

Project
Hospital Management System

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Scenario - this application is designed to be used by 3 hospital administrators to manage the number of patients in each hospital room. When administrator (user) runs a program, he might only be the only logged user on his machine. He might login to another account as well, but one at a time.

Application instantiates General Hospital with 3 floors.

There are 3 types of rooms in this hospital: Medical, Intensive Care and Operating Room.

First floor has 5 rooms, second and third have 4 rooms each.

There are 4 doctors in this hospital: House, Forman, Cameron and Chase.

Main feature: this application shows the info about all patients located in each of hospital rooms.
When adding a new patient, he is assigned a room and a doctor.

Room is assigned by 2 criteria: 1) the type of room should suit patient needs. 2) patient is assigned a room with smallest number of patients among all the rooms of chosen type.

Doctor is assigned randomly from the set of 4 doctors.

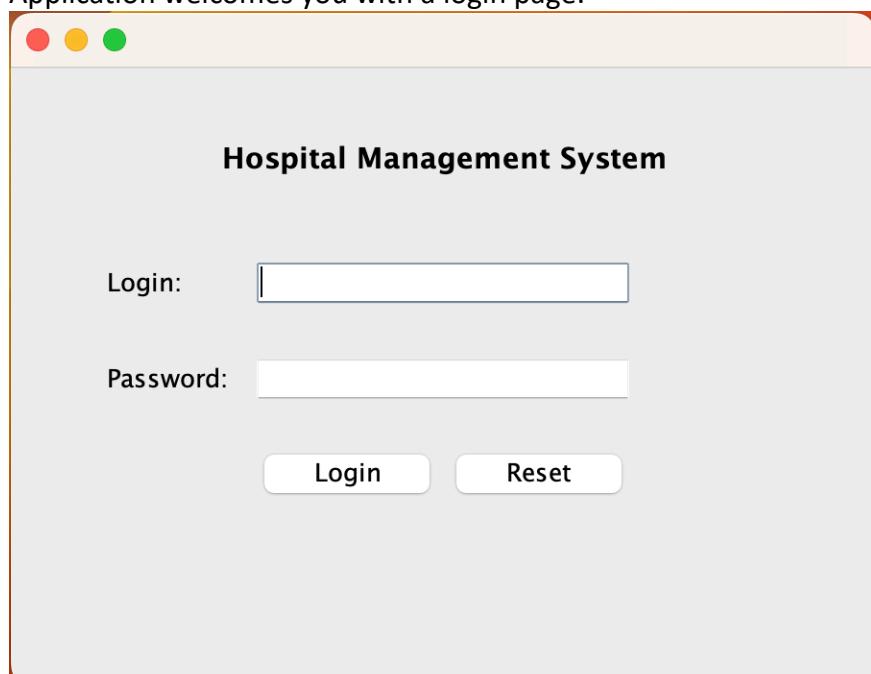
How to use the Hospital Management System application:

In order to login, you might use one of 3 possible login – password passwords:

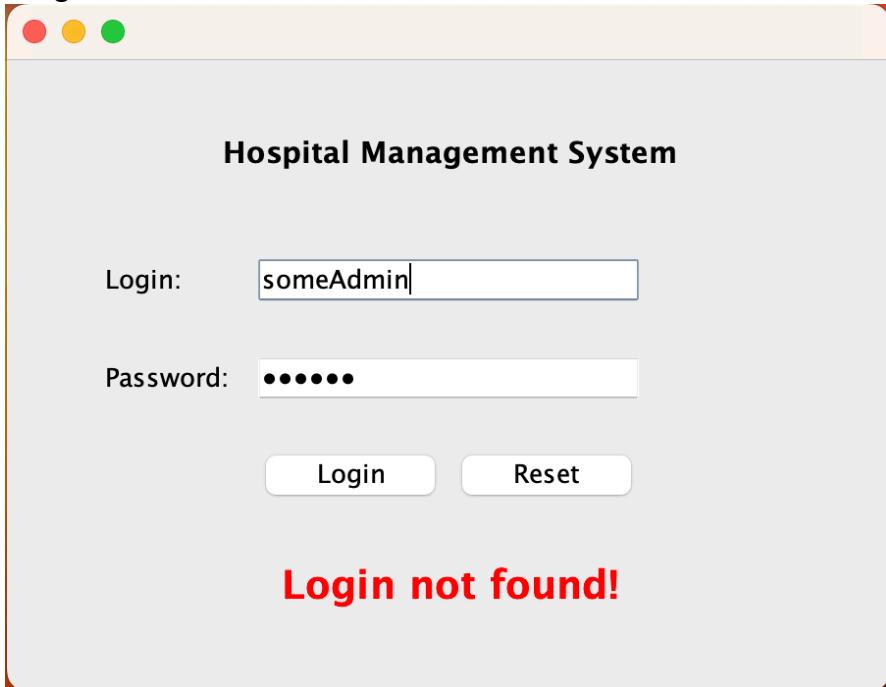
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"Admin1", "qwerty"  
"Admin2", "abcdefg"  
"Admin3", "123passcode"
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Scenario – only 3 administrators are entitled to use the Hospital Management System, so each of them is given a login and corresponding password.

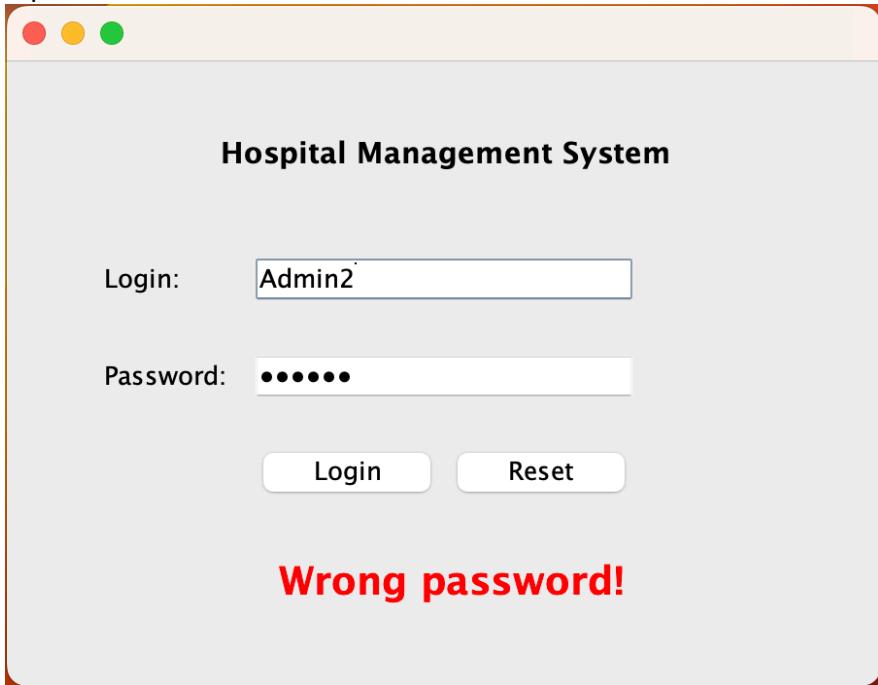
Application welcomes you with a login page:



If login is not found:



If password is not correct:



If login and password are correct, application redirects you to the System page.

There is an upper part with available actions and bottom part with displayed information regarding the fullness of each room in a hospital.

Buttons corresponding to every action are only enabled if all necessary corresponding fields are filled with data by user.

System page – main page of the application:

The screenshot shows a Mac OS X style window titled "Welcome to the Hospital Management System, Admin2!". The window is divided into three main sections: "Add new patient:", "Remove patient by ID:", and "Save/backup:". The "Add new patient:" section contains fields for Name, Surname, Illness (with Medical selected), Room (Operating), and an "Add patient" button. The "Remove patient by ID:" section has a "Remove patient" button and an ID input field. The "Save/backup:" section has a "Save file" button and a "Backup to: Hospital Management System .bak" field with a "Backup file" button. Below the main sections, there is a large text area displaying room status for three floors: Floor 1, Floor 2, and Floor 3.

Add new patient:

Name:
Surname:
Illness: Medical
 Intensive Care
 Operating
Add patient

Remove patient by ID:

ID:

Save/backup:

Save file

Backup to: Hospital Management System .bak

Backup file

Floor 1:
Room 101 (Operating): Empty
Room 102 (Operating): Empty
Room 103 (Operating): Empty
Room 104 (Intensive Care): Empty
Room 105 (Medical): Empty

Floor 2:
Room 201 (Intensive Care): Empty
Room 202 (Intensive Care): Empty
Room 203 (Intensive Care): Empty
Room 204 (Medical): Empty

Floor 3:
Room 301 (Medical): Empty
Room 302 (Medical): Empty
Room 303 (Medical): Empty
Room 304 (Intensive Care): Empty

Adding new patient:

Welcome to the Hospital Management System, Admin2!

Add new patient: Name: Sergei Surname: Rogov Illness: Cold Room: <input checked="" type="radio"/> Medical <input type="radio"/> Intensive Care <input type="radio"/> Operating <input type="button" value="Add patient"/>	Remove patient by ID: ID: <input type="text"/> <input type="button" value="Remove patient"/>	Save/backup: <input type="button" value="Save file"/> Backup to: Hospital Management System <input type="text"/> .bak <input type="button" value="Backup file"/>
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Floor 1:
Room 101 (Operating): Empty
Room 102 (Operating): Empty
Room 103 (Operating): Empty
Room 104 (Intensive Care): Empty
Room 105 (Medical): Patient 0 [Name:Serg]

Floor 2:
Room 201 (Intensive Care): Empty
Room 202 (Intensive Care): Empty
Room 203 (Intensive Care): Empty
Room 204 (Medical): Empty

Floor 3:
Room 301 (Medical): Empty
Room 302 (Medical): Empty
Room 303 (Medical): Empty
Room 304 (Intensive Care): Empty

Message
New patient is added.

New patient is added to the system and assigned a room and a doctor:

Welcome to the Hospital Management System, Admin2!

Add new patient: Name: <input type="text"/> Surname: <input type="text"/> Illness: <input type="text"/> Room: <input checked="" type="radio"/> Medical <input type="radio"/> Intensive Care <input type="radio"/> Operating <input type="button" value="Add patient"/>	Remove patient by ID: ID: <input type="text"/> <input type="button" value="Remove patient"/>	Save/backup: <input type="button" value="Save file"/> Backup to: Hospital Management System <input type="text"/> .bak <input type="button" value="Backup file"/>
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Floor 1:
Room 101 (Operating): Empty
Room 102 (Operating): Empty
Room 103 (Operating): Empty
Room 104 (Intensive Care): Empty
Room 105 (Medical): Patient 0 [Name:Sergei Rogov; Illness:Cold; Doctor: Forman],

Floor 2:
Room 201 (Intensive Care): Empty
Room 202 (Intensive Care): Empty
Room 203 (Intensive Care): Empty
Room 204 (Medical): Empty

Floor 3:
Room 301 (Medical): Empty
Room 302 (Medical): Empty
Room 303 (Medical): Empty
Room 304 (Intensive Care): Empty

Removing a patient by ID key:

This feature is needed because when patients get well they should be discharged from hospital.

Welcome to the Hospital Management System, Admin2!

Add new patient: Name: <input type="text"/> Surname: <input type="text"/> Illness: <input type="text"/> Room: <input checked="" type="radio"/> Medical <input type="radio"/> Intensive Care <input type="radio"/> Operating <input type="button" value="Add patient"/>	Remove patient by ID: ID: <input type="text"/> <input type="button" value="Remove patient"/>	Save/backup: <input type="button" value="Save file"/> Backup to: Hospital Management System .bak <input type="button" value="Backup file"/>
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Floor 1:
Room 101 (Operating): Patient 1 [Name:Ivan Petrov; Illness:Appendicitis; Doctor: Chase],
Room 102 (Operating): Empty
Room 103 (Operating): Empty
Room 104 (Intensive Care): Empty
Room 105 (Medical): Patient 0 [Name:Sergei Rogov; Illness:Cold; Doctor: Forman],

Floor 2:
Room 201 (Intensive Care): Patient 3 [Name:Anna Jonhson; Illness:HIV; Doctor: Cameron],
Room 202 (Intensive Care): Empty
Room 203 (Intensive Care): Empty
Room 204 (Medical): Patient 4 [Name:Sam Smith; Illness:Flu; Doctor: House],

Floor 3:
Room 301 (Medical): Patient 5 [Name:John White; Illness:Meningitis; Doctor: House],
Room 302 (Medical): Empty
Room 303 (Medical): Empty
Room 304 (Intensive Care): Empty

Patient 3, Anna Jonhson is discharged from hospital.

Welcome to the Hospital Management System, Admin2!

Add new patient: Name: <input type="text"/> Surname: <input type="text"/> Illness: <input type="text"/> Room: <input checked="" type="radio"/> Medical <input type="radio"/> Intensive Care <input type="radio"/> Operating <input type="button" value="Add patient"/>	Remove patient by ID: ID: <input type="text" value="3"/> <input type="button" value="Remove patient"/>	Save/backup: <input type="button" value="Save file"/> Backup to: Hospital Management System .bak <input type="button" value="Backup file"/>
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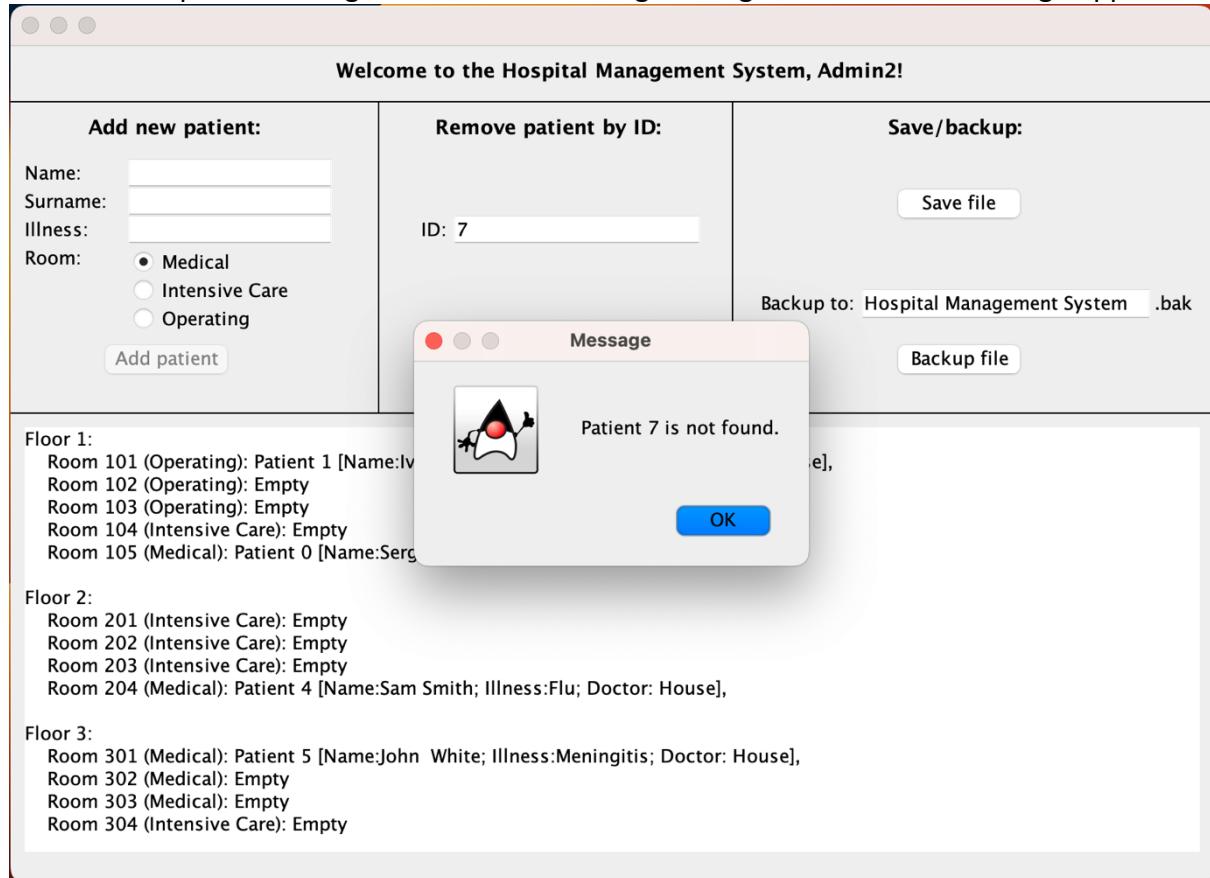
Floor 1:
Room 101 (Operating): Patient 1 [Name:Ivan Petrov; Illness:Appendicitis; Doctor: Chase],
Room 102 (Operating): Empty
Room 103 (Operating): Empty
Room 104 (Intensive Care): Empty
Room 105 (Medical): Patient 0 [Name:Sergei Rogov; Illness:Cold; Doctor: Forman],

Floor 2:
Room 201 (Intensive Care): Empty
Room 202 (Intensive Care): Empty
Room 203 (Intensive Care): Empty
Room 204 (Medical): Patient 4 [Name:Sam Smith; Illness:Flu; Doctor: House],

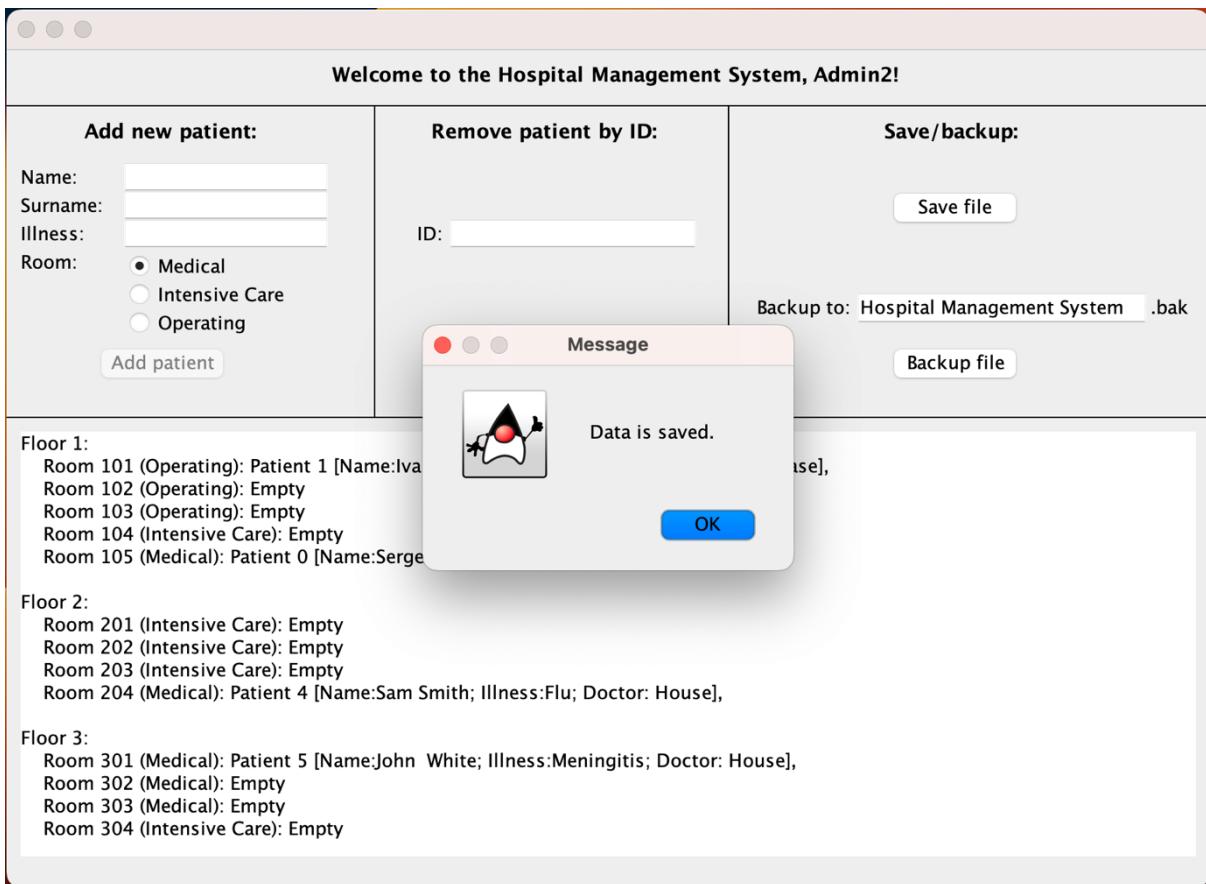
Floor 3:
Room 301 (Medical): Patient 5 [Name:John White; Illness:Meningitis; Doctor: House],
Room 302 (Medical): Empty
Room 303 (Medical): Empty
Room 304 (Intensive Care): Empty

Message
Patient 3 is removed.

If there is no patient with given ID – the following message is shown and nothing happens:



Saving data to a file:



Hospital_Management_System-Database.txt

"

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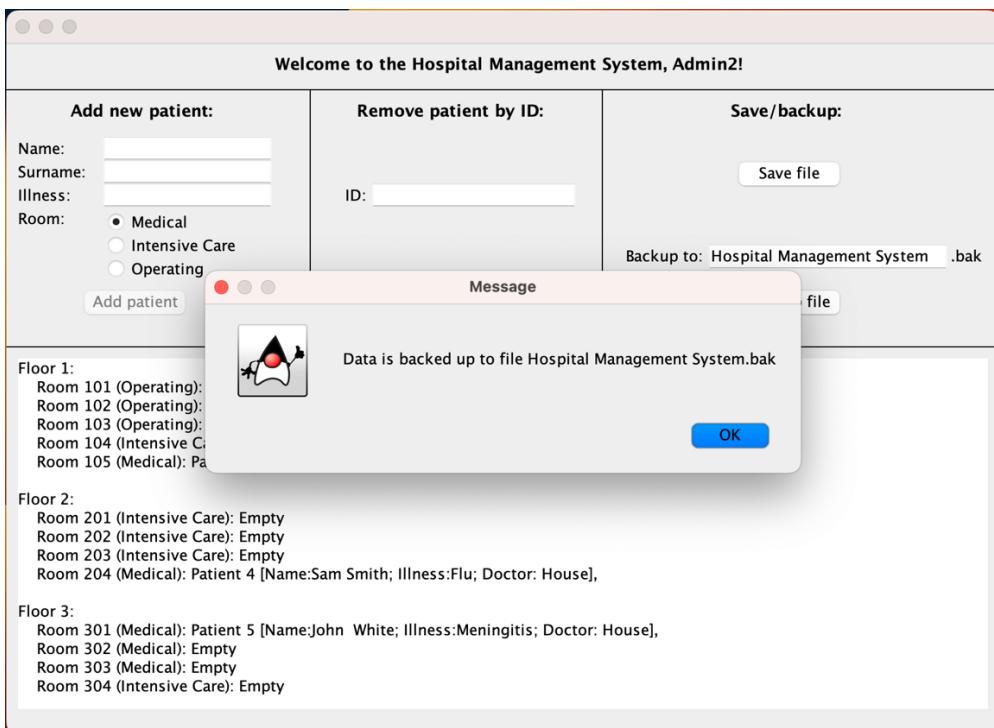
0;Sergei;Rogov;Cold;105;Forman
1;Ivan;Petrov;Appendicitis;101;Chase
4;Sam;Smith;Flu;204;House
5;John ;White;Meningitis;301;House

"

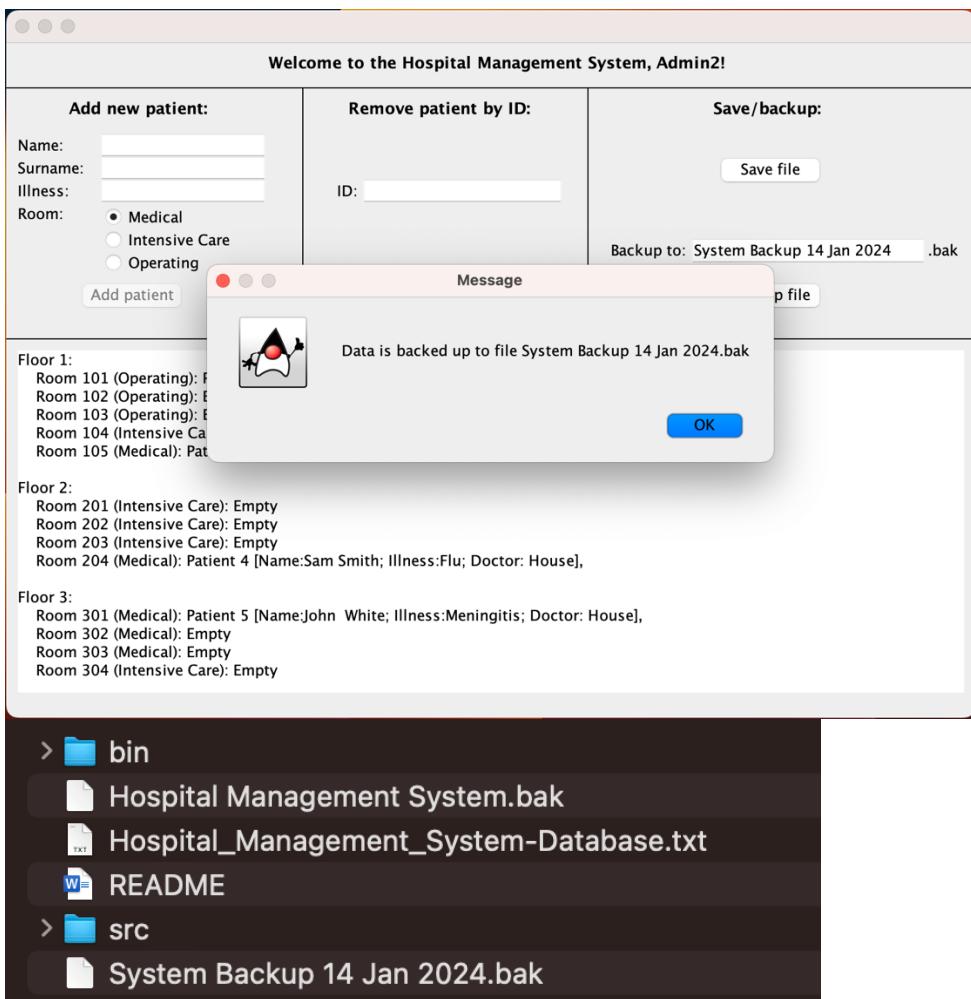
First line serves as a total number of patients ever added to a system. Needed to assign a proper ID's to patients.

From the second line and further data is written line by line in CSV format with ";" separator.
ID; name; surname; illness; roomID; doctor.

Backup to a file called Hospital Management System.bak



Name-it option is supported:



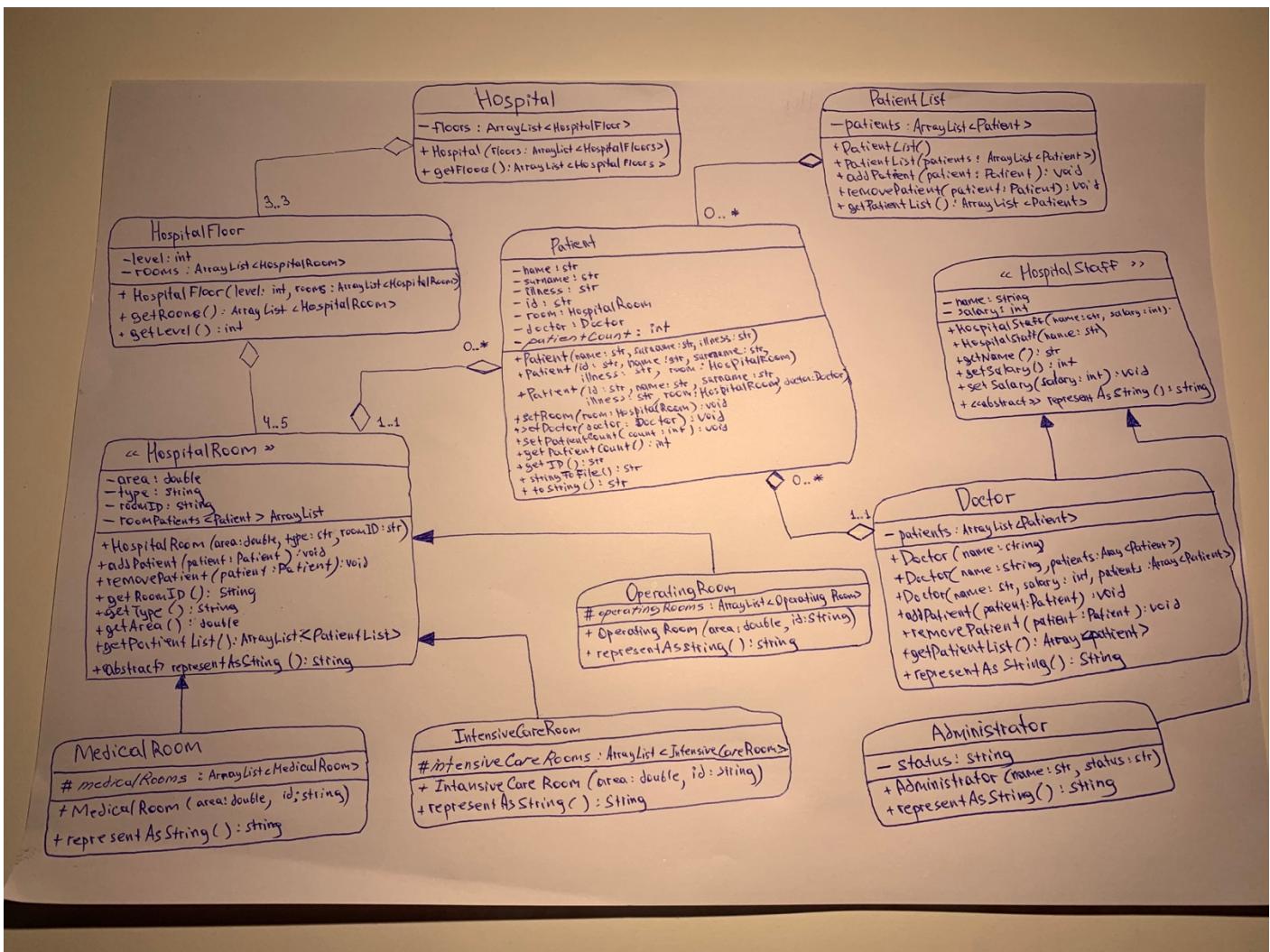
Loading from a file:

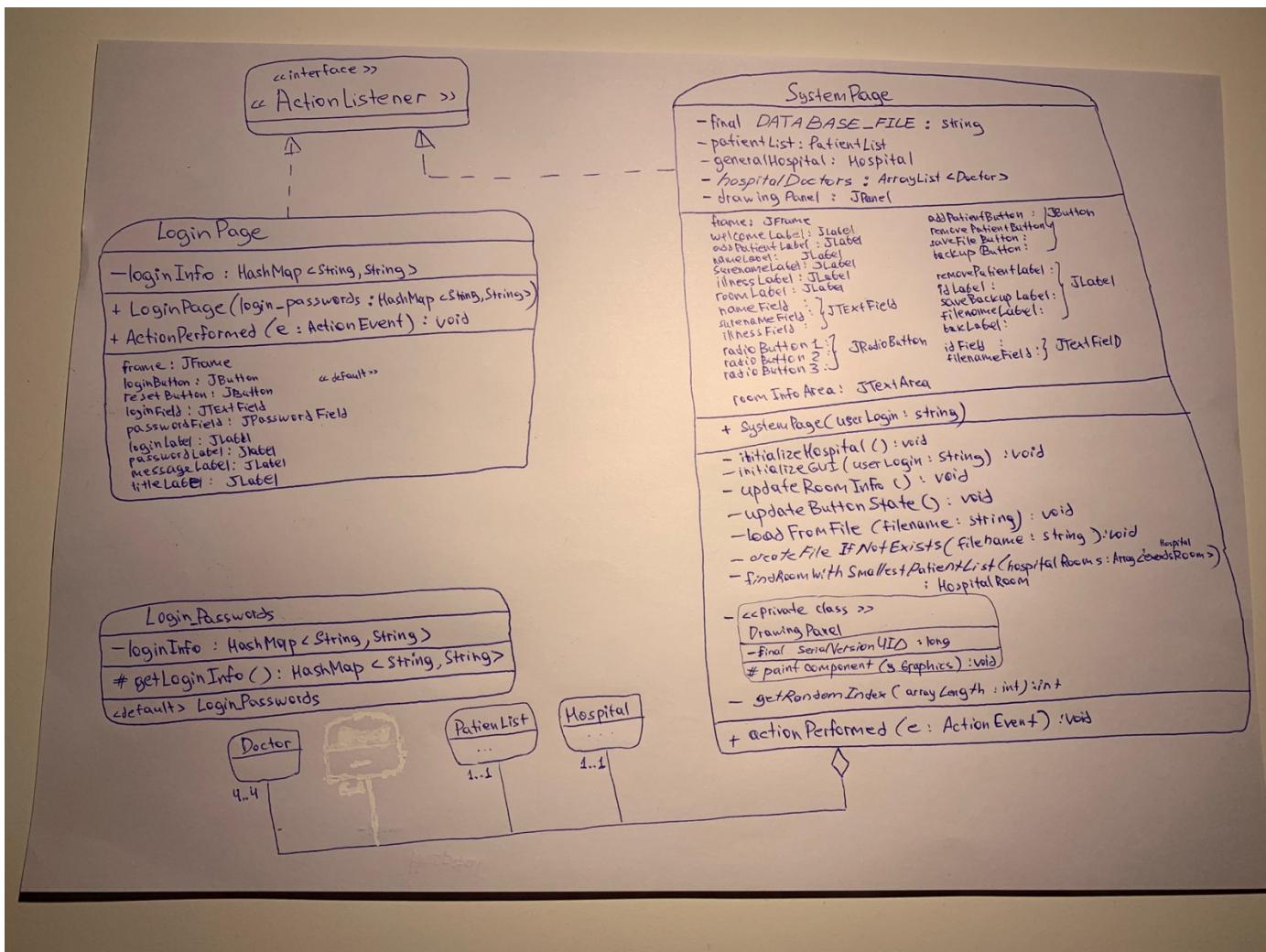
If the program is terminated, the patients record is not lost (assuming user pressed the SAVE button). When you run this program again, all the data is retrieved from Hospital_Management_System-Database.txt file and all the records are restored.

Starting from second run of the program, it first restores data from the database file, so all previously made records are immediately displayed in the information area.

Loading happens automatically.

UML Class Diagrams





Application structure:

- 1) Application starts with the Main class, where main function kick-starts the app.
 - 2) Logins and passwords are initialized and Login Page is shown.
 - 3) If user is successfully authenticated, Login Page is disposed and System Page is displayed.
 - 4) After that, depending on user actions, System Page is carrying all logic regarding Hospital Management System actions.
 - 5) If program is terminated and user runs it again, system restores all saved data from database file and instantiates all necessary objects, so nothing is lost after termination.

State Diagram:

