Innopolis University
Models of Software Systems
Requirements Specification Document

WhatsApp2
Requirements Specification Document

Revision History

Date	Version	Description	Author
18/09/2017	1.0	Basic Functionality	Néstor Cataño
19/09/2017	1.1	Extended Functionality with Status	Néstor Cataño
20/09/2017	1.2	Extended Functionality with Ownership	Néstor Cataño
03/19/2017	1.3	Rearrangement of core functionality	Néstor Cataño

1. Table of Contents

2. Introduction

This document presents the software requirements of WhatsApp2, a freeware instant messenger service for Smart Phones. The software development of WhatsApp2 is based on the use of Formal Methods (mathematical) techniques. We elicited our requirements by direcltying installing and using the WhatsApp app that is available fromt the Android store. Our requirements don't cater for the Web version of WhatsApp, but only for the Android version of it.

3. Glossary

App	Android app
Content	Videos, photos, text, etc.
Local invariant	Property about a chat session
System invariant	Property about the working of several chat sessions

4. Product Description

4.1 User Roles

Role	Description
User	Regular user

4.2 Basic Functionality for Chat Sessions (machine0)

US-01	create_chat_session
create_chat_session	As a user, I want to create a chat session so as to chat with another user
Acceptance criterion	*Given* Chat session between Me and Another-User does not exist *Given* Another-User is in my contact list *When* I select a create chat session with Another-User *Then* Chat session between Me and Another-User is created

US-02	select_chat
select_chat	As a user, I want to select a chat session so as to chat with A-User
Acceptance criterion	*Given* Chat session between Me and A-User exists *Given* Chat session between Me and A-User is not active

	When I select chat session with A-User *Then* Chat session between Me and A-User is made active

US-03	chatting
chatting	As a user, I want to send a text message or a content during a chat session with another user so as to communicate with her
Acceptance criterion	*Given* Chat session with Another-User is active *When* Text is typed or content is produced and sent by Me *Then* Text or content is made available to Another-User

US-04a	delete_content
delete_content	As a user, I want to delete some text or content exchanged with another user during a chat session so as to unclutter a chat conversation
Acceptance criterion	*Given* Content exists and has been received by Me *Given* Me is not the sender but the receiver of the content *When* Me selects to delete the content he has received *Then* Content is removed only from chat session between Me and Another-User, but not from the chat session between Another-User and Me

US-04b	remove_content
remove_content	As a user, I want to delete some content exchanged with another user during a chat session so as to unclutter a chat conversation
Acceptance criterion	*Given* Content exists and has been sent by Me *Given* Me is the sender of the content *When* Me selects to remove the content he has sent *Then* Content is removed only from chat session between Me and Another-User, but not from the chat session between Another-User and Me.

US-05	delete_chat_session
delete_chat_session	As a user, I want to delete a chat session so as to keep uncluttered my communication with other users
Acceptance criterion	*Given* Chat session between Me and Another-User exists *When* I select to delete the active chat session *Then* Chat session that relates Me and Another-User is deleted as well as its associated content and text

US-06	mute_chat
mute_chat	As a user, I want to mute a chat session to prevent communication with another user
Acceptance criterion	*Given* Chat session between Me and Another-User exists

	When **I select to mute a chat session**
	Then **Chat session is muted and no communication from Me to the muted user is permitted (or vice-versa)**

US-07	unmute_chat
unmute_chat	As a user, I want to unmute a chat session as to reestablish communication with another user
Acceptance criterion	*Given* **Chat session between Me and Another-User is muted** *When* **I select to unmute a chat session** *Then* **Chat session is reestablished so communication from/to that chat session is possible**

US-08	broadcast
broadcast	As a user, I want to broadcast a content to a group of users for quick communication
Acceptance criterion	*Given* **Other-Users exist in my contact list** *Given* **ME has access to the content** *When* **I decide to broadcast the content to Other-Users** *Then* **the content is sent to Other-Users**

US-09	forward
forward	As a user, I want to forward a content to a group of users for quick communication
Acceptance criterion	*Given* **Other-Users exist in my contact list** *Given* **ME has access to the content** *Given* **respective chats between ME and Other-Users exist** *When* **I decide to forward the content to Other-Users** *Then* **the content is sent to Other-Users**

US-10	uselect_chat
uselect_chat	As a user, I want to unselect a chat session so as to chat with Another-User
Acceptance criterion	*Given* **Chat session between Me and A-User exists** *Given* **Chat session between Me and A-User is active** *When* **I unselect chat current session A-User** *Then* **Chat session between Me and A-User is made inactive**

4.2.1 Local Invariants for Basic Functionality of Chat a Sessions

1. A chat session between two users has a set of associated content available to both of them.
2. For a chat session, it's never the case that some content is available to one user but not to the

~~other.~~

3. Content is associated to a chat session only if one the users of the session has sent the content to the other user (or vice-versa).
4. Several chat sessions can be created, but only one (or none) created chat session may be active.
5. Only a created chat session may be made active, however, a chat session can be created but inactive.
6. A chat session relates exactly two (different) users.
7. Chat communication with a muted user is no feasible. I can try to send text or content to a muted user but then it produces no effect.
8. A user cannot be muted and active at the same time.

4.2.2 System Invariants for Basic Functionality of Chat Sessions

1. Several chat sessions can coexist within the system.
2. Chat sessions are uniquely identified throughout the system.
3. Users are uniquely identified throughout the system.
4. Only one chat session maximum can be established between two different users.
5. Chat sessions are not symmetric. That is, the fact that user A has a created session to chat with user B, does not necessarily mean that user B has a created session to chat with user A. And, the fact that user A has an active chat session with user B does not necessarily means that user B has an active chat session with user B.
6. It's never the case that chat content exists associated to users for which no chat instance exists.
7. A content item is uniquely identified throughout the whole system.

4.3 Extended Functionality with Read/Unread Status (machine1)

EX-01	Read Stamp
Read Stamp	As a user, I want to know which chat sessions I have read as to keep track of new information
Acceptance criterion	*Given* **A chat session between Me and Another-User exists** *When* **Any time** *Then* **A Read/Unread stamp for that chat session is produced**

~~EX-xx~~	~~Time Stamps~~
~~**Time Stamps**~~	~~As a user, I want to know the time stamp of a text message or content that I have received as to better comprehend my chat discussions~~
~~**Acceptance criterion**~~	~~*Given* A chat session between Me and Another-User exists~~ ~~*When* I select to read a chat session with Another-User~~ ~~*Then* Time stamps for each content or each piece of text in a chat are produced~~

4.3.1 Local Invariants for Extended Functionality with Read/Unread Status

1. A chat session has an associated "read" or "unread" status.
2. Sent content has an associated "unread" time stamp by default until the content receiver decides to read the chat.
3. A chat session has a "read" status if each piece of text or content that it contains has a "read" status. If some chat content has associated an "unread" status then the whole chat session has a

"unread" status associated.

4.3.2 System Invariants for Extended Functionality with Read/Unread Chats

1. ~~For each chat session between User A and User B, the session as perceived by User A reads the same as the same session as perceived by User B.~~

4.4 Extended Functionality with Ownership (machine2)

4.4.1 Local Invariants for Extended Functionality with Content Ownership

1. If a user sends some content, then she will be considered the owner of that content.
2. Each content item has an owner.
3. ~~Each user can see any content that she owns~~

4.4.2 System Invariants for Extended Functionality with Content Ownership

1. The owner of some content is unique, that is, two different users cannot own the same content.

4.5 Extended Functionality with Implementation Details (machine3)

EX-02	reading_chat
reading_chat	As a user, I want to read a chat session
Acceptance criterion	*Given* Chat session between Me and Another-User exists *When* I read a chat session between Me and Another-User *Then* Content of chat session between Me and Another-user is made available to Me