a similar opinion.

The following chart shows the data as examples, which were stated as relevant by single stakeholders. Only those stakeholders who have made corresponding statements are listed.

STAKEHOLDER	Data interest
Doctors	• Pulse, weight, blood pressure etc. • Hereditary predisposition, smoker status, blood pressure (long-term data), a risk of falling, strength, frailty, muscle breakdown, polypharmacy, malnutrition, incontinence, social integration, weight, dementia (--> symptom complexes, triggers, signs) • Compliance
Physiotherapists	• How do the persons cope with their everyday life; what can they still get done or not
Caregiver	• Quality of sleep, frequency of defecation, blood pressure
Politician	• Number of dementia patients, number of people with a risk of falling

Table 1: Data interest of the secondary stakeholders- Examples

In order to make the health experts profit from the insight of data, certain requirements need to be fulfilled at first. It is important for doctors that the main idea of the data is displayed, which is quickly accessible and clearly arranged. Details should only be shown if required. Furthermore, not all of the data available is interesting. Therefore, it is important to select the data according to individual value measurements. According to empirical results, time pressure by doctors, nurses and physiotherapists should also be taken into account.

"A thinning of many data is temporal… or not feasible."- Doctor

Data transfer by seniors

The secondary stakeholders of My-AHA also see an advantage for senior citizens in data exchange with primary users. They expect that by sharing data seniors would receive better and more efficient help.

In the interest of the seniors, health experts place some requirements on the exchange of data. According to health insurance companies, nurses and physiotherapists, data traffic must be voluntary and senior citizens must be informed about who gets their data and what happens to it.

"Something like this always needs to be voluntarily and nobody should be discriminated who for any reasons says: "I do not want to do this right now"- Statutory health insurance

Annotating data

Certainly, doctors and nurses imagine annotating data within My-AHA for seniors. However, there is not enough time to perform such measures. The nurse interviewed responds to the question of whether he could imagine to correct or supplement data in the profile of his residents:

"You would have to invent a new occupation group." - Nurse

Fears

Secondary stakeholders also fear negative consequences when using My-AHA. The misuse of data and increased crime could be a consequence of the use of such a platform. Health experts (excluding health insurers) also fear the negative influence of health insurance companies in the form of cuts in benefits, increases in contributions or disadvantages of any kind. According to the statement of statutory health insurances (GKV), they are not allowed to increase individual contributions or to reduce payments on the basis of certain data. Moreover, the GKV states all fears of this kind to be unjustified.

"There is only one unified contribution rate. So there are no individual payment amounts. Thus, it is completely unjustified (the fears of the seniors concerning the misuse of their data) because we always hear that… that is why it is a requirement that we say we do not want to get all the data either"- Statutory health insurance

Event calendar

Particularly in the focus group with its primary and secondary users, the potential for greater social integration using a technical platform was highlighted. Seniors could link better with each other using the technology and can participate better in the society. One possibility in order to achieve this with My-AHA is via a digital event calendar. The latter could access the individual data of the

user and submit offers in response to his specific requirements. Events do not only include leisure activities but also courses on health promotion and intervention. Thus, secondary stakeholders could reach a wider targeted audience.

Communication platform

In order to promote social integration, secondary stakeholders could imagine a communication platform for seniors to be helpful. Seniors could get in touch digitally with professional contact persons and meet their communication needs. Special consultation hours would have to be introduced for this. Doctors themselves would not have enough time for such measurements in addition to their current work. In general, the respondents were not negative about the connection to a communication platform, but could not benefit from it for their own work.

One of the physiotherapists interviewed from the project history can imagine providing services online and thus replacing personal visits in some cases.

"In the Netherlands, there are indeed medical practices, which completely work online. This is actually very practical since the people often do not even need to come necessarily to the medical practice. Particularly elder people can easily use Skype for this."- Physiotherapist.

However, one should not forget that this aspect was not mentioned by other physiotherapists interviewed from the project history. Upon request, the physiotherapist interviewed could hardly imagine this project to be applicable, since the proof of performance to the health insurance company represents a hurdle.

On the one hand, since only a little or no benefit can be seen in a communication platform for the activities of secondary stakeholders and the provision of services via such a portal, it would lead My-AHA into a medical product, the chat function is not examined in detail in this paper.

Challenges

The secondary stakeholders interviewed see the use of My-AHA as a number of challenges that need to be addressed. On the one hand, these are infrastructural and financial challenges. Doctors and nurses think the problem is that there is a lack of wifi available as well as technical devices, such as tablets for every employee. This raises the question of who would pay for these costs.

Additionally, it is difficult for doctors to rely on external measurement data that were not collected themselves. Often, own surveys would have to be carried out in order to comply with the legal regulations. The fact that commercial measurement devices often provide inaccurate measurement data also means that the data needs to be provided once again.

"It is always difficult to retrieve foreign data because one is not familiar with the medium at first. Where can one find which things, are they as compiled as ours, how meaningful are those and in which situation are they recorded? Well, that is always slightly difficult."- Doctor

The lack of time, especially referring to doctors, nurses and physiotherapists, leads to the fact that an increasing strain by a technical system would not be acceptable. Therefore, any new work practice must relieve the strain on current processes, make them more efficient, offer added value or not waste too much unnecessary time.

"However, if we get huge stacks and we have to work ourselves through all of those, it is difficult. Then[...] the benefit is less than the expense."- Doctor

With regard to challenges affecting primary end-users, health experts speak of a lack of technical affinity, reservations about technology and the difficulty of using it due to infirmity.

"The most exciting question, whether the seniors are still able to develop a certain affinity to use such platforms. I see this in my own mother and she is not even 60 years old, where there are certain caveats about such techniques."- Politician

General Requirements

In order to obtain an added value of a technical platform for health experts, a number of requirements have to be addressed. From the respondent´s point of view, the clear design, the simple operation and comprehensible presentation of content are particularly important. According to the mayor interviewed, data processing should take place in Germany for security reasons. From the stakeholders´ point of view, factors affecting senior citizens should also be observed: My-AHA must have a great benefit to seniors, be easy to use and offered at a reasonable and affordable price.

"It should be easy to use. It should have a big benefit for the seniors. These would definitely be the most important criteria for me so that the policy deals with it and promotes it."- Politician

3.3 Resulting user roles

From these results, various user roles can be formed. These are formed in order to arrange the requirements of the different persons clearly in groups and serve as basis for the formulation of Personas.

Basically, two secondary groups can be formed within the secondary stakeholders.

- Group 1: This group includes all stakeholders who are interested in **personalized data**. According to the empirical findings, this includes physicians, physiotherapists and caregivers. Although it did not emerge from the interview with the Nutritionist that she was interested in her clients' access to data, dietitians are added to Group 1 because access to personalized data from this target group is still possible.

- Group 2: The second group includes those for which **anonymised data** is relevant. These include NGOs, health insurance companies and politicians.

Within the two superior groups, most of the stakeholders can imagine a connection to an event calendar to be useful. They would like to place their offers in order to benefit from a targeted approach. According to empirical evidence, these include NGOs, politicians, nutritionists and physiotherapists. Even doctors could imagine themselves being representatives of a practice or a hospital to participate in a calendar of events. However, this should rather be seen as a marginal factor for doctors. Table 2 shows the user roles.

The **seniors** own a specific user role as well. As primary users, they produce data and pass them on request to health experts. They consume content of the platform and would be a beneficiary of the event calendar. Although the group of seniors is not homogeneous but has different needs and requirements for a design, the different portraits of seniors are not differentiated in this work. The reason for this is that the results of the preliminary study show that seniors are generally against a

cooperation with health experts and place high demands on data protection. This aspect is relevant for this and the following work.

4 Design Prototype of the my-AHA back-end

4.1 Participatory Design Process

University of Siegen has developed a design prototype of the secondary stakeholder backend based on participatory design processes with some primary end-users and several secondary stakeholders like physicians, care professionals, NGOs, health insurances, community politicians, etc.

4.2 First Design prototype

Annex I shows the prototypic design concept (German version) which has been implemented as Axure prototype and builds the basis for the actual software implementation in my-AHA.

Pls. find the interactive prototype here: https://6ocplh.axshare.com

5 Technical requirements

5.1 Repercussions of imprecise input of data

Interventions given by the DSS are calculated from the data given by the patient. Even the smallest divergences can have a big impact on the result. So it is important for information processing to always have up to date and precise data input and correction which can be achieved by the secondary stakeholder back-end.

5.2 Used technology

Caregivers need a simple and user-friendly tool to add data to the middleware, have a look at the patients input and edit measurements if needed. Additionally, they have a limited available time frame. Our experience with other commercial projects did show, that a clear and self-explaining graphical user interface (GUI) optimises the workflow and does not distract the user unnecessarily.

Database access

We decided to use the existing database from the middleware. This minimizes potential security issues, database maintenance and data consistence.

The Application uses the middleware platform RESTful API defined in D4.10 Middleware Description (Update). Sufficient methods are:

- Add User interventions (5.1.8)
- Get User interventions (5.1.7)
- Add measurement (5.3.2)
- Get measurement (5.3.3)
- Edit measurement (5.3.5)

Development environment

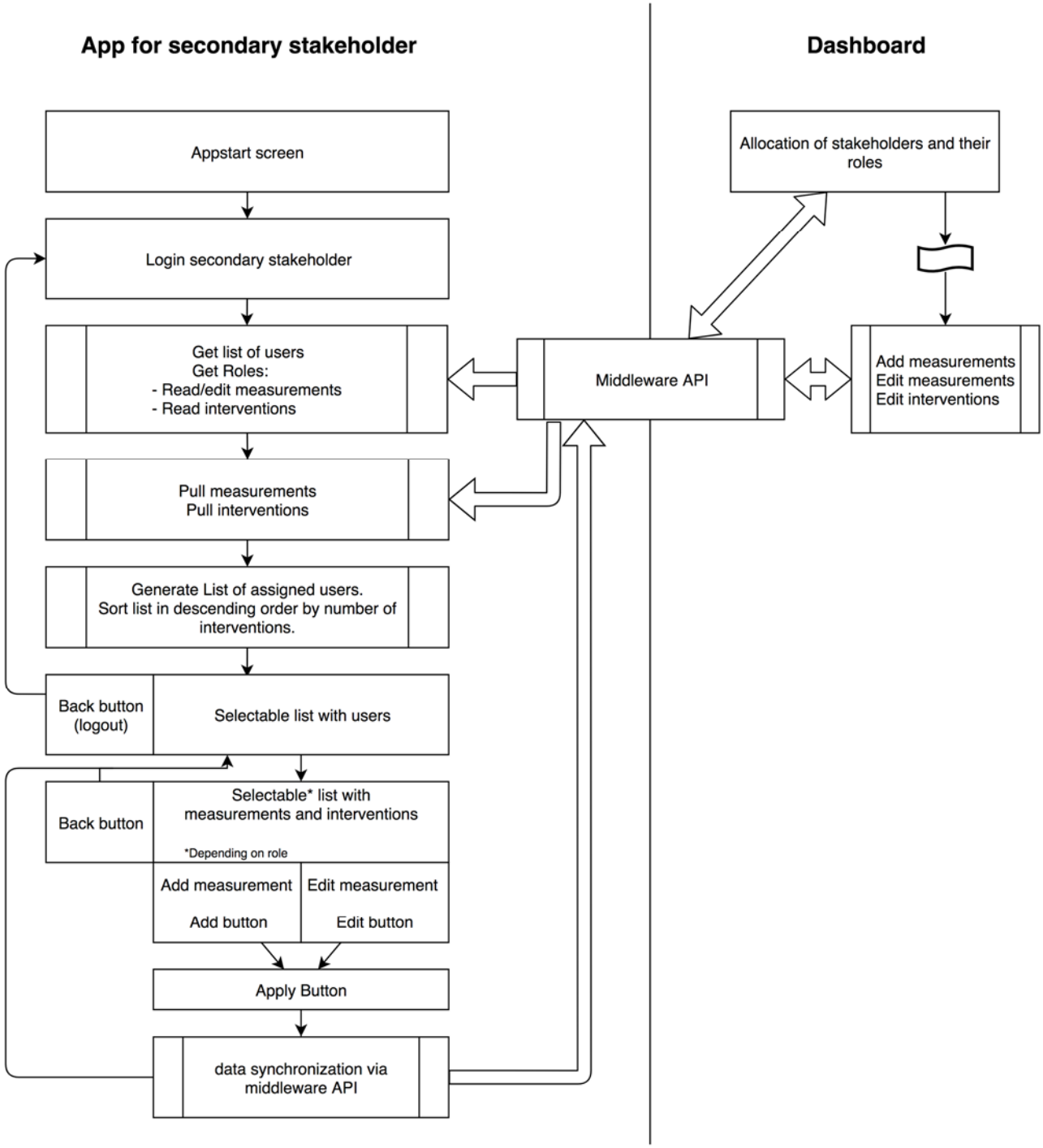
The Application will be developed on Unity3d.

Unity3d is a content-creation engine which supports multiplatform development for Windows and Mac.

Unity supports both 2D and 3D development with features and functionality for specific needs across genres.

The Unity Editor features multiple tools that enable rapid editing and iteration in the development cycles, including Play mode for quick previews of the work in real-time.
Scripting uses c#.

5.3 Appflow Overview



6 Conclusion and outlook

The secondary stakeholders´ user study showed that there are indeed areas of application in which a technical platform such as My-AHA can be useful every day. The research design gave the users insights into the wishes, expectations, requirements, worries and fears of health experts in the context of the connection to a health platform for seniors. Therefore, the results presented form a beneficial basis of further development work by My-AHA.

Particularly, data access by health experts was identified as promising for the future, as it is intended to be personalised or anonymised by various stakeholders. By accessing health data, stakeholders can benefit in many different ways:

- Increase in efficiency
- Increased safety
- Quicker reaction to critical measurements
- Overview of the patient
- A more individual advisory service/ therapy
- Inference of action measures
- Use of the data for analysis tools

Nevertheless, it became apparent that not all secondary stakeholders support the use of My-AHA and the access to data of their customers or patients or cannot imagine an added value through more health data.

Another usage scenario is the publication of events via My-AHA with the advantage of target-oriented addressing, which can also be achieved by using the (health-) data. Leisure activities, interventions and events can be advertised with the help of the platform.

The application areas depend on the requests of the primary end-users. The research of the two target groups enables to investigate the preconditions for the integration of secondary stakeholders to My-AHA from the seniors´ point of view. Previous research on the history of the project and on their own empiricism have confirmed that seniors consider their privacy as very important. According to the senior citizens, the transfer of data would only be carried out under strict rules. The seniors still want to decide on their own, whether they want to give access to special data or not. In general, the seniors have a very sceptical point of view towards the transfer of data, since they are afraid of an increasing crime rate as well as of the misuse of data, especially in regard to health insurance companies. Thus, comprehensible information on data protection and the transfer of data are of great importance for this target group. The health experts have the same point of view as the seniors and claim more transparency as well.

Data protection

At the same time, it can be seen that a high benefit alleviates or suppresses concerns, e.g. about data protection. Therefore, the benefits regarding this transfer of data have to be explained to the primary users. In the guided focus group, seniors already suspected that the transfer of data could lead to an increased efficiency. This subsequent takes up the demands and critical questions of secondary stakeholders as well as primary end users and develops an initial design craft. For the future success of My-AHA, it is essential to respect and consider the requirements of the target groups and to stay in contact with potential users during the development process. For that reason, the design to be

developed in the form of paper prototypes and digital mock-ups should be discussed with senior citizens and health experts in order to prevent or correct undesirable developments.

Since this deals with the processing of personal data and its transfer, the general data protection regulation (GDPR of 25th May 2018) is considered in addition to the demands of the target group. Aspects of the GDPR that suit the contents of the design to be developed should be considered in the prototype. Due to the cooperative character, which arises from the collaboration between the seniors and the health experts, this deals with the research field CSCW (Computer Supported and Cooperative Work). With the help of its extensive research in healthcare, the literature in the field of CSCW provides useful insights into the efforts to design collaborative systems in the healthcare industry.

References

Wulf et al. 2011: Engaging with Practices: Design Case Studies as a Research Framework in CSCW. CSCW 2011 Conference Paper, ACM Press 2011.

Annex I Design Prototype

my-AHA
Contract # 689592

Annex I: Design Prototype my-AHA Secondary Stakeholder Back-End

Für sekundäre Stakeholder und Senioren

10/30/2018

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    - Welcome Screen personalisierte Stakeholder
    - Welcome Screen anonymisierte Stakeholder
  - Menü personalisierte Stakeholder
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    - Menü_Meine Kontakte (Stage 1)
      - Offene Kontaktanfrage_S. Oppermann
        - Mehr erfahren Codeübermittlung
      - Kontakt anlegen
    - Menü_Meine Kontakte (Stage 2)
    - Menü_Dateneinsicht
      - Karl Meier_Tab Übersicht
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    - Menü_Veranstaltungen und Angebote
      - Veranstaltung anlegen
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  - Menü anonymisierte Stakeholder
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  - Menü
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        - Datenteilung anpassen
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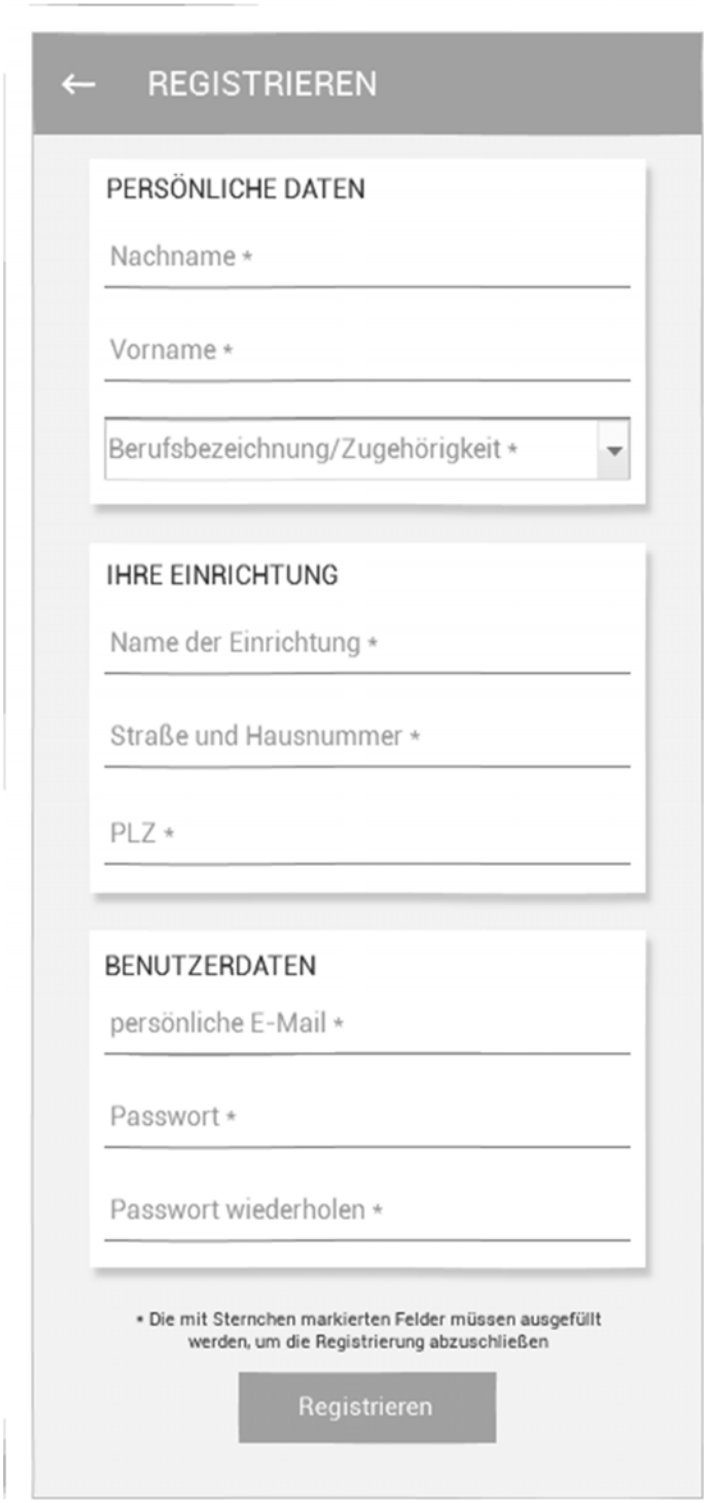
        - Sicherheitsabfrage
          - Code
            - Mehr erfahren Codeübermittlung
            - Erfolgsmeldung
    - Menü_Meine personlichen Informationen
      - Etwas über mich_teilen (personalisiert)
        - mehr Infos personalisierte Datenfreigabe
          - Was passiert mit meinen Daten?
          - Wer bekommt meine Daten?
          - Welche Daten werden übermittelt?
          - Was bedeutet personalisierte Datenfreigabe?
          - Kann ich die Datenfreigabe wieder stoppen?
          - Sind meine Daten sicher?
        - Sicherheitsabfrage
      - Etwas über mich_teilen (anonymisiert)
        - mehr Infos anonymisierte Datenfreigabe
          - Was passiert mit meinen Daten?
          - Wer bekommt meine Daten?
          - Welche Daten werden übermittelt?
          - Was bedeutet anonymisierte Datenfreigabe?
          - Kann ich die Datenfreigabe wieder stoppen?
          - Sind meine Daten sicher?
        - Sicherheitsabfrage
      - Menü_Veranstaltungen und Angebote

1.1. Home sekundäre Stakeholder

1.1.1. User Interface

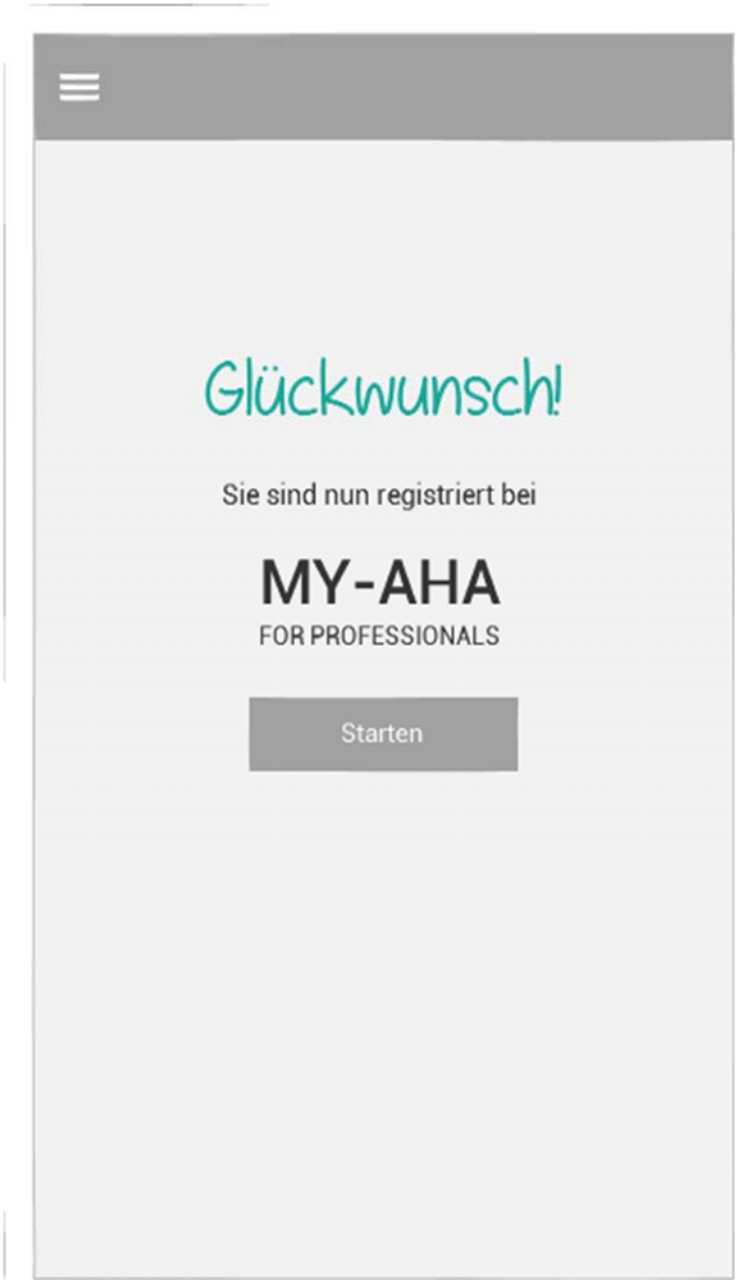
1.2. Registrieren

1.2.1. User Interface



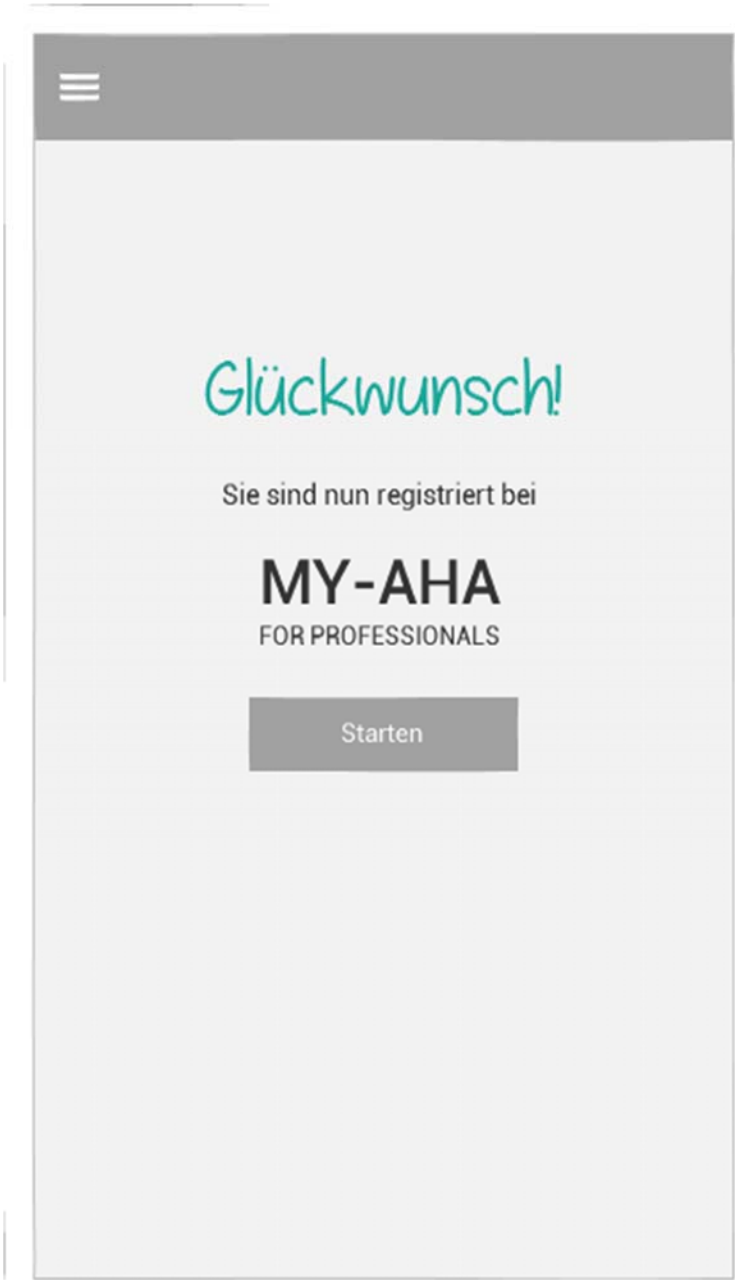
1.3. Welcome Screen personalisierte Stakeholder

1.3.1. User Interface



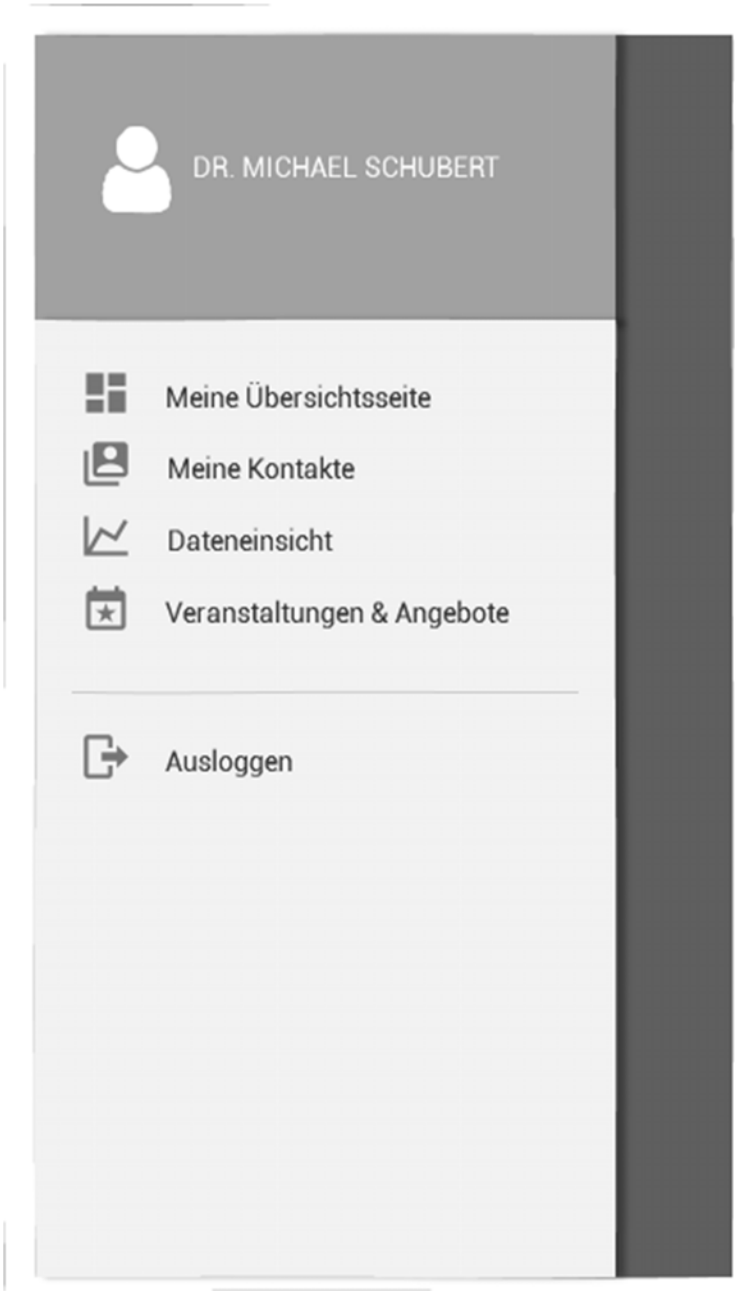
1.4. Welcome Screen anonymisierte Stakeholder

1.4.1. User Interface



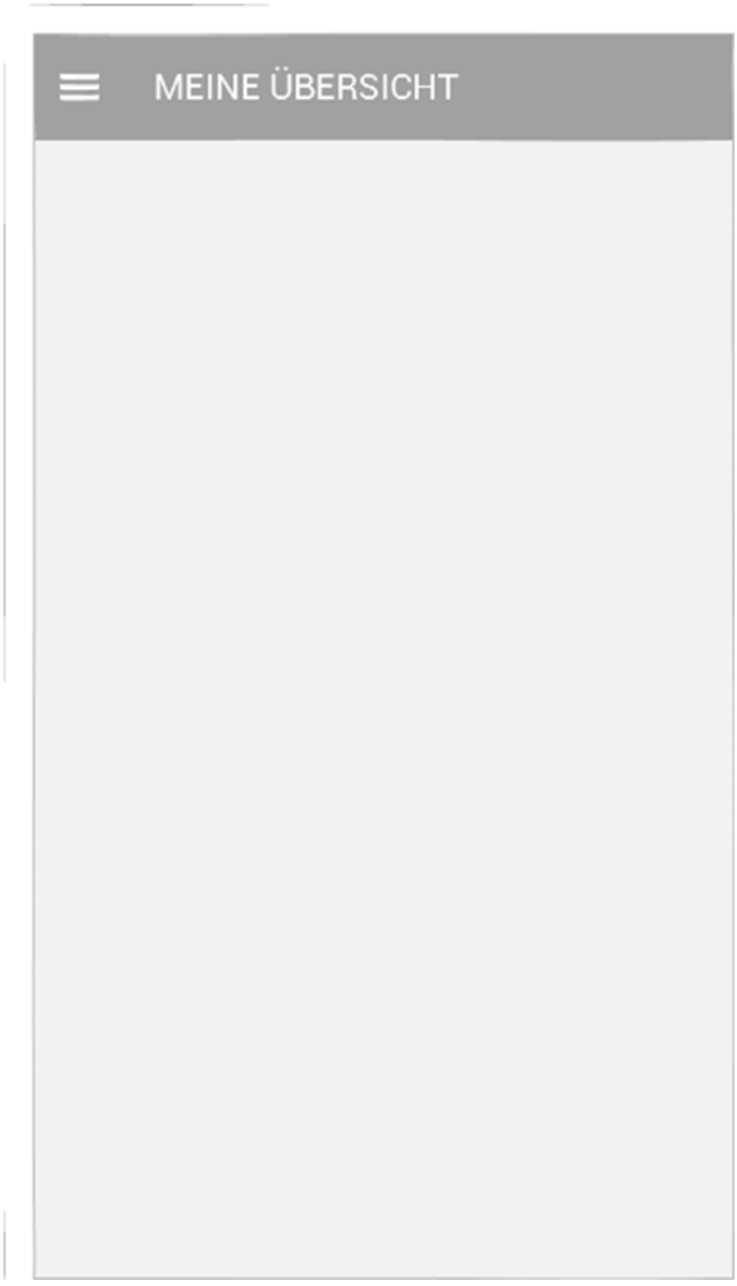
1.5. Menü personalisierte Stakeholder

1.5.1. User Interface



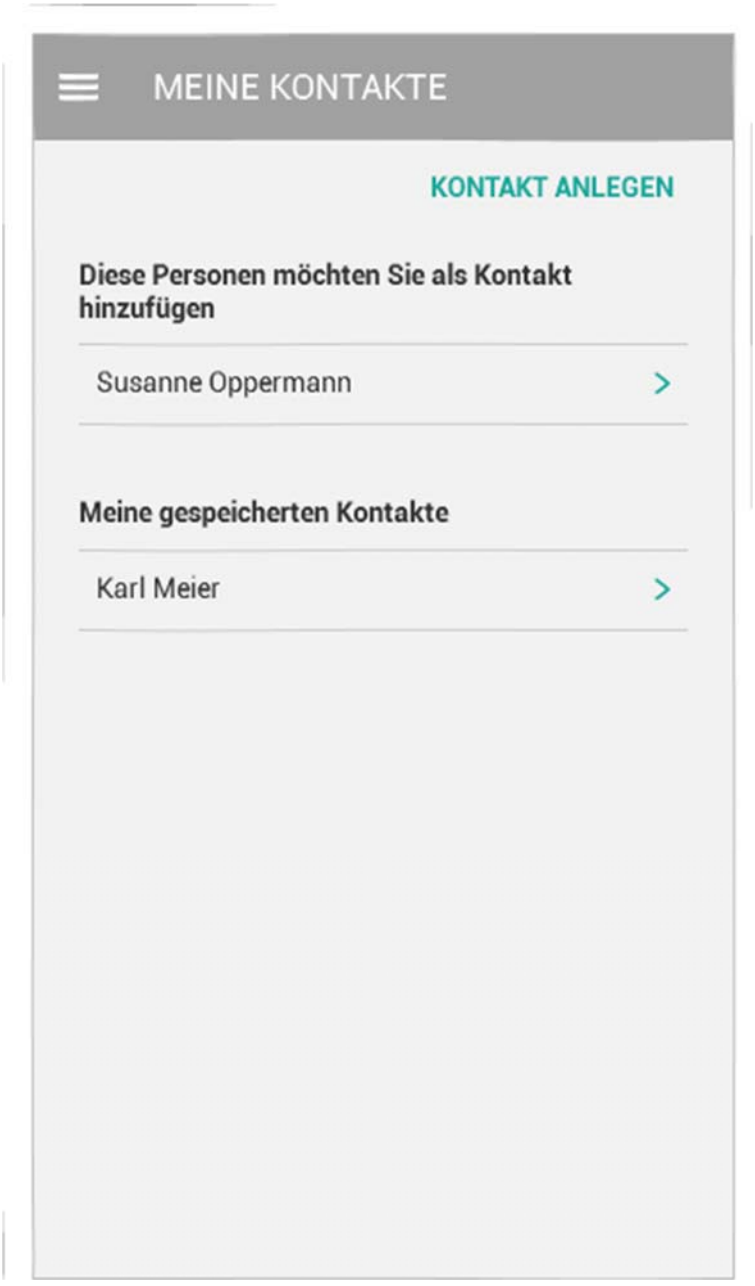
1.6. Menü_Start Screen/Meine Übersicht

1.6.1. User Interface



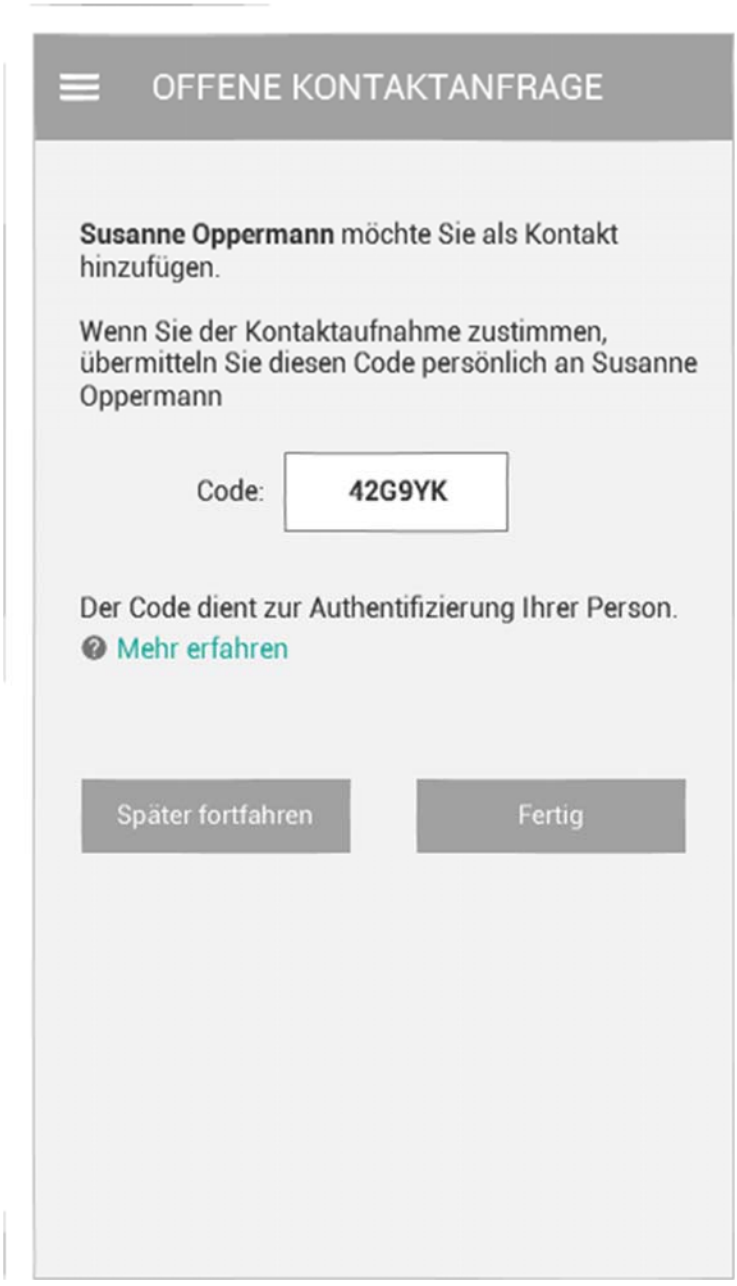
1.7. Menü_Meine Kontakte (Stage 1)

1.7.1. User Interface



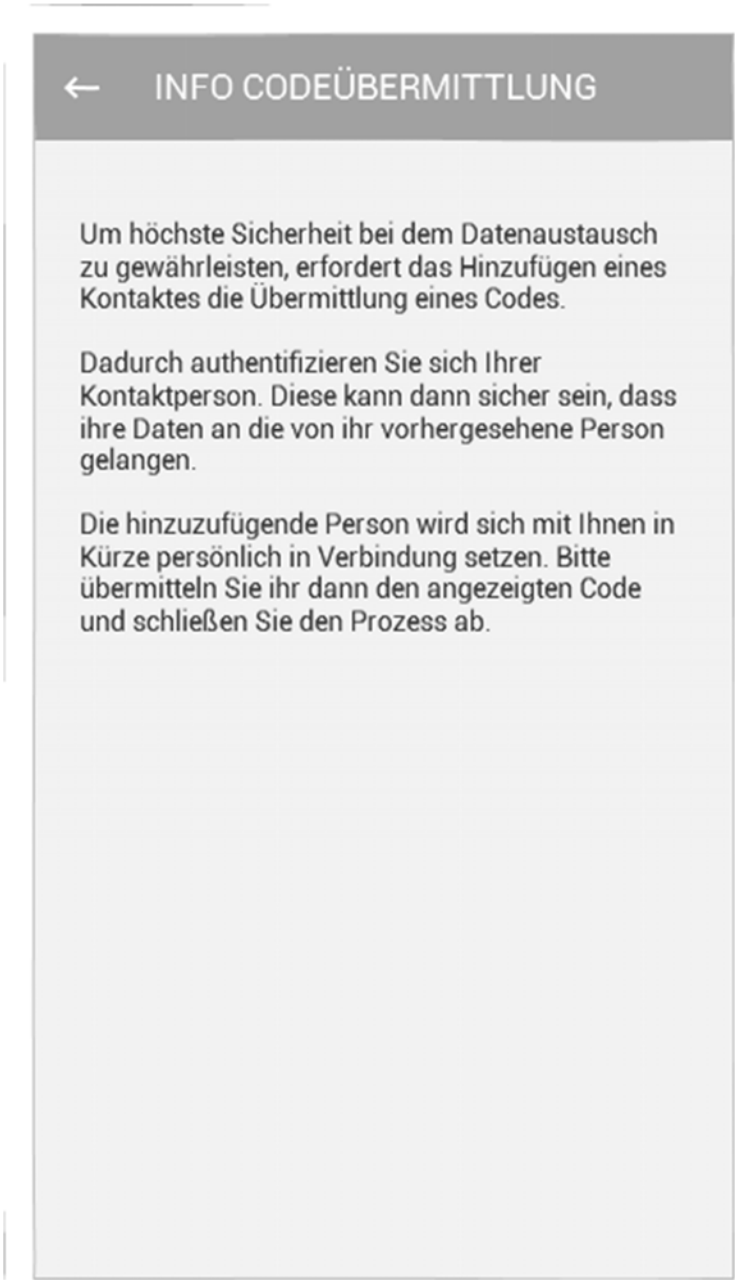
1.8. Offene Kontaktanfrage_S. Oppermann

1.8.1. User Interface



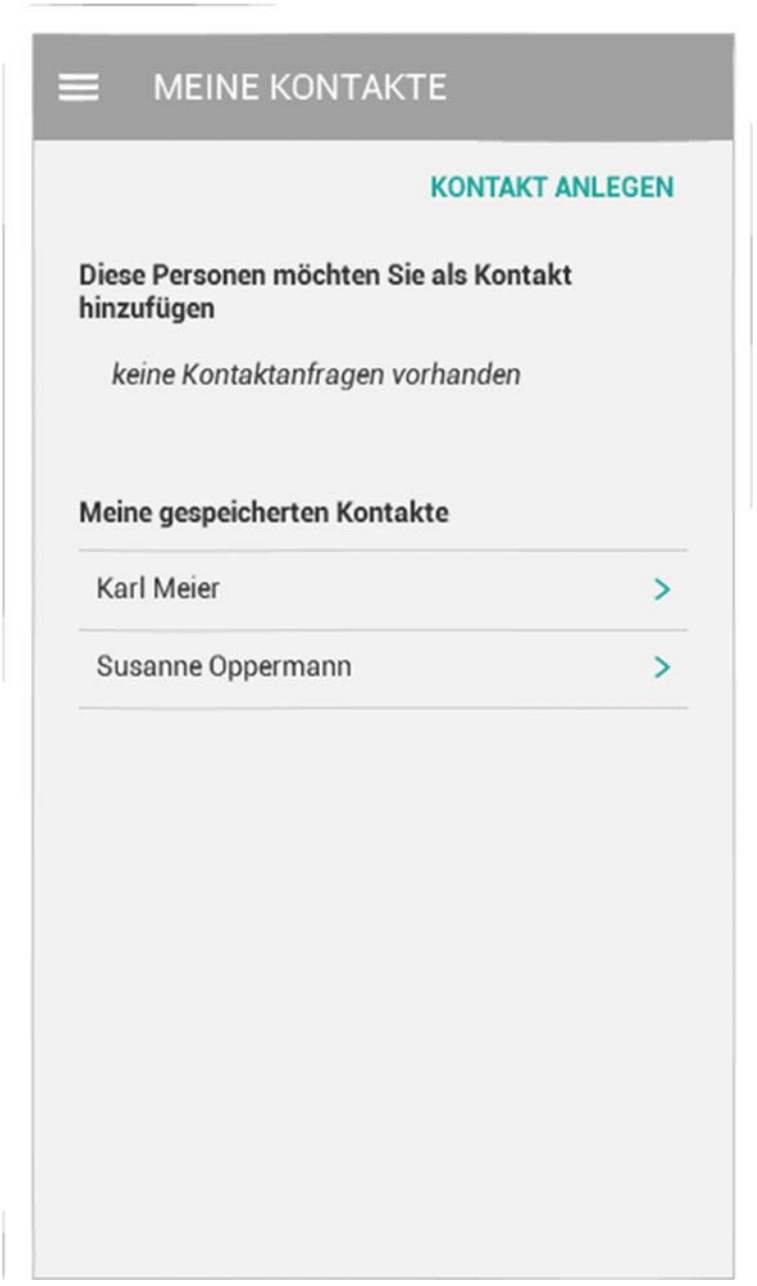
1.9. Mehr erfahren Codeübermittlung

1.9.1. User Interface



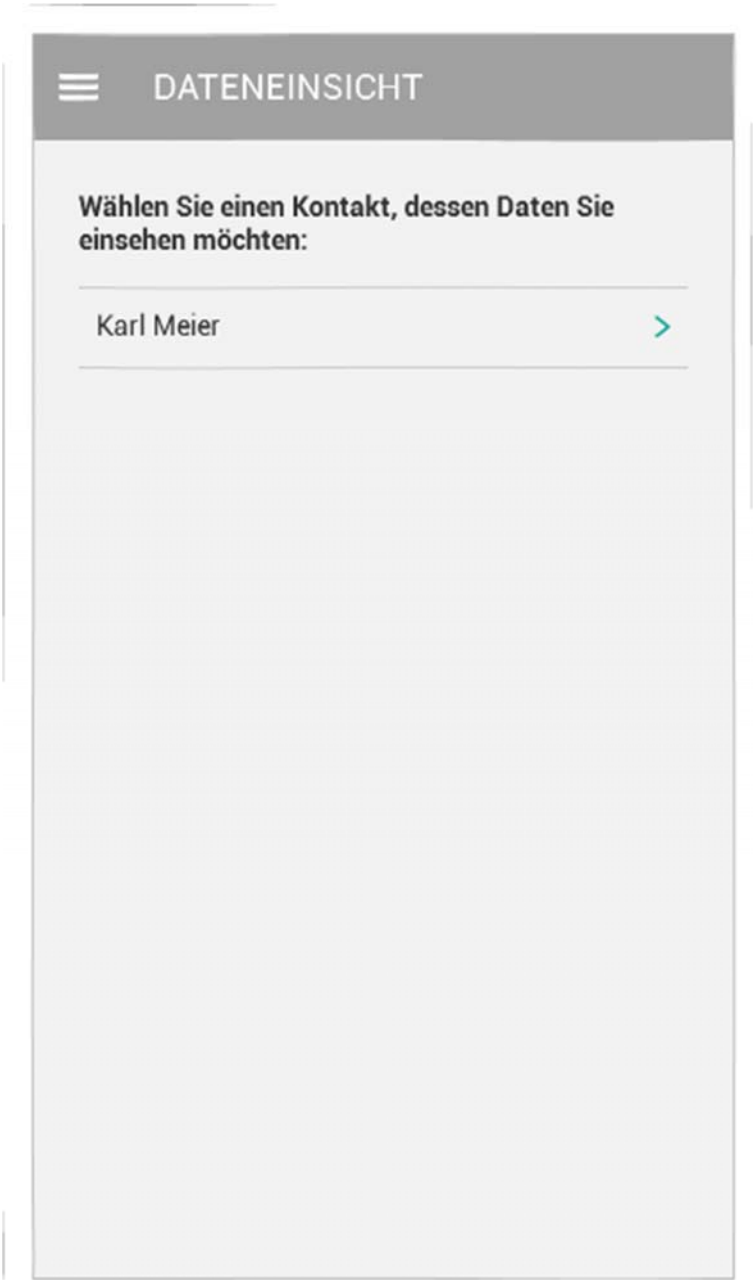
1.10. Menü_Meine Kontakte (Stage 2)

1.10.1. User Interface



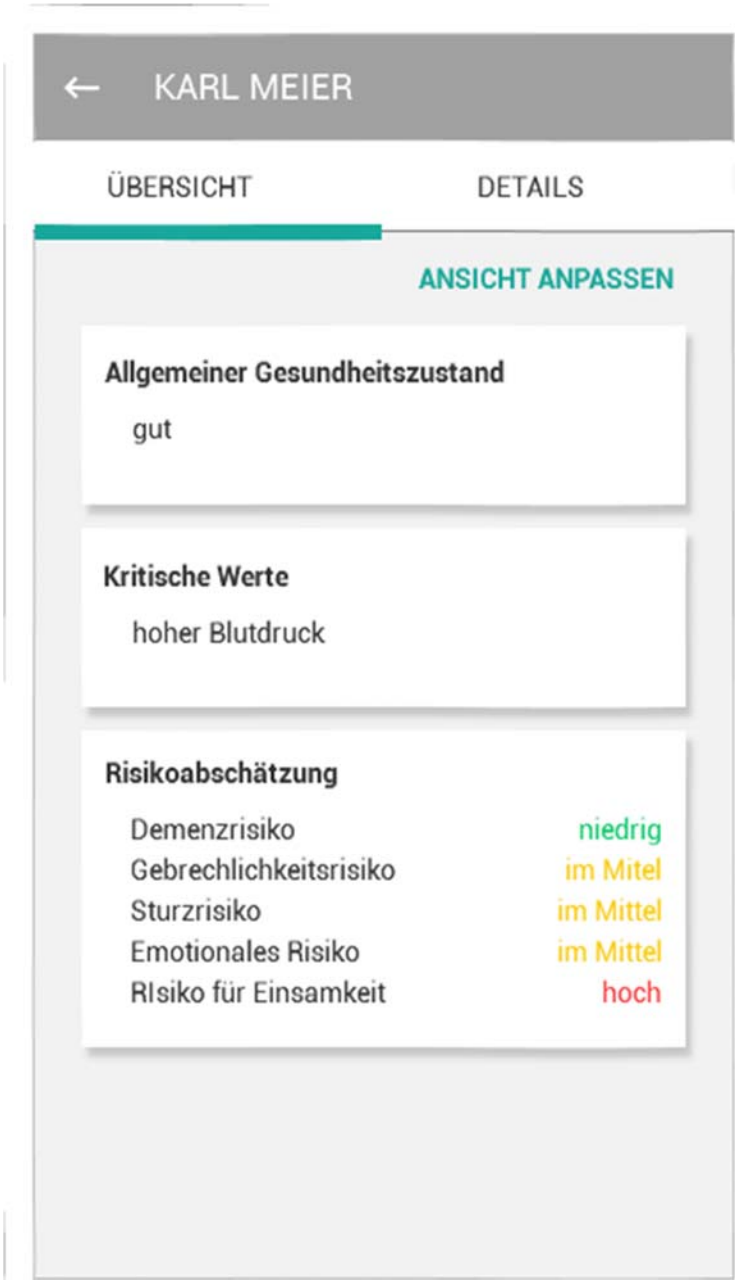
1.11. Menü_Dateneinsicht

1.11.1. User Interface



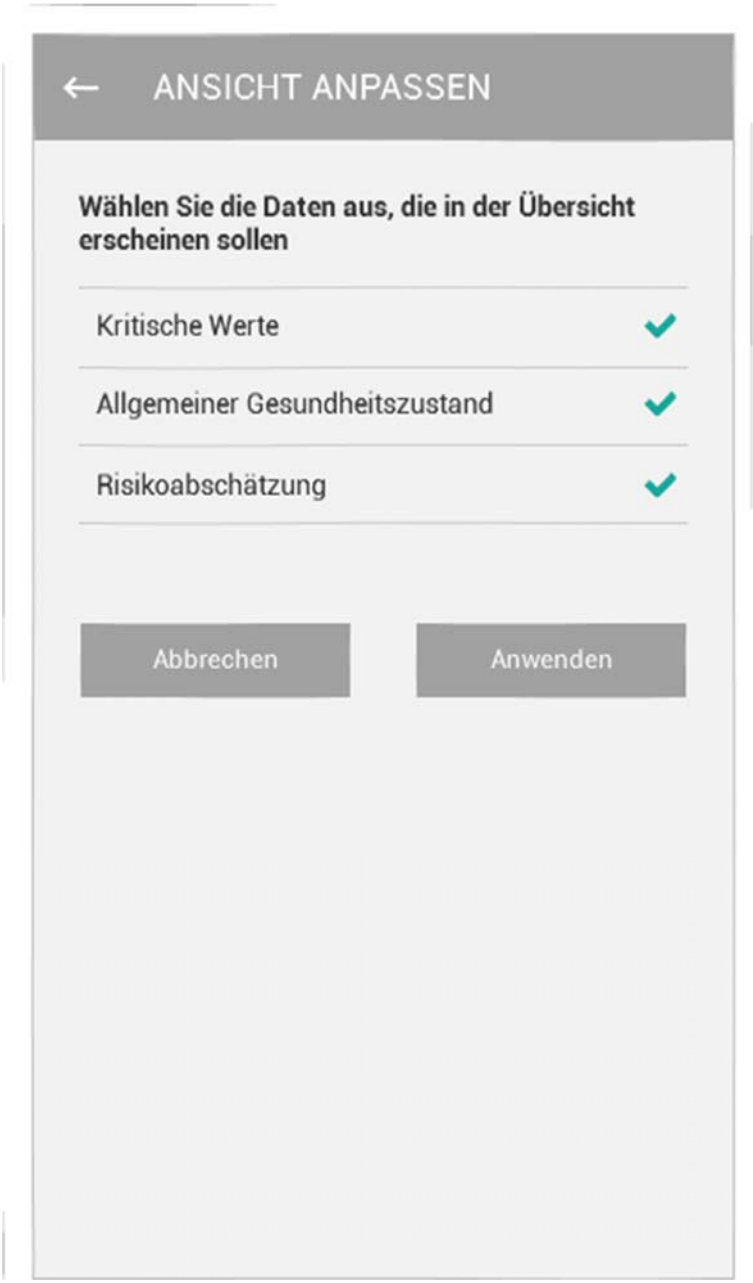
1.12. Karl Meier_Tab Übersicht

1.12.1. User Interface



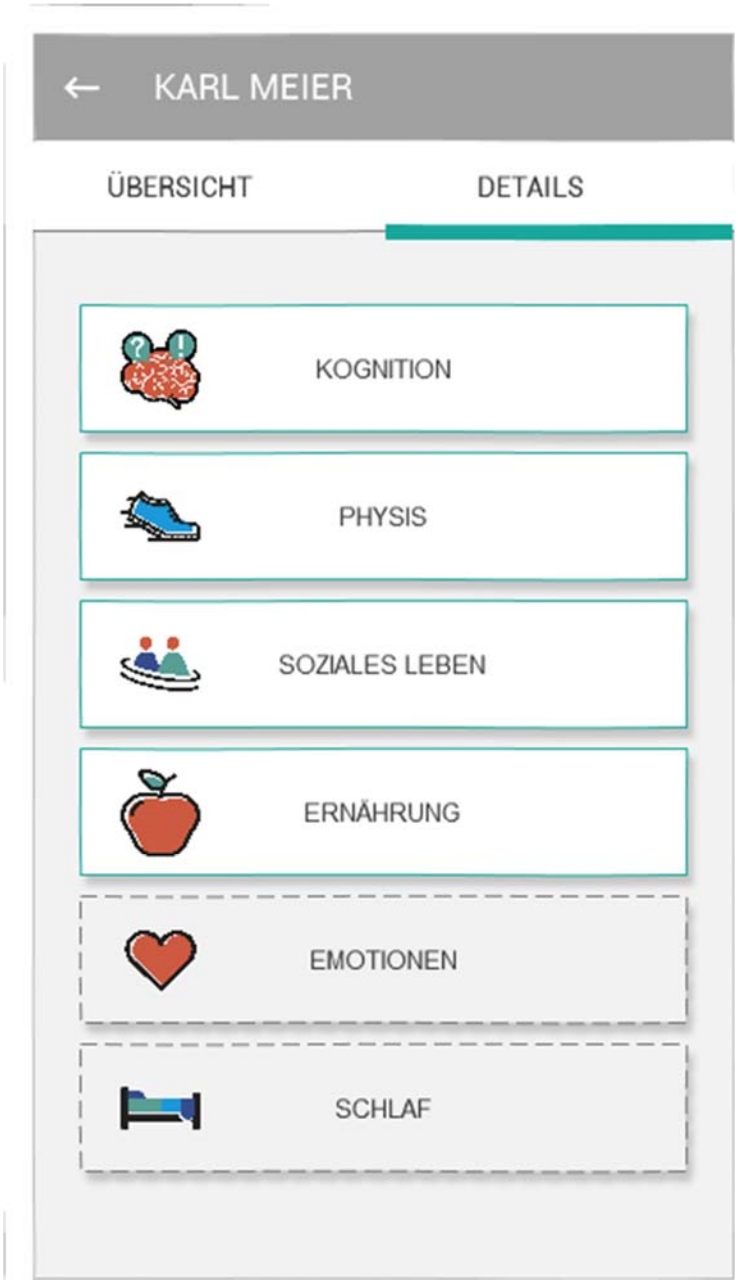
1.13. Ansicht anpassen

1.13.1. User Interface



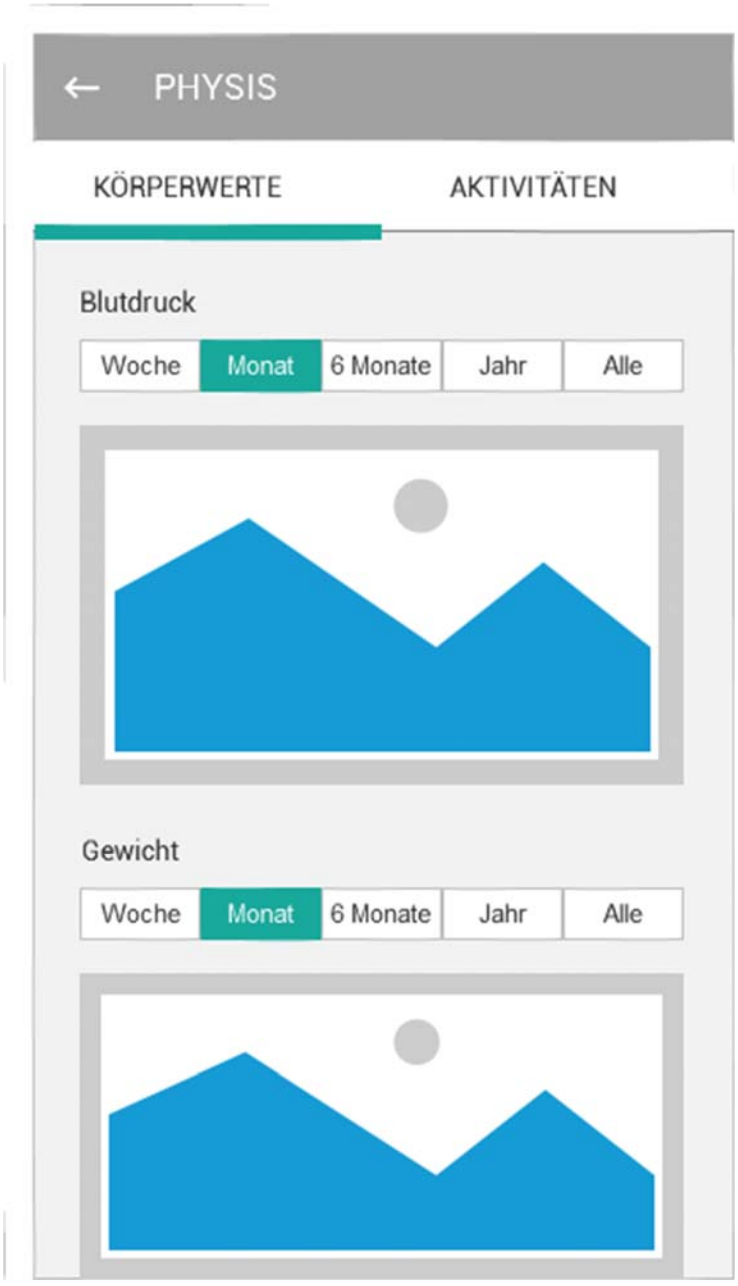
1.14. Karl Meier_Tab Details

1.14.1. User Interface



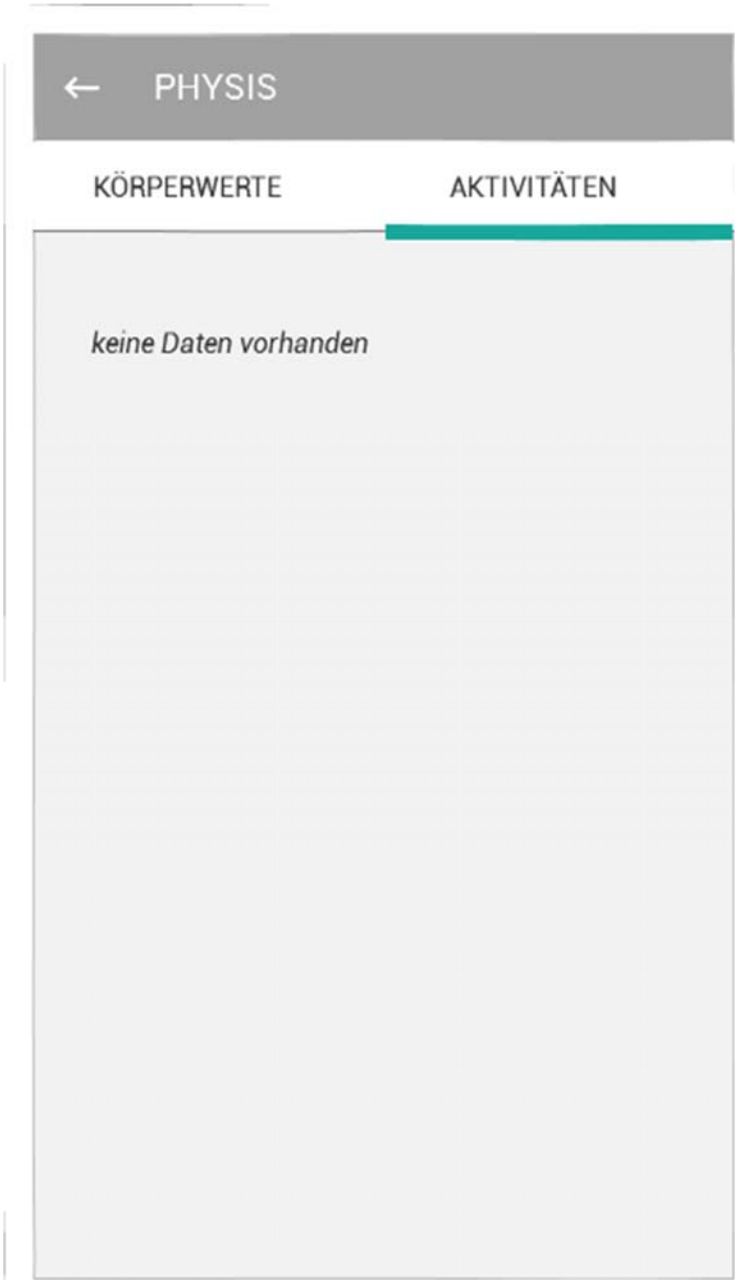
1.15. Physis (Tab Körperwerte)

1.15.1. User Interface



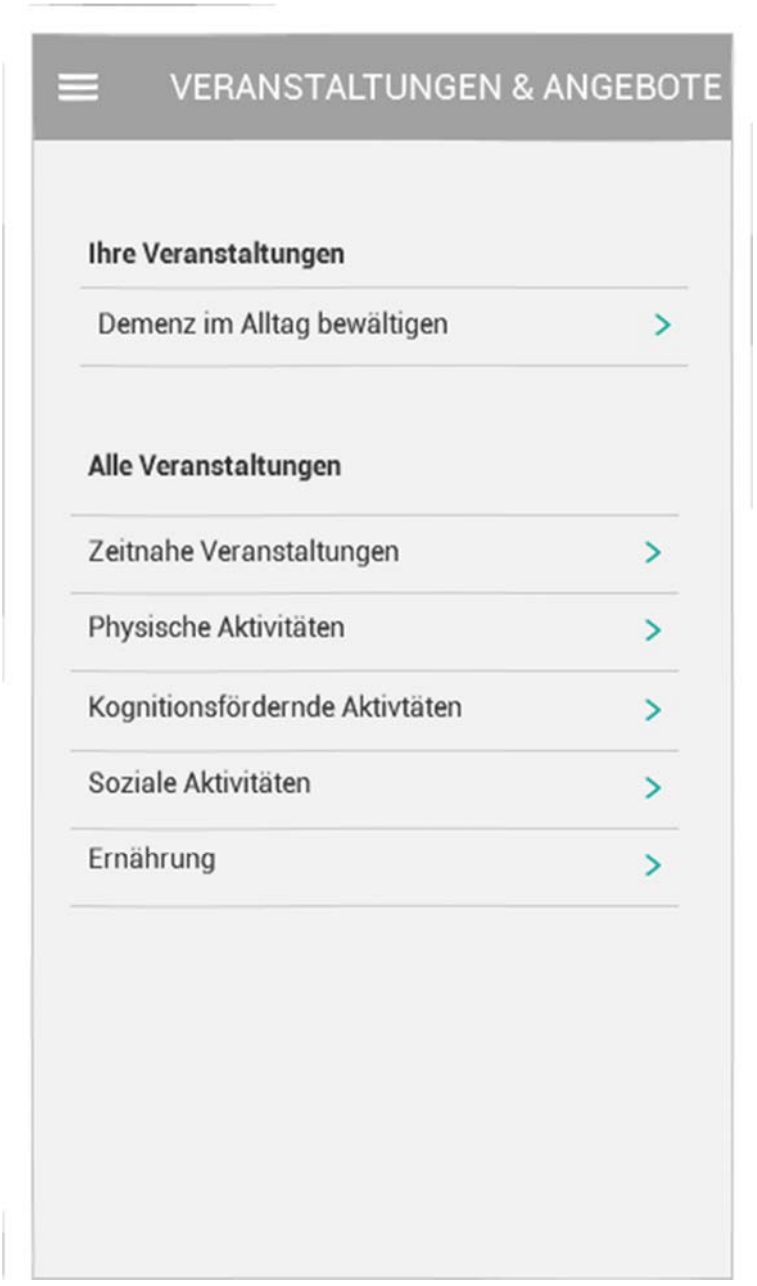
1.16. Physis (Tab Aktivitäten)

1.16.1. User Interface



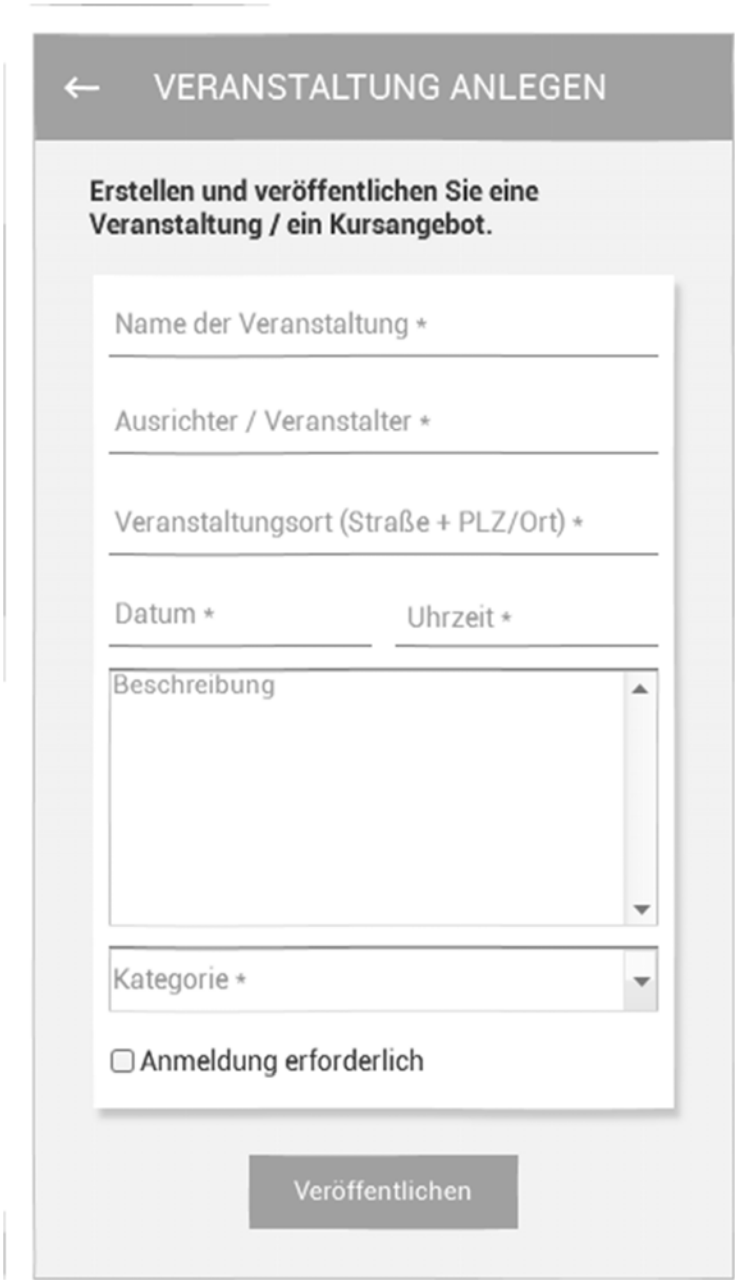
1.17. Menü_Veranstaltungen und Angebote

1.17.1. User Interface



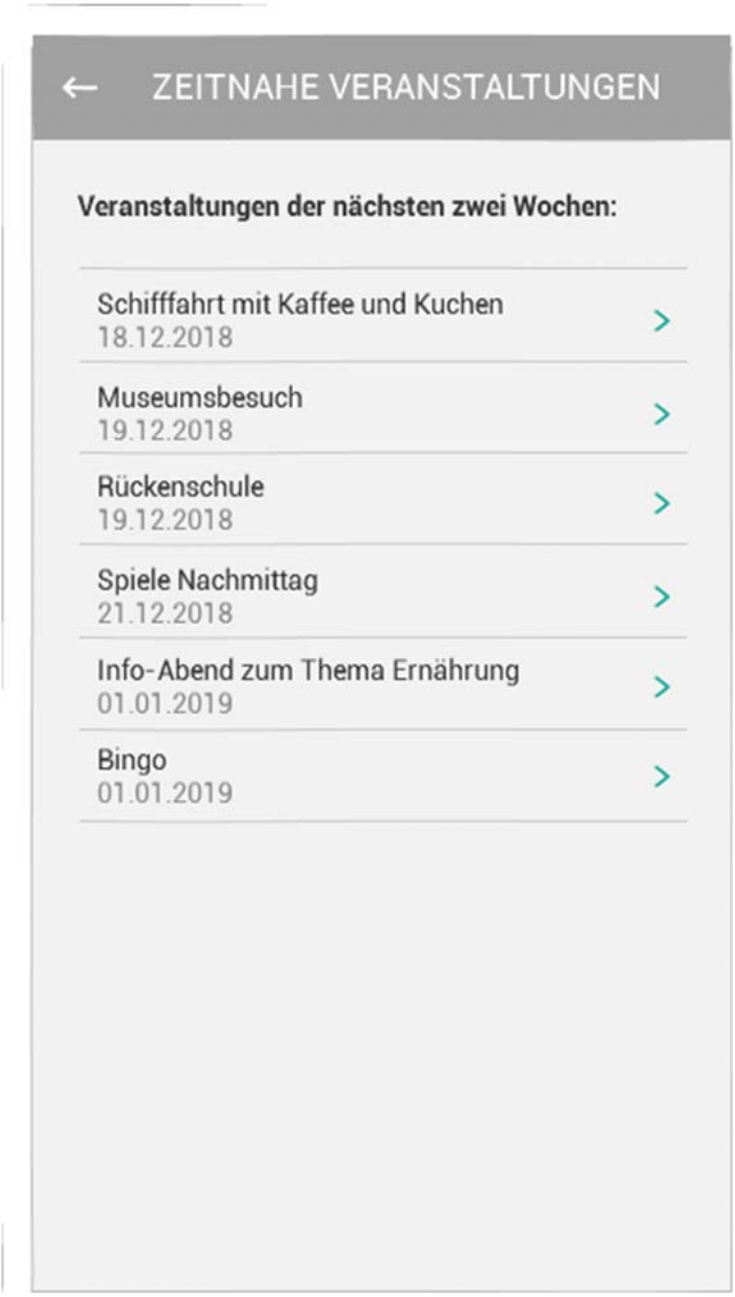
1.18. Veranstaltung anlegen

1.18.1. User Interface



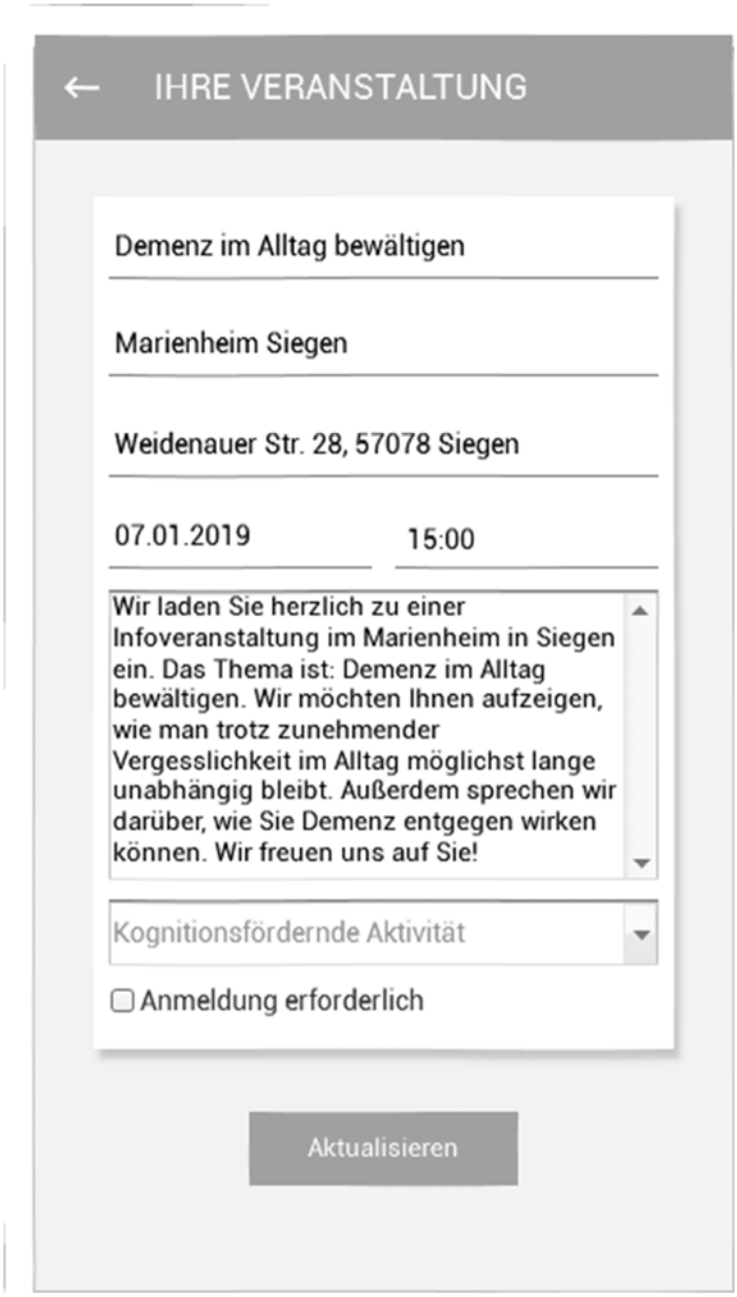
1.19. Zeitnahe Veranstaltungen

1.19.1. User Interface



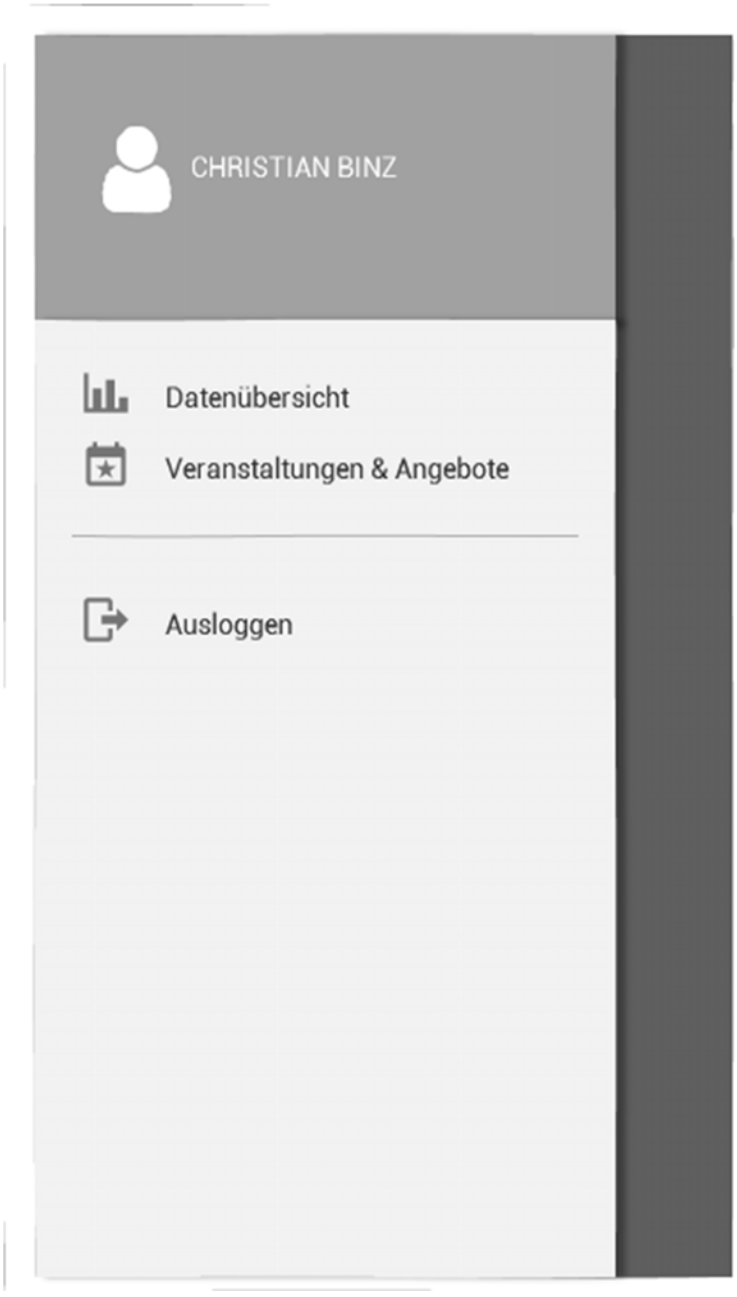
1.20. Demenz im Alltag bewältigen

1.20.1. User Interface



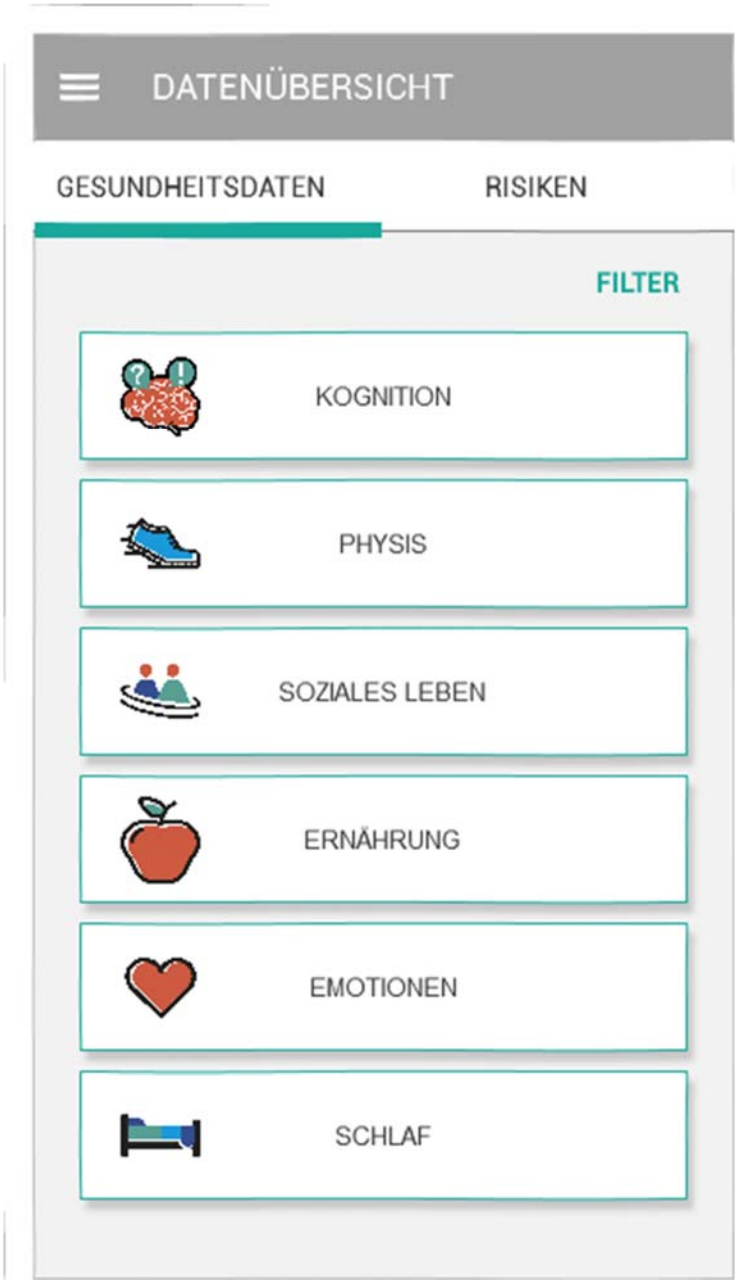
1.21. Menü anonymisierte Stakeholder

1.21.1. User Interface



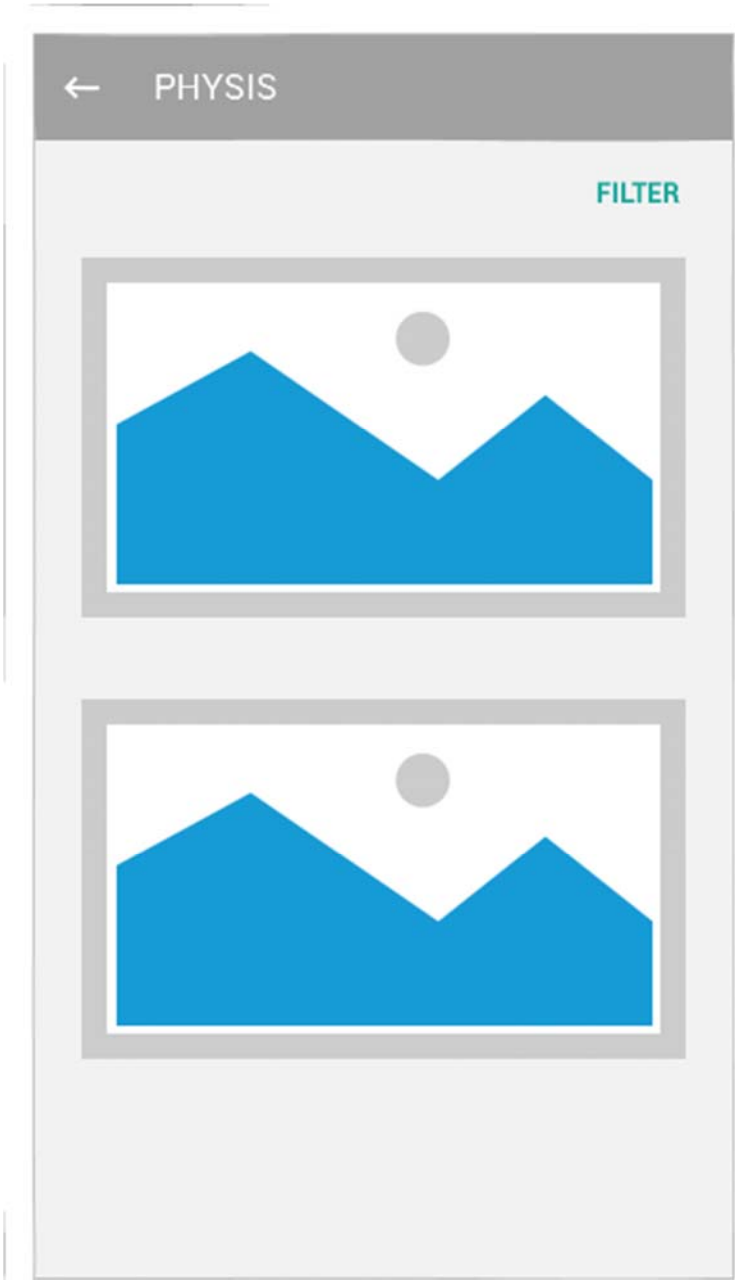
1.22. Menü_Start Screen/Datenübersicht (Gesundheitsdaten)

1.22.1. User Interface



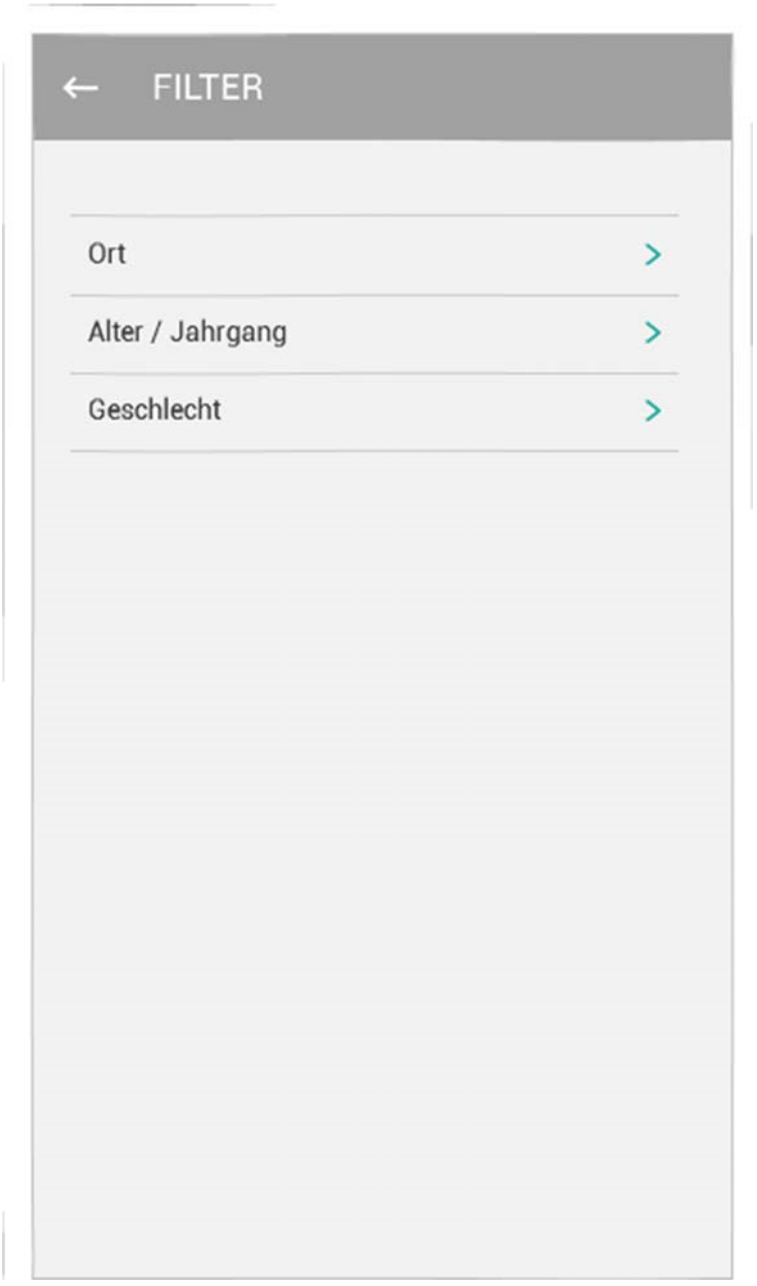
1.23. Physis

1.23.1. User Interface



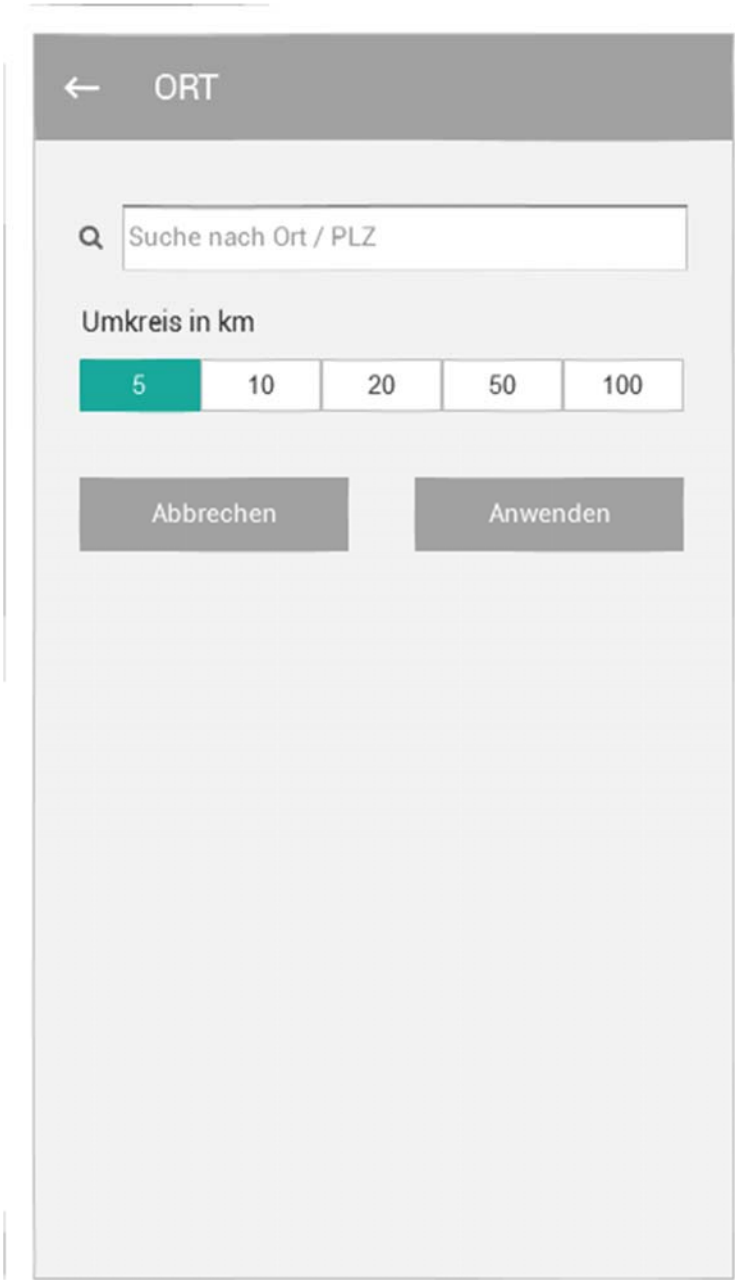
1.24. Filter

1.24.1. User Interface



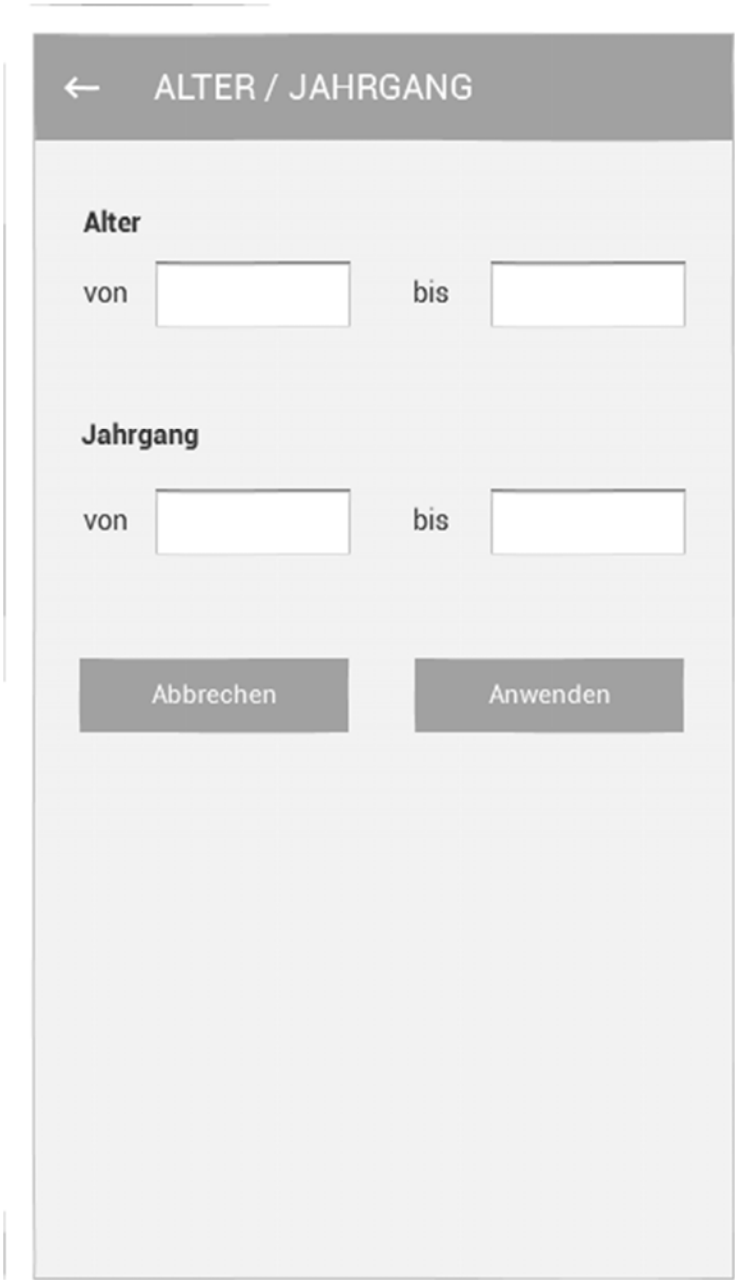
1.25. Filter_Ort

1.25.1. User Interface



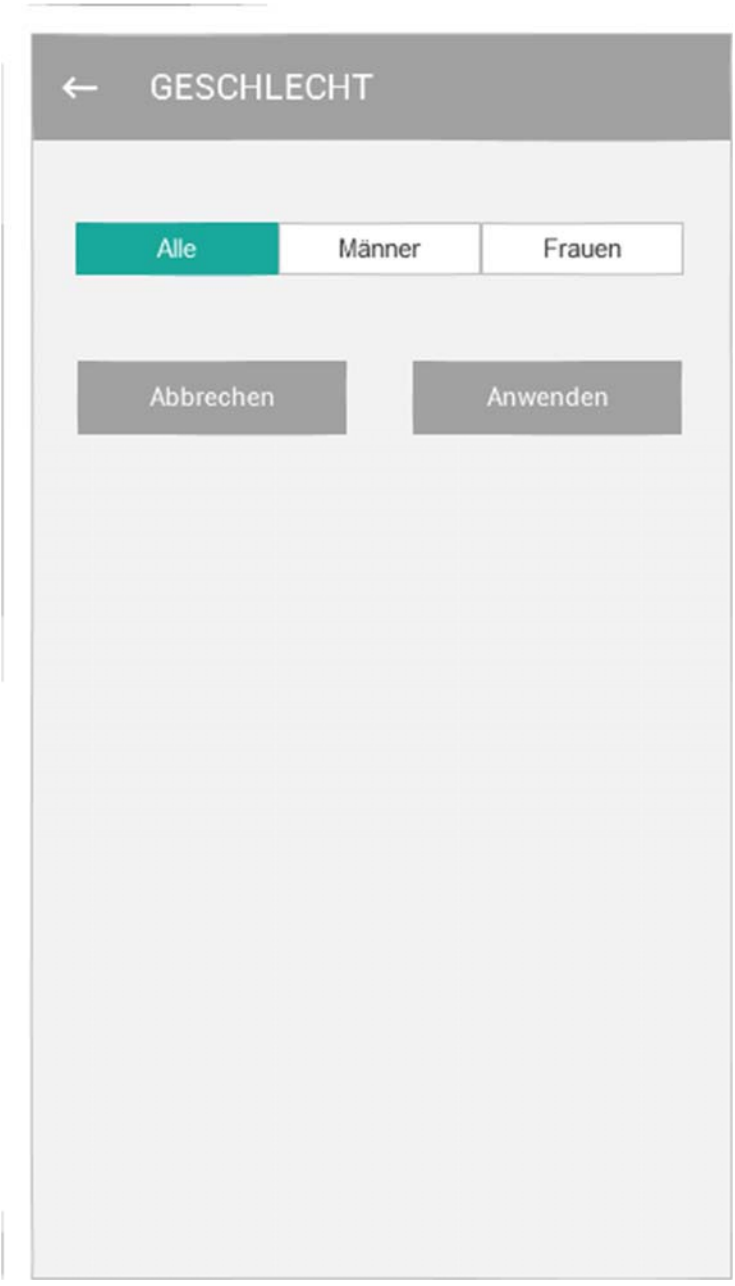
1.26. Filter_Alter/Jahrgang

1.26.1. User Interface



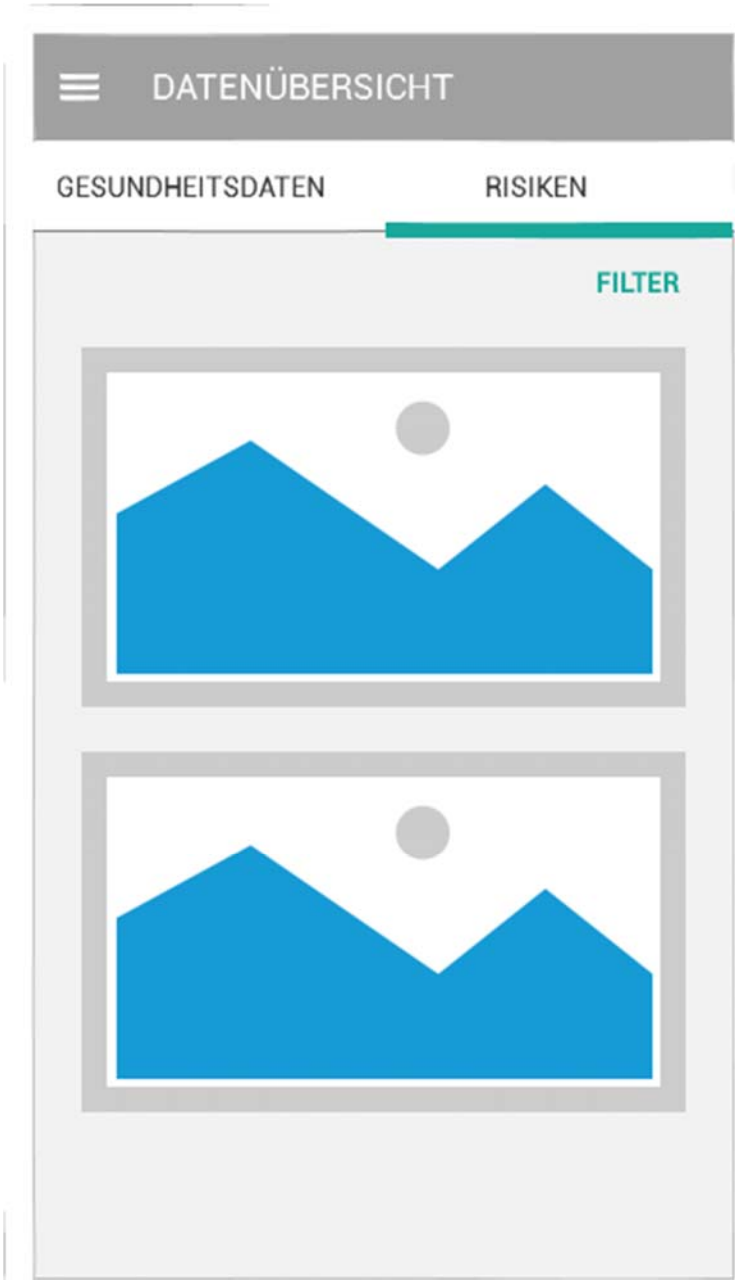
1.27. Filter_Geschlecht

1.27.1. User Interface



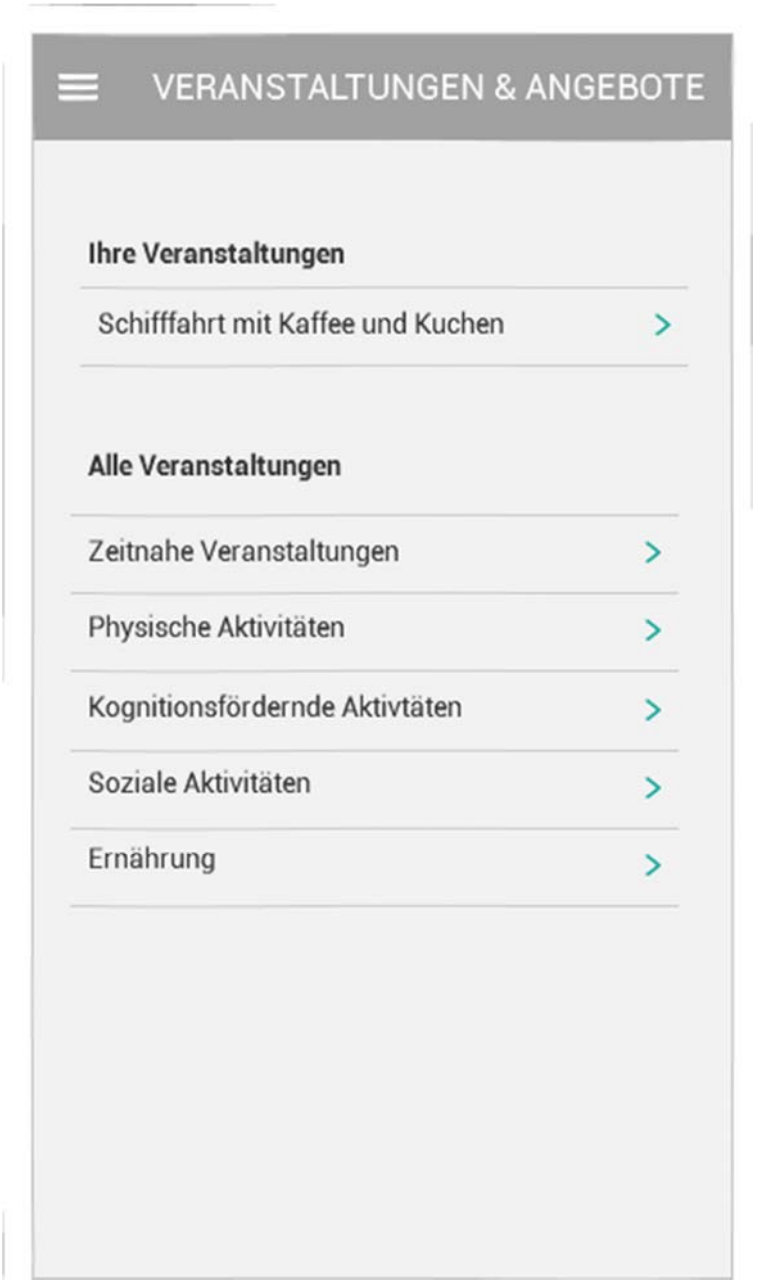
1.28. Menü_Start Screen/Datenübersicht (Risiken)

1.28.1. User Interface



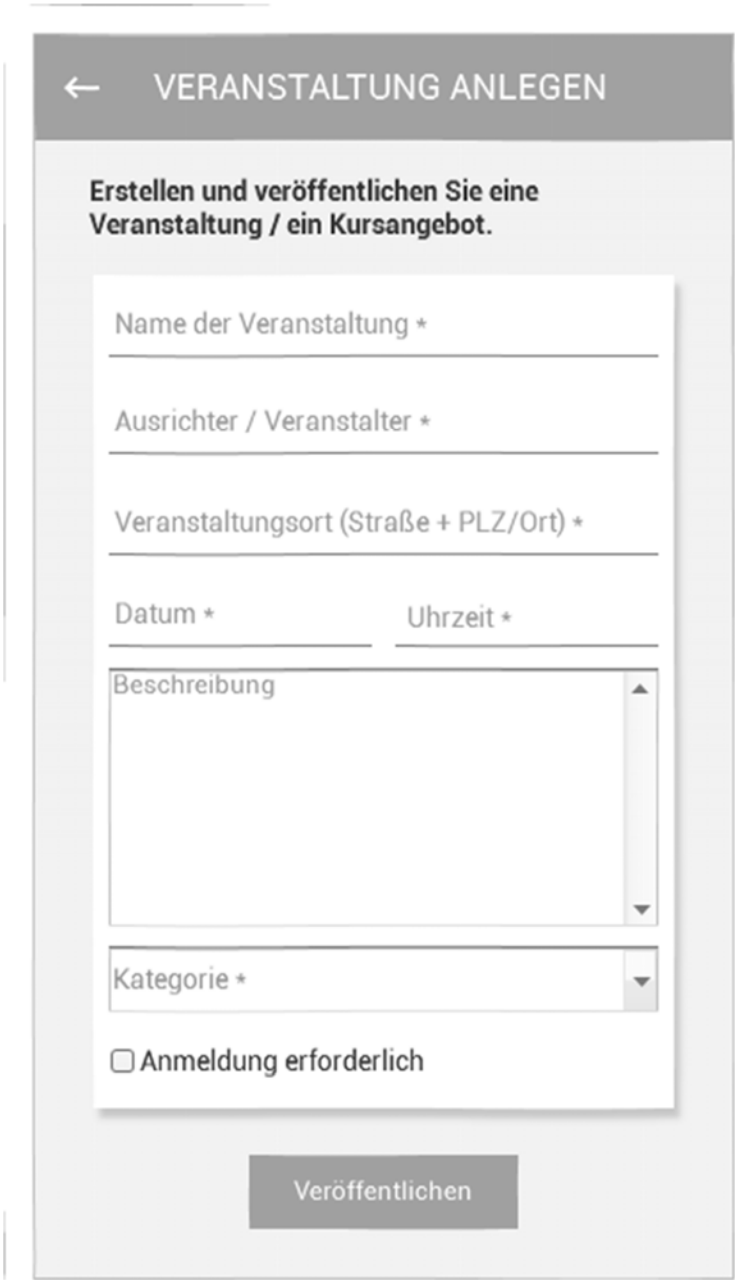
1.29. Menü_Veranstaltungen und Angebote

1.29.1. User Interface



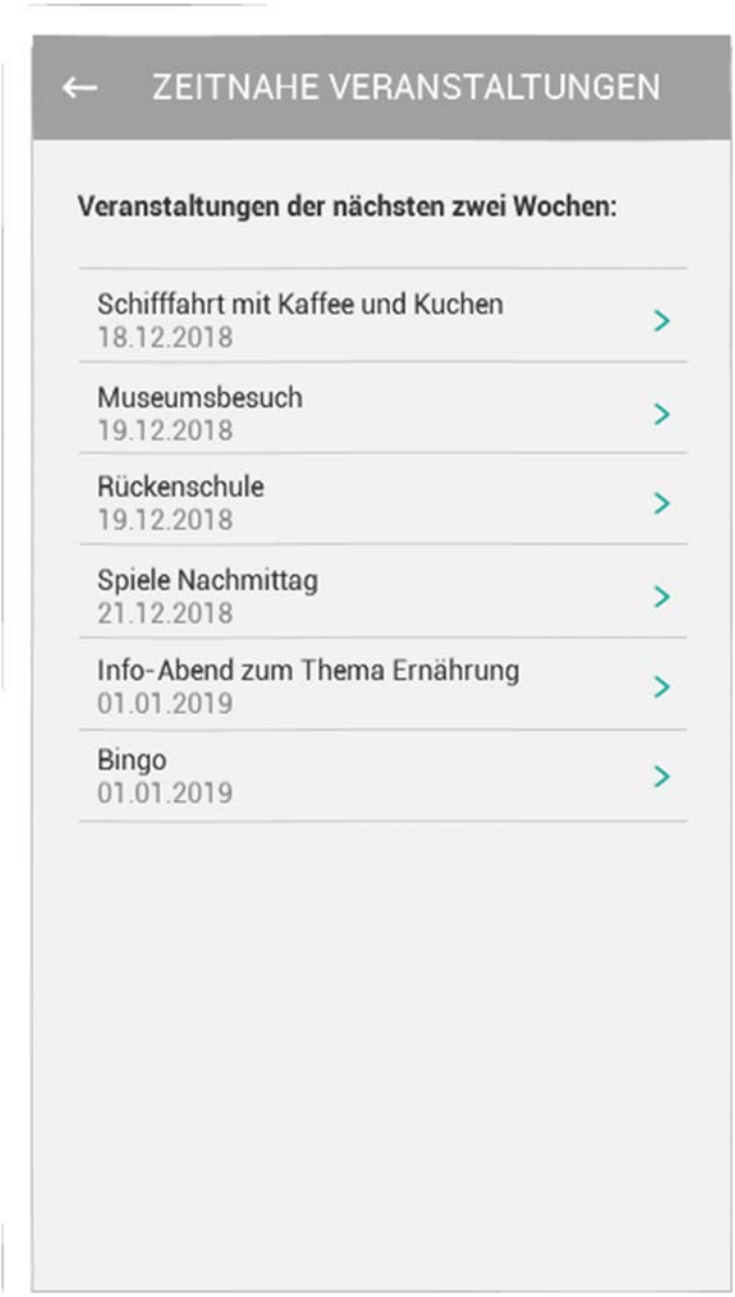
1.30. Veranstaltung anlegen

1.30.1. User Interface



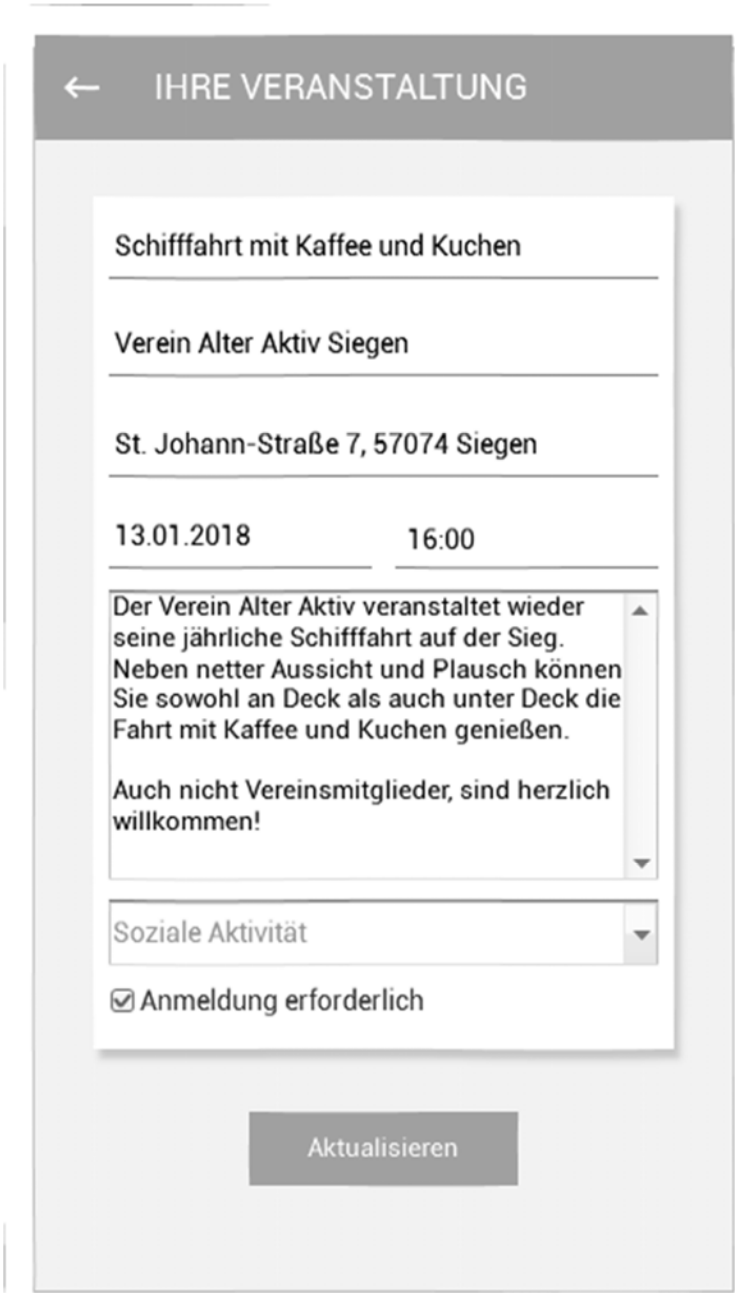
1.31. Zeitnahe Veranstaltungen

1.31.1. User Interface



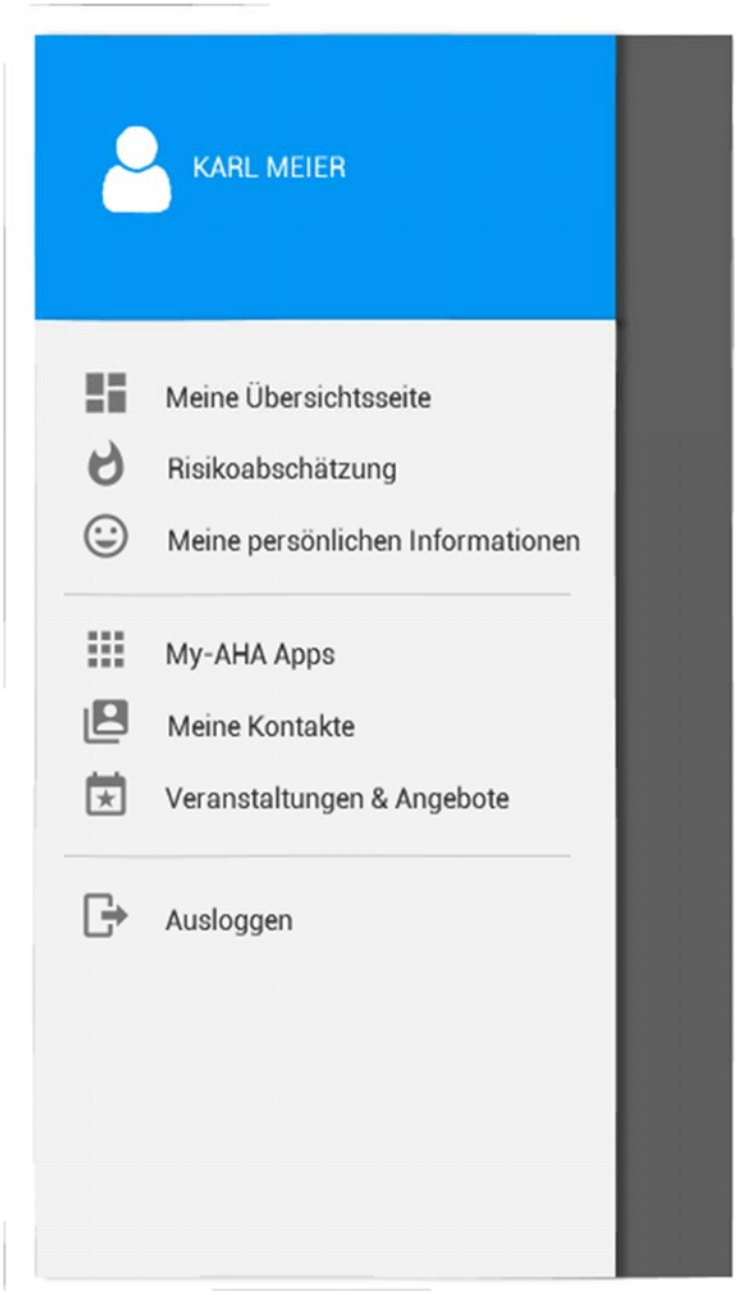
1.32. Schifffahrt mit Kaffee und Kuchen

1.32.1. User Interface



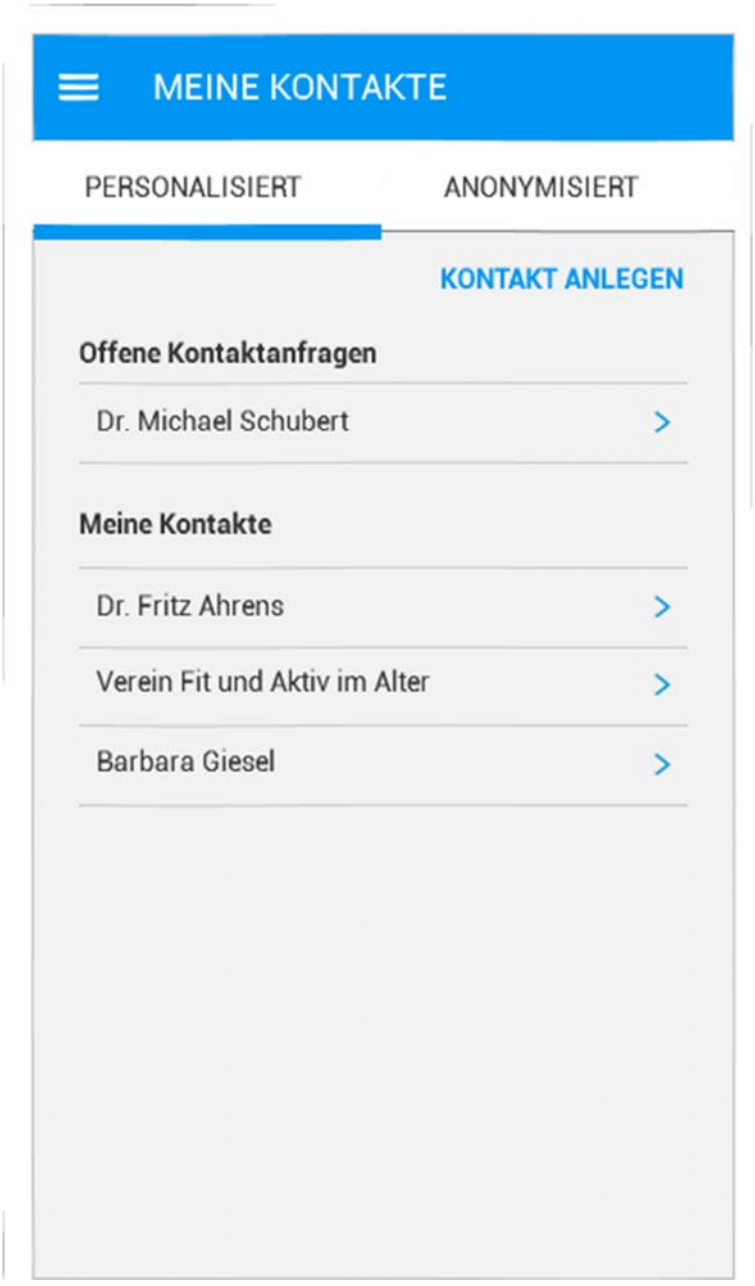
1.33. Menü

1.33.1. User Interface



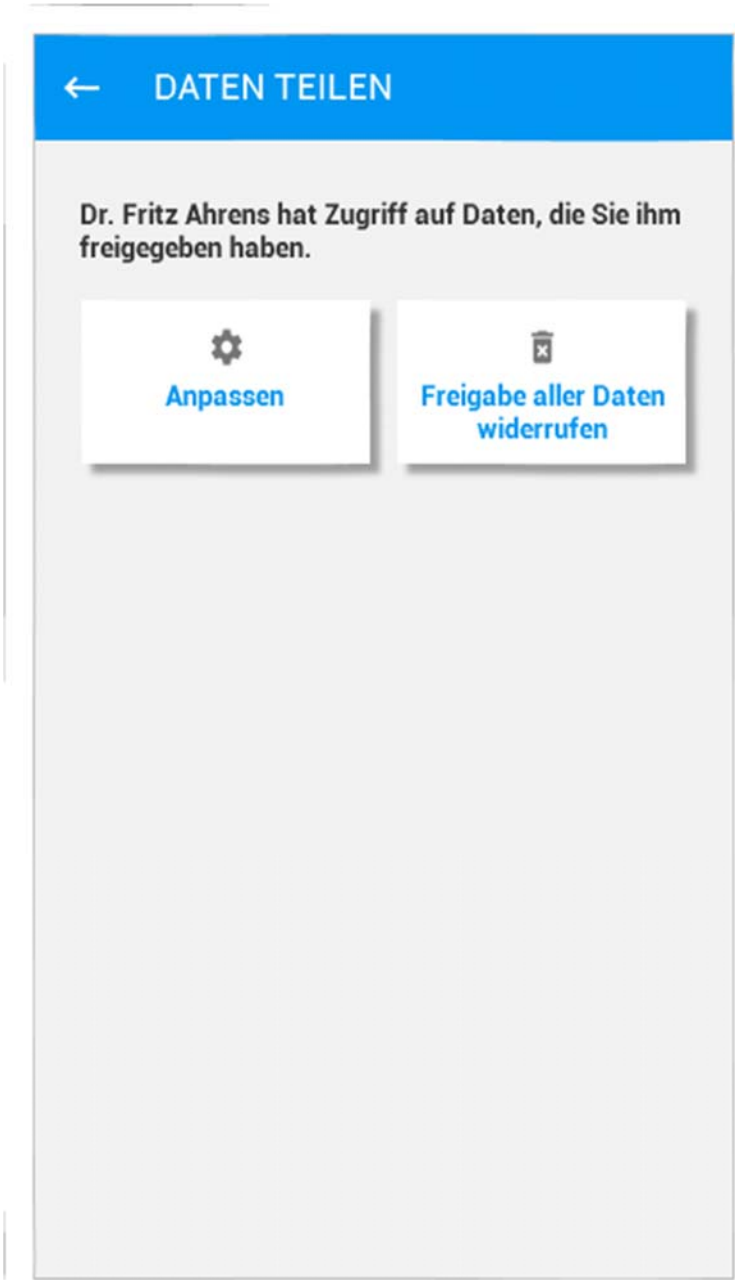
1.34. Menü_Meine Kontakte

1.34.1. User Interface



1.35. Dr. Fritz Ahrens

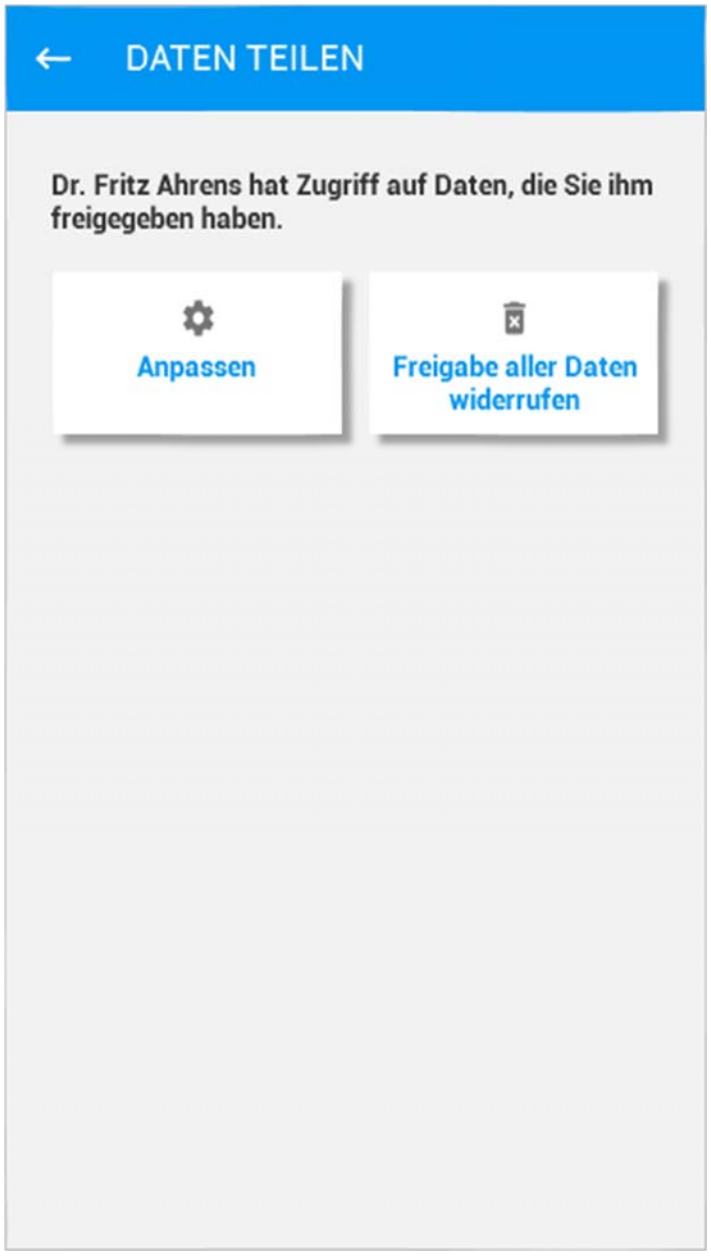
1.35.1. User Interface



1.35.2. Unnamed

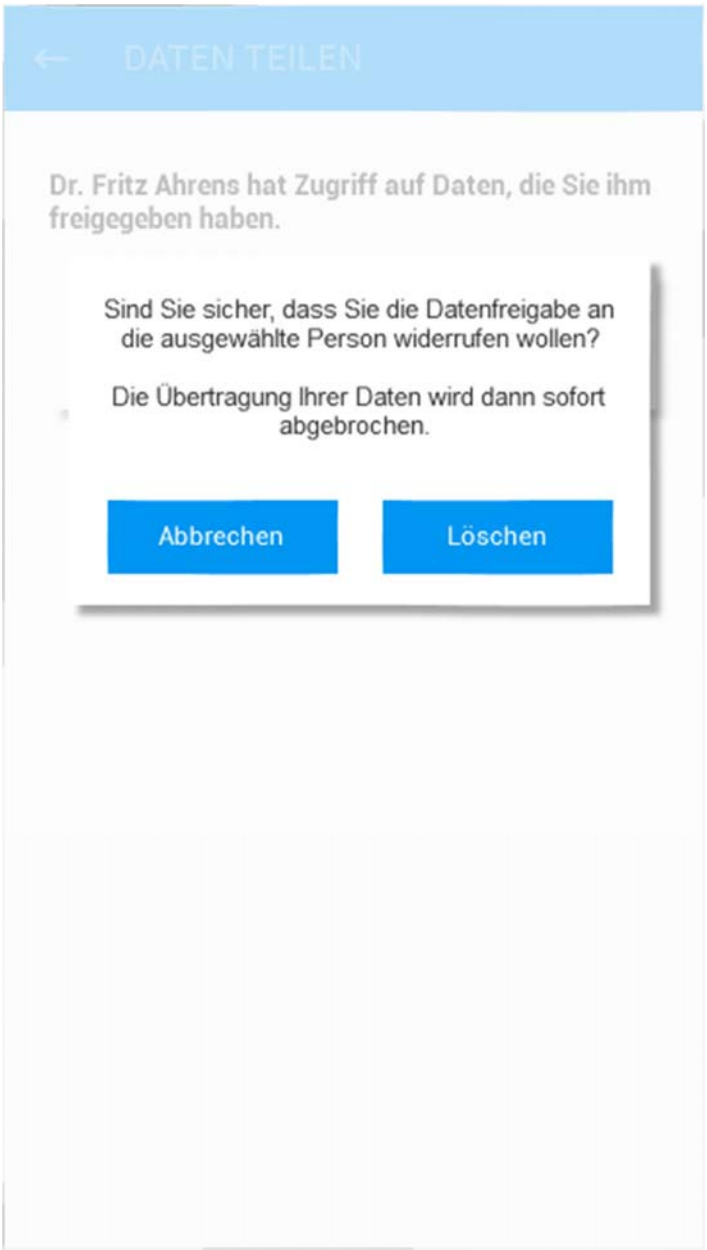
1.35.2.1. State1

1.35.2.2. User Interface



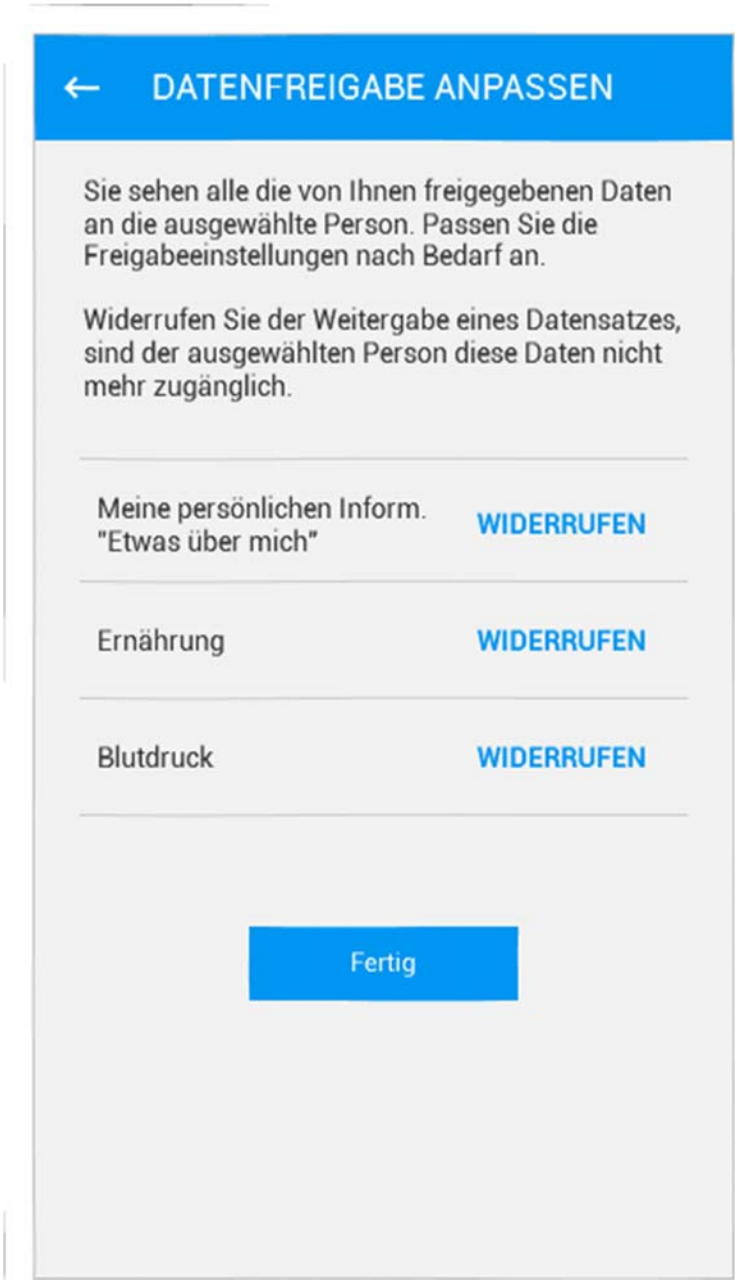
1.35.2.3. State2- freigabe widerrufen Popup

1.35.2.4. User Interface



1.36. Datenteilung anpassen

1.36.1. User Interface



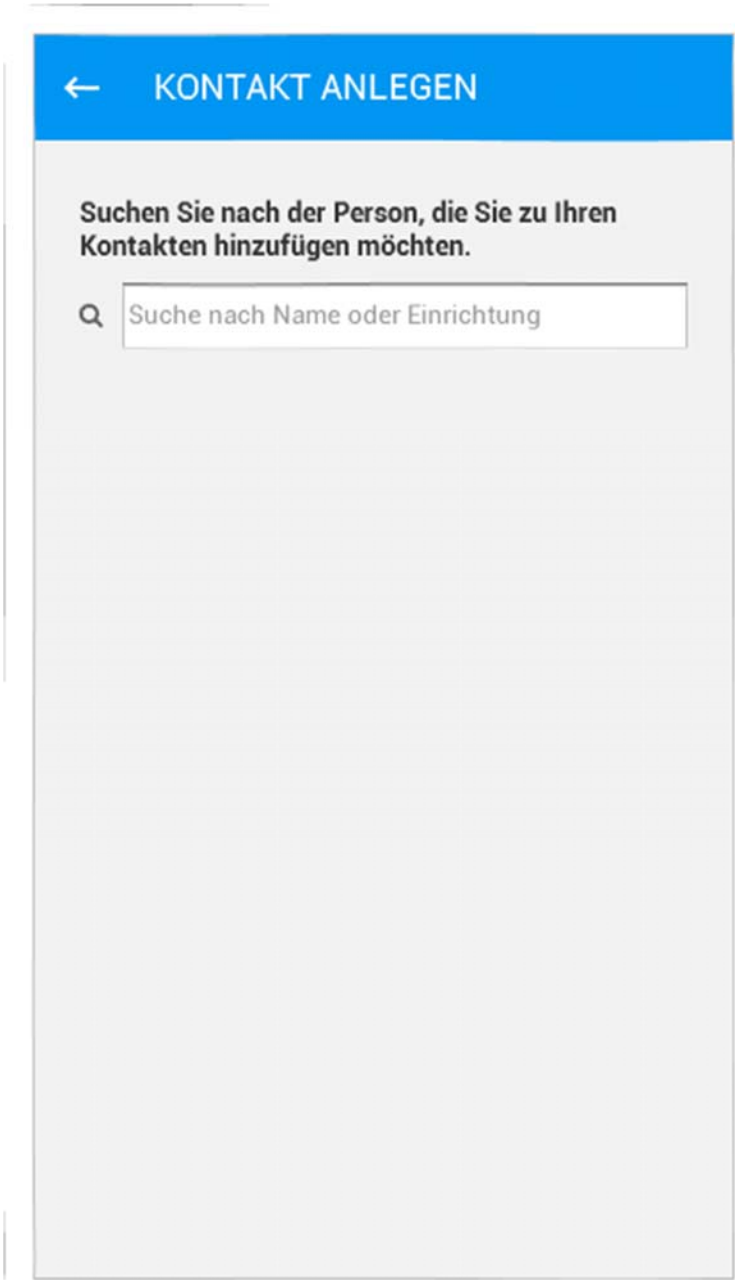
1.36.2. Unnamed

1.36.2.1. State1 Widerrufen nicht gedrückt

1.36.2.2. User Interface

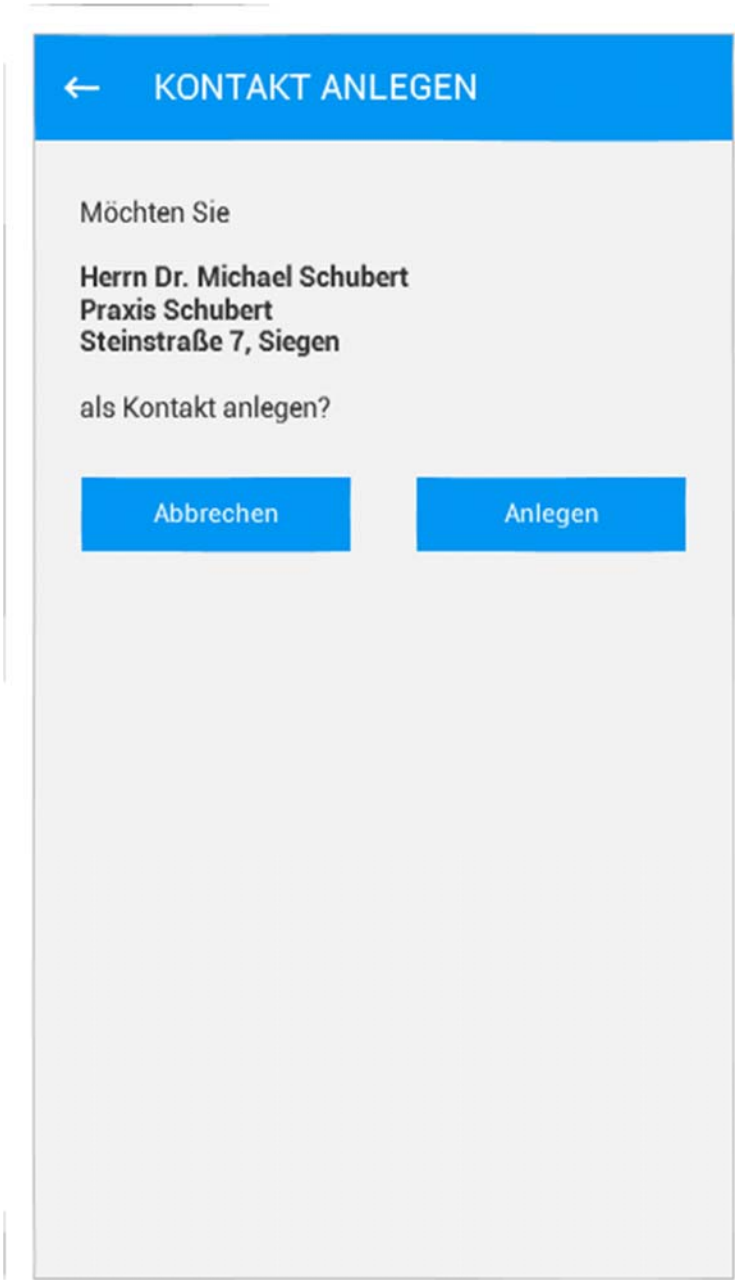
1.37. Kontakt anlegen

1.37.1. User Interface



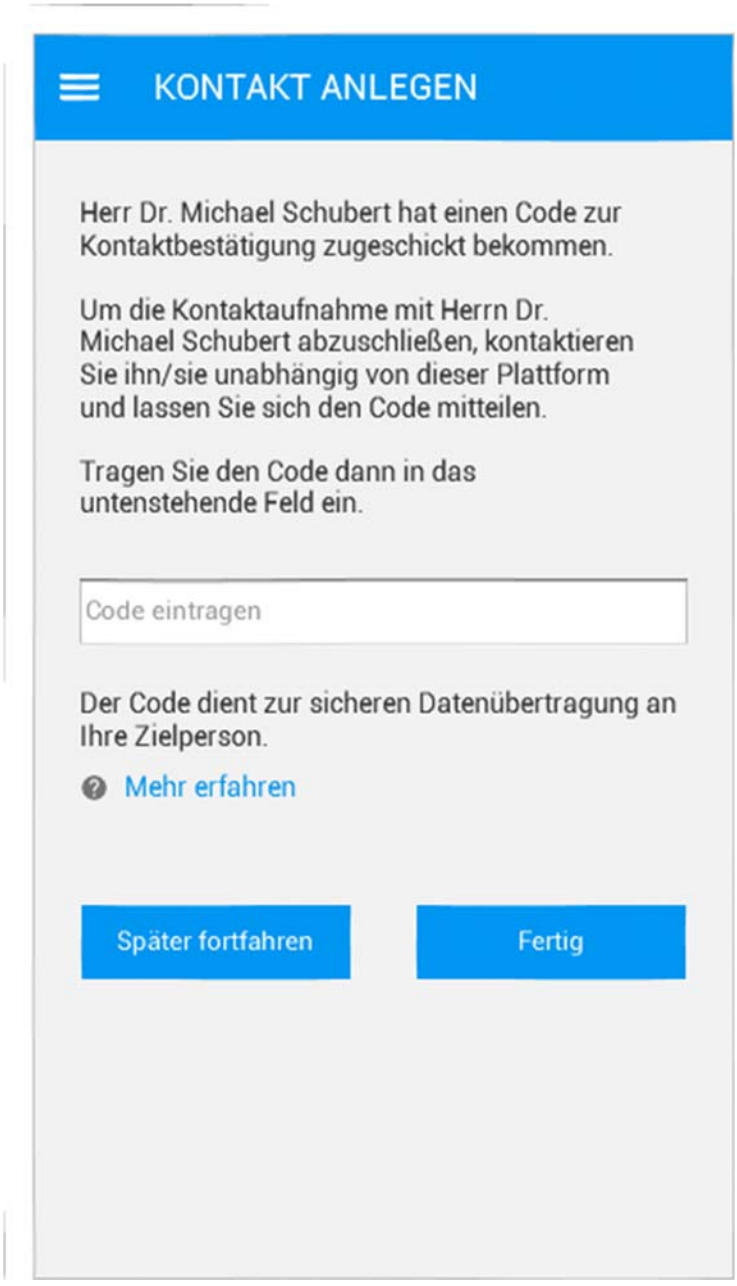
1.38. Sicherheitsabfrage

1.38.1. User Interface



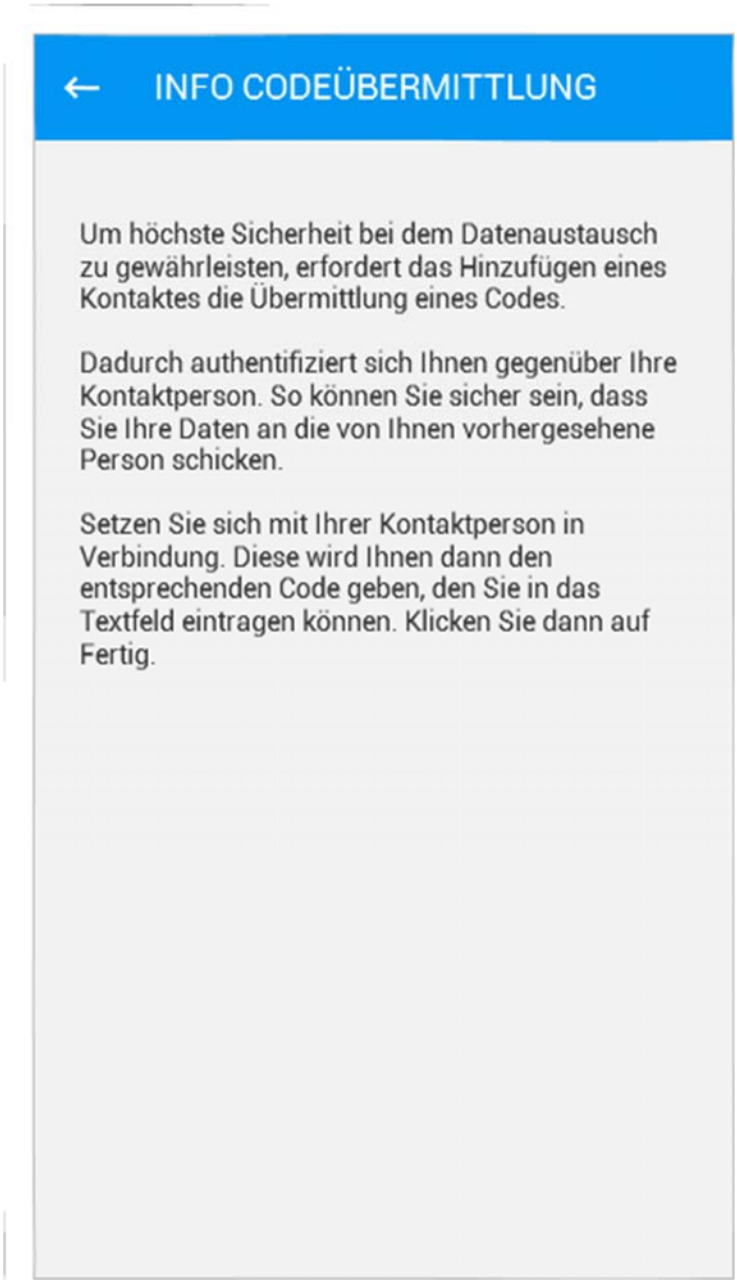
1.39. Code

1.39.1. User Interface



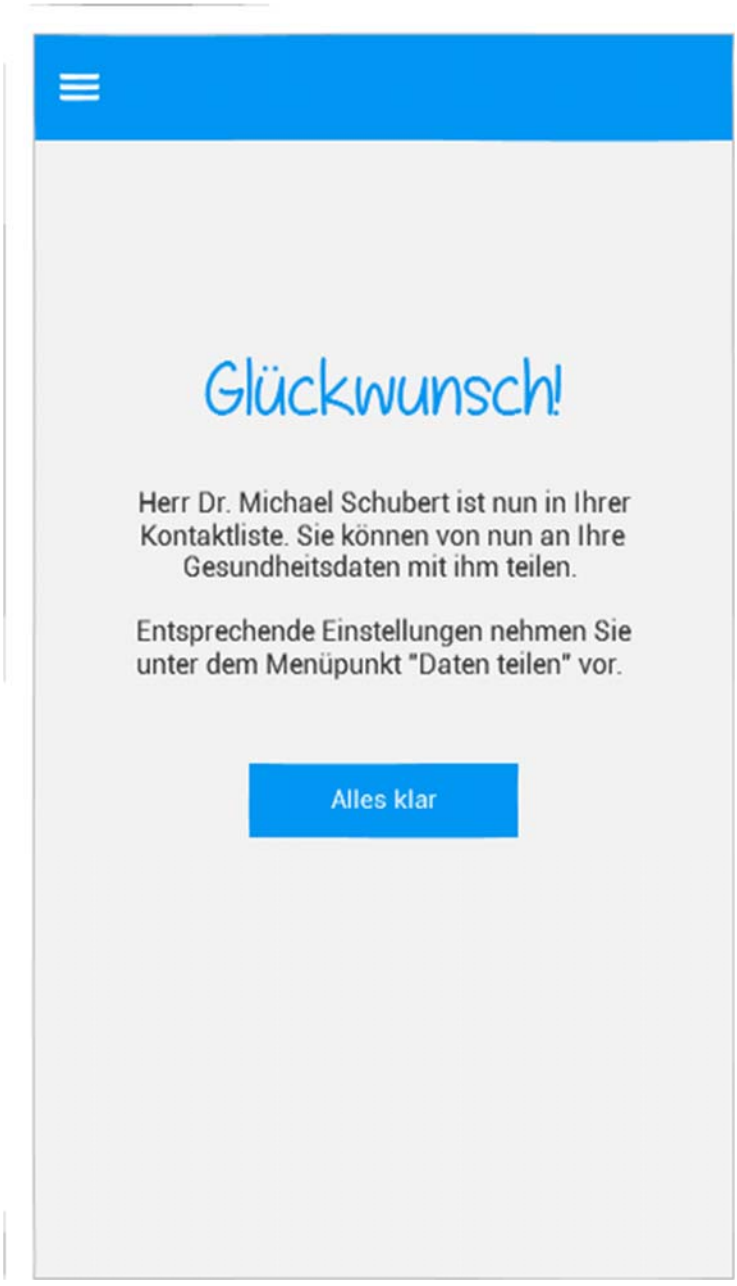
1.40. Mehr erfahren Codeübermittlung

1.40.1. User Interface



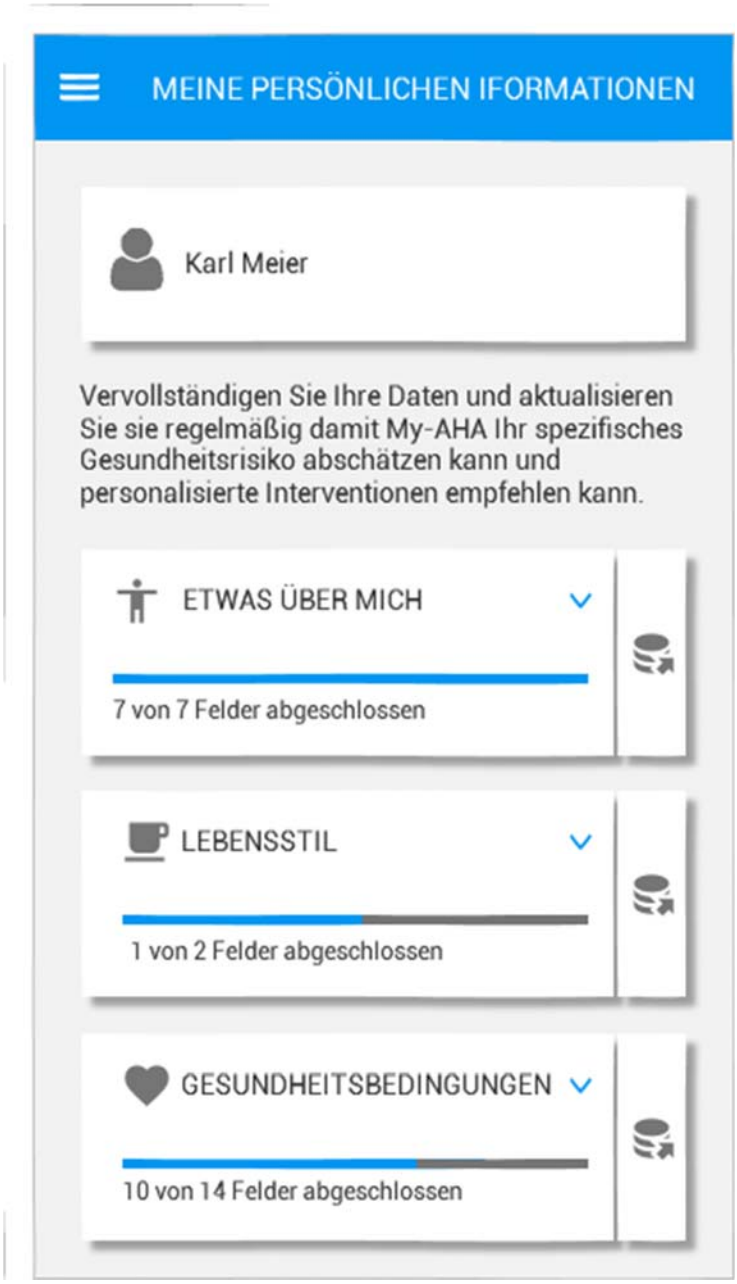
1.41. Erfolgsmeldung

1.41.1. User Interface



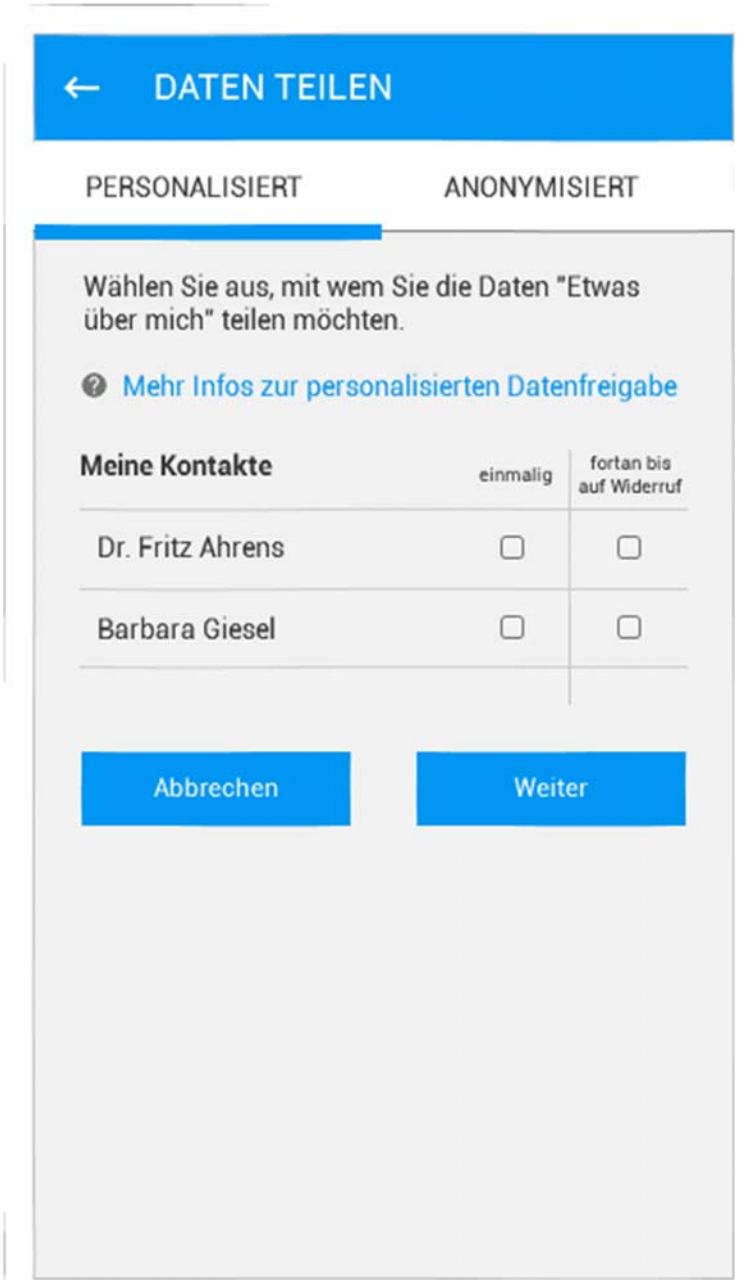
1.42. Menü_Meine personlichen Informationen

1.42.1. User Interface



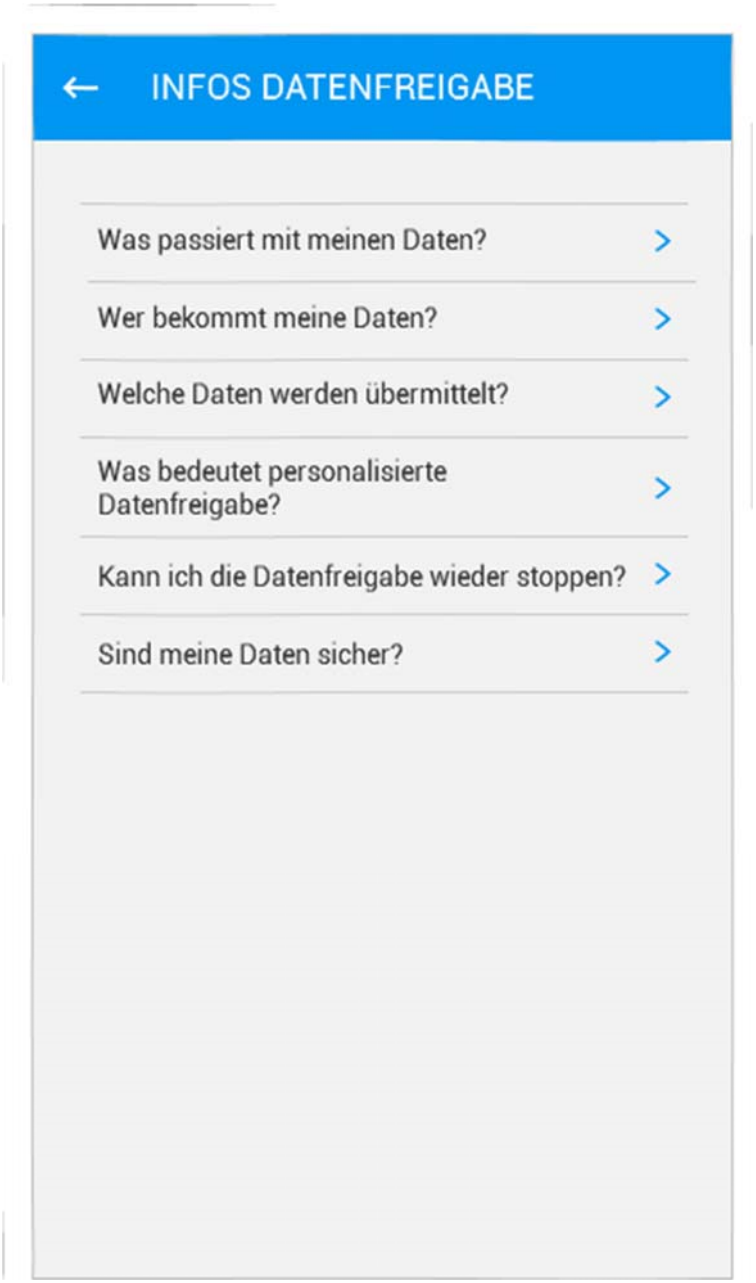
1.43. Etwas über mich_teilen (personalisiert)

1.43.1. User Interface



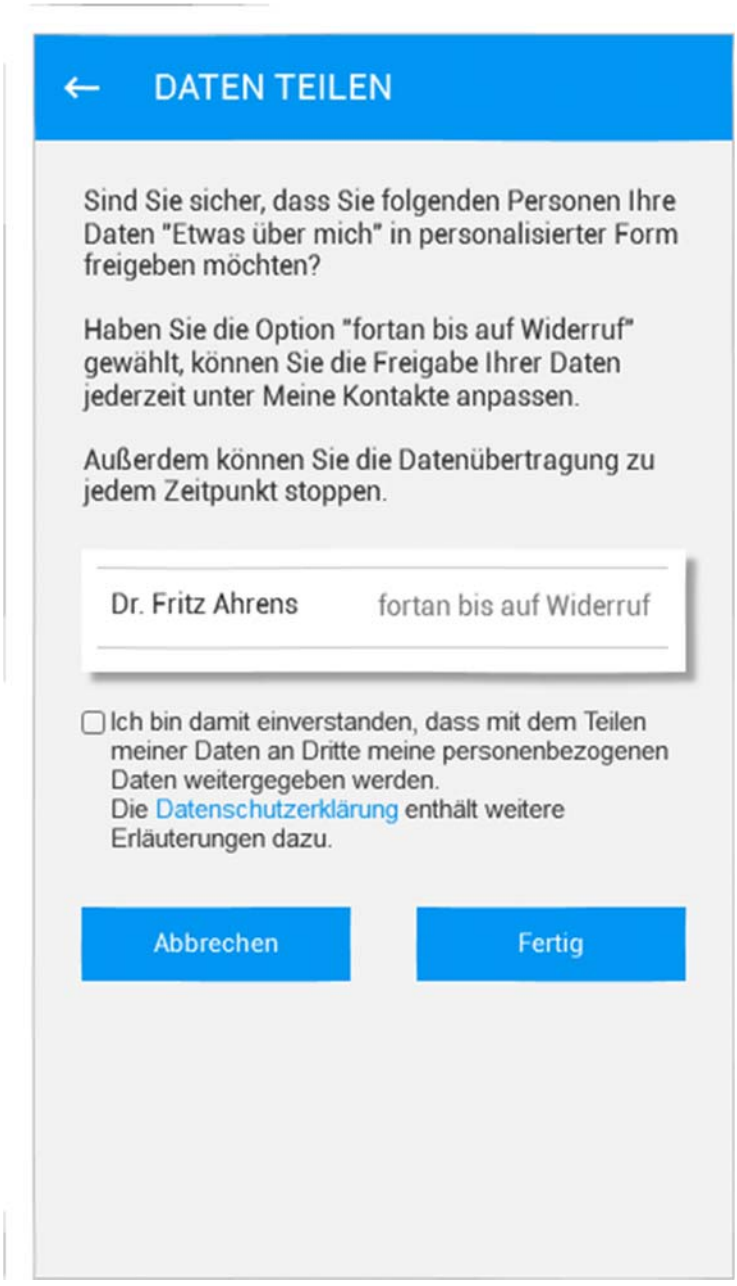
1.44. mehr Infos personalisierte Datenfreigabe

1.44.1. User Interface



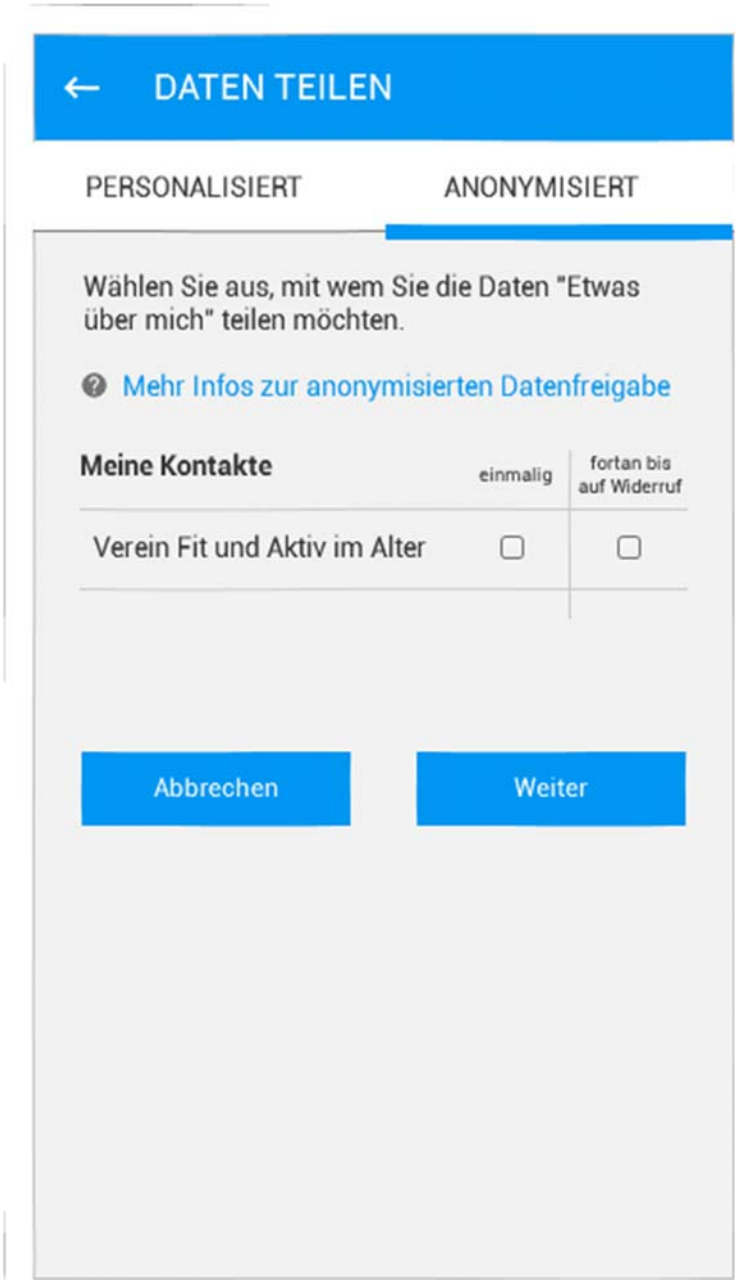
1.45. Sicherheitsabfrage

1.45.1. User Interface



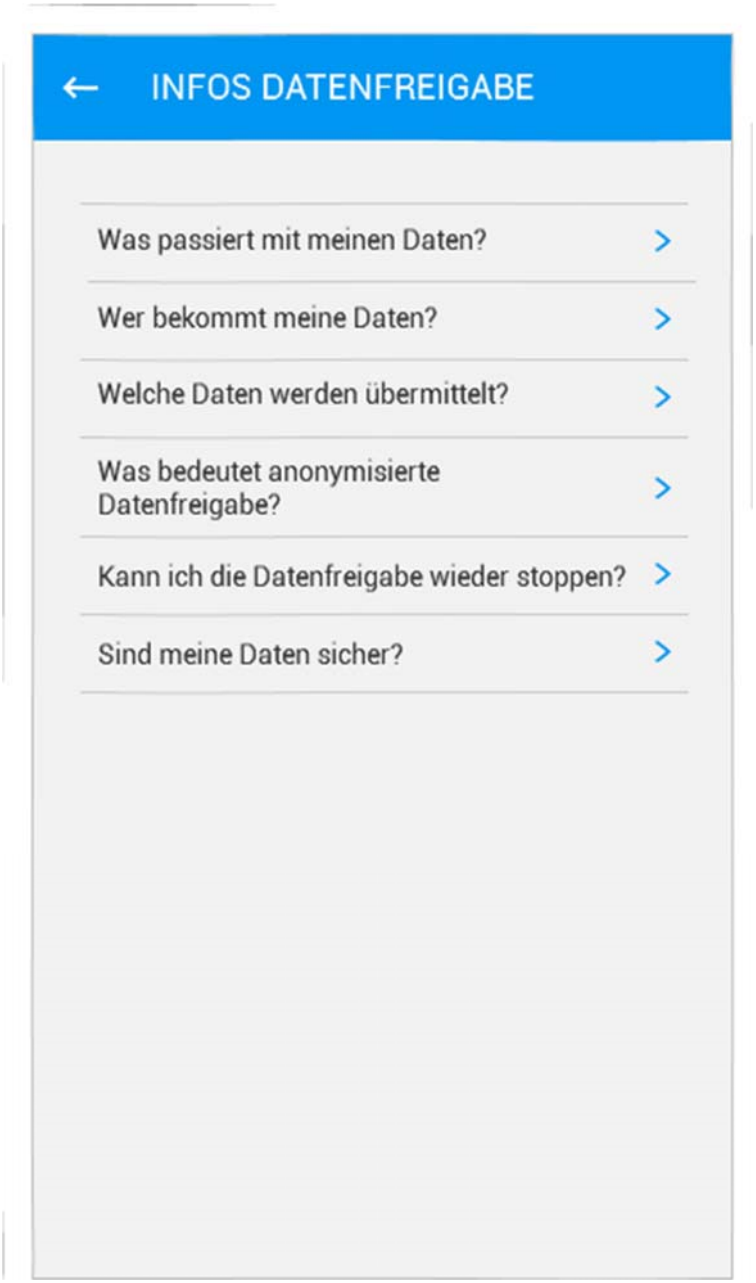
1.46. Etwas über mich_teilen (anonymisiert)

1.46.1. User Interface



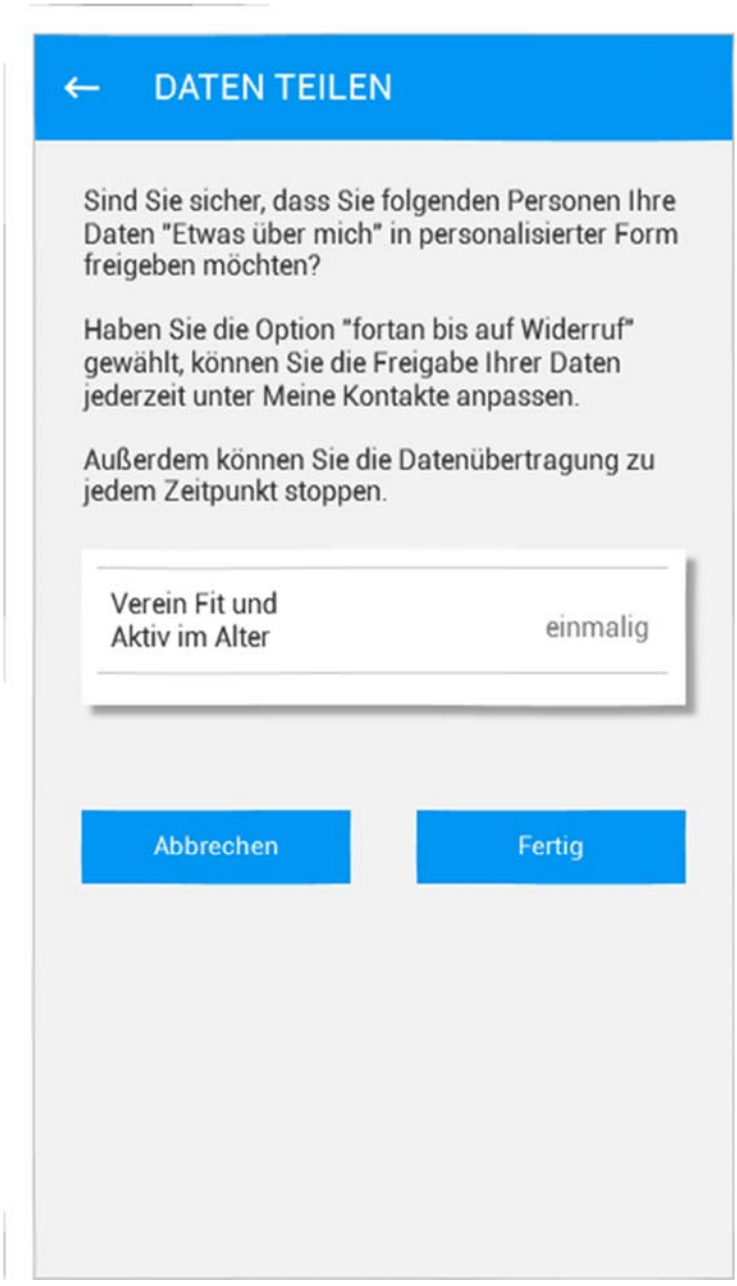
1.47. mehr Infos anonymisierte Datenfreigabe

1.47.1. User Interface



1.48. Sicherheitsabfrage

1.48.1. User Interface



1.49. Menü_Veranstaltungen und Angebote

1.49.1. User Interface