

Chat2Doc: From Chats to How-to Instructions, FAQ, and Reports

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Motivation

- existing messaging apps well-suited for communicating and sharing content on-the-go
- difficult to find and retrieve content
- limited screen sizes and potentially many comments
- questions unanswered/important information forgotten
- not possible to mark important elements or answers to questions directly in the chat

Motivation

- knowledge is generated while chatting over time
- difficult to extract most relevant content from a chat and organize it for future use like How-to instructions, FAQ, or printable reports from existing collections of group knowledge
- collect, store, and extract procedural knowledge from messaging interactions

Approach - Chat2Doc

collaborative and automatic **generation** of navigable **multimedia documents** that organize procedural knowledge extracted **from routine multimedia chat data** from small task-oriented groups

- helpful tool for smaller task oriented groups
 - solving problems
 - repeated issues
 - discussions about topics lead to solution for the future
 - hard to find information at a later time in chat
 - it can be helpful to extract the generated knowledge for future use as problems and tasks may reappear

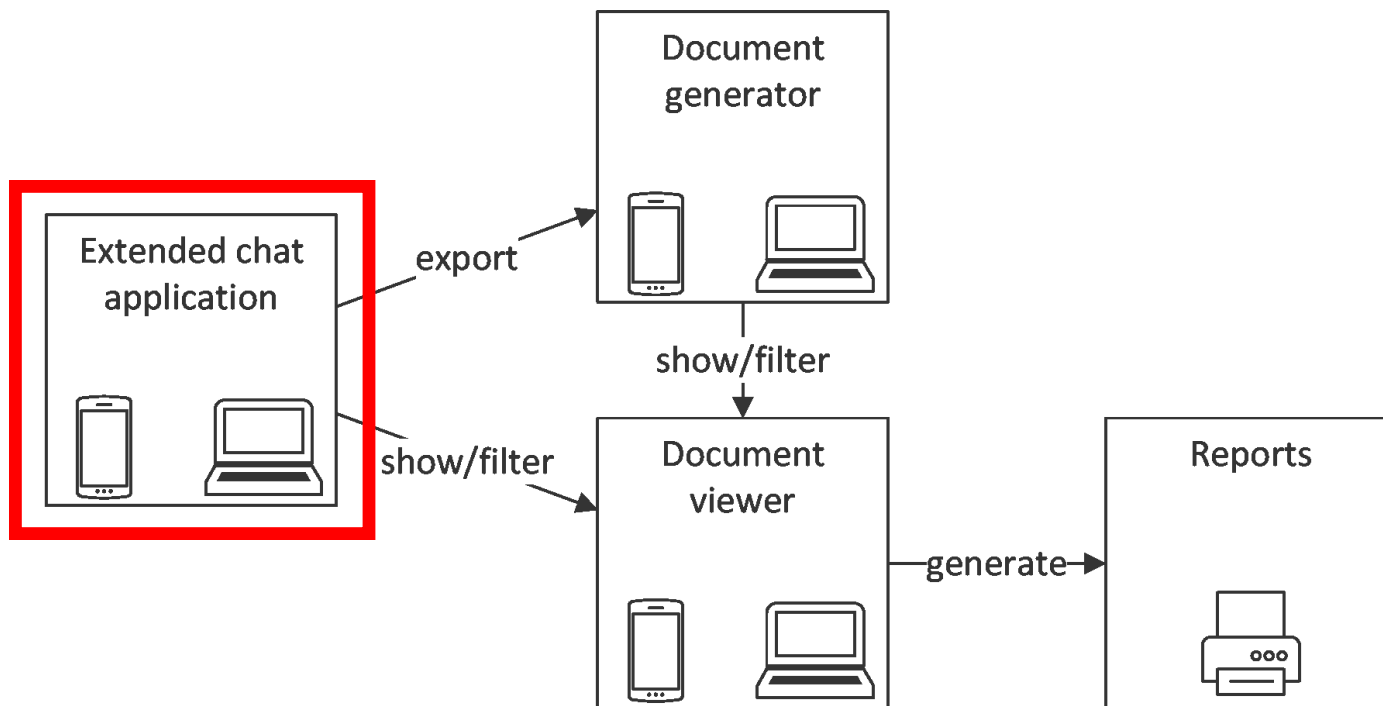
Challenges

- knowledge and content stays (rather) unconnected
- allow easy organization and reuse of existing knowledge in How-to instructions, FAQs, or printable reports
- use of multimedia is key
- knowledge needs to be rearranged, edited, and extended
- generate documents to target different user groups, such as beginners vs. experts or patients vs. doctors, creating even more complex hypermedia structures

Research Questions

- Extended chat:
 - Which features can help small task-oriented groups?
 - How can chats be structured to avoid a mix of topics?
- Document generation:
 - How can knowledge that was collected in group chat be transformed into a multimedia document?
 - How can users be supported in extending captured media?
 - How can media existing in the WWW be integrated?
 - How can a multimedia document be extended for different user groups/scenarios?
- Presentation engine with viewer:
 - What contents should be displayed in the resulting playback for a certain user?
 - How much user interaction is desired/necessary?

System Overview



Extended Multimedia Chat Application

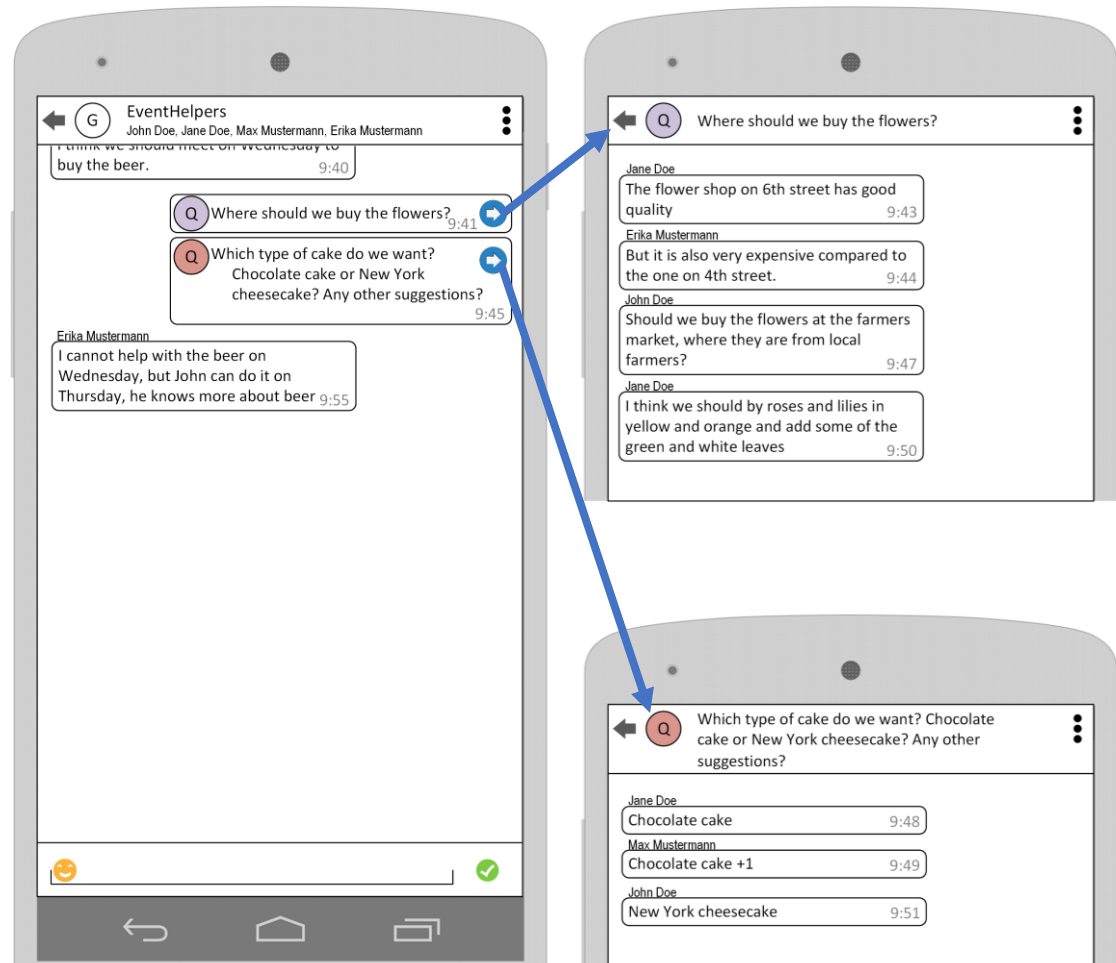
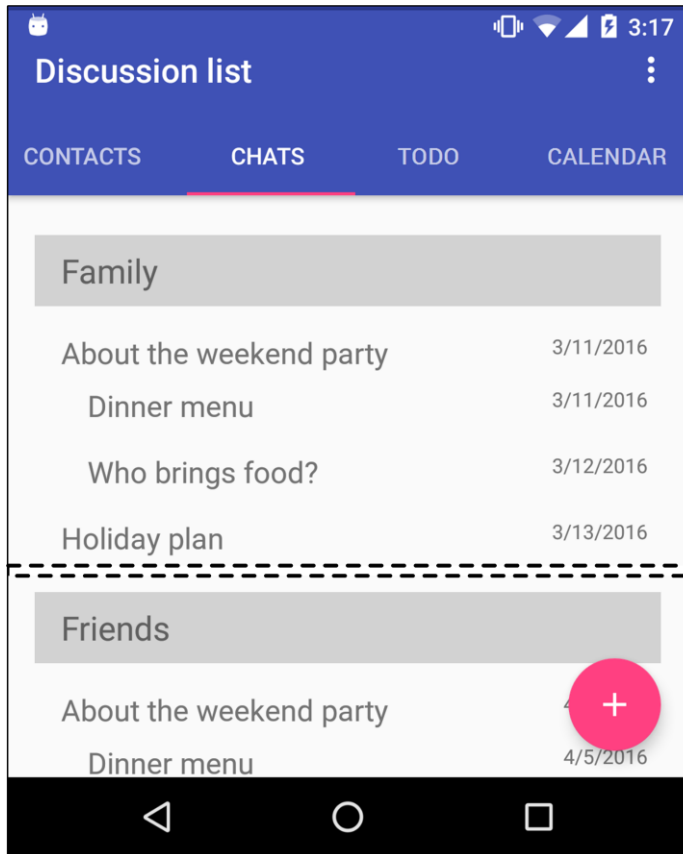
Features

- Questions start thread-like structure
- Notes
- To-Dos/Tasks appear in to-do list
- Message to future
- Time- and location-based reminder
- Group calendar
- Mark messages important/“liked”
- Search for word or media in chat

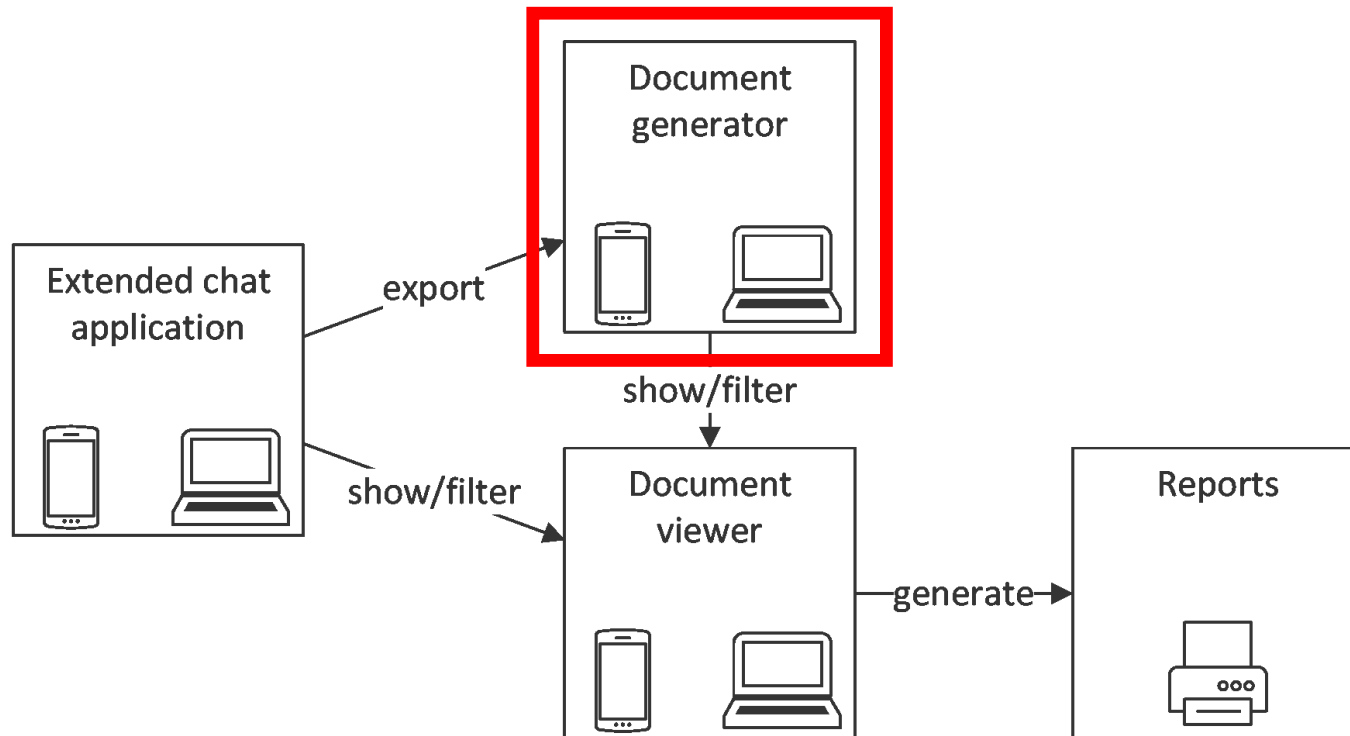
GUI Elements

- dialog may open, where user can input additional information
- created element
 - marked in chat
 - shown on extended start/overview screen
- element can be sent to
 - whole group
 - a part of the group
 - a single group member

Extended Chat - Interfaces



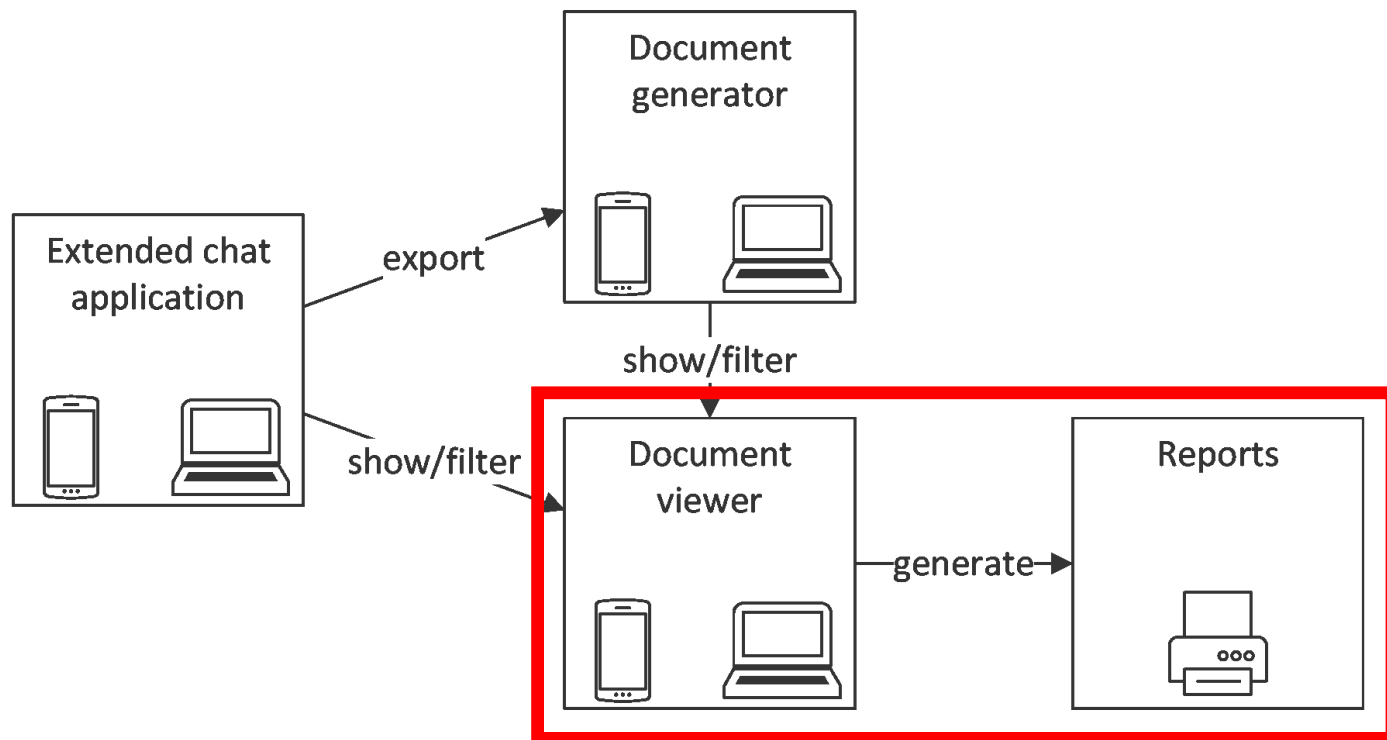
System Overview



Document Generator

- additional annotation level for chat by special elements
- annotations hint on importance
- transform information from chat into more readable form:
 - User-guided:
 - select chat elements with selection tool
 - rearrange, edit, and merge elements; add new elements from local file system or Web
 - apply formatting; export document
 - Semi-automated:
 - make suggestions which may then be altered by user
 - automatic text cleaning and merging of messages
 - suggestions for more materials from Web
 - Automated:
 - learns from both other modes

System Overview



Multimedia Document Presentation Engine

- display all types of media
- viewer adapts to playback device and user characteristics
- filtering and adaptation
- elements for navigation
 - skip parts
 - select parts with more or less information
- allow users to extend multimedia document missing/wrong information
- enable passive viewers to become collaborating authors
- peer reviewing and voting of content to ensure good quality of newly added information

Conclusions

- combine easy-to-use interface of chat app with knowledge extraction system to create multimedia documents
- store and edit content as How-To Instructions, FAQs, or reports
- collect, store, and automatically extract knowledge
- extended chat interface and additional functions
- hypermedia documents compose information and provide adaptation capabilities using the underlying hyperlink structure
- **work in progress**
 - user tests and the usage of the system
 - which features are used, how, and for what
 - collecting enough knowledge for training automated mode

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