# SOFTWARE REQUIREMENTS SPECIFICATION

## *for*

# ION-CHAT SYSTEM

*Version 1.2*

*Prepared By*

## DeepBlue

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METU-ANKARA

# Change History

This document is version 1.2 of ION-CHAT SYSTEM, Software Requirements Specification that was released on April 29<sup>th</sup>, 2002. The first version (version 1.0) of ION-CHAT SYSTEM SRS was released on March 17<sup>th</sup>, 2002; version 1.1 was released on March 22<sup>nd</sup>. The subsequent changes will be mentioned in this part of the SRS.

# Preface

The document contains the Software Requirements Specification of ION-CHAT SYSTEM. The mission of the project is to develop a web-based chat system for METU Informatics Institute Online IS Master Program.

The goal of the SRS is to describe the requirements of the ION-CHAT SYSTEM. This document is prepared according to IEEE standard **[8]**.

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# 1    INTRODUCTION (Section 1 of the SRS)

## 1.1    Purpose

The purpose of the Software Requirements Specification (SRS) is

- to identify what the ION-CHAT SYSTEM is supposed to do,
- to provide better communication among the DeepBlue and the acquirers, who are the intended audience of the SRS,
- to provide a basis for controlling the evolution of the ION-CHAT SYSTEM and system verification

in a correct, complete, unambiguous and verifiable manner.

## 1.2    Scope

The software product to be produced is the ION-CHAT SYSTEM, which aims to provide a web-based chat system for METU Informatics Institute (METU-II) Online Information Systems (IS) Master Program.

This document presents the detailed software requirements analysis for the ION-CHAT SYSTEM. The scope includes the functional, performance and operational requirements of the ION-CHAT SYSTEM.

The software requirements analysis is based on the ION-CHAT SYSTEM Initial Plan [11].

The scope of the ION-CHAT SYSTEM is:
- The ION-CHAT SYSTEM will not be integrated with the existing ION system. It will be used as a separate system.
- The ION-CHAT SYSTEM will be a text-based system. Any kind of audio-visual extensions are out of scope.

The objectives of the ION-CHAT SYSTEM are:

- To satisfy the online and real-time communication need for the members of ION-CHAT SYSTEM. That is the students and the instructors of METU Informatics Institute Online IS Master Program.
- To satisfy the above-mentioned need in a platform independent manner.
- To satisfy the above-mentioned needs considering the basic security issues.

## 1.3   Definitions, Acronyms and Abbreviations

**Acquirer:** The customer, which specifies the requirements for the product and gets the final product and its documents.

**Basic Operation:** Add, delete and update operations for users, rooms and chat groups.

**Chat group**: A group of users working on the same project either as a project developing team or as a reviewer team.

**Chat Function:** Function of making chat.

**Client Site:** The remote machine where the client software is to be executed.

**Client Software:** The part of the ION-CHAT SYSTEM that will be executed at the client site.

**DeepBlue:** Software development team of ION-CHAT SYSTEM.

**HTTP:** Hyper Text Transform Protocol

**IEEE:** Institute of Electrics & Electronics Engineering

**ION system:** Existing informatics online system.

**ION:** Informatics Online.

**ION-CHAT SYSTEM:** Informatics online chat system.

**IP:** Internet Protocol

**IS**: Information System

**METU-II:** Middle East Technical University Informatics Institute.

**MobilSoft:** Subcontractor of DeepBlue.

**Reviewer Team:** Subcontractor of Reviewie Team, who are ION students.

**Reviewie Team:** Company that presents the project, who are ION students.

**Room:** The virtual place where users will chat with each other.

**Root**: Administrator account of ION-CHAT SYSTEM.

**Server Site:** The remote machine where the server software is to be executed.

**Server Software:** The part of the ION-CHAT SYSTEM that will be executed at the server site.

**SRS**: Software requirements specification.

**System group**: A group of users, which have a common set of access restrictions to ION-CHAT SYSTEM.

**TCP:** Transmission Control Protocol

**Typical Client Platform:** A computer having

1. Intel Pentium III microprocessor at 866 MHz

2. 128 MB of RAM at 133 MHz

3. A hard-disk having an IDE ATA100 interface, for which the minimum required capacity is specified in subsection 2.1.6.

**Typical Server Platform:** A computer having

1. Intel Pentium III microprocessor at 1000 MHz

2. 256 MB of RAM at 133 MHz

3. A hard-disk having an IDE ATA100 interface, for which the minimum required capacity is specified in subsection 2.1.6.

**User Interface**: The interface that the users will see while using ION-CHAT SYSTEM.

**User:** The students, instructors, acquirers and the root.

**User_id:** A set of characters that identifies the user.

## 1.4   References

**[1]** http://java.sun.com/j2se/1.3/docs/index.html

**[2]** http://httpd.apache.org/docs

**[3]** http://home.netscape.com/browsers/4/

**[4]** http://www.microsoft.com/windows/ie/default.asp

**[5]** RFC0791, "*Internet Protocol*", Defense Advanced Research Projects Agency, September 1981.

**[6]** RFC0793, "*Transmission Control Protocol*", Defense Advanced Research Projects Agency, September 1981 (Updated by RFC3168, "*The Addition of Explicit*

*Congestion Notification (ECN) to IP"*, Defense Advanced Research Projects Agency, September 1981).

**[7]** IEEE Std 1058-1998, IEEE Standard for Software Project Management Plans

**[8]** IEEE Std 830-1998, IEEE Recommended Practice for Software Requirements Specifications

**[9]** IEEE Std 1016-1998, Recommended Practice for Software Design Descriptions

**[10]** IEEE Std 1063-1998, IEEE Standard for Software User Documentation

**[11]** ION-CHAT SYSTEM Initial Plan, version 1.1, March 1st, 2002.

## 1.5   Overview

The SRS is organized in three sections.

- *Introduction Section* (Section 1 of the SRS) in which purpose, scope, definitions, references and an overview of the SRS are given.

- *Overall Description Section* (Section 2 of the SRS) describes the general factors that affect the product and its requirements. This section does not state specific requirements. Instead, it provides a background for those requirements, which are defined in detail in specific requirements part (Section 3 of the SRS), and makes them easier to understand.

- *Specific Requirements Section* (Section 3 of the SRS) contains all of the software requirements to a level of detail sufficent to enable DeepBlue to design the ION-CHAT SYSTEM to satisfy those requirements, and testers (both DeepBlue and acquirers) to test that the system satifsies those requirements.

## 2    OVERALL DESCRIPTION (Section 2 of the SRS)

### 2.1    Product Perspective

### 2.1.1    System Interfaces

1. The ION-CHAT SYSTEM shall be a stand-alone system, which is independent of the existing ION system.
2. The ION-CHAT SYSTEM shall not have an interface with any existing database system.

### 2.1.2    User Interfaces

1. All of the user interfaces shall be web-based.
2. The format of the screens may differ depending on the operating system, the window manager and the HTTP client used by the user.
3. There shall be 14 different types of user interfaces. These are
   a. authentication,
   b. chat interface,
   c. root interface,
   d. add, delete and update user (3 different user interfaces),
   e. add, delete and update room (3 different user interfaces),
   f. add, delete and update chat group (3 different user interfaces),
   g. messages indicating successful and unsuccessful completion of operations.
4. The ION-CHAT SYSTEM shall be designed such that a university graduate shall be able to learn using it after 30 minutes of continuous training.

### 2.1.3    Hardware Interfaces

There is no defined hardware interface for the ION-CHAT SYSTEM.

### 2.1.4    Software Interface:

The other required software products shall be:

1. **Name:** The Java2 Runtime Environment, Standard Edition

**Mnemonic:** -

**Specification number:** -

**Version number:** 1.3.1_02

**Source:** Sun Microsystems, the interface of the ION-CHAT SYSTEM with the application system is well-documented and can be found at **[1]**.

**Purpose:** In order to execute the server site of ION-CHAT SYSTEM.

**Definition of the Interface:** The Java2 Runtime Environment, Standard Edition is the software, which shall provide the necessary run-time facilities in order the server software to be executed at the server site.

2. **Name:** Apache HTTP Server

**Mnemonic:** -

**Specification number:** -

**Version number:** 1.3.23

**Source:** The Apache Software Foundation, the interface of the ION-CHAT SYSTEM with the application system is well-documented and can be found at **[2]**.

**Purpose:** In order to execute the client site of ION-CHAT SYSTEM, the web server specified above is required as the provider of the client software at the server site.

**Definition of the Interface:** The Apache HTTP Server is the software, which shall provide the necessary run-time environment in order the client software to be downloaded to the client site.

3. One of the following 2 products specified below shall be used:

**Name:** Netscape Communicator

**Mnemonic: -**

**Specification number: -**

**Version number:** 4.79

**Source:** Netscape Communications Corporation, the interface of the ION-CHAT SYSTEM with the application system is well-documented and can be found at **[3]**.

**Purpose:** In order to execute the client site of ION-CHAT SYSTEM, the web browser specified above is required as the container of the client software at the client site.

**Definition of the Interface:** The Netscape Communicator is the software, which shall provide the necessary run-time environment in order the client software to be executed at the client site.

**OR**

**Name:** Microsoft Internet Explorer

**Mnemonic: -**

**Specification number: -**

**Version number:** 5.5

**Source:** Microsoft Corporation, the interface of the ION-CHAT SYSTEM with the application system is well-documented and can be found at **[4]**.

**Purpose:** In order to execute the client site of ION-CHAT SYSTEM, the web browser specified above is required as the container of the client software at the client site.

**Definition of the Interface:** The Microsoft Internet Explorer is the software, which shall provide the necessary run-time environment in order the client software to be executed at the client site.

### 2.1.5 Communications Interfaces

In order to execute both client software and server software, the TCP and IP protocols shall be installed both at the client site and server site respectively.

The interface of the ION-CHAT SYSTEM with the Internet Protocol is well-documented and can be found at **[5]**.

The interface of the ION-CHAT SYSTEM with the Transmission Control Protocol is well-documented and can be found at **[6]**.

### 2.1.6 Memory Constraints

| Requirements<br>Products | Primary Memory<br>Requirement | Secondary Memory<br>Requirement |
|---|---|---|
| **The Java2 Runtime Environment, Standard Edition** | 32 MB [1] | 75 MB [1] |
| **Apache HTTP Server** | 32 MB [2] | 12 MB [2] |
| **Netscape Communicator** | 64 MB [3] | 26 MB [3] |
| **Microsoft Internet Explorer** | 64 MB [4] | 17 MB [4] |
| **ION-CHAT SYSTEM / Client part** | 64 MB | 26 MB |
| **ION-CHAT SYSTEM / Server part** | 32 MB | 87 MB |

**Table 1:** Memory Constraints

The memory constraints of the ION-CHAT SYTEM are calculated as:

- **For Client part**: The primary and secondary memory requirements of client part are found as, respectively, the greatest of the primary and secondary memory requirements of the Netscape Communicator and the Microsoft Internet Explorer.

- **For Server part**: The primary memory requirement of server part is found as the greatest of the primary memory requirements for Java2 Run time Environment, Standard Edition and Apache HTTP server. The secondary memory requirement of server part is found as the sum of the secondary memory requirements for the Java2 Run time Environment, Standard Edition and Apache HTTP server.

### 2.1.7 Operations

The required operations classified according to the user are as follows:

- Functions of root

  - The ION-CHAT SYSTEM shall allow root to define users on the ION-CHAT SYSTEM.

  - The ION-CHAT SYSTEM shall allow root to define chat groups on the ION-CHAT SYSTEM.

  - The ION-CHAT SYSTEM shall allow root to define rooms on the ION-CHAT SYSTEM

- Functions of instructor and customer

    - The ION-CHAT SYSTEM shall authenticate instructor or customer for the entrance to the desired rooms.


- Common Functions of all users

    - The ION-CHAT SYSTEM shall authenticate user to enter to the system.

    - The ION-CHAT SYSTEM shall allow any user to logout from the ION-CHAT SYSTEM at any time.


### 2.1.8 Site Adaptation Requirements

Since the server software shall only be installed to a unique location, namely the server site, and since no installation is required for the client software, there are no site adaptation requirements for the ION-CHAT SYSTEM.


### 2.2 Product Functions

**1.** *User Authentication Function:* This function shall authenticate user to enter to the system. In case of any kind of failure, an appropriate error message shall be displayed. Otherwise, the message indicating successful completion of the operation shall be displayed.

**2.** *User Addition Function:* This function shall allow the root to add a user. In case of any kind of failure, an appropriate error message shall be displayed. Otherwise, the message indicating successful completion of the operation shall be displayed.

**3.** *User Deletion Function:* This function shall allow the root to delete a user for whom the user_id is specified. In case of any kind of failure, an appropriate error message shall be displayed. Otherwise, the message indicating successful completion of the operation shall be displayed.

**4.** *User Update Function:* This function shall allow the root to update the information of a user for whom the user_id is specified. In case of any kind of failure, an appropriate

error message shall be displayed. Otherwise, the message indicating successful completion of the operation shall be displayed.

**5.** *Room Addition Function:* This function shall allow the root to add a room. In case of any kind of failure, an appropriate error message shall be displayed. Otherwise, the message indicating successful completion of the operation shall be displayed.

**6.** *Room Deletion Function:* This function shall allow the root to delete a room for which the room_name is specified. In case of any kind of failure, an appropriate error message shall be displayed. Otherwise, the message indicating successful completion of the operation shall be displayed.

**7.** *Room Update Function:* This function shall allow the root to update the information of a room for which the room_name is specified. In case of any kind of failure, an appropriate error message shall be displayed. Otherwise, the message indicating successful completion of the operation shall be displayed.

**8.** *Chat Group Addition Function:* This function shall allow the root to add a chat group. In case of any kind of failure, an appropriate error message shall be displayed. Otherwise, the message indicating successful completion of the operation shall be displayed.

**9.** *Chat Group Deletion Function:* This function shall allow the root to delete a chat group for which the chat_group_name is specified. In case of any kind of failure, an appropriate error message shall be displayed. Otherwise, the message indicating successful completion of the operation shall be displayed.

**10.** *Chat Group Update Function:* This function shall allow the root to update the information of a chat group for which the chat_group_name is specified. In case of any kind of failure, an appropriate error message shall be displayed. Otherwise, the message indicating successful completion of the operation shall be displayed.

**11.** *Chat Function:* This function shall allow instructor, students and customers to make chat operation.

## 2.3    User Characteristics

The ION-CHAT SYSTEM is intended to be used by ION students, instructors of METU-II and acquirers. The ION-CHAT SYSTEM shall not need intervention from users other than the root to maintain basic operations of the ION-CHAT SYSTEM.

The ION-CHAT SYSTEM shall be designed such that a university graduate shall be able to learn using it after 30 minutes of continuous training.

## 2.4    Constraints

**1.** The ION-CHAT SYSTEM shall be a standalone system since no authorization to access to ION system is given.

**2.** The ION-CHAT SYSTEM shall be a web-based, platform independent system.

**3.** Each room in the ION-CHAT SYSTEM shall consist of four kinds of members, which are instructors, acquirers, reviewie team and reviewer team.

**4.** The ION-CHAT SYSTEM shall not log any kind of information.

**5.** The screen shots of the ION-CHAT SYSTEM are prepared by Visual Basic 6.0. Therefore, the real screen may not match with them exactly.

**6.** The ION-CHAT SYSTEM shall be used by authorized people only, due to security considerations.

## 2.5    Assumptions and Dependencies

**1.** Java2 Runtime Environment, Standard Edition version 1.3.1 shall be installed in the server site.

**2.** Apache HTTP Server version 1.3.23 shall be installed at the server site.

**3.** Netscape Communicator version 4.79 or Microsoft Internet Explorer version 5.5 shall be installed at the client site.

**4.** DeepBlue shall not be responsible for acquisition, installation, configuration or maintenance of Java2 Runtime Environment, Standard Edition version 1.3.1 and Apache HTTP Server version 1.3.23 for the server site.

**5.** DeepBlue shall not be responsible for acquisition, installation, configuration or maintenance of Netscape Communicator version 4.79 or Microsoft Internet Explorer version 5.5 for the client site.

## 2.6    Apportioning of Requirements

The ION-CHAT SYSTEM has no requirements that may be delayed until future versions of the ION-CHAT SYSTEM.

# 3   SPECIFIC REQUIREMENTS (Section 3 of the SRS)
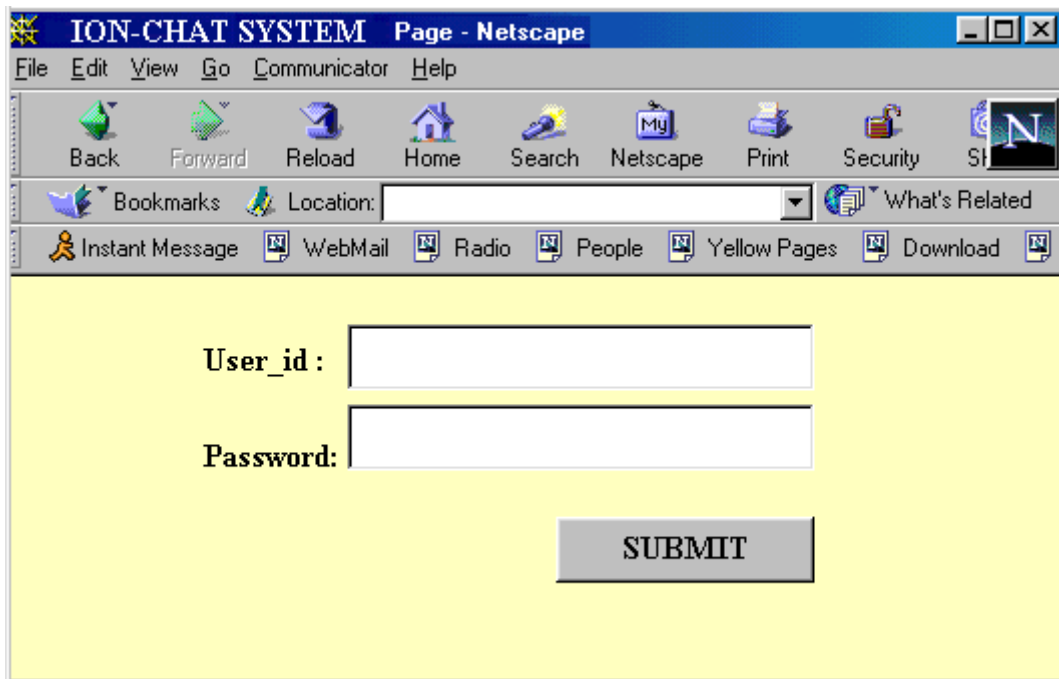
This section of the Software Requirements Specification of ION-CHAT SYSTEM is designed according to the user class template, Appendix-A.3 of IEEE Std. 830-1998, IEEE Recommended Practice for Software Requirements Specifications.

## 3.1   External Interface Requirements

### 3.1.1   User Interfaces

#### 3.1.1.1   Common Functions for All Users

**a.** The ION-CHAT SYSTEM shall authenticate user to enter to the system.



**Figure 1:** Authentication Screen

The detailed description of items of authentication screen:

1.   **Name of item:** User_id text box.

   **Description of purpose:** To enter the id of the user for whom authentication to the ION-CHAT SYSTEM shall be given.

   **Source of input:** Keyboard.

   **Valid range:** The user_id shall be maximum 10 characters long and cannot be zero.

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** -

**Screen formats/organization:** As seen in Figure 1.

**Window formats/organization:** -

**Data formats:** The user_id shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

**Command formats:** -

**End messages:** -


2.   **Name of item:** Password text box.

**Description of purpose:** To enter the password of the user for whom authentication to the ION-CHAT SYSTEM shall be given.

**Source of input:** Keyboard.

**Valid range:** The password shall be maximum 8 characters long and cannot be zero.

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** -

**Screen formats/organization:** As seen in Figure 1.

**Window formats/organization:** -

**Data formats:** The password shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

**Command formats:** -

**End messages:** -


3.   **Name of item:** Submit_button.

**Description of purpose:** To send the entered inputs to the server software.

**Source of input:** Keyboard or mouse.

**Valid range:** -

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** The id and password of the user shall be entered in the user-id text box and password text box respectively before initiating authentication functionality.

**Screen formats/organization:** As seen in Figure 1.

**Window formats/organization:** -

**Data formats:** -

**Command formats:** -

**End messages:** -

**b.** The ION-CHAT SYSTEM shall inform user about the success of the operation.



will be modified according to the operation
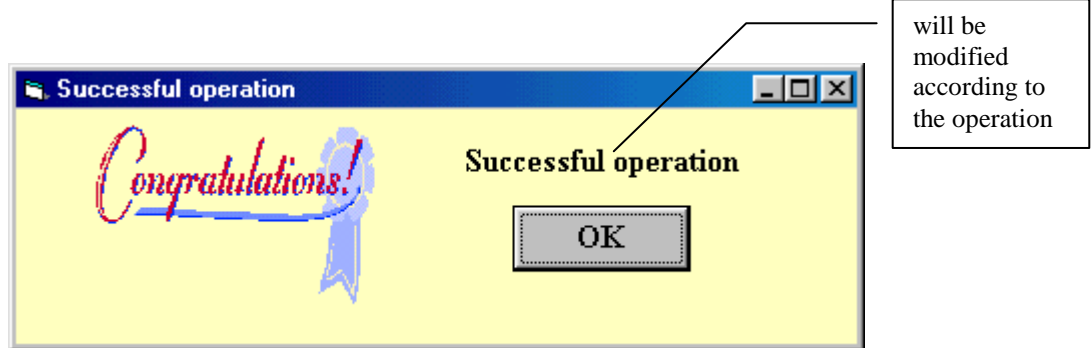
**Figure 2:** Success Message Screen

The detailed description of items of success message screen:

1. **Name of item:** Ok_button

   **Description of purpose:** To close the success message screen.

   **Source of input:** Keyboard or mouse.

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 2.

   **Window formats/organization:** -

   **Data formats:** -

**Command formats:** -

**End messages:** -


2. **Name of item:** Success message

   **Description of purpose:** To inform the user about success of the operation

   **Source of input:** -

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 2.

   **Window formats/organization:** -

   **Data formats:** -

   **Command formats:** The success message will be modified according to the operation.

   **End messages:** -


   **c.** The ION-CHAT SYSTEM shall inform user about the failure of the operation.



will be modified according to the operation

**Figure 3**: Operation Fail Message Screen


The detailed description of items of operation fail message:

1. **Name of item:** Ok_button

   **Description of purpose:** To close the operation fail message.

   **Source of input:** Keyboard or mouse.

   **Valid range:** -

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** -

**Screen formats/organization:** As seen in Figure 3.

**Window formats/organization:** -

**Data formats:** -

**Command formats:** -

**End messages:** -


2. **Name of item:** Failure message

   **Description of purpose:** To inform the user about the failure of the operation

   **Source of input:** -

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 3.
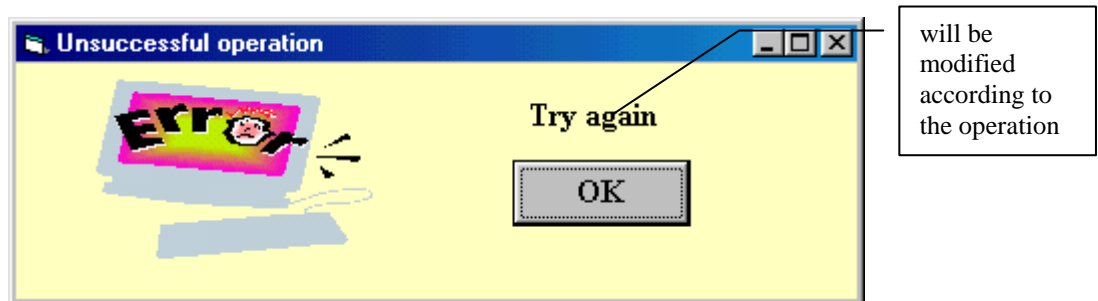
   **Window formats/organization:** -

   **Data formats:** -

   **Command formats:** The failure message will be modified according to the operation.

   **End messages:** -

### 3.1.1.2 Functions for Root

**a.** The ION-CHAT SYSTEM shall allow root to make basic operations such as ADD, DELETE and UPDATE for user, room and chat group.



**Figure 4:** Main Administration Screen

The detailed description of items of main administration screen:

1. **Name of item:** User_id text box.

    **Description of purpose:** To enter the id of the user for whom a delete or an information update operation will be performed.

    **Source of input:** Keyboard.

    **Valid range:** The user_id shall be maximum 10 characters long and cannot be zero.

    **Units of measure:** -

**Timing:** -

**Relationship to other inputs:** -

**Screen formats/organization:** As seen in Figure 4.

**Window formats/organization:** -

**Data formats:** The user_id shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

**Command formats:** -

**End messages:** -

2. **Name of item:** User_id add button.

   **Description of purpose:** To initiate the new user addition functionality.

   **Source of input:** Keyboard or mouse.

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 4.

   **Window formats/organization:** -

   **Data formats:**

   **Command formats:**

   **End messages:**

3. **Name of item:** User_id delete button.

   **Description of purpose:** To initiate the user deletion functionality.

   **Source of input:** Keyboard or mouse.

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** The id of the user shall be entered in the user_id text box before initiating user deletion functionality.

   **Screen formats/organization:** As seen in Figure 4.

**Window formats/organization:** -

**Data formats:** -

**Command formats:** -

**End messages:** -


4. **Name of item:** User_id update button.

   **Description of purpose:** To initiate the user information update functionality.

   **Source of input:** Keyboard or mouse.

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** The id of the user shall be entered in the user_id text box before initiating user information update functionality.

   **Screen formats/organization:** As seen in Figure 4.

   **Window formats/organization:** -

   **Data formats:** -

   **Command formats:** -

   **End messages:** -


5. **Name of item:** Room_name text box.

   **Description of purpose:** To enter the name of the room for which a delete or an information update operation will be performed.

   **Source of input:** Keyboard.

   **Valid range:** The room_name shall be maximum 10 characters long and cannot be zero.

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 4.

   **Window formats/organization:** -

   **Data formats:** The room_name shall consist of alphanumeric characters only and

shall be compatible with ISO 8859-1 character set.

**Command formats:** -

**End messages:** -

6.    **Name of item:** Room_name add button.

   **Description of purpose:** To initiate the new room addition functionality.

   **Source of input:** Keyboard or mouse.

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 4.

   **Window formats/organization:** -

   **Data formats:** -

   **Command formats:** -

   **End messages:** -

7.    **Name of item:** Room_name delete button.

   **Description of purpose:** To initiate the room deletion functionality.

   **Source of input:** Keyboard or mouse.

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** The name of the room shall be entered in the room_name text box before initiating room deletion functionality.

   **Screen formats/organization:** As seen in Figure 4.

   **Window formats/organization:** -

   **Data formats:** -

   **Command formats:** -

   **End messages:** -

8.  **Name of item:** Room_name update button.

    **Description of purpose:** To initiate the room information update functionality.

    **Source of input:** Keyboard or mouse.

    **Valid range:** -

    **Units of measure:** -

    **Timing:** -

    **Relationship to other inputs:** The name of the room shall be entered in the room_name text box before initiating room information update functionality.

    **Screen formats/organization:** As seen in Figure 4.

    **Window formats/organization:** -

    **Data formats:** -

    **Command formats:** -

    **End messages:** -


9.  **Name of item:** Chat_group_name text box.

    **Description of purpose:** To enter the name of the chat_group for which a delete or an information update operation will be performed.

    **Source of input:** Keyboard.

    **Valid range:** The chat_group_name shall be maximum 20 characters long and cannot be zero.

    **Units of measure:** -

    **Timing:** -

    **Relationship to other inputs:** -

    **Screen formats/organization:** As seen in Figure 4.

    **Window formats/organization:** -

    **Data formats:** The chat_group_name shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

    **Command formats:** -

    **End messages:** -


10. **Name of item:** Chat_group_name add button.

**Description of purpose:** To initiate the new chat_group addition functionality.

**Source of input:** Keyboard or mouse.

**Valid range:** -

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** -

**Screen formats/organization:** As seen in Figure 4.

**Window formats/organization:** -

**Data formats:**

**Command formats:**

**End messages:**


11. **Name of item:** Chat_group_name delete button.

**Description of purpose:** To initiate the chat_group deletion functionality.

**Source of input:** Keyboard or mouse.

**Valid range:** -

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** The name of the chat_group shall be entered in the chat_group_name text box before initiating chat_group deletion functionality.

**Screen formats/organization:** As seen in Figure 4.

**Window formats/organization:** -

**Data formats:** -

**Command formats:** -

**End messages:** -


12. **Name of item:** Chat_group_name update button.

**Description of purpose:** To initiate the chat_group information update functionality.

**Source of input:** Keyboard or mouse.

**Valid range:** -

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** The name of the chat_group shall be entered in the chat_group_name text box before initiating chat_group information update functionality.

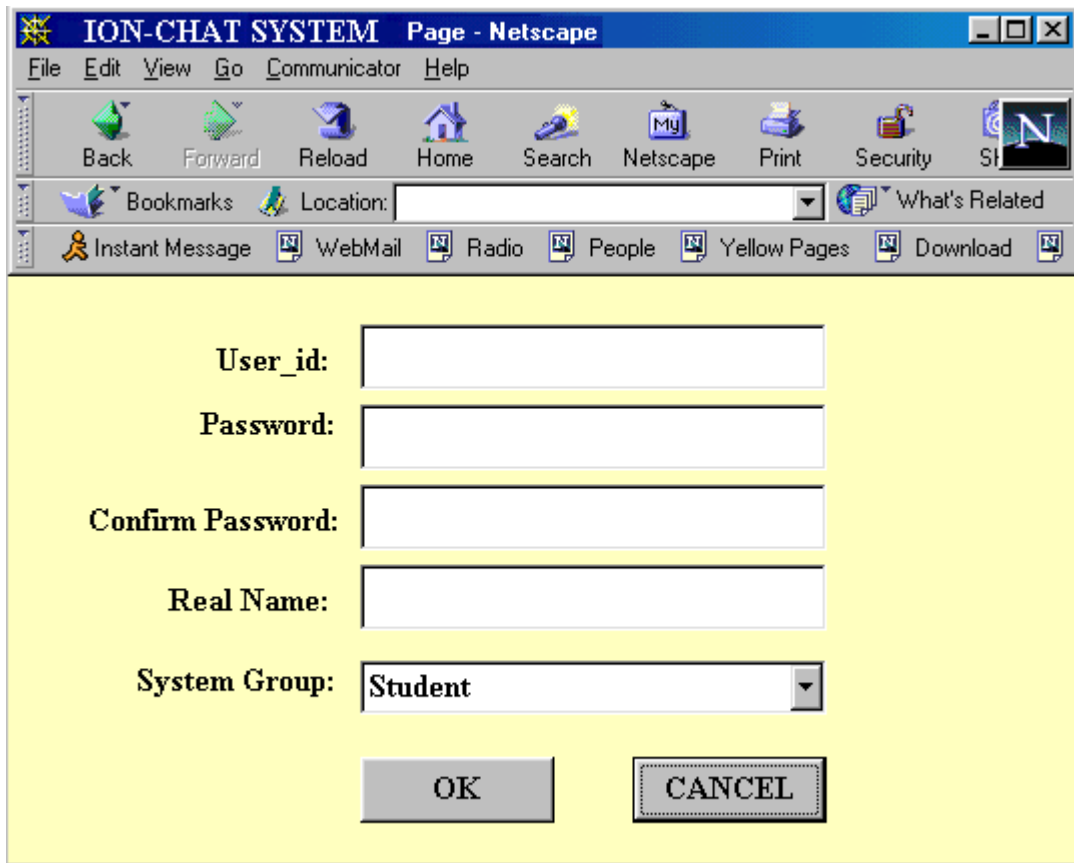**Screen formats/organization:** As seen in Figure 4.

**Window formats/organization:** -

**Data formats:** -

**Command formats:** -

**End messages:** -

> **b.** The ION-CHAT SYSTEM shall allow root to make add operation for user.



**Figure 5:** Add User Screen

The detailed description of items of add user screen:

1. **Name of item:** User_id text box.

**Description of purpose:** To enter the id of the user who shall be added to the ION-CHAT SYSTEM.

**Source of input:** Keyboard.

**Valid range:** The user_id shall be maximum 10 characters long and cannot be zero.

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** -

**Screen formats/organization:** As seen in Figure 5.

**Window formats/organization:** -

**Data formats:** The user_id shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

**Command formats:** -

**End messages:** -

2.   **Name of item:** Password text box.

**Description of purpose:** To enter the password of the user who shall be added to the ION-CHAT SYSTEM.

**Source of input:** Keyboard.

**Valid range:** The password shall be maximum 8 characters long and cannot be zero.

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** The password and the confirmed_password shall be the same.

**Screen formats/organization:** As seen in Figure 5.

**Window formats/organization:** -

**Data formats:** All characters of the entered password shall be represented as '*' on the screen. The password shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

**Command formats:** -

**End messages:** -

3. **Name of item:** Confirm_password text box.

   **Description of purpose:** To confirm the password of the user who shall be added to the ION-CHAT SYSTEM.

   **Source of input:** Keyboard.

   **Valid range:** The password shall be maximum 8 characters long and cannot be zero.

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** The password and the confirmed_password shall be the same.

   **Screen formats/organization:** As seen in Figure 5.

   **Window formats/organization:** -

   **Data formats:** All characters of the confirmed password shall be represented as '*' on the screen. The confirmed_password shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

   **Command formats:** -

   **End messages:** -


4. **Name of item:** Real_name text box.

   **Description of purpose:** To enter the real name of the user who shall be added to the ION-CHAT SYSTEM.

   **Source of input:** Keyboard.

   **Valid range:** The real name shall be maximum 30 characters long and cannot be zero.

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 5.

   **Window formats/organization:** -

**Data formats:** The real_name shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

**Command formats:** -

**End messages:** -


5.  **Name of item:** System_group combo box.

**Description of purpose:** To enter the system group of the user who shall be added to the ION-CHAT SYSTEM.

**Source of input:** Keyboard or mouse.

**Valid range:** -

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** The input value 'student' shall be selected, if a chat_group is entered.

**Screen formats/organization:** As seen in Figure 5.

**Window formats/organization:** -

**Data formats:** -

**Command formats:** -

**End messages:** -


6.  **Name of item:** Ok_button.

**Description of purpose:** To finalize the user addition operation.

**Source of input:** Keyboard or mouse.

**Valid range:** -

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** The inputs shall be entered into all text box and combo box type input areas (according to the criteria specified for these areas) before finalizing the new user addition operation.

**Screen formats/organization:** As seen in Figure 5.

**Window formats/organization:** -

**Data formats:** -

**Command formats:** -

**End messages:** -


7. **Name of item:** Cancel_button.

   **Description of purpose:** To cancel the user addition operation.

   **Source of input:** Keyboard or mouse.

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 5.

   **Window formats/organization:** -

   **Data formats:** -

   **Command formats:** -

   **End messages:** -

c. **The ION-CHAT SYSTEM shall allow root to make delete operation for user.**



**Figure 6:** Delete User Screen

The detailed description of items of delete user screen:

1. **Name of item:** User_id text box.

   **Description of purpose:** To display the id of the user who shall be deleted from the ION-CHAT SYSTEM.

   **Source of input:** -

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 6.

   **Window formats/organization:** -

**Data formats:** This area shall be disabled to modification.

**Command formats:** -

**End messages:** -

2. **Name of item:** Password text box.

**Description of purpose:** To display the password of the user who shall be deleted from the ION-CHAT SYSTEM.

**Source of input:** -

**Valid range:** -

**Units of measure:** -

**Timing:** -

**Relationship to other outputs:** The password and the confirmed_password shall be the same.

**Screen formats/organization:** As seen in Figure 6.

**Window formats/organization:** -

**Data formats:** This area shall be disabled to modification.

**Command formats:** -

**End messages:** -

3. **Name of item:** Confirm_password text box.

**Description of purpose:** To display the confirmed password of the user who shall be deleted from the ION-CHAT SYSTEM.

**Source of input:** -

**Valid range:** -

**Units of measure:** -

**Timing:** -

**Relationship to other outputs:** The password and the confirmed_password shall be the same.

**Screen formats/organization:** As seen in Figure 6.

**Window formats/organization:** -

**Data formats:** This area shall be disabled to modification.

**Command formats:** -

**End messages:** -

4. **Name of item:** Real_name text box.

   **Description of purpose:** To display the real name of the user who shall be deleted from the ION-CHAT SYSTEM.

   **Source of input:** -

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 6.

   **Window formats/organization:** -

   **Data formats:** This area shall be disabled to modification.

   **Command formats:** -

   **End messages:** -

5. **Name of item:** System_group combo box.

   **Description of purpose:** To display the system group of the user who shall be deleted from the ION-CHAT SYSTEM.

   **Source of input:** -

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other outputs:** The input value 'student' shall be selected, if a chat_group is entered.

   **Screen formats/organization:** As seen in Figure 6.

   **Window formats/organization:** -

   **Data formats:** This area shall be disabled to modification.

   **Command formats:** -

**End messages:** -


6. **Name of item:** Ok_button.

   **Description of purpose:** To finalize the user deletion operation.

   **Source of input:** Keyboard or mouse.

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 6.

   **Window formats/organization:** -

   **Data formats:** -

   **Command formats:** -

   **End messages:** -


7. **Name of item:** Cancel_button.

   **Description of purpose:** To cancel the user deletion operation.

   **Source of input:** Keyboard or mouse.

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 6.

   **Window formats/organization:** -

   **Data formats:** -

   **Command formats:** -

   **End messages:** -

**d.** The ION-CHAT SYSTEM shall allow root to make update operation for user.



**Figure 7:** Update User Screen

The detailed description of items of update user screen:

1. **Name of item:** User_id text box.

   **Description of purpose:** To display the id of the user, for whom the information shall be updated.

   **Source of input:** -

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 7.

   **Window formats/organization:** -

**Data formats:** This area shall be disabled to modification.

**Command formats:** -

**End messages:** -


2.   **Name of item:** Password text box.

**Description of purpose:** To update the password of the user.

**Source of input:** Keyboard.

**Valid range:** The password shall be maximum 8 characters long and cannot be zero.

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** The password and the confirmed_password shall be the same.

**Screen formats/organization:** As seen in Figure 7.

**Window formats/organization:** -

**Data formats:** All characters of the entered password shall be represented as '*' on the screen. The password shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

**Command formats:** -

**End messages:** -


3.   **Name of item:** Confirm_password text box.

**Description of purpose:** To confirm the updated password of the user.

**Source of input:** Keyboard.

**Valid range:** The password shall be maximum 8 characters long and cannot be zero.

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** The password and the confirmed_password shall be the same.

**Screen formats/organization:** As seen in Figure 7.

**Window formats/organization:** -

**Data formats:** All characters of the confirmed password shall be represented as '*' on the screen. The confirmed_password shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

**Command formats:** -

**End messages:** -


4.  **Name of item:** Real_name text box.

    **Description of purpose:** To update the real name of the user.

    **Source of input:** Keyboard.

    **Valid range:** The real_name shall be maximum 30 characters long and cannot be zero.

    **Units of measure:** -

    **Timing:** -

    **Relationship to other inputs:** -

    **Screen formats/organization:** As seen in Figure 7.

    **Window formats/organization:** -

    **Data formats:** The real_name shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

    **Command formats:** -

    **End messages:** -


5.  **Name of item:** System_group combo box.

    **Description of purpose:** To update the system group of the user.

    **Source of input:** Keyboard or mouse.

    **Valid range:** -

    **Units of measure:** -

    **Timing:** -

    **Relationship to other inputs:** The input value 'student' shall be selected, if a chat_group is entered.

    **Screen formats/organization:** As seen in Figure 7.

**Window formats/organization:** -

**Data formats:** -

**Command formats:** -

**End messages:** -

**6.** **Name of item:** Ok_button.

**Description of purpose:** To finalize the user information update operation.

**Source of input:** Keyboard or mouse.

**Valid range:** -

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** The inputs shall be entered into all enabled text box and enabled combo box type input areas (according to the criteria specified for these areas) before finalizing the user information update operation.

**Screen formats/organization:** As seen in Figure 7.

**Window formats/organization:** -

**Data formats:** -

**Command formats:** -

**End messages:** -

**7.** **Name of item:** Cancel_button.

**Description of purpose:** To cancel the user information update operation.

**Source of input:** Keyboard or mouse.

**Valid range:** -

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** -

**Screen formats/organization:** As seen in Figure 7.

**Window formats/organization:** -

**Data formats:** -

**Command formats:** -

**End messages:** -

     **e.** The ION-CHAT SYSTEM shall allow root to make add operation for room.



**Figure 8:** Add Room Screen

    The detailed description of items of add room screen:

1.    **Name of item:** Room_name text box

    **Description of purpose:** To enter the name of the room which shall be added to the ION-CHAT SYSTEM.

    **Source of input:** Keyboard

    **Valid range:** The room_name shall be maximum 10 characters long and cannot be zero.

    **Units of measure:** -

    **Timing:** -

    **Relationship to other inputs:** -

**Screen formats/organization:** As seen in Figure 8.

**Window formats/organization:** -

**Data formats:** The room_name shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

**Command formats:** -

**End messages:** -

2.   **Name of item:** Reviewie_group text box.

**Description of purpose:** To enter the name of the reviewie group which shall enter the room that is added to the ION-CHAT SYSTEM.

**Source of input:** Keyboard

**Valid range:** The reviewie group name shall be maximum 20 characters long and cannot be zero.

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** -

**Screen formats/organization:** As seen in Figure 8.

**Window formats/organization:** -

**Data formats:** The reviewie group name shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

**Command formats:** -

**End messages:** -

3.   **Name of item:** Reviewer_group text box.

**Description of purpose:** To enter the name of the reviewer group which shall enter the room that is added to the ION-CHAT SYSTEM.

**Source of input:** Keyboard

**Valid range:** The reviewer group name shall be maximum 20 characters long and cannot be zero.

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** -

**Screen formats/organization:** As seen in Figure 8.

**Window formats/organization:** -

**Data formats:** The reviewer group name shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

**Command formats:** -

**End messages:** -


4. **Name of item:** User_id_of_customer text box

   **Description of purpose:** To enter the id of the customer who shall enter the room that is added to the ION-CHAT SYSTEM.

   **Source of input:** Keyboard

   **Valid range:** The user_id of customer shall be maximum 10 characters long and cannot be zero.

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 8.

   **Window formats/organization:** -

   **Data formats:** The user_id of customer shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

   **Command formats:** -

   **End messages:** -


5. **Name of item:** Ok_button

   **Description of purpose:** To finalize the room addition operation.

   **Source of input:** Keyboard or mouse

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** The inputs shall be entered into all text box type

input areas (according to the criteria specified for these areas) before finalizing the room addition operation.

**Screen formats/organization:** As seen in Figure 8.

**Window formats/organization:** -

**Data formats:** -

**Command formats:** -

**End messages:** -

6. **Name of item:** Cancel_button

   **Description of purpose:** To cancel the room addition operation.

   **Source of input:** Keyboard or mouse

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 8.

   **Window formats/organization:** -

   **Data formats:** -

   **Command formats:** -

   **End messages:** -

**f.** The ION-CHAT SYSTEM shall allow root to make delete operation for room.



**Figure 9:** Delete Room Screen

The detailed description of items of delete room screen:

1. **Name of item:** Room_name text box

   **Description of purpose:** To display the name of the room which shall be deleted from the ION-CHAT SYSTEM.

   **Source of input:** -

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 9.

   **Window formats/organization:** -

**Data formats:** This area shall be disabled to modification.

**Command formats:** -

**End messages:** -


2. **Name of item:** Reviewie _group text box

   **Description of purpose:** To display the name of the reviewie group which is in the room that shall be deleted from the ION-CHAT SYSTEM.

   **Source of input:** -

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 9.

   **Window formats/organization:** -

   **Data formats:** This area shall be disabled to modification.

   **Command formats:** -

   **End messages:** -


3. **Name of item:** Reviewer_group text box

   **Description of purpose:** To display the name of the reviewer group which is in the room that shall be deleted from the ION-CHAT SYSTEM.

   **Source of input:** -

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 9.

   **Window formats/organization:** -

   **Data formats:** This area shall be disabled to modification.

   **Command formats:** -

   **End messages:** -

4. **Name of item:** User_id_of_customer text box

   **Description of purpose:** To display the id of the customer which is in the room that shall be deleted from the ION-CHAT SYSTEM.

   **Source of input:** -

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 9.

   **Window formats/organization:** -

   **Data formats:** This area shall be disabled to modification.

   **Command formats:** -

   **End messages:** -


5. **Name of item:** Ok_button

   **Description of purpose:** To finalize the room deletion operation

   **Source of input:** Keyboard or mouse

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 9.

   **Window formats/organization:** -

   **Data formats:** -

   **Command formats:** -

   **End messages:** -


6. **Name of item:** Cancel_button

   **Description of purpose:** To cancel the room deletion operation.

   **Source of input:** Keyboard or mouse.

**Valid range:** -

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** -

**Screen formats/organization:** As seen in Figure 9.

**Window formats/organization:** -

**Data formats:**

**Command formats:** -

**End messages:** -

 

      **g.** The ION-CHAT SYSTEM shall allow root to make update operation for room.



**Figure 10**: Update Room Screen

The detailed description of items of update room screen:

1. **Name of item:** Room_name text box

   **Description of purpose:** To display the name of the room which shall be updated.

   **Source of input:** -

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 10.

   **Window formats/organization:** -

   **Data formats:** This area shall be disabled to modifications.

   **Command formats:** -

   **End messages:** -


2. **Name of item:** Reviewie _group text box

   **Description of purpose:** To update the reviewie group name of the room.

   **Source of input:** Keyboard

   **Valid range:** The reviewie group name shall be maximum 20 characters long and cannot be zero.

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 10.

   **Window formats/organization:** -

   **Data formats:** The reviewie group name shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

   **Command formats:** -

   **End messages:** -


3. **Name of item:** Reviewer_group text box

   **Description of purpose:** To update the reviewer group name of the room.

**Source of input:** Keyboard

**Valid range:** The reviewer group name shall be maximum 20 characters long and cannot be zero.

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** -

**Screen formats/organization:** As seen in Figure 10.

**Window formats/organization:** -

**Data formats:** The reviewer group name shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

**Command formats:** -

**End messages:** -

4. **Name of item:** User_id_of_customer text box

**Description of purpose:** To update the user_id of customer of the room.

**Source of input:** Keyboard

**Valid range:** The user_id of customer shall be maximum 10 characters long and cannot be zero.

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** -

**Screen formats/organization:** As seen in Figure 10.

**Window formats/organization:** -

**Data formats:** The user_id of customer shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

**Command formats:** -

**End messages:** -

5. **Name of item:** Ok_button

**Description of purpose:** To finalize the room information update operation.

**Source of input:** Keyboard or mouse

**Valid range:** -

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** The inputs shall be entered into all text box type input areas (according to the criteria specified for these areas) before finalizing the room information update operation.

**Screen formats/organization:** As seen in Figure 10.

**Window formats/organization:** -

**Data formats: -**

**Command formats:** -

**End messages:** -

6.  **Name of item:** Cancel_button

    **Description of purpose:** To cancel the room information update operation.

    **Source of input:** Keyboard or mouse

    **Valid range:** -

    **Units of measure:** -

    **Timing:** -

    **Relationship to other inputs:** -

    **Screen formats/organization:** As seen in Figure 10.

    **Window formats/organization:** -

    **Data formats: -**

    **Command formats:** -

    **End messages:** -

**h.** The ION-CHAT SYSTEM shall allow root to make add operation for chat group.



**Figure 11**: Add Chat Group Screen

The detailed description of items of add chat-group screen:

1. **Name of item:** Chat_group text box

   **Description of purpose:** To enter the name of the chat group that shall be added to the ION-CHAT SYSTEM.

   **Source of input:** Keyboard

   **Valid range:** The chat group name shall be maximum 20 characters long and cannot be zero.

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs: -**

   **Screen formats/organization:** As seen in Figure 11.

   **Window formats/organization:** -

   **Data formats:** The chat group name shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

   **Command formats:** -

**End messages:** -


2.     **Name of item:** user_id_list text box.

    **Description of purpose:** To enter the id of the users that shall be added to the chat group specified in the chat_group text box.

    **Source of input:** Keyboard

    **Valid range:** The user_id of a single user shall be maximum 10 characters long and cannot be zero.

    **Units of measure:** -

    **Timing:** -

    **Relationship to other inputs: -**

    **Screen formats/organization:** As seen in Figure 11.

    **Window formats/organization:** -

    **Data formats:** The user_id of a single user shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set. Every user_id shall be separated with a ";" mark.

    **Command formats:** -

    **End messages:** -


3.     **Name of item:** Ok_button.

    **Description of purpose:** To finalize the chat group addition operation.

    **Source of input:** Keyboard or mouse.

    **Valid range:** -

    **Units of measure:** -

    **Timing:** -

    **Relationship to other inputs:** The inputs shall be entered into all text box type input areas (according to the criteria specified for these areas) before finalizing the chat group addition operation.

    **Screen formats/organization:** As seen in Figure 11.

    **Window formats/organization:** -

    **Data formats:** -

**Command formats:** -

**End messages:** -


4. **Name of item:** Cancel_button

   **Description of purpose:** To cancel the chat group addition operation

   **Source of input:** Keyboard or mouse

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

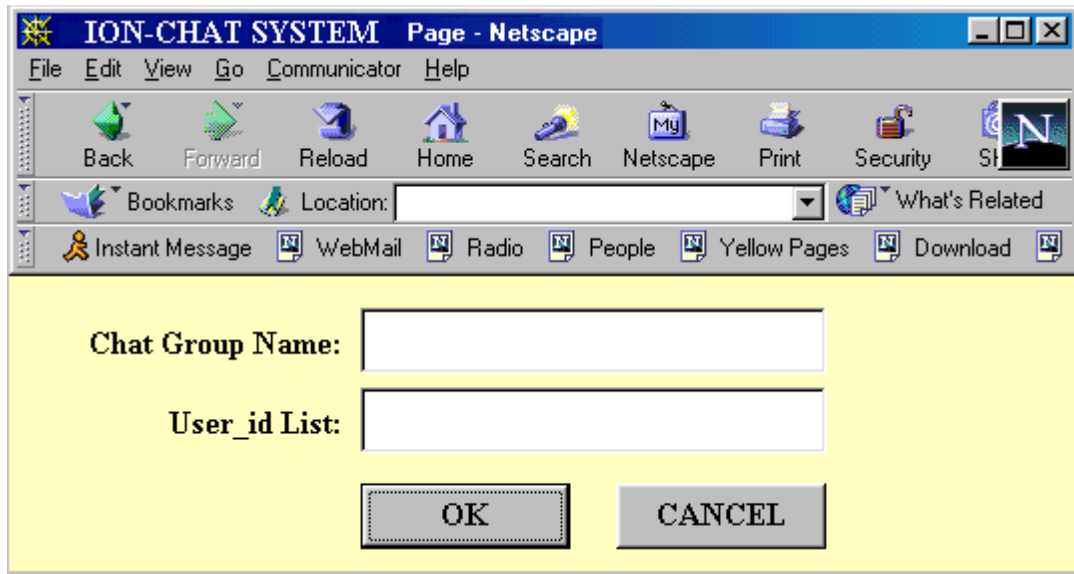   **Screen formats/organization:** As seen in Figure 11.

   **Window formats/organization:** -

   **Data formats:** -

   **Command formats:** -

   **End messages:** -


   **i.** The ION-CHAT SYSTEM shall allow root to make delete operation for chat group.



**Figure 12**: Delete Chat Group Screen

The detailed description of items of delete chat-group screen:

1. **Name of item:** Chat_group text box

   **Description of purpose:** To display the name of the chat group that shall be deleted from the ION-CHAT SYSTEM.

   **Source of input:** -

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:-**

   **Screen formats/organization:** As seen in Figure 12.

   **Window formats/organization:** -

   **Data formats:** This area shall be disabled to modification.

   **Command formats:** -

   **End messages:** -

2. **Name of item:** User_id_list text box.

   **Description of purpose:** To display the id of the users which are in the chat group that shall be deleted from the ION-CHAT SYSTEM.

   **Source of input:** -

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs: -**
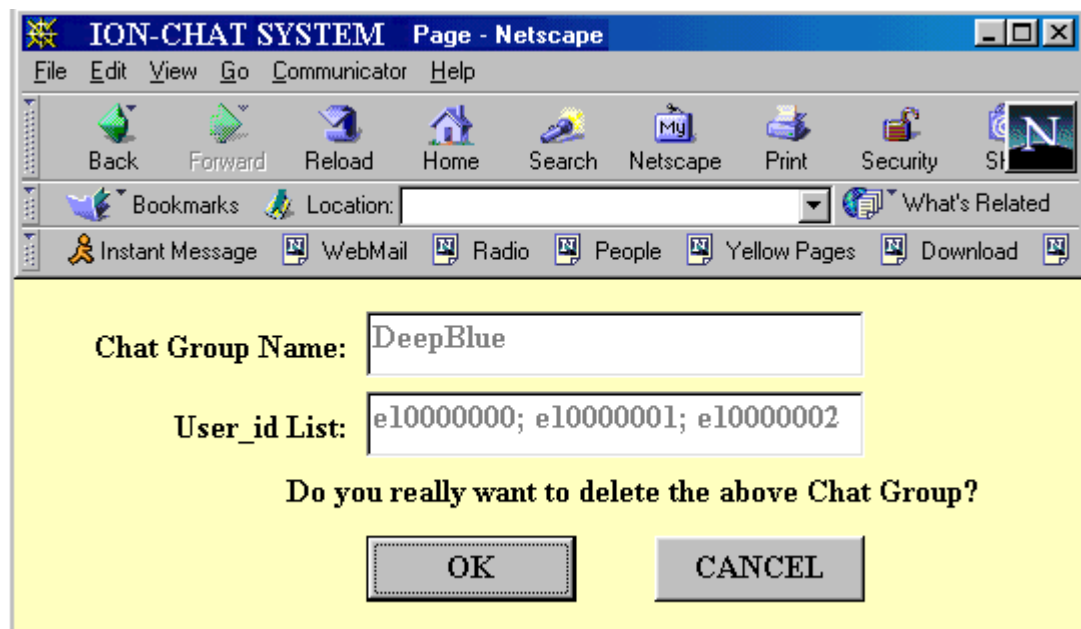
   **Screen formats/organization:** As seen in Figure 12.

   **Window formats/organization:** -

   **Data formats:** This area shall be disabled to modification.

   **Command formats:** -

   **End messages:** -

3.   **Name of item:** Ok_button.

     **Description of purpose:** To finalize the chat group deletion operation.

     **Source of input:** Keyboard or mouse.

     **Valid range:** -

     **Units of measure:** -

     **Timing:** -

     **Relationship to other inputs:** -

     **Screen formats/organization:** As seen in Figure 12.

     **Window formats/organization:** -

     **Data formats:** -

     **Command formats:** -

     **End messages:** -


4.   **Name of item:** Cancel_button

     **Description of purpose:** To cancel the chat group deletion operation

     **Source of input:** Keyboard or mouse

     **Valid range:** -

     **Units of measure:** -

     **Timing:** -

     **Relationship to other inputs:** -

     **Screen formats/organization:** As seen in Figure 12.

     **Window formats/organization:** -

     **Data formats:** -

     **Command formats:** -

     **End messages:** -

**j.** The ION-CHAT SYSTEM shall allow root to make update operation for chat group.
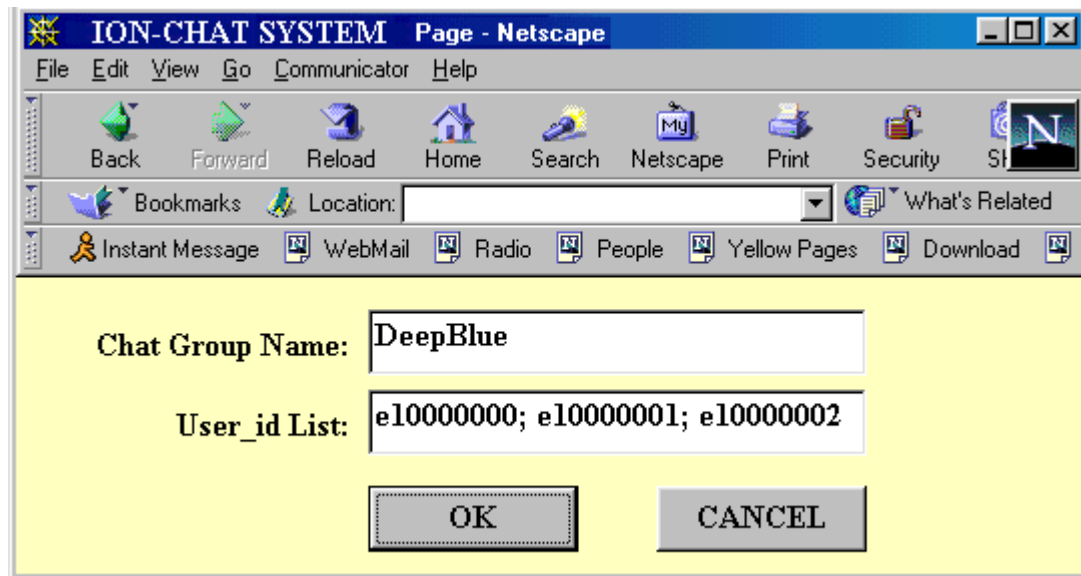


**Figure 13**: Update Chat Group Screen

The detailed description of items of delete chat-group screen:

1.  **Name of item:** Chat_group text box

    **Description of purpose:** To display the name of the chat group that shall be updated.

    **Source of input:** -

    **Valid range:** -

    **Units of measure:** -

    **Timing:** -

    **Relationship to other inputs:-**

    **Screen formats/organization:** As seen in Figure 13.

    **Window formats/organization:** -

    **Data formats:** This area shall be disabled to modification.

    **Command formats:** -

    **End messages:** -

2. **Name of item:** User_id_list text box.

**Description of purpose:** To update the id of the users which are in the chat group that shall be updated.

**Source of input:** Keyboard.

**Valid range:** The user_id of a single user shall be maximum 10 characters long and cannot be zero.

**Units of measure:** -

**Timing:** -

**Relationship to other inputs: -**

**Screen formats/organization:** As seen in Figure 13.

**Window formats/organization:** -

**Data formats:** The user_id of a single user shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set. Every user_id shall be separated with a ";" mark.

**Command formats:** -

**End messages:** -


3. **Name of item:** Ok_button.

**Description of purpose:** To finalize the chat group information update operation.

**Source of input:** Keyboard or mouse.

**Valid range:** -

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** The inputs shall be entered into all text box type input areas (according to the criteria specified for these areas) before finalizing the chat group information update operation.

**Screen formats/organization:** As seen in Figure 13.

**Window formats/organization:** -

**Data formats:** -

**Command formats:** -

**End messages:** -

4. **Name of item:** Cancel_button

   **Description of purpose:** To cancel the chat group information update operation

   **Source of input:** Keyboard or mouse

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 13.

   **Window formats/organization:** -

   **Data formats:** -

   **Command formats:** -

   **End messages:** -

### 3.1.1.3 Functions for Instructor, Students and Customers

**a.** The ION-CHAT SYSTEM shall allow instructor, students and customers to make chat operation.
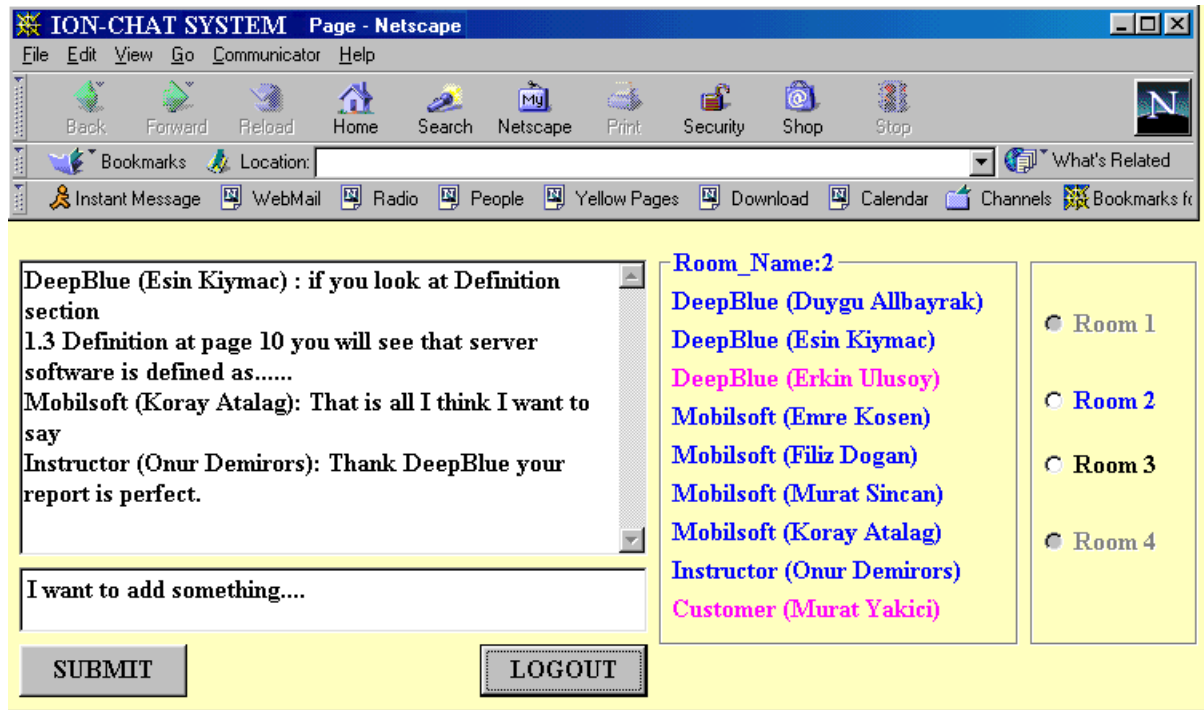


**Figure 14**: Chat Screen

The detailed description of items of chat screen:

1. **Name of item:** General_area text box.

   **Description of purpose:** To see the dialogs between the users that shall enter the chat screen.

   **Source of input:** -

   **Valid range:** The general_area text box shall handle 100 lines.

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** The General_area text box shall display only the messages of the selected room in Room_list area.

   **Screen formats/organization:** As seen in Figure 14.

**Window formats/organization:** -

**Data formats:** This area shall be disabled to modification.

**Command formats:** -

**End messages:** -

2.  **Name of item:** User_area text box

    **Description of purpose:** To enter the input text of the user that shall be shown in the chat screen.

    **Source of input:** Keyboard

    **Valid range:** The input text of the user shall be maximum 300 characters long and cannot be zero.

    **Units of measure:** -

    **Timing:** -

    **Relationship to other inputs:** -

    **Screen formats/organization:** As seen in Figure 14.

    **Window formats/organization:** -

    **Data formats:** The input text of the user shall consist of alphanumeric characters only and shall be compatible with ISO 8859-1 character set.

    **Command formats:** -

    **End messages:** -

3.  **Name of item:** Submit_button

    **Description of purpose:** To finalize the input text of the user that shall be in the chat screen

    **Source of input:** Keyboard or mouse

    **Valid range:** -

    **Units of measure:** -

    **Timing:** -

    **Relationship to other inputs:** The user area text box shall be entered (according to the criteria specified for this text box) before finalizing the message send operation.

    **Screen formats/organization:** As seen in Figure 14.

**Window formats/organization:** -

**Data formats:** -

**Command formats:** -

**End messages:** -


4.   **Name of item:** User_list area

**Description of purpose:** To see the users' list that shall be in the chat screen

**Source of input:** -

**Valid range:** -

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** -

**Screen formats/organization:** As seen in Figure 14.

**Window formats/organization:** -

**Data formats:** The room name shall be seen at the top next to "Room_Name:". The chat group name and in parentheses next to it user real name must be seen. The online user shall be in blue color and offline user shall be in pink color. Moreover, this area shall be disabled to modification.

**Command formats:** -

**End messages:** -


5.   **Name of item:** Room_list area

**Description of purpose:** To see the room list that the user on the chat screen is allowed enter and select the room that he/she shall enter.

**Source of input:** Keyboard or mouse.

**Valid range:** -

**Units of measure:** -

**Timing:** -

**Relationship to other inputs:** The General_area text box shall display only the messages of the selected room in Room_list area.

**Screen formats/organization:** As seen in Figure 14.

**Window formats/organization:** -

**Data formats:** The room name that the user is in shall be blue color. The room name that the user can enter shall be black color. The room name that the user cannot enter shall be gray color. Moreover, this area shall be disabled to modification.

**Command formats:** -

**End messages:** -

6. **Name of item:** Logout_button

   **Description of purpose:** To logout the user from ION-CHAT SYSTEM

   **Source of input:** Keyboard or mouse

   **Valid range:** -

   **Units of measure:** -

   **Timing:** -

   **Relationship to other inputs:** -

   **Screen formats/organization:** As seen in Figure 14.

   **Window formats/organization:** -

   **Data formats:** -

   **Command formats:** -

   **End messages:** -

## 3.1.2 Hardware Interfaces

As mentioned in subsection 2.1.3 there is no defined hardware interface requirements for the ION-CHAT SYSTEM.

## 3.1.3 Software Interfaces

Since all software interfaces of the ION-CHAT SYSTEM are well-documented as described in subsection 2.1.4, no additional details shall be specified.
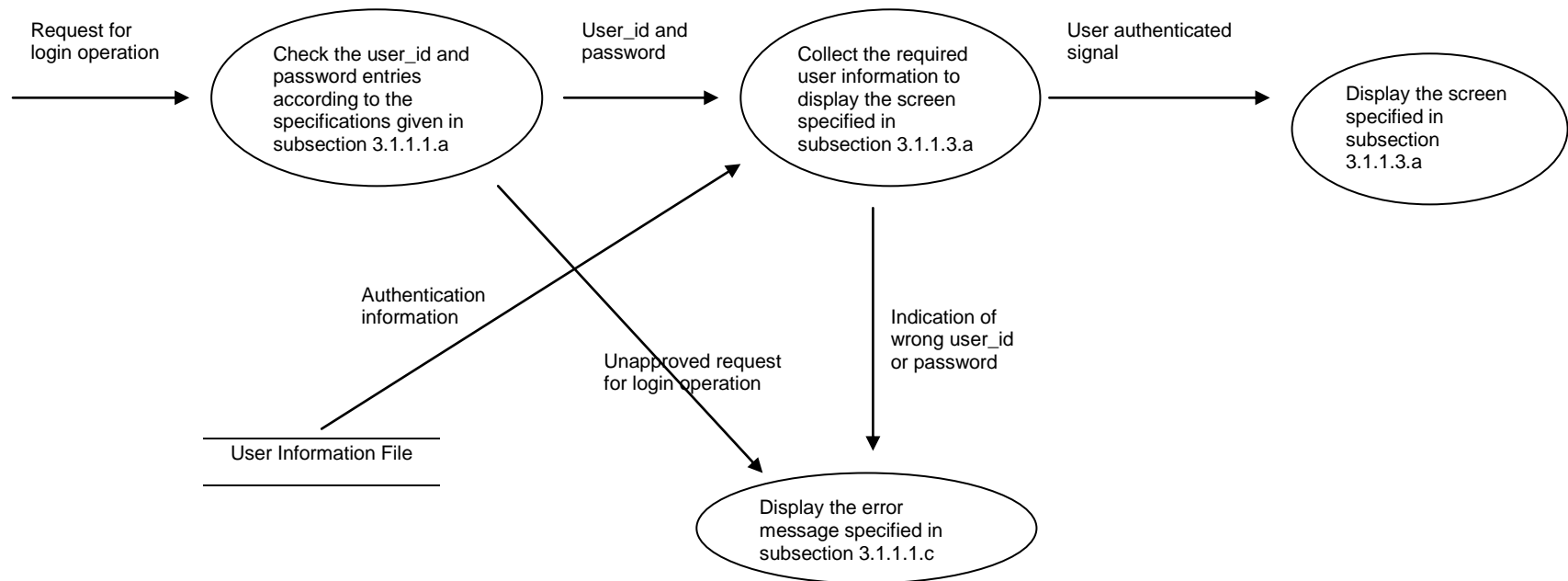
### 3.1.4   Communications Interfaces

Since all communication interfaces of the ION-CHAT SYSTEM are well-documented as described in subsection 2.1.5, no additional details shall be specified.

## 3.2    Functional Requirements

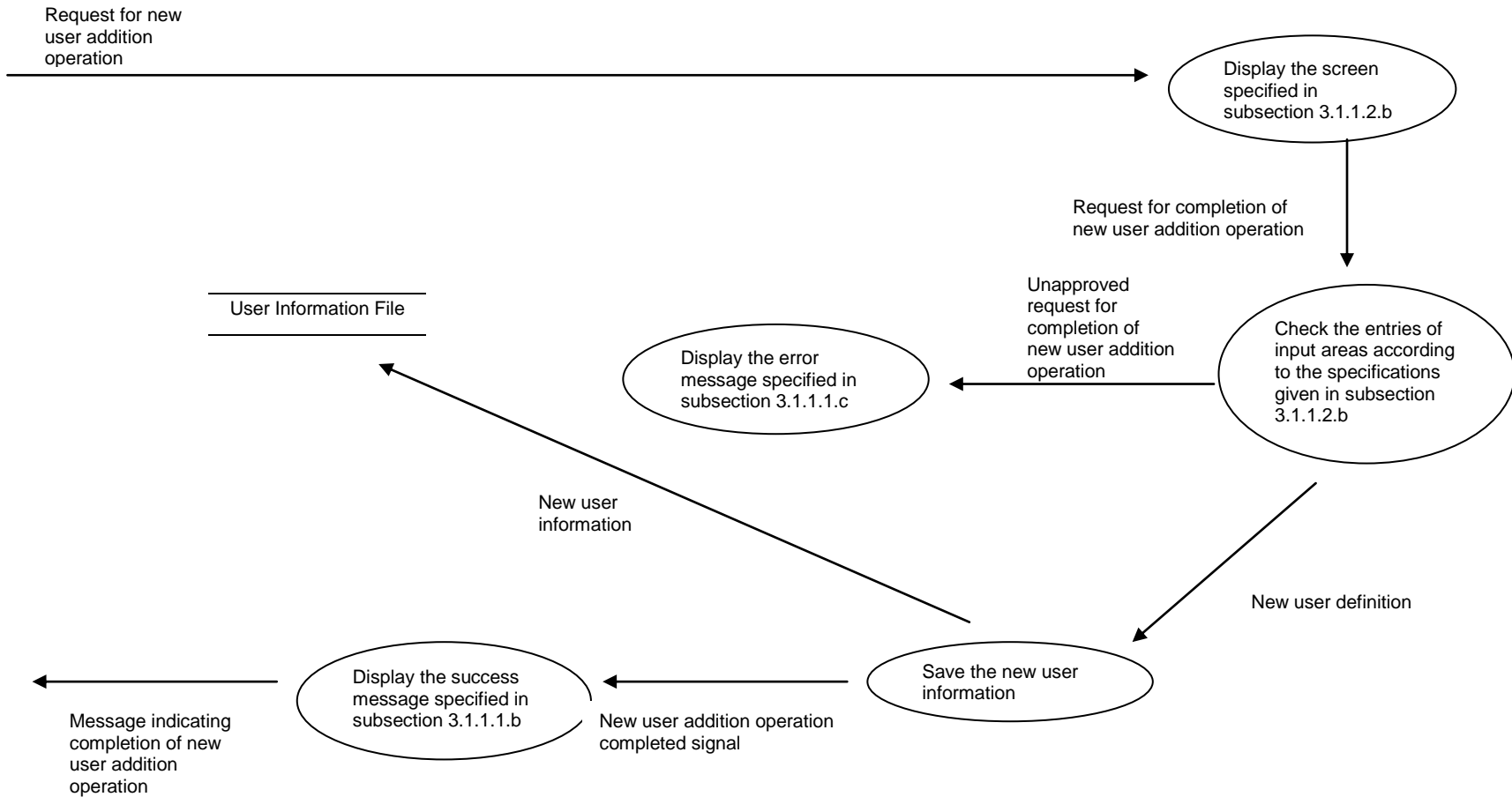### 3.2.1    Common Functions for All Users

### 3.2.1.1    User Authentication Function:
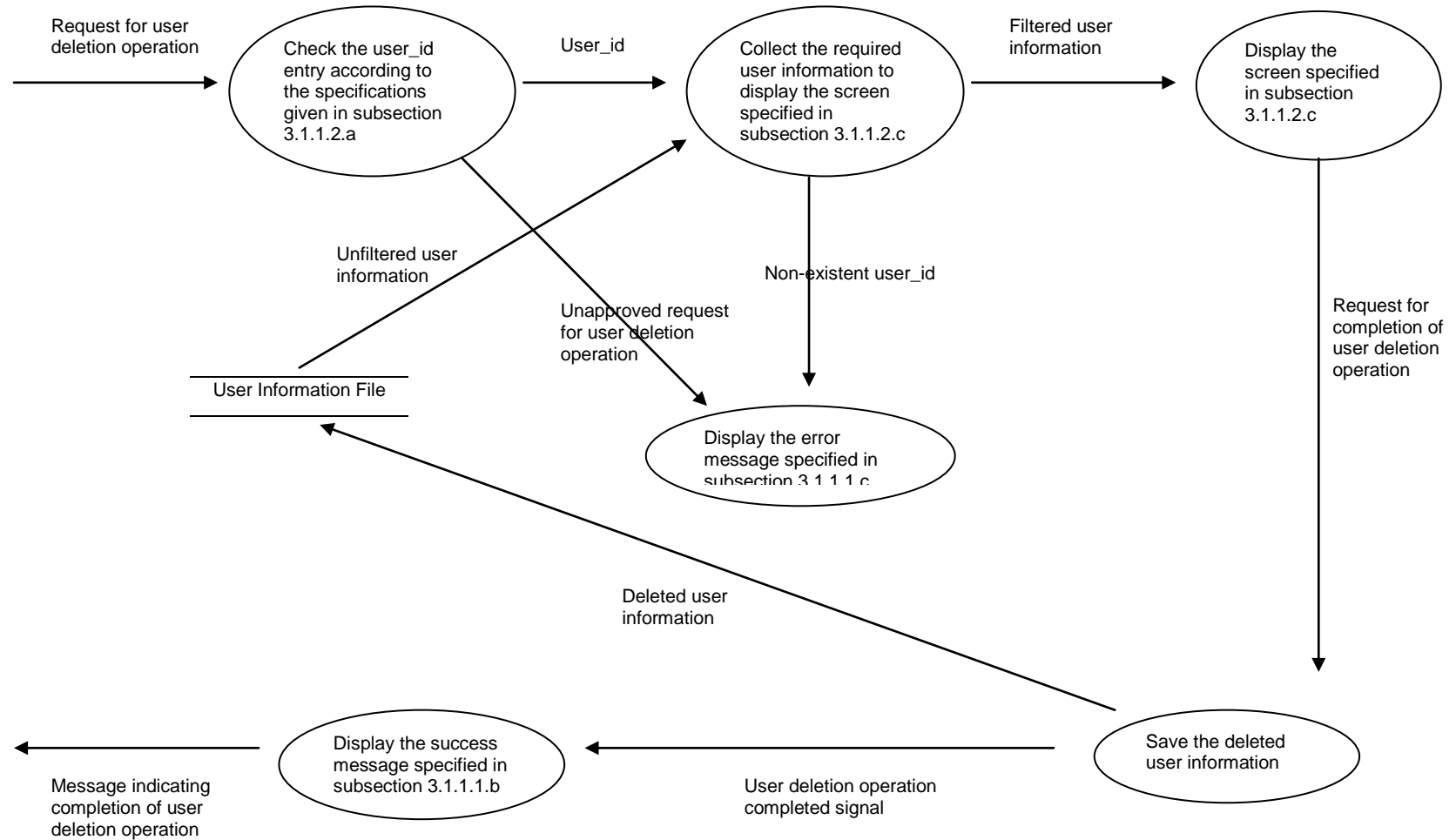


**Figure 15:** DFD for User authentication

### 3.2.2   Functions for Root

### 3.2.2.1   User Addition Function:

Request for new
user addition
operation

Display the screen
specified in
subsection 3.1.1.2.b

Request for completion of
new user addition operation

Unapproved
request for
completion of
new user addition
operation

User Information File

Display the error
message specified in
subsection 3.1.1.1.c

Check the entries of
input areas according
to the specifications
given in subsection
3.1.1.2.b

New user
information

New user definition

Display the success
message specified in
subsection 3.1.1.1.b

Save the new user
information

Message indicating
completion of new
user addition
operation

New user addition operation
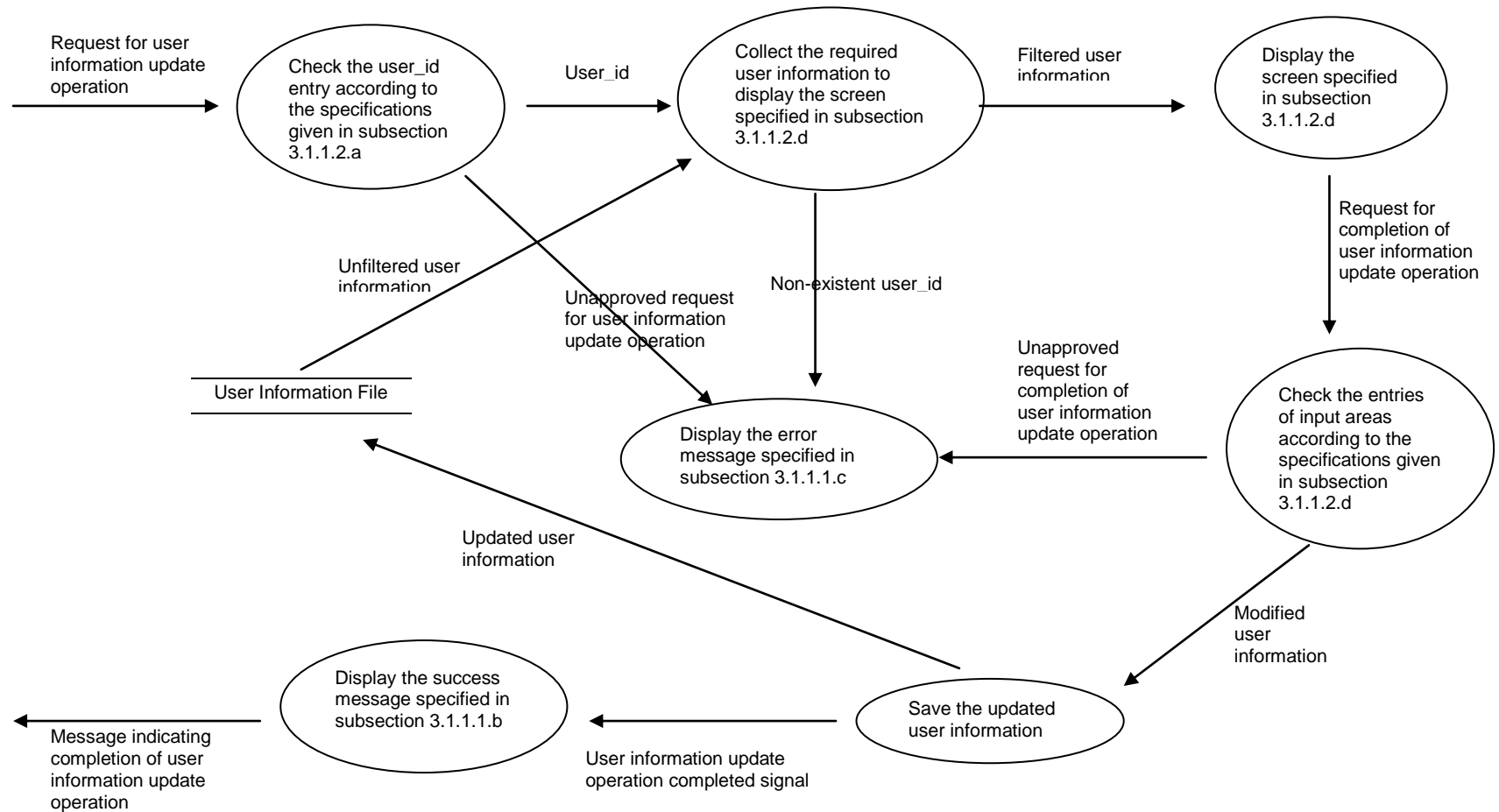completed signal

**Figure 16:** DFD for New user addition function
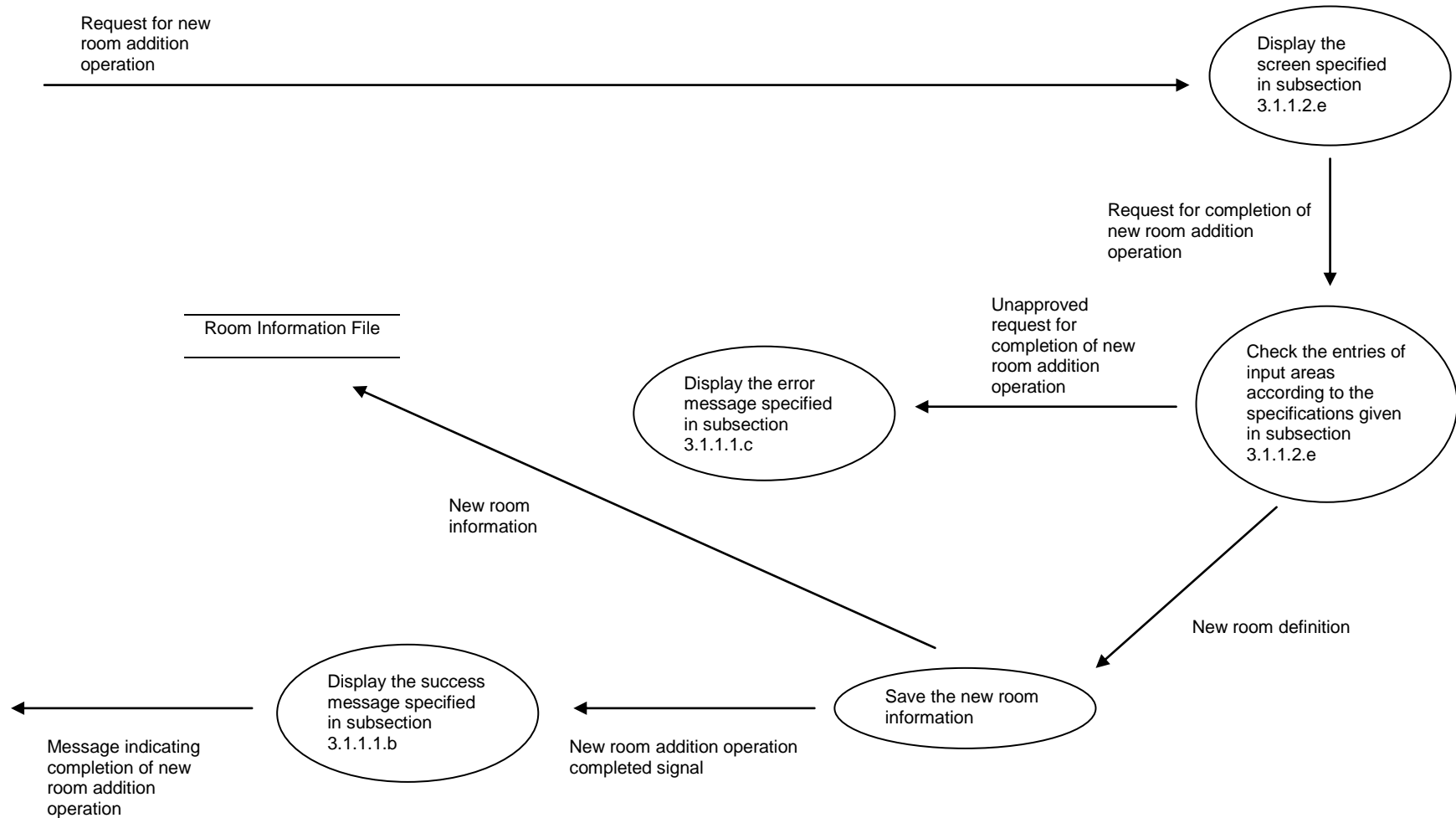
### 3.2.2.2  User Deletion Function:



**Figure 17:** DFD for User deletion function

### 3.2.2.3 User Update Function:



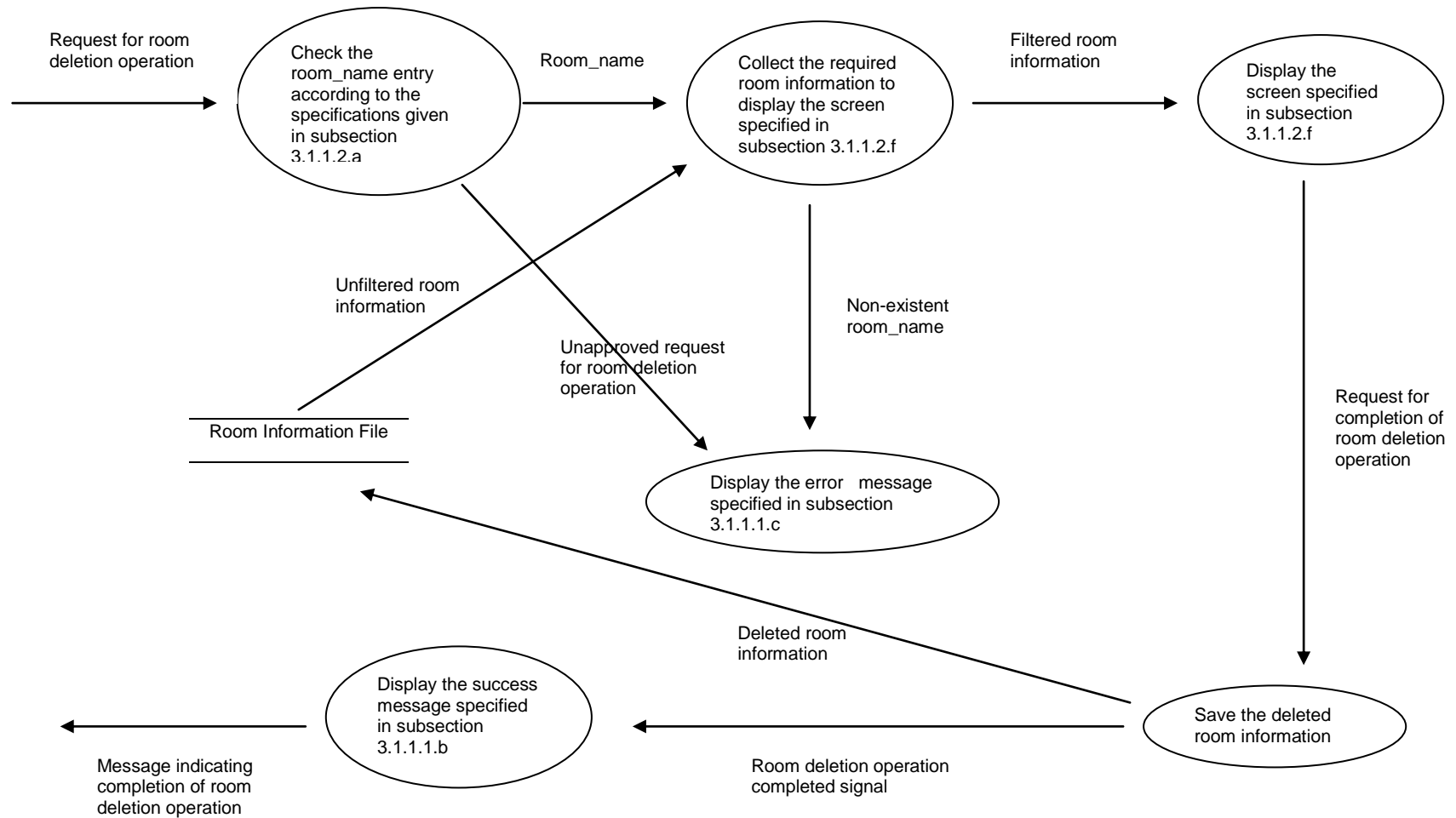**Figure 18:** DFD for User information update function.

### 3.2.2.4 Room Addition Function:



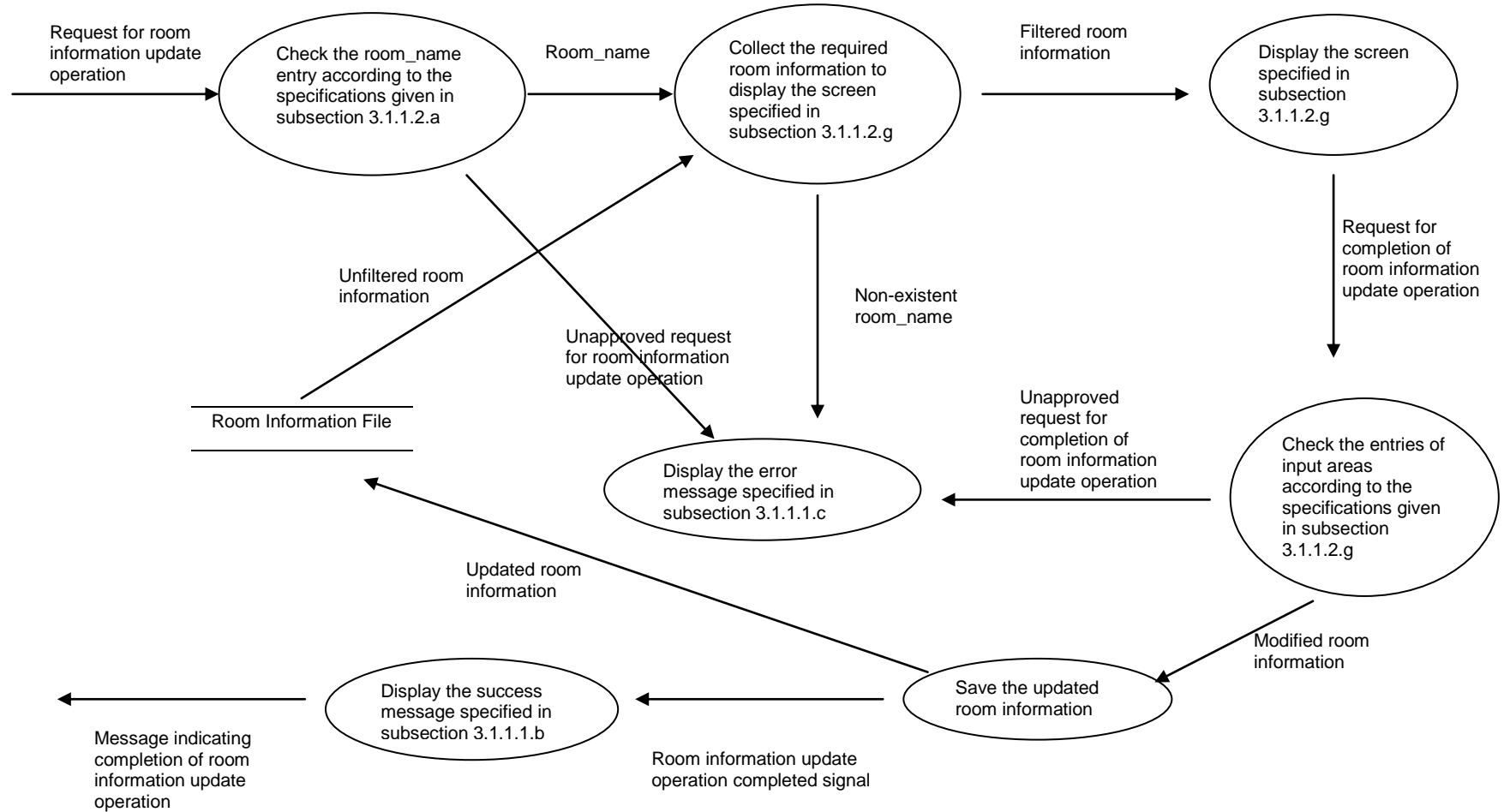**Figure 19:** DFD for New room addition function.
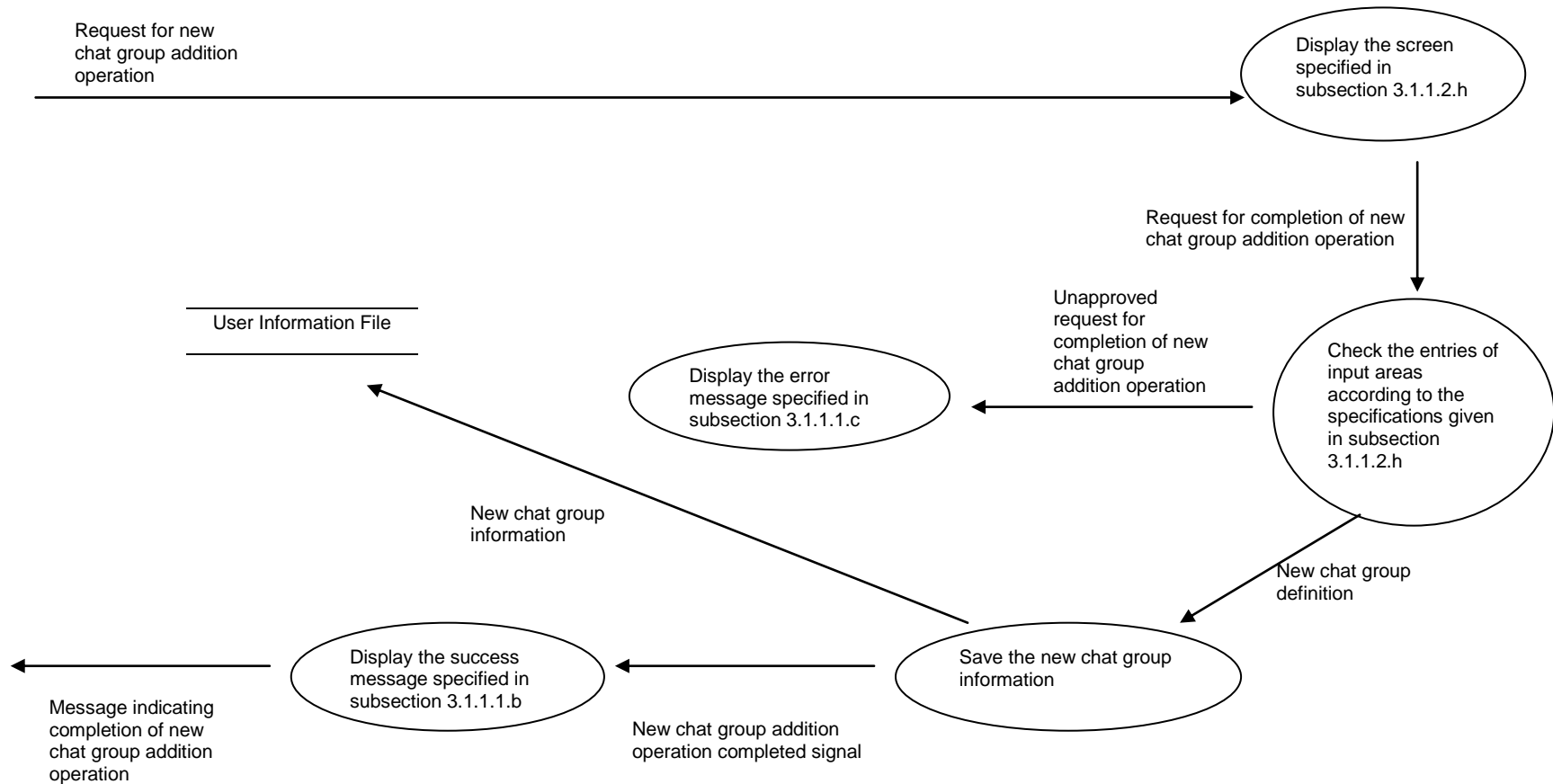
## 3.2.2.5   Room Deletion Function:



**Figure 20:** DFD for Room deletion function

### 3.2.2.6   Room Update Function:



**Figure 21:** DFD for Room information update function

### 3.2.2.7 Chat Group Addition Function:

Request for new
chat group addition
operation

Display the screen
specified in
subsection 3.1.1.2.h

Request for completion of new
chat group addition operation

Unapproved
request for
completion of new
chat group
addition operation

User Information File

Display the error
message specified in
subsection 3.1.1.1.c

Check the entries of
input areas
according to the
specifications given
in subsection
3.1.1.2.h

New chat group
information

New chat group
definition

Display the success
message specified in
subsection 3.1.1.1.b

Save the new chat group
information

Message indicating
completion of new
chat group addition
operation

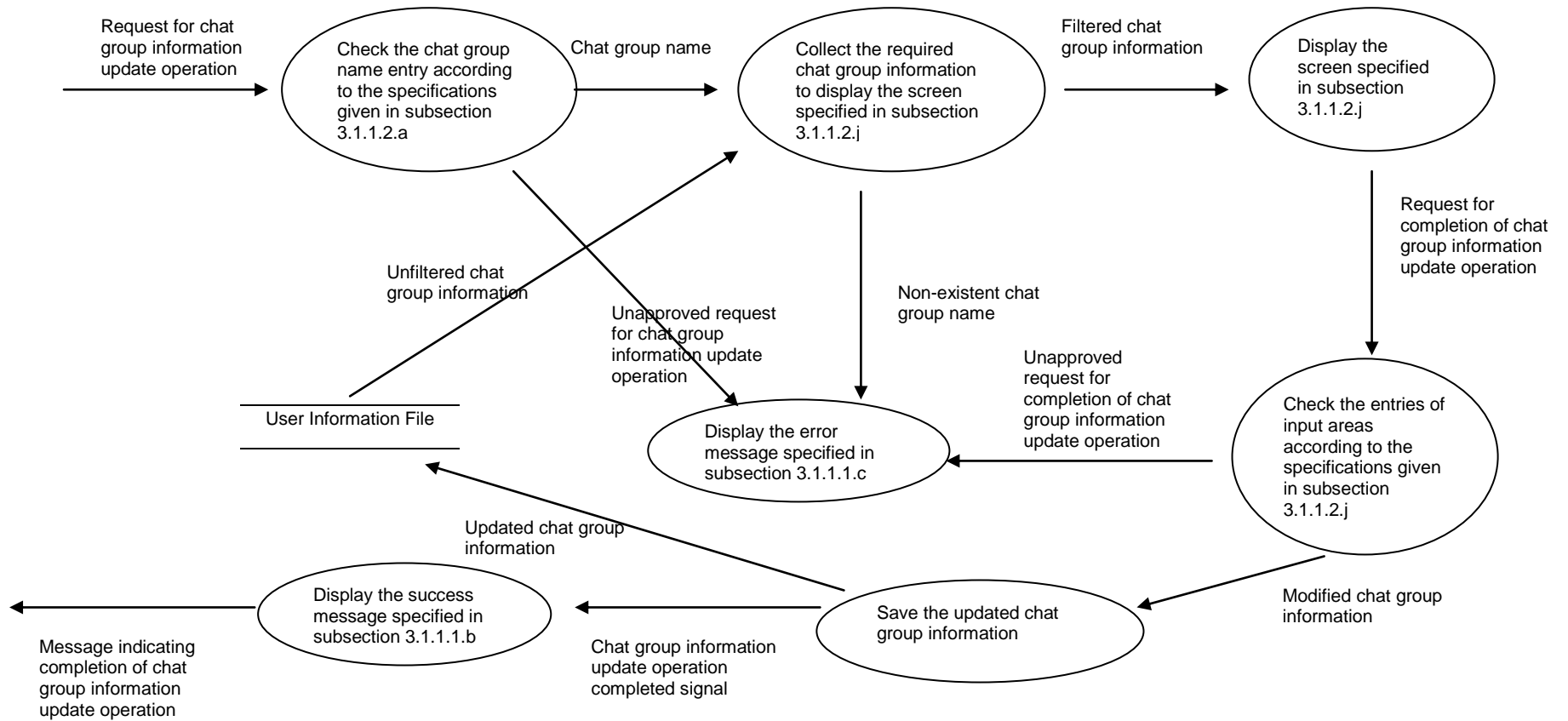New chat group addition
operation completed signal

**Figure 22:** DFD for New chat group addition function

### 3.2.2.8 Chat Group Deletion Function:
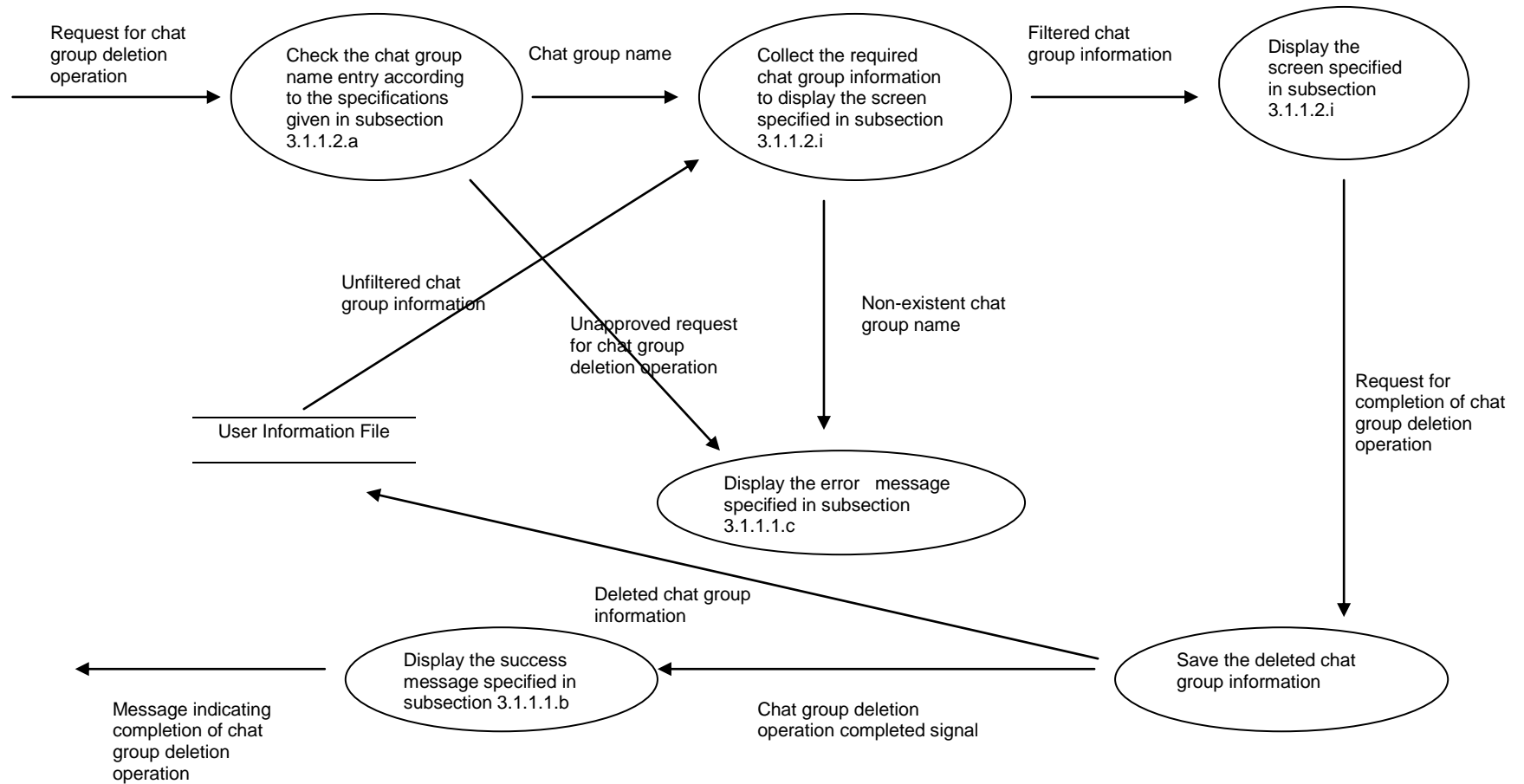


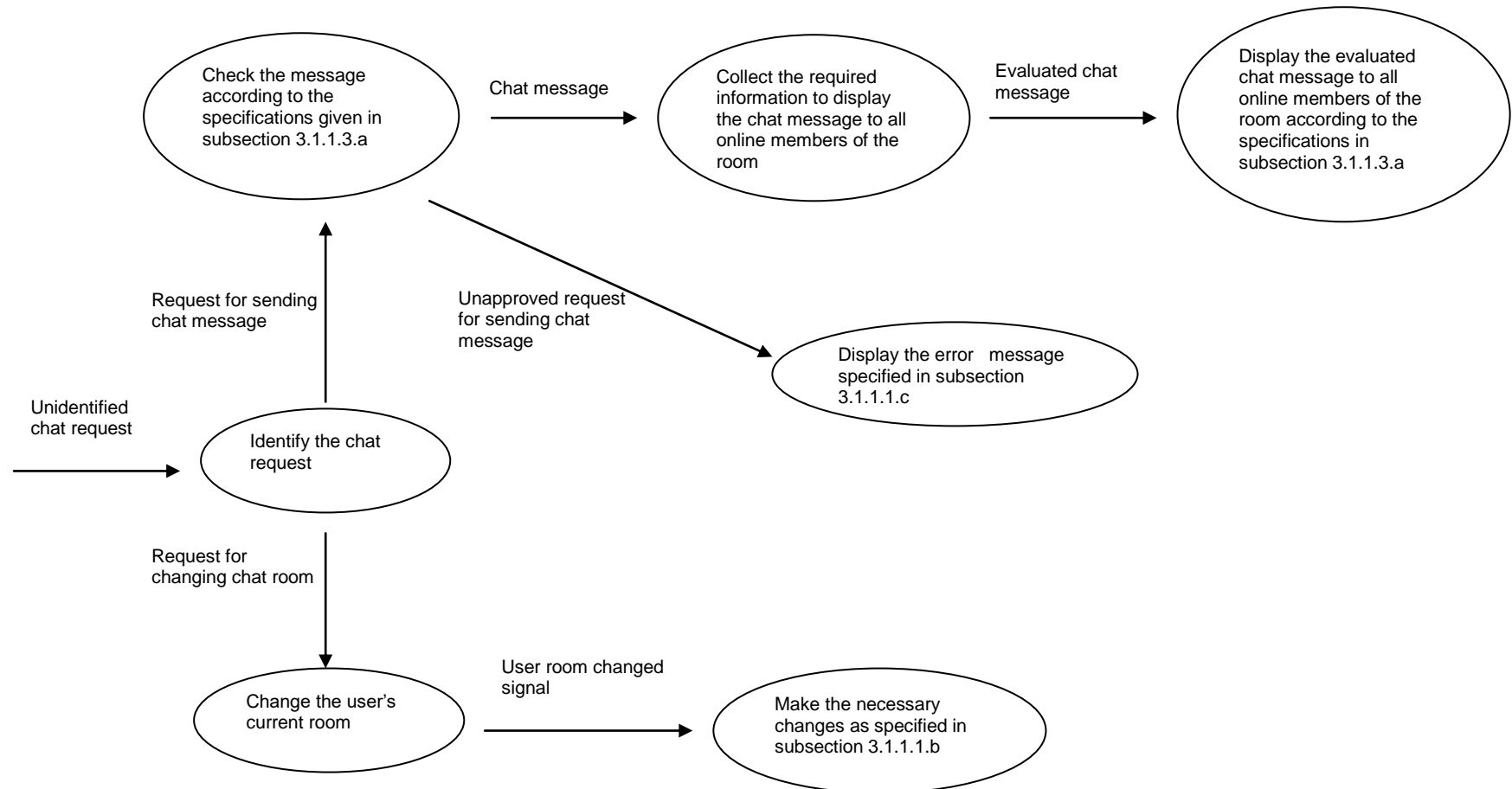**Figure 23:** DFD for Chat group deletion function

### 3.2.2.9 Chat Group Update Function:



**Figure 24:** DFD for Chat group information update function

### 3.2.3 Functions for Instructor, Students and Customers

### 3.2.3.1 Chat Function:



**Figure 25:** DFD for Chat function

### 3.3 Performance Requirements

The performance requirements for the ION-CHAT SYSTEM are:

1. The maximum number of simultaneous clients required, to be supported by the ION-CHAT SYSTEM shall be 100.

2. The maximum start-up time required for the server software shall be 15 seconds on the typical server platform.

3. The maximum start-up time required for the client software shall be 30 seconds on the typical client platform.

4. The maximum elapsed time for the ION-CHAT SYSTEM to execute any of the functions specified in subsection 3.2 shall be 10 seconds, unless otherwise specified.

5. For all of the transactions, the maximum time elapsed for the ION-CHAT SYSTEM to execute the function specified in subsection 3.2.1.1 shall be 20 seconds.

6. For 95% of the transactions, the maximum time elapsed for the ION-CHAT SYSTEM to execute the function specified in subsection 3.2.1.1 shall be 15 seconds.

7. For all of the transactions, the maximum time elapsed for the ION-CHAT SYSTEM to execute the function specified in subsection 3.2.3.1, shall be 7 seconds.

8. For 95% of the transactions, the maximum time elapsed for the ION-CHAT SYSTEM to execute the function specified in subsection 3.2.3.1, shall be 5 seconds.

### 3.4 Design Constraints

### 3.4.1 Standards Compliance

The ION-CHAT SYSTEM standard compliance requirements are as follows:

1. Any kind of documentation prepared for ION-CHAT SYSTEM shall be in content compliance with IEEE standards **[7, 8, 9, 10]**.

### 3.5 Software System Attributes

### 3.5.1 Reliability:

1. The ION-CHAT SYSTEM shall be 100% operational for 90% of the calendar time during its first year of operation.

### 3.5.2 Security:

1. In order to protect itself from accidental or malicious access, use or modification, the ION-CHAT SYSTEM shall enforce supply of a valid username and password pair, when any user attempts to login to the system.

2. The issues concerning the security of the operating system at the server site, which may lead security problems for the ION-CHAT SYSTEM, shall not be the responsibility of the DeepBlue.

### 3.5.3 Portability:

1. The ION-CHAT SYSTEM shall be a platform independent system, provided that, all of the software interfaces specified in subsection 2.1.4 are provided for both the server site and the client site.

2. In order to establish the platform independence, Java2 Standard Edition version 1.3.1 of Sun Microsystems shall be used for coding both the server software and the client software.

### 3.6 Other Requirements

Although, the ION-CHAT SYSTEM shall not use any logical database, it shall use two different files which are "User Information File" and "Room Information File". The requirements for these files are:

1. The User Information File shall be used in User Authentication Function, User Addition Function, User Deletion Function, User Update Function, Chat Group Addition Function, Chat Group Deletion Function and Chat Group Update Function.

2. The Room Information File shall be used in Room Addition Function, Room Deletion Function and Room Update Function.