SEN2212

Data Structure and Algorithms II Project Report

Group No: 12

Project Title: software management for pharmacies

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1. Introduction

1.1 Purpose/Project Proposal

The 20th century has seen considerable advances in many technical fields and artificial intelligence, which have contributed to a rise in all fields. Our project is related to the health field. It will advance the life standard for both patients and pharmacists. Our aim of the software management is to allow pharmacist to have a full recode of the patient, which gives them fixable access to her/his history. After investigation, we have noticed problems that pharmacists deal with daily; we aim to limit those hassles, so the pharmacist can make decisions more accurately and more effectively, in a shorter time, and without making fallacies.

Our project is software for pharmacies when a pharmacist can log in and save the data of the patient in the system and that information will be reachable to all employees working in that pharmacy.

1.2 Software Language/ Project Environment

This project is developed using JAVA programming language in eclipse IDE. We built our GUI interface by using WindowBulider

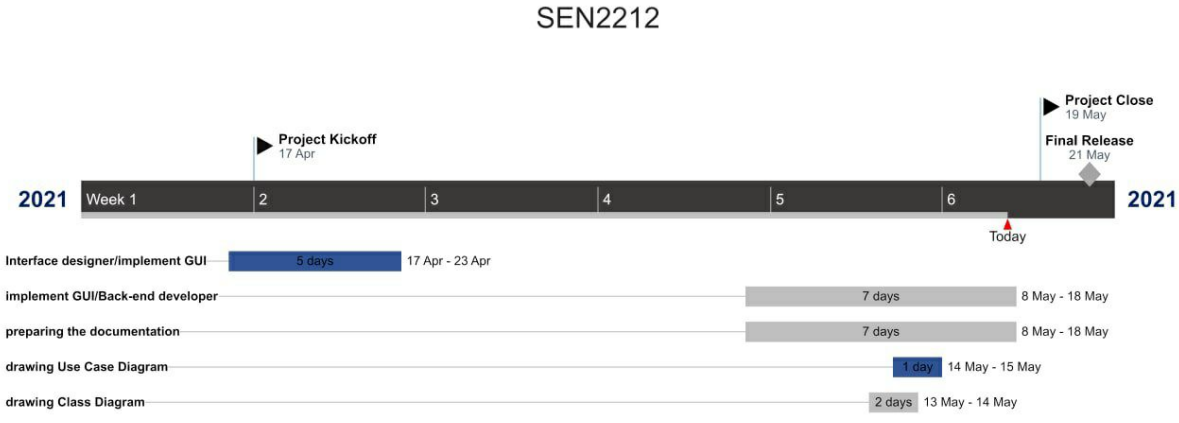
1.3 Data Structures

In our project, we have three objects (pharmacy, employee, and patient).

We wanted to connect each employee to the pharmacy he/ she working at, therefore, we chose to link them by using Linked list data structure.
We decided to use this data structure because of its time complexity, linked list has O(1) time complexity for insertion and deletion, on the other hand, array has O(n) time for insertion and deletion. Moreover, stack and queue would not serve our purpose even though it has the same time complexity as linked list.

Additionally, we wanted to connect patient's information to pharmacy; therefore, we chose to link them by using LinkedHashMap. The reasons for choosing this data structure that it provides an easy way to maintain the insertion order, its time complexity O(1) for insertion and deletion, It contains only unique elements, and it is the same as HashMap with the additional feature that it maintains insertion order.

1.4 Work Partitioning

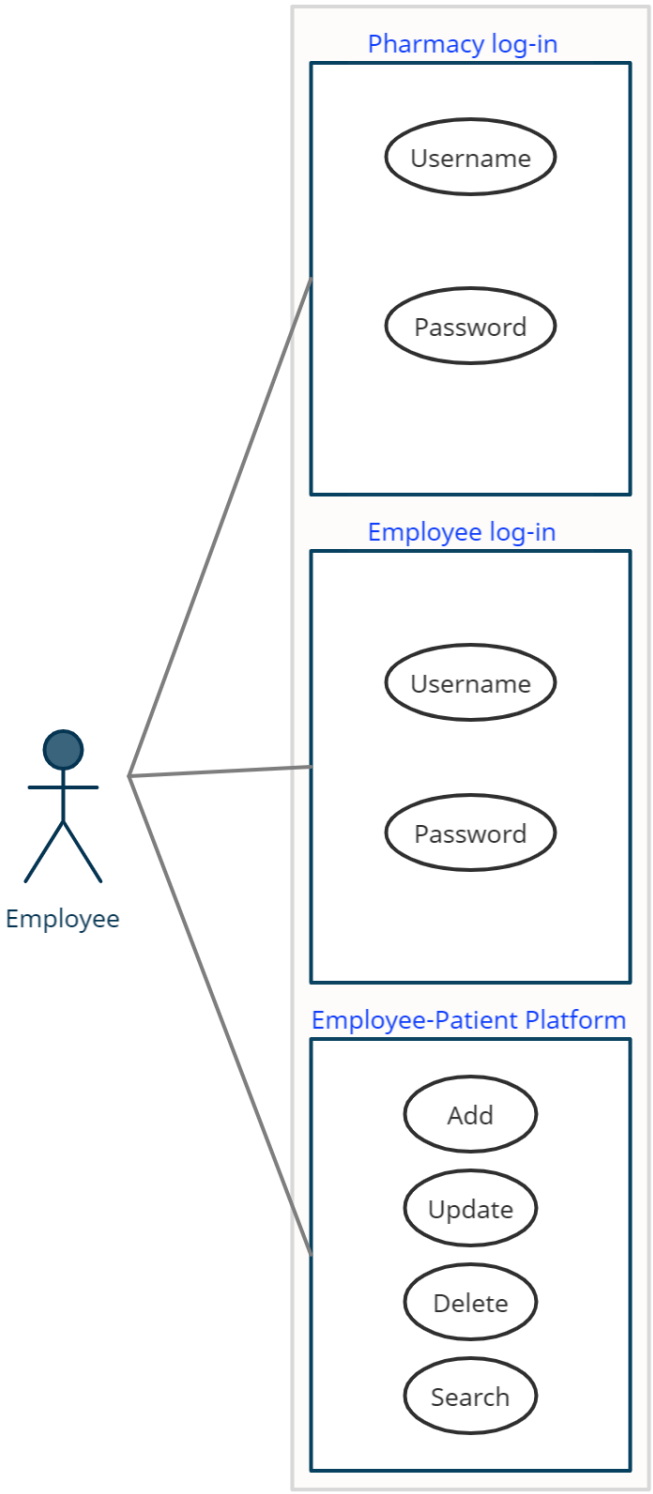


made by umniyah abbood

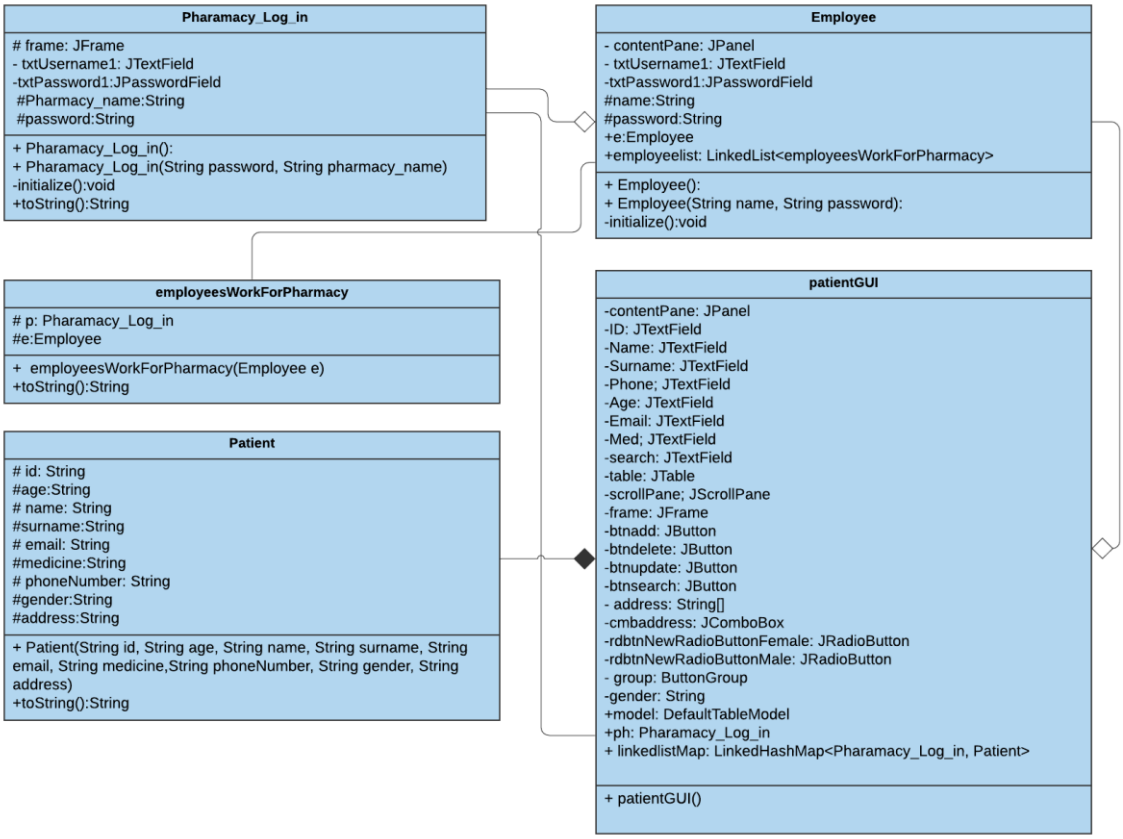
mohanad Umniyah

2. Architectural Representation

2.1Use Case Diagram

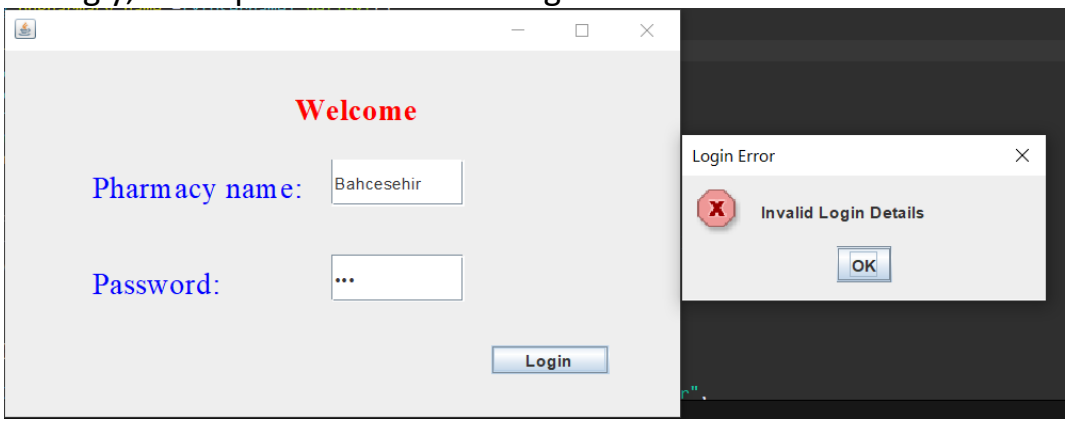


2.2Class Diagram

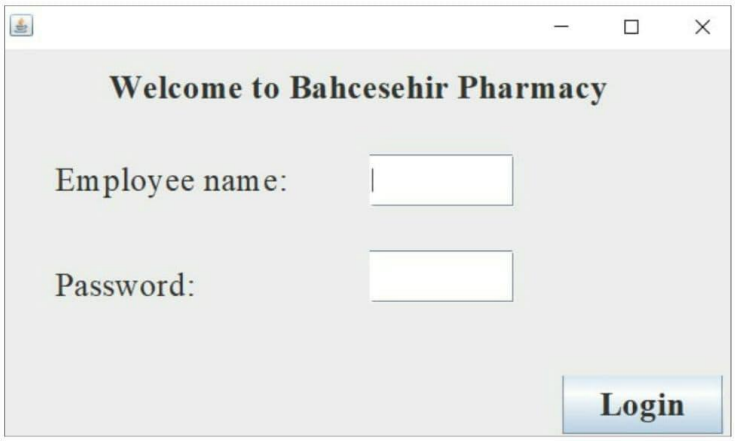


3. Application

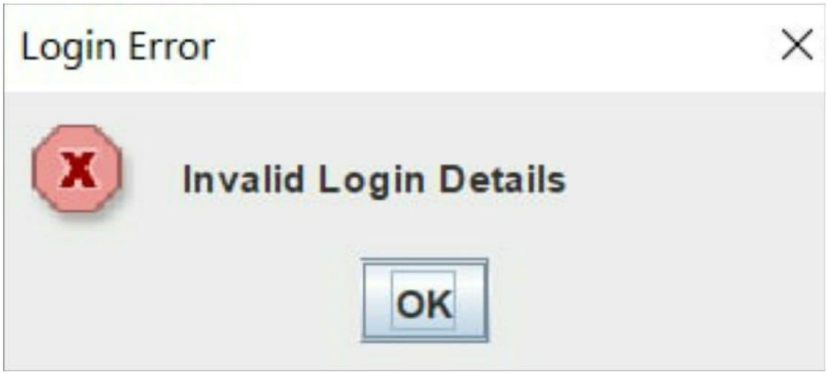
1. Login to pharmacy
   A. If the pharmacy name or pharmacy password is entered wrongly, it will print an error message.



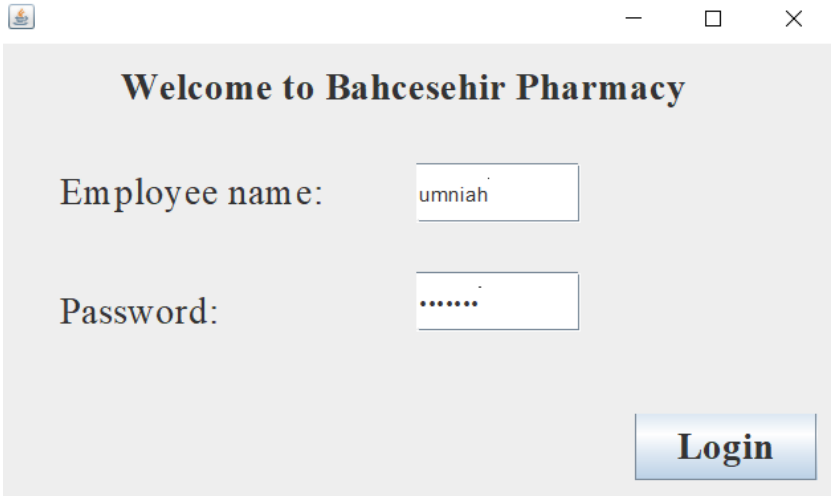
   B. If the pharmacy name or pharmacy password are correct, when the user click on Login, the system will open Login to employee

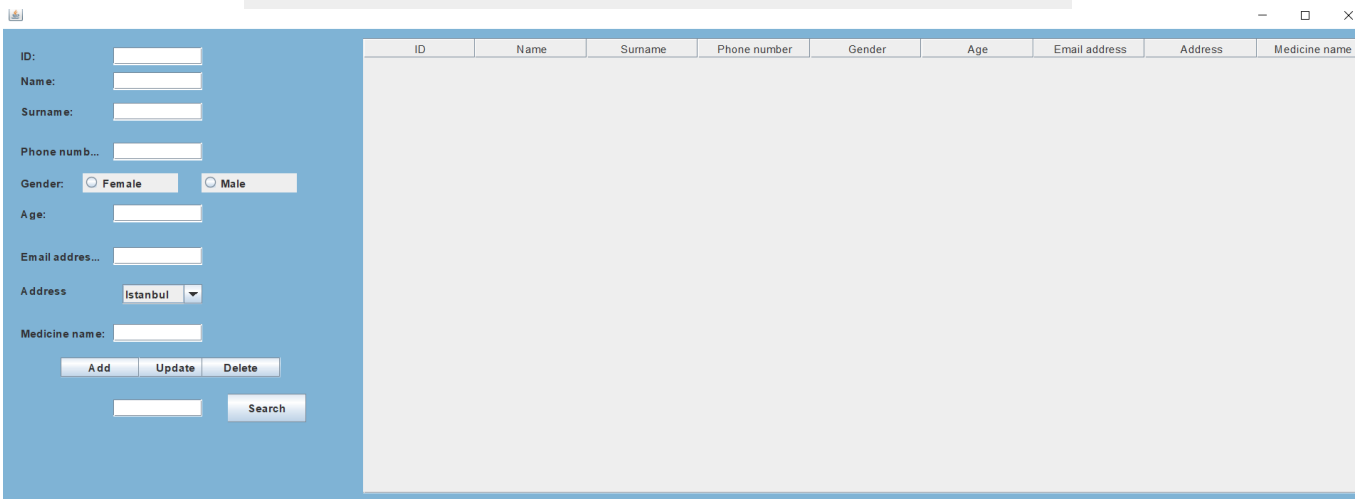


2. Login to employee_patient
   A. If the employee name or password is entered wrongly, it will print an error message



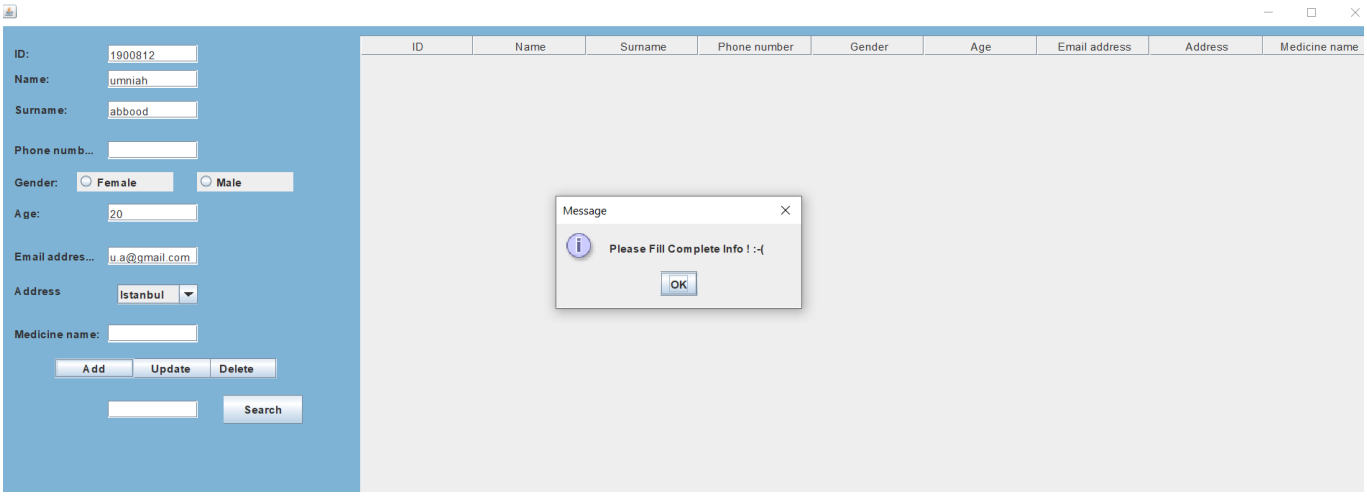
B. If the employee name or password is entered correctly, that employee will be stored in a linked list to its pharmacy. When the user clicks Login, the system will open the window where all the information for the patients will be added, updated, searched, and deleted.



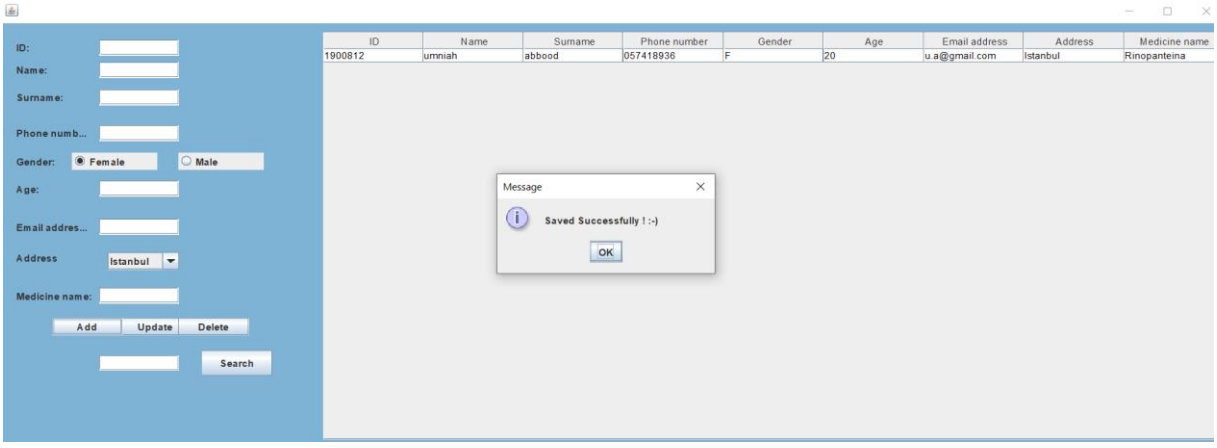


3. Add patient
    - ID, Phone number, Age will only accept numbers, Name and Surname will just accept alphabetical.

A. If the user did not enter ID, Name, Surname, Phone number, Age, Email address or Medicine name an error message will be displayed for the employee to fill all required information.

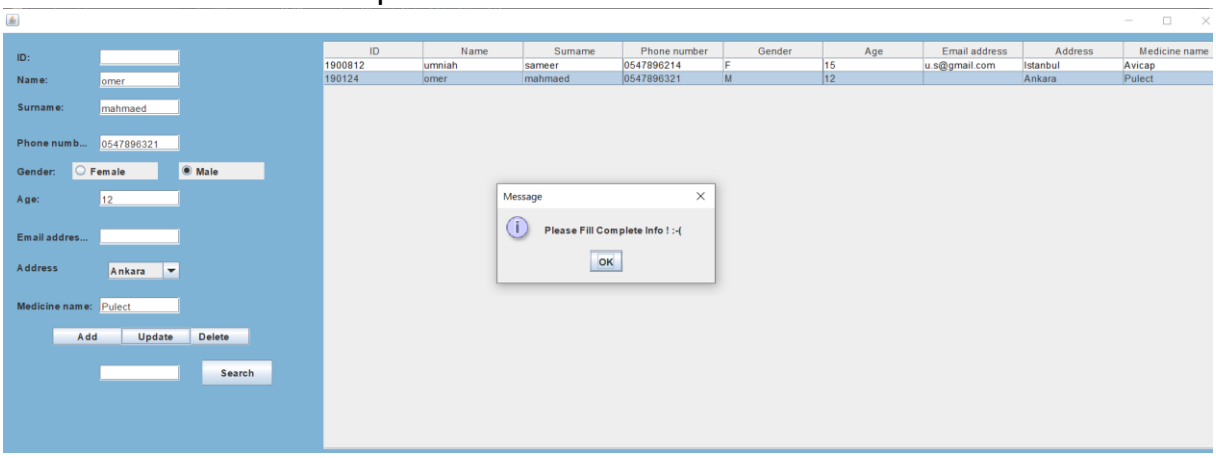


B. If the user entered all the required information, the patient will be added to the Jtable and will be added to the pharmacy using LinkedHashMap and a message will be displayed to confirm that the adding operation finished successfully

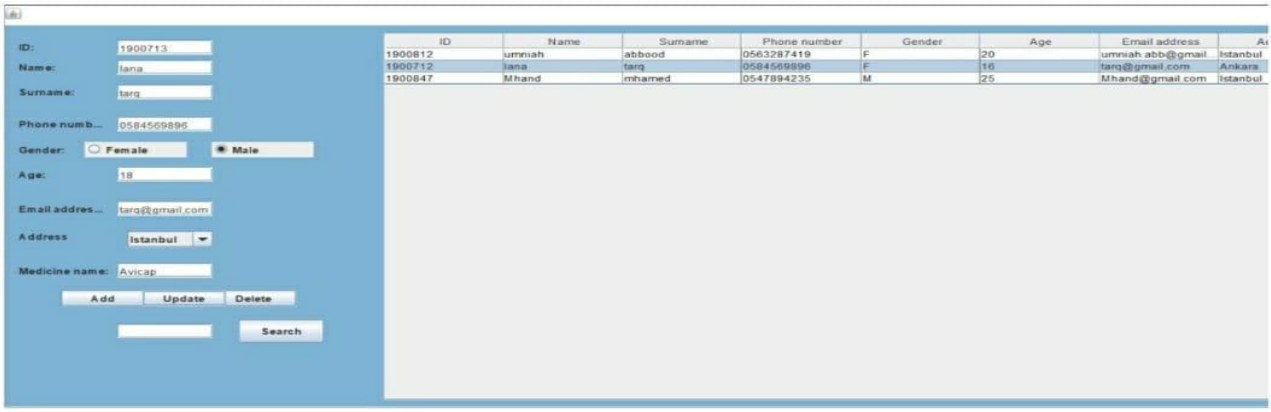


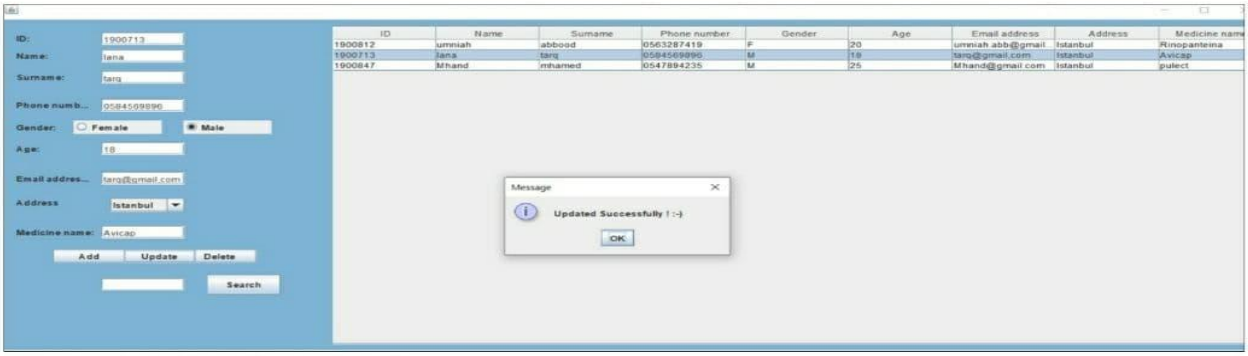
4. Update patient
    - ID, Phone number, Age will only accept numbers, Name and Surname will just accept alphabetical.

A. If the user did not enter ID, Name, Surname, Phone number, Age, Email address or Medicine name while updating the patient an error message will be displayed for the employee to fill all required information.



B. If the user entered all the required information, the patient will be updated to the Jtable and will be replaced in the pharmacy using LinkedHashMap and a message will be displayed to confirm that the updating operation finished successfully

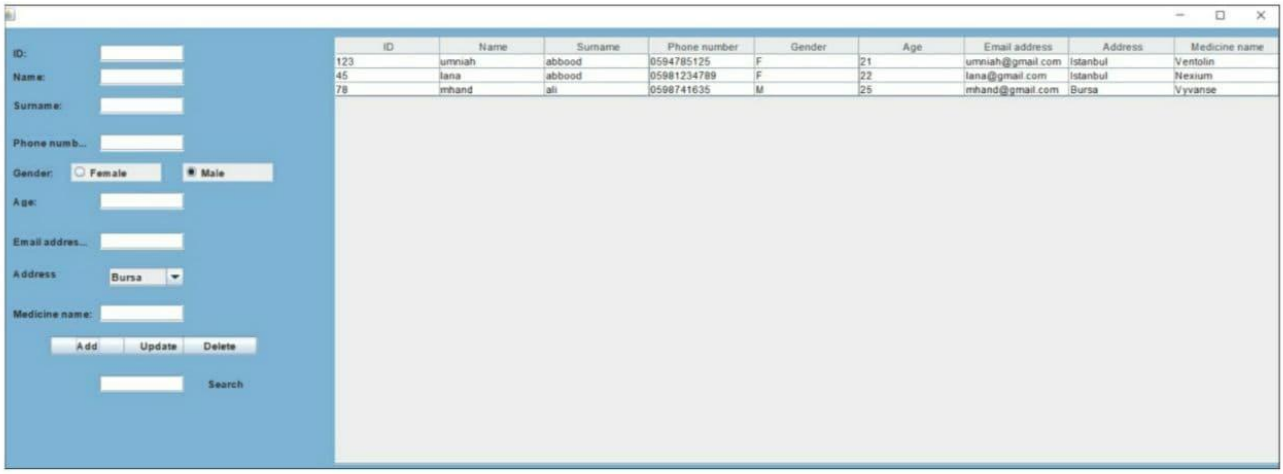


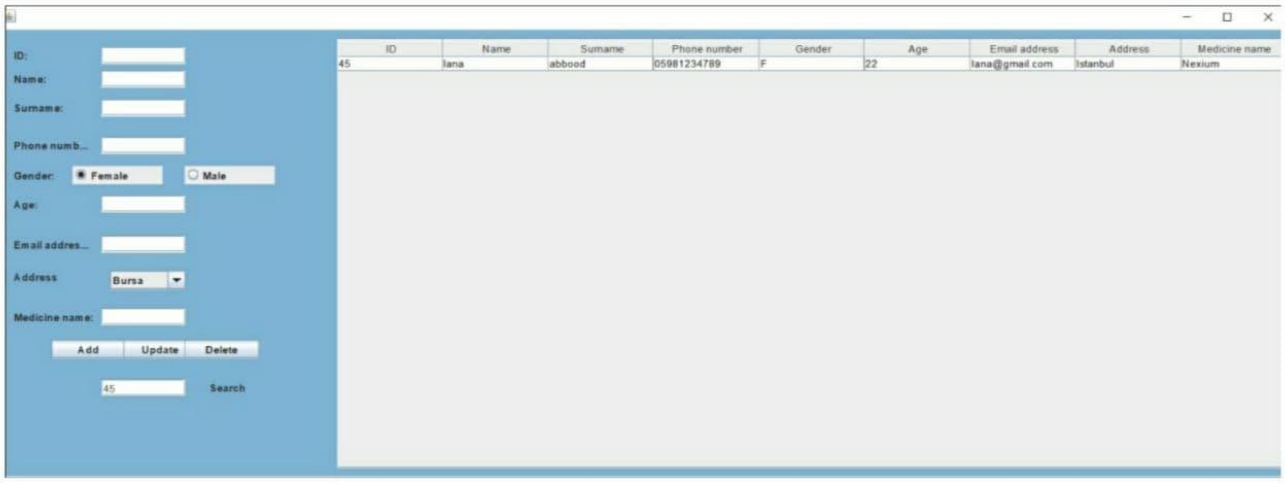


5. Search patient
    - Search will only accept numbers

    We will search using the ID of that patient, as the id is the only unique value of our values.

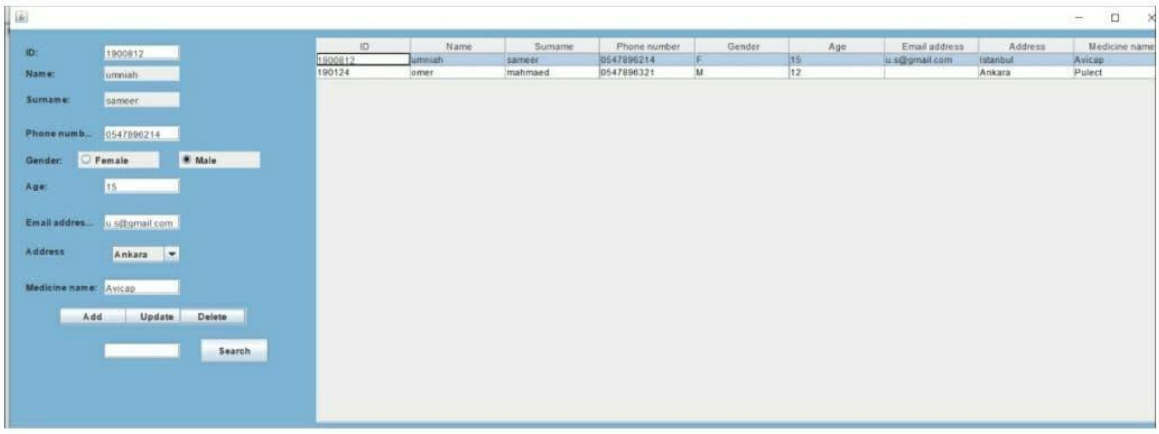
    Our search process is a filtering process, so when the user enter any number, the matching value will be filtered, as it is much faster for finding the patient.

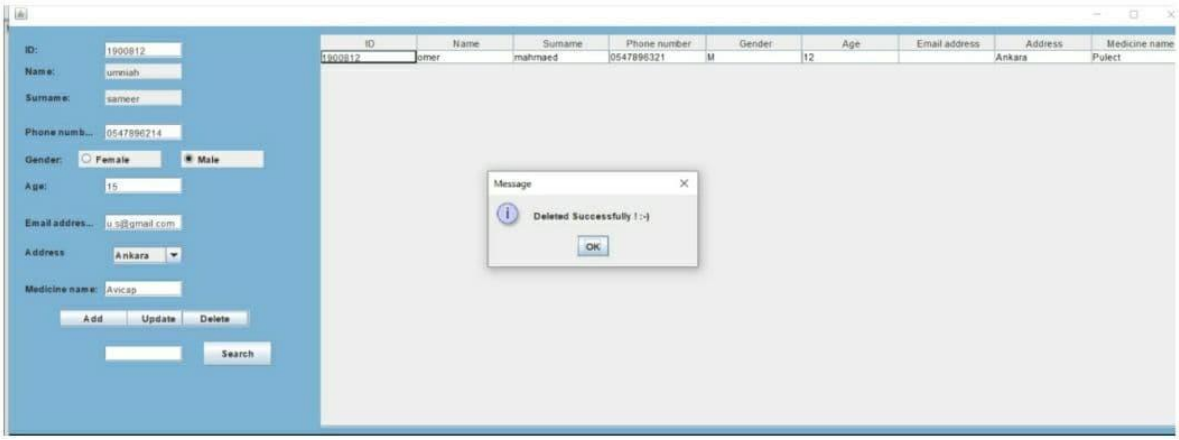




6. delete patient

   The user will select a patient from the JTable and click on delete button, the patent will be deleted from JTable as well as from LinkedHashMap and a message will be displayed to confirm that the deleting operation finished successfully





4. Conclusion / Summary

We aim to improve the quality of the medical service that will reduce human errors and facilitates the work of pharmacists and any other medical institution.

Therefore, we will achieve that by providing accurate, updated, and detailed information about patients enabling faster access to patient records for more synchronized, effective care and sharing of electronic information with patients and other medical institutions

5. References

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Codes from SEN1002 Object Oriented Programming (java)