

Technical Report 1st Iteration: Contact Manager

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Abstract. This report represents an initial effort in clarifying the domain model, use cases, functional and non-functional requirements of an application. The software, to be developed in C++, intends to manage contacts, having several fields of possible association to a contact (name, email, among others). Additionally, it has messaging and history features for interactions and changes done in the contacts. This initial step is very important to define the software to be created in a standardized language. Thus, all stakeholders in the business model can express their doubts and/or changes without the technical barrier of a programming language.

1 Introduction

The software project envisaged in this document is that of a contact manager, where an administrator, the primary user, has his or her contacts. It is possible to send messages between them. The administrator can also edit the information contained in the contacts. Additionally, it is possible to view the history of interactions between the administrator and his contacts.

2 Non-Functional Requirements

The developed software will have its interface with the user on the command line, and the persistence of objects will be done in files local to the system. It will have unit tests to cover the various use cases, however we do not commit to the resilience of the program or any performance metrics. The implementation language will be C++.

3 Domain Model

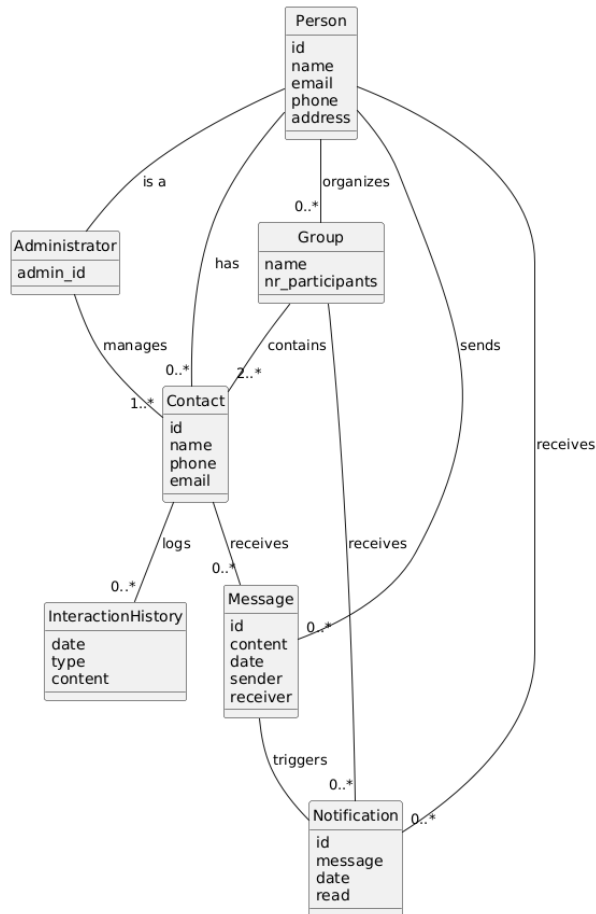


Fig 1. Domain Model

4 Glossary

Table 1. Glossary

Administrator	Primary user of the application, he is the “owner” of the application
Contact	The other users besides the local scope of the primary user. They are added only by te administrator on his contacts list.
Chat	A feature that allows the communication between the administrator and at least one other contact.

Group	A chat with at least two contacts.
Message	The way communication between administrator and contact is represented in the application
History of Interactions	Feature that allows the visualisation of past interaction between administrator and contacts as well as an history of changes made by the administrator on said contact.

5 Use Cases

5.1 Administrator Profile features

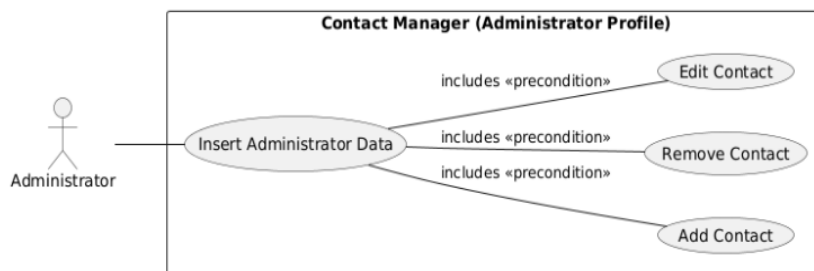


Fig. 1. Use case diagram with the functionalities related to the Administrator Profile.

5.2 Chat features

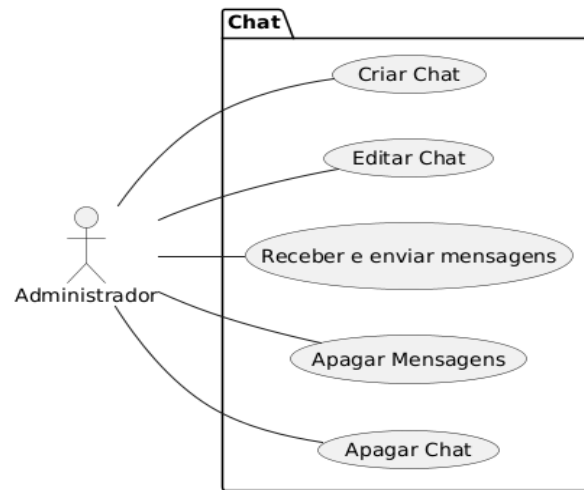


Fig. 2. Use case diagram with the functionalities related to the chat's features.

5.3 View Interaction History features

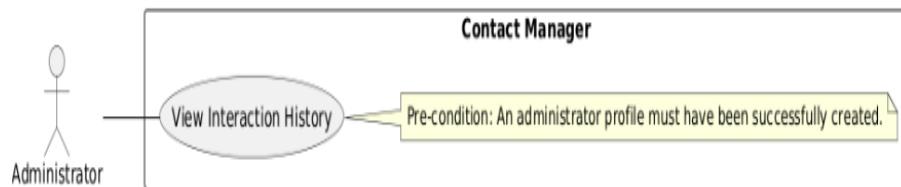


Fig. 3. Use case diagram with the functionalities related to interaction history features.

6 Specification of Use Cases

6.1 Administrator Profile features

Table 2. Specifications: UC1- Insert Administrator Data

Actor	Administrator
Use Case	Administrator Profile
Description	Allows the administrator to create their initial profile in the system.
Pre-Condition	The system must be started, and no administrator profile should exist.
Post-Condition	An administrator profile is created with the provided data (name, date of birth, phone number, country code, email), allowing access to other system functionalities..
Main path	1. The Administrator provides the data.
	2. The Administrator confirms the profile creation.
	3. The System informs that the profile has been created successfully.
Alternative path	• Invalid Data:
	1. If any of the provided data is invalid (e.g., incorrect email format, phone number), the System displays an error message indicating the invalid field.
	2. The Administrator corrects the invalid data and tries again..
	• Profile already exists:
	1. If an administrator profile already exists, the System informs that it is not possible to create another profile.

Table 3. Specifications: UC2- Add Contact

Actor	Administrator
Use Case	Add Contact
Description	Allows the administrator to create their initial profile in the system.
Pre-condition	The system must be started, and no administrator profile should exist.
Post-condição	An administrator profile is created with the provided data (name, date of birth, phone number, country code, email), allowing access to other system functionalities.

Main path	1. The Administrator provides the data.
	2. The Administrator confirms the profile creation.
	3. The System validates the provided data.
	4. The System informs that the profile has been created successfully
Alternative path	• Invalid Data:
	1. If any of the provided data is invalid (e.g., incorrect email format, phone number), the System displays an error message indicating the invalid field.
	2. The Administrator corrects the invalid data and tries again.
	• Profile already exists:
	1. If an administrator profile already exists, the System informs that it is not possible to create another profile.

Table 4. Specifications: UC3- Remove Contact

Actor	Administrator
Use Case	Edit Contacts
Description	Allows the administrator remove any contact on the existent list.
Pre-Condition	An administrator profile must have been successfully created (UC 1), and there must be at least one contact registered in the system.
Post-Condition	The selected contact is removed from the system's contact list.
Main path	1. The Administrator selects the option to remove a contact.
	2. The System displays the list of existing contacts.

	3. The Administrator selects the contact they wish to remove.
	4. The System informs that the contact has been successfully removed.
Alternative path	<ul style="list-style-type: none"> • No Contacts registered:
	<ul style="list-style-type: none"> • Contact not found:
	1. If the Administrator attempts to remove a contact that does not exist in the list, the System informs that the **contact was not found** .
	<ul style="list-style-type: none"> • Removal cancelled:
	1. If the Administrator cancels the removal confirmation, the operation is interrupted, and no contact is removed.

Table 5. Specifications:UC4-Edit Contact

Actor	Administrator
Use Case	Edit Contact
Description	Allows the administrator to modify the details of an existing contact in the list.
Pre-Condition	An administrator profile must have been successfully created (UC 1), and there must be at least one contact registered in the system.
Post-Condition	The details of the selected contact are updated with the provided information.
Main path	1. The Administrator selects the option to edit a contact.
	2. The System displays the list of existing contacts.
	3. The Administrator selects the contact they wish to edit.

	4. The System displays the current details of the contact.
	5. The Administrator modifies the desired fields (name, date of birth, phone number, country code, email).
	6. The System informs that the contact has been successfully edited.
Alternative path	<ul style="list-style-type: none"> • No Contact registered:
	1. If there are no contacts registered in the system, the System informs that there are no contacts to edit.
	<ul style="list-style-type: none"> • Contact not found:
	1. If the Administrator attempts to edit a contact that does not exist in the list, the System informs that the contact was not found.
	<ul style="list-style-type: none"> • Invalid Data:
	1. If any of the modified data is invalid, the System displays an error message indicating the invalid field.
	2. The Administrator corrects the invalid data and tries to save the changes again.
	<ul style="list-style-type: none"> • Edit Cancelled
	1. If the Administrator cancels the edit operation before saving, no changes are made.

6. 2 Chat features

Table 1. Specifications of the creation of a chat.

Actor	Administrator
Use Case	Create chat
Description	Enables the creation of a chat with contacts
Pre-condition	There must be contacts with some type of connection enabled, e.g.: email, mobile phone number.
Post-Condition	A chat is created between the administrator and the selected contacts.
Main Path	<ol style="list-style-type: none"> 1. Administrator selects 1 or more elements from the contact list to initialize the chat 2. The administrator selects the means of communication to use, sms or email, etc

	<ol style="list-style-type: none"> The group name if there is more than one contact selected is requested from the administrator. The group image is optional, but can be inserted at this point.
Alternative Path	<ul style="list-style-type: none"> If the administrator tries to select more than 1000 contacts, an error message is sent to the administrator saying that there is a limit of 1001 items per chat. If the administrator selects a mean of communication that does not exist in a selected contact. An error message is shown to the administrator stating that medium x is not configured on contact y.
Exceptions	If your administrator cancels the creation of a chat. No chat will be created and no information will be sent to the previously selected elements.

Table 2. Specifications of editing a chat.

Actor	Administrator
Use Case	Editing a chat's settings
Description	Allows you to view chat's members. Additionally, you can edit the name, image, members (add or remove members), and other settings. For example, who is allowed to add members to the chat.
Pre-condition	There should be a chat created with more than one contact, i.e. a group.
Post-Condition	There should be a chat created with more than one contact, i.e. a group. Compared to the previous chat, some change was made by the administrator.
Main Path	<ol style="list-style-type: none"> The administrator selects the edit option while in the chat It makes the changes he deems resonable He confirms the changes, and these should become visible instantly.
Alternative Path	<ul style="list-style-type: none"> If the administrator does not have privileges to edit information from the selected chat, an error message will be indicated with that information.
Exceptions	<ul style="list-style-type: none"> If the administrator decides to cancel the edit, his possible changes will be reverted.

Table 3. Specifications of chat deletions.

Actor	Administrator
Use Case	Delete Chat
Description	Allows the deletion of a previously created chat
Pre-condition	There must be a chat created
Post-Condition	The administrator will have all chats except the deleted one
Main Path	<ol style="list-style-type: none"> 1. The administrator selects a chat to be deleted 2. When you confirm your choice, the respective chat and messages will be deleted.
Alternative Path	<ul style="list-style-type: none"> • If the administrator does not have privileges to delete the selected chat, an error message will be indicated with this information. This will happen if it was not the one who created the chat, but one of your contacts.

Table 4. Specifications of sending and receiving messages.

Actor	Administrador
Use Case	Receive and send messages
Description	Enables messages to be sent between administrator and groups or contacts.
Pre-condition	<p>There must be a chat created in case of sending to a chat</p> <p>There must be contacts with some type of connection enabled, e.g.: email, mobile phone number.</p>
Post-Condition	The message entered is sent to the selected contact(s)
Main Path	<ol style="list-style-type: none"> 1. The administrator after selecting the chat has the text box ready to send a message or read the ones he received in that group 2. After writing its message, he can click on the send button to send it. 3. The message will be received by the rest of the chat members
Exceptions	<ul style="list-style-type: none"> • If the administrator does not press the send button, nothing will be sent.

Table 50. Specifications of deleting messages.

Actor	Administrator
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Use Case	Delete messages
Description	Enables deletion of messages
Pre-condition	There should be messages sent to groups or contacts
Post-Condition	Only the selected message is deleted
Main Path	<ol style="list-style-type: none"> 1. The administrator selects the message to delete. 2. Upon confirming, all members of the group (or contact) no longer see the respective message.
Alternative Path	<ul style="list-style-type: none"> • It is not possible to delete messages not sent by the administrator.

6.4. View Interaction History features

Table 11. Specifications:UC1- View Interaction History

Actor	Administrator
Use Case	View Interaction History
Description	Allows the administrator to view a chronological record of interactions with their contacts (calls, chat messages, emails, notes) and a history of changes made to contact information.
Pre-condition	An administrator profile must have been successfully created (UC1). There must be existing contacts and some interaction or modification history recorded in the system.
Post-condition	The administrator is presented with a chronological view of events, including calls (made, received, missed, rejected), group chat messages, notes created, emails sent, and the last edit timestamp for each contact. The administrator may have options to filter or sort this history.
Main path	<ol style="list-style-type: none"> 1. The Administrator selects the option to view the interaction history. 2. The System retrieves all recorded interaction and modification events associated with the administrator's contacts. 3. The System displays the history in a chronological order, showing details for each event (e.g., date and time, type of event, involved contact(s), content snippet for messages/notes, etc.).
Alternative path	<ul style="list-style-type: none"> • No History Available: If there are no recorded interactions or modifications, the System displays a message indicating that the history is empty. • Filtering/Sorting (Optional): If the system supports filtering (e.g., by contact, date range, event type), the Administrator may apply filters. If invalid filter criteria are provided, the System displays an error message.

7. System Sequence Diagram

7.1 Administrator Profile features

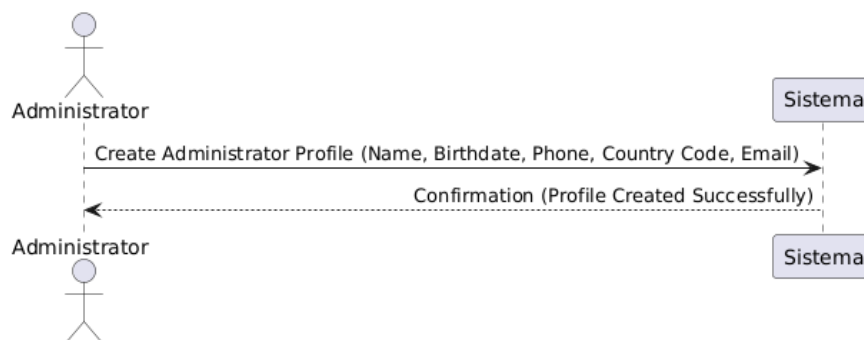


Fig.4.System sequence diagram for the Insert Administrator Data use case.

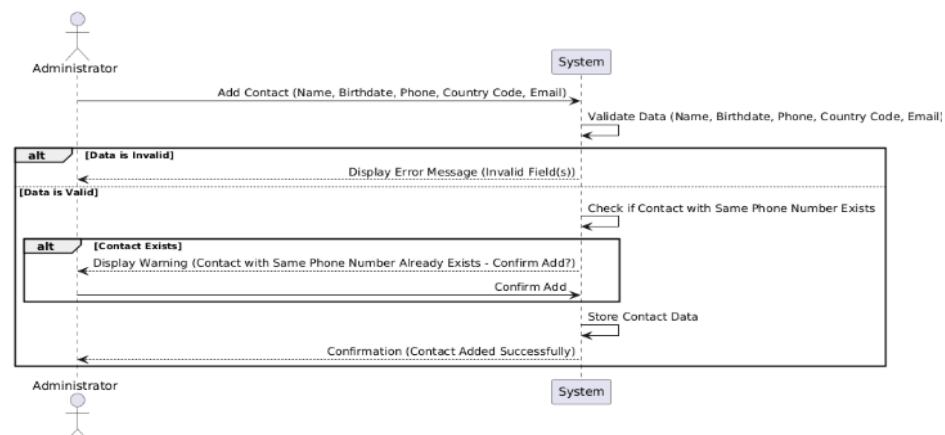


Fig.5.System sequence diagram for the Add Contact Use case.

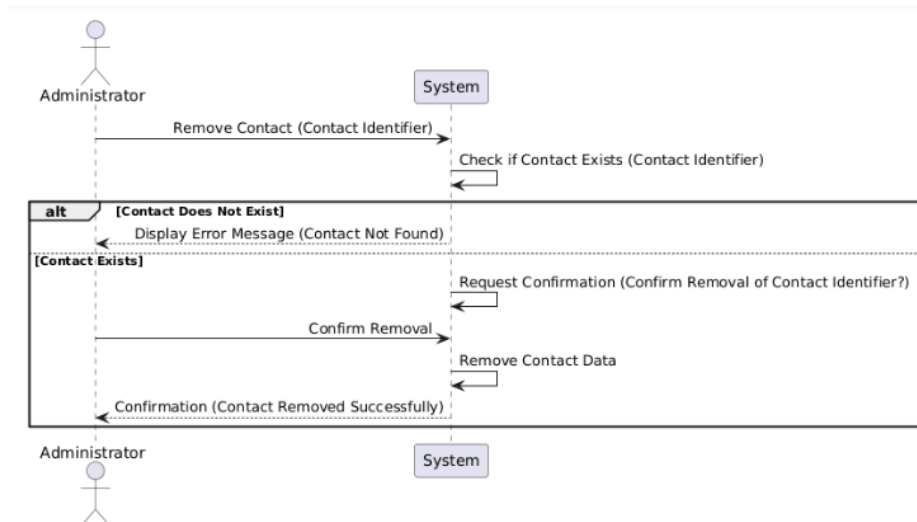


Fig.6.System sequence diagram for the Remove Contact use case.

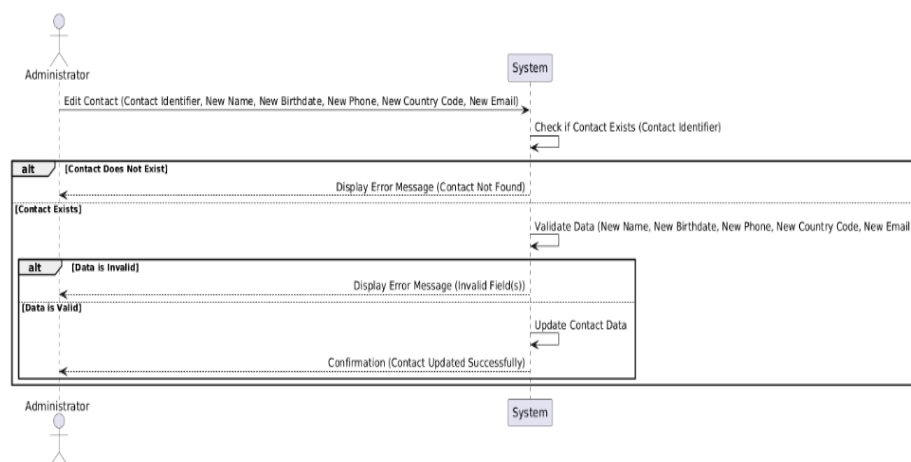


Fig.7.System sequence diagram for the Edit Contact use case.

7.2 Chat Features

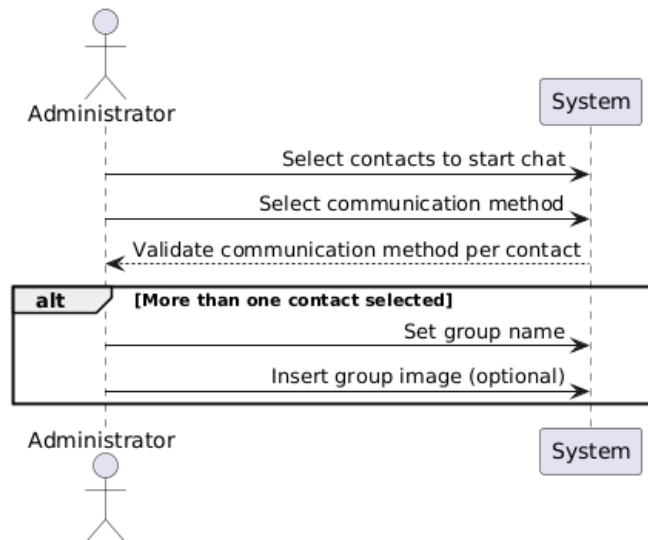


Fig. 3. System sequence diagram for the use case of creating a chat.

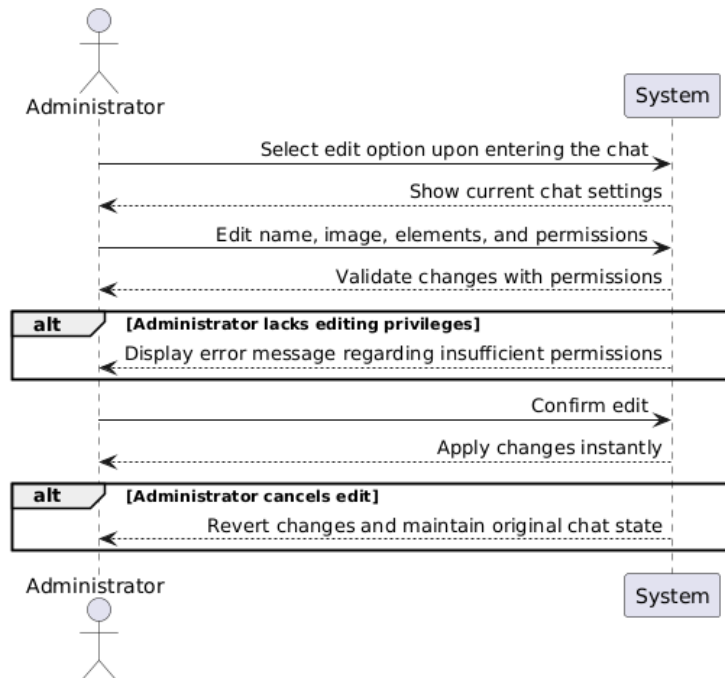


Fig. 4. System sequence diagram for the use case of editing a chat.

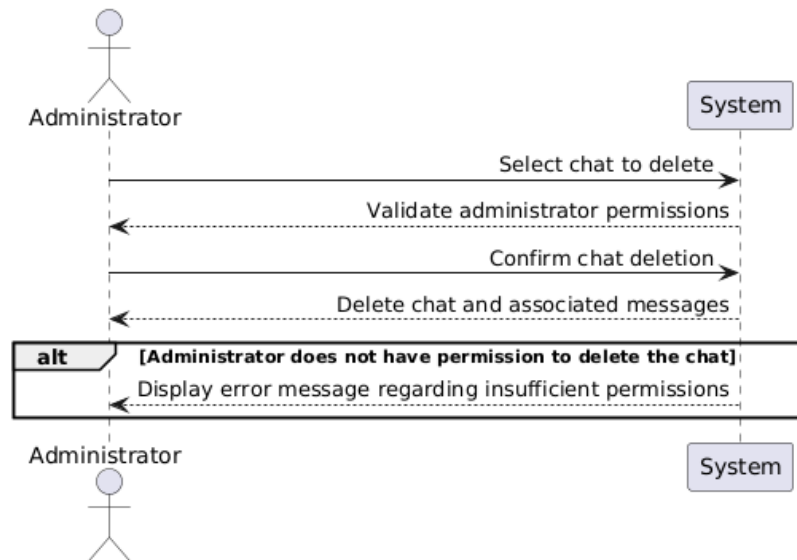


Fig. 10. System sequence diagram for the use case of deleting a chat

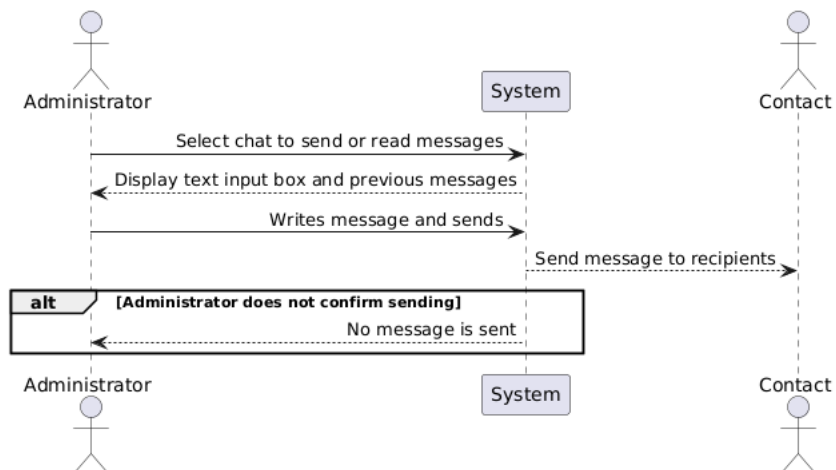


Fig. 5. System sequence diagram for the use case of sending messages

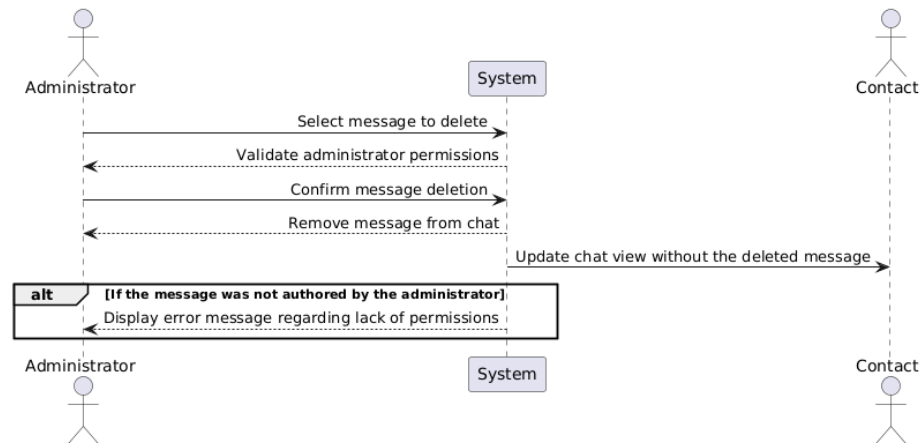


Fig. 6. System sequence diagram for the use case of deleting messages.

7.3 View Interaction History features

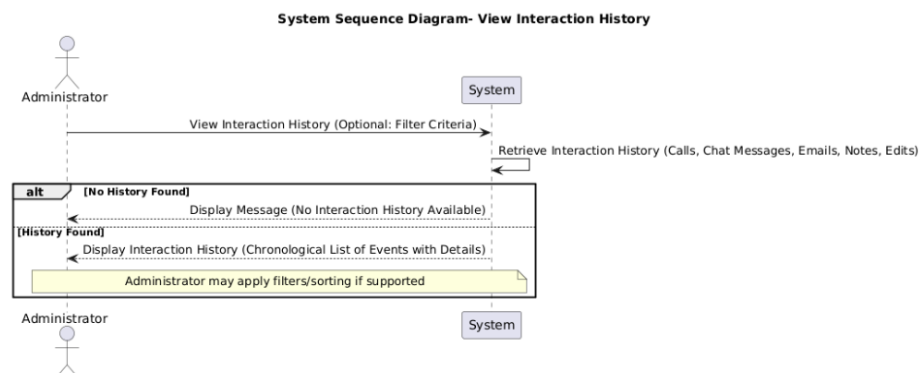


Fig.13. System sequence diagram for the use case of View Interaction History use case.