

Technological basics II

**Report on the Exam Project of the
application “SupportCircle”**

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1. Introduction

Women are faced with harassment and violence on a regular basis. Most of the violence is happening in their own homes, through their partners (World Health Organization, 2024). In 2023 256,276 cases of domestic violence were recorded in Germany, of which 70.5% involved female victims (Bundesregierung, 2024). Women are not safe in their own homes and need to know how to respond and how to stay safe. Therefore, the application "SupportCircle was developed for women and FLINTA, to address their needs in situations of domestic violence. This application is based on the prototype that was created in "Technological Basic 1". The updated version offers an improved design and features. The design gives you a better overview of the information. The new features are designed to support women in their situation, to help them take steps to be safer.

The goals of the second version were to include more comprehensive resources, make it more interactive and to make it safer for women to use.

2. Development process

The development of the application was mainly based on the library *Streamlit* and the programming language *Python* which was taught throughout the seminar "Technological Basics 2". Furthermore, the *HuggingFace Chat* API was used to implement the opportunity for the user to get more information through consulting an AI chatbot.

The initial phase of developing the application entailed a review of the previous prototype version from the course "Technological Basics 1". In this phase, the design and features were reevaluated to determine which components should be maintained and which should be altered in the new version.

In terms of the design, it should be less vibrant and contain less imagery of women in order to make its purpose less conspicuous, thereby enhancing user safety within their household. To facilitate the navigation on the page a sidebar menu was created, on the side of the page which can be extended to view the different pages.

Regarding the features, it was vital to keep the page *Contacts* in order to provide the user with information on who to contact in cases of domestic abuse. To enhance the feature, three categories were added, *Support Hotlines*, *Find Safe Shelters* and *Support Services* to offer a wider range of institutions, to make the purpose of the institutions more comprehensible and to enhance the facility of the usage.

When choosing the page *Contacts* the user is lead to a main page with general emergency numbers and three buttons of the specific categories. For the *Shelters* and the *Support Services* I decided to take a local approach and displayed options for Hamburg and Lüneburg. To facilitate the user experience, the button *Back to Overview* was implemented. This functionality enables

users to navigate back to the main page of the Contacts section, thereby facilitating a seamless return.

The second version also incorporates new features including a page for *Checkboxes*. This page provides lists that give users information on how to take action in their specific situation. Users can select tasks after completion and receive a brief notification once they complete the list.

Furthermore, a page dedicated to the display of Information was created. Hereby, users can get specific information on *How to know whether you are in an abusive relationship*, *Legal advice*, and *Women's Shelters*. The page includes concise explanations with a clean layout to make the information comprehensible.

In case the information provided is not sufficient a page for *AI assistance* and *frequently asked questions (FAQ)* were implemented. The AI page first prompts the user to indicate whether they are in *immediate danger* or require *general information*. If the user selects the former option, several buttons appear, allowing the user to specify their need and subsequently receive the information. If the user selects the latter option, they are directed to the chat function of the chatbot. The *FAQ* page comprises a list of five questions that can be expanded on command to reveal the corresponding answers. This enables users to efficiently find answers to their questions.

These new features enhance the pool of information provided by a lot and aid the users in finding the information they need and motivate them to take action for their own safety. Initially, the plan was to implement an additional page, which was part of the first version of the application. This page provided a *Quiz*, which was designed to assist users in determining their need for assistance and the specific type of help required. However, due to the affordances of the library *Streamlit* the process of developing the page was challenging and tedious. Therefore, the information that the quiz would provide is instead conveyed through the information page entitled *How to Know*.

Finally, it was imperative to ensure the application's safety for users, given the possibility that they were in a domestic environment with their abuser. Therefore, a button was developed that offered a direct route to a neutral page, specifically *Google* in this instance.

While user authentication was considered for more personalized information, ensuring user safety remained the priority. Therefore, the application operates anonymously, with no data storage that could compromise user security.

3. Limitations

An analysis of the application's limitations highlights that the most significant constraint is the availability and selection of data. Given the vast amount of information on domestic abuse and support institutions, it was challenging to incorporate as much relevant content as possible while ensuring accessibility, clarity, and completion within the given timeframe. Consequently, a

specific selection of information was implemented. For example the contact information on women's shelters was focusing on shelters in Hamburg and Lüneburg. While this approach ensures depth in certain areas, it inevitably limits the scope of resources and accessibility for individuals in other locations. Future developments could expand the range of information to address this limitation.

Another notable limitation is the application's restricted language accessibility. While some inclusivity is achieved by offering content in English, accessibility could be significantly improved by providing users with the option to select their preferred language. However, identifying and implementing an efficient multilingual solution within the given timeframe posed a challenge.

Additionally, the AI chatbot presents certain limitations. First, it does not serve as a substitute for professional counseling, and its presence may inadvertently discourage users from seeking help from relevant institutions, as interacting with the chatbot is more convenient. Second, the current chatbot implementation, which utilizes HugChat, does not function reliably. Future iterations could address this issue by replacing HugChat with OpenAI's technology to improve functionality and user experience.

4. Feedback

To get feedback on the application, three testers were consulted to evaluate the project based on accessibility, design and usability.

Regarding accessibility, the decision to utilize English as the primary language of the application was met with positive feedback, as it ensures comprehensibility for a wide audience. Nevertheless, it was also acknowledged that providing additional language options could further enhance the application's accessibility. In addition, the testers observed that the information was clearly structured and easy to understand. It was not too overwhelming and was straightforward, making it comprehensive and highly accessible.

In terms of design, the testers noted that the clean and simple design was appropriate to the topic and did not distract the user from the subject. Furthermore, they liked the *safe exit* button, stating that it was well thought out and useful. They emphasized that the button is visible on every page enhancing the user's safety. However, the testers criticized that the main page could be more engaging by linking the subpages directly to the main page. This recommendation was initially intended during the application's development, but due to the structure of the code it was not within the confines of this project.

Regarding the usability, the application was found to be user-friendly by the testers, due to the information being well-labeled and structured. The application's information and direct support were found to be well-balanced. One of the testers emphasized that the *checkbox* tool makes it easier to assess the situation and find next steps. However, they also noted that the structure of the sidebar menu is inconvenient, as users have to click to expand it.

References

Bundesregierung. (2024, Mai 15). *Zahl der Opfer von häuslicher Gewalt gestiegen*. Bundesregierung.de. <https://www.bundesregierung.de/breg-de/aktuelles/lagebild-haeusliche-gewalt-2201488>

World Health Organization. (2024, March 25). *Violence against women*. World Health Organization. <https://www.who.int/news-room/fact-sheets/detail/violence-against-women>