*Green University of Bangladesh*

*Department of Computer Science and Engineering (CSE)*
*Faculty of Sciences and Engineering (FSE)*
*Semester: (Spring, Year: 2023), B.Sc. in CSE (Day)*

# Phonebook Management System

*Course Title: Object Oriented Programming Lab*
*Course Code: CSE 202*
*Section: 221 D23*

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**Project Report Status**

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| **Marks:** | **Signature:** |
| **Comments:** | **Date:** |

# Contents

# Chapter 1

# Introduction

## 1.1 Overview

The purpose of this project report is to provide a comprehensive overview of the Phonebook Management System, which is developed using Java, Swing, and NetBeans. This system aims to simplify the management and organization of contact information within a phonebook.

## 1.2 Motivation

In today's digital age, managing contacts efficiently is essential for individuals and busi-nesses alike. Traditional paper-based phonebooks are becoming obsolete, and there is a need for a digital solution that can store, organize, and retrieve contact information easily. The Phonebook Management System aims to address this problem by providing a user-friendly application to manage contacts effectively.

## 1.3 Problem Definition

### 1.3.1 Problem Statement

The problem statement identifies the specific challenges and requirements that the Phonebook Management System aims to address. In this project, the main problem is the efficient management and organization of contact information within a phonebook without using any database. Traditional phonebooks often lack advanced features and can become cumbersome to maintain. The objective is to develop a system that provides a digital solution for contact management and accessibility while using Java, Swing, and NetBeans.

### 1.3.2 Complex Engineering Problem

Developing a phonebook management system without using a database presents a complex engineering problem. Storing and retrieving contact information efficiently is crucial. In this project, a suitable data storage mechanism needs to be implemented using Java programming language and file handling techniques. The system must handle operations to add, remove, update, delete and view contact lists efficiently without relying on a traditional database. Additionally, ensuring data security and preventing data loss pose additional challenges. The complexity lies in designing an optimal data structure and implementing the necessary algorithms to achieve efficient contact management and organization within the constraints of the chosen technologies.

Table 1.1: Summary of the attributes touched by the mentioned projects

| **Name of the P Attributess** | **Explain how to address** |
|---|---|
| **P1:** Depth of knowledge required | Knowledge about using in Netbeans and java swing. |
| **P2:** Range of conflicting requirements | Understanding all the problems and developing with this requirements. |
| **P3:** Familiarity of issues | Accurately capturing the complex problems in Java swing. |

## 1.4 Objectives

The main objectives of the Phonebook Management System project are as follows:

1. Create a user-friendly interface to input, store, and manage contact information.
2. Allow users to view contact details quickly.
3. Enable users to add, update, search and remove contacts as needed.
4. Provide an intuitive user interface for easy navigation and interaction.
5. Develop a reliable and efficient system with minimal errors and bugs.

## 1.5 Application

The Phonebook Management System has various applications, including:

1. **Personal use:** Individuals can utilize the system to efficiently manage their personal contacts.
2. **Business use:** Organizations can employ the system to maintain a centralized phonebook with contact details of employees, clients, and suppliers.
3. **Customer relationship management (CRM):** The system can be integrated into CRM systems to streamline contact management and enhance customer interaction.

# Chapter 2

# Implementation of the Project

## 2.1 Introduction

The phonebook management system is a Java application that uses Swing for the user interface and NetBeans for the development environment. The system is designed to be simple and easy to use, while still providing all of the basic features that users would expect from a phonebook application.

## 2.2 Project Details

The phonebook management system consists of the following modules:

1. A user interface module that allows users to remove, add, update and view Contact list.
2. A search module that allows users to search for contacts by name.

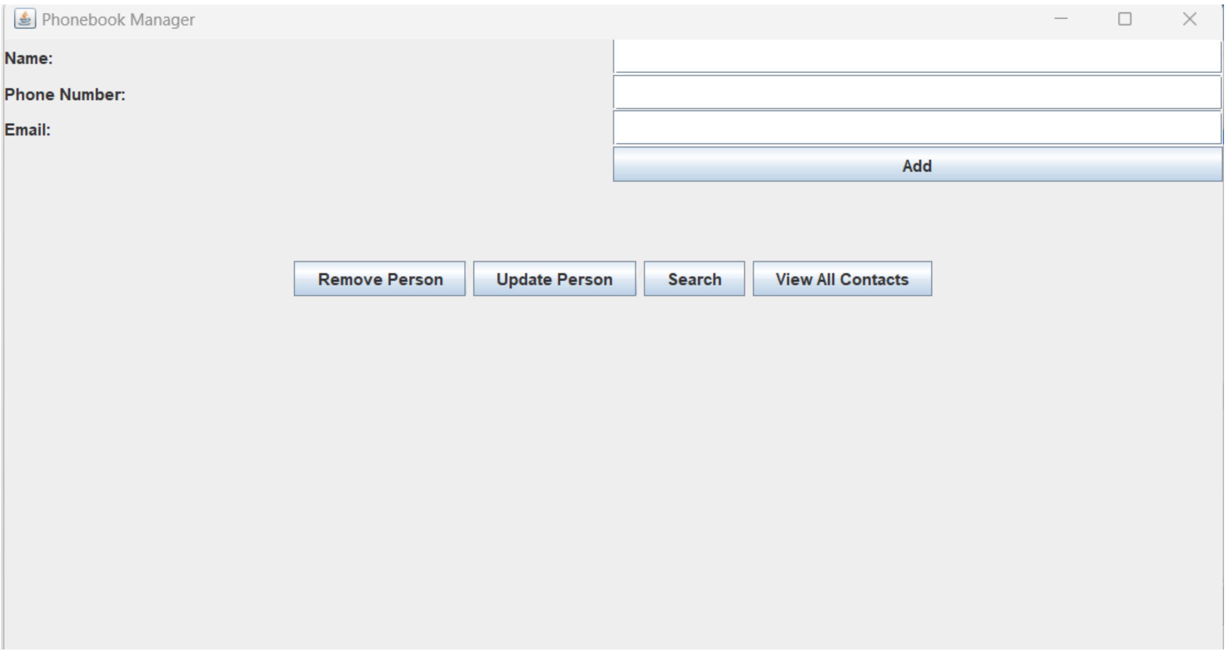
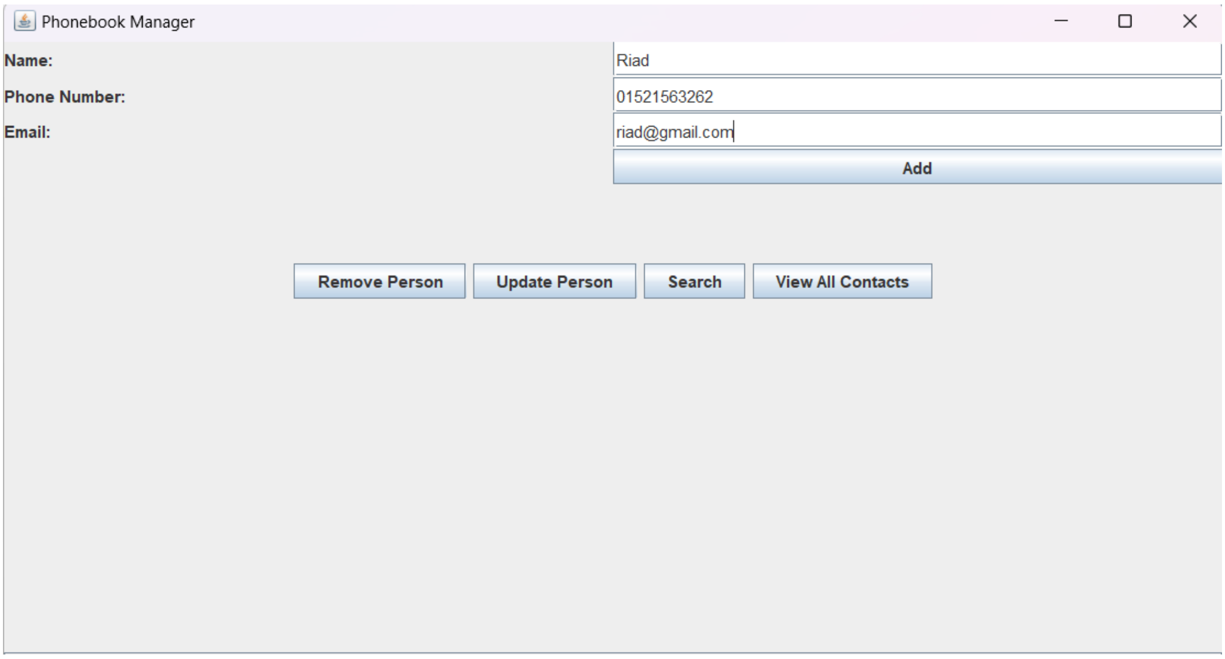


**Figure : Front Page**

## 2.3 Implementation

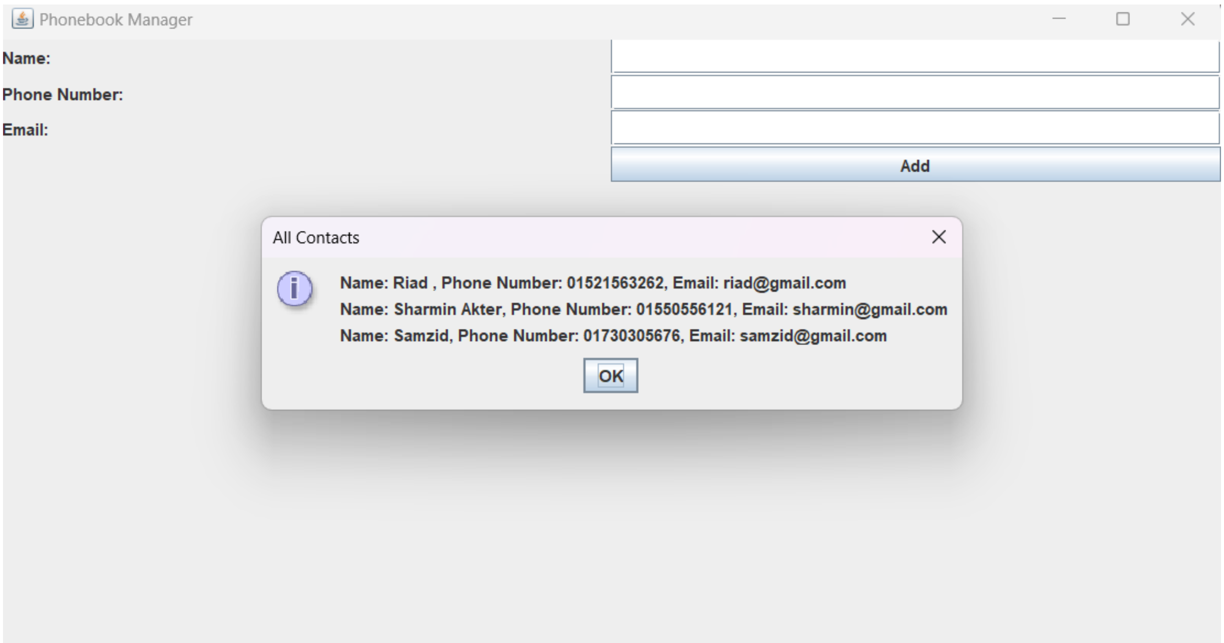
The implementation of the Phonebook Management System is based on Java programming language, Swing framework, and NetBeans IDE. The implementation includes classes and methods to support the system's features, such as view Contact list, add, update and remove contacts.

### 2.3.1 Add Contact



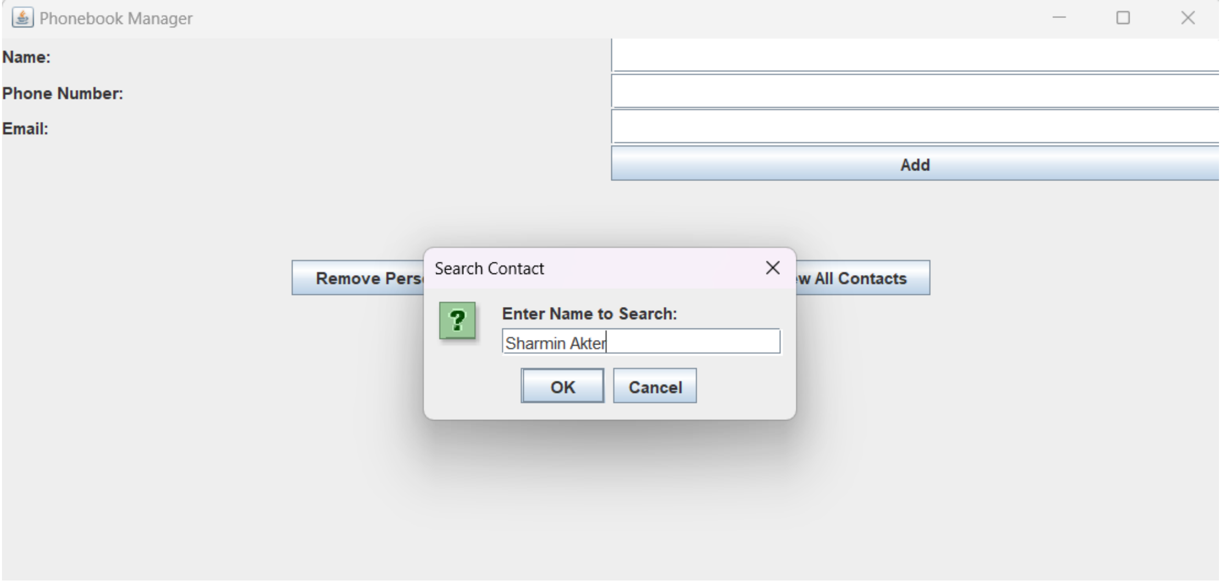
Name: Riad
Phone Number: 01521563262
Email: riad@gmail.com

### 2.3.2 View All Contacts



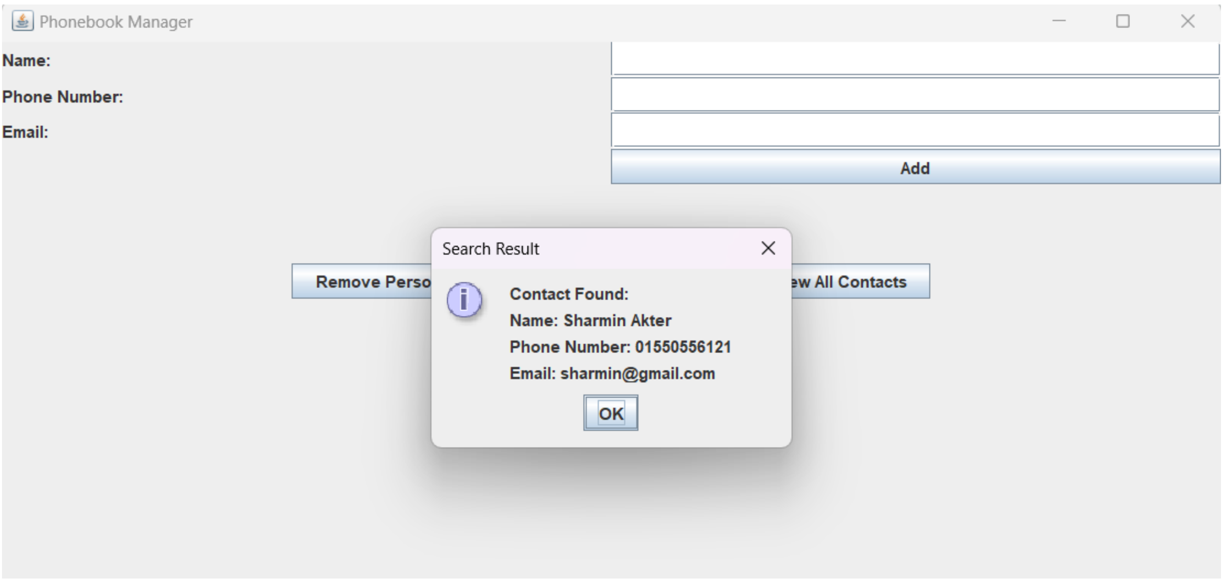
Name: Riad , Phone Number: 01521563262, Email: riad@gmail.com
Name: Sharmin Akter, Phone Number: 01550556121, Email: sharmin@gmail.com
Name: Samzid, Phone Number: 01730305676, Email: samzid@gmail.com

### 2.3.3 Search Contact



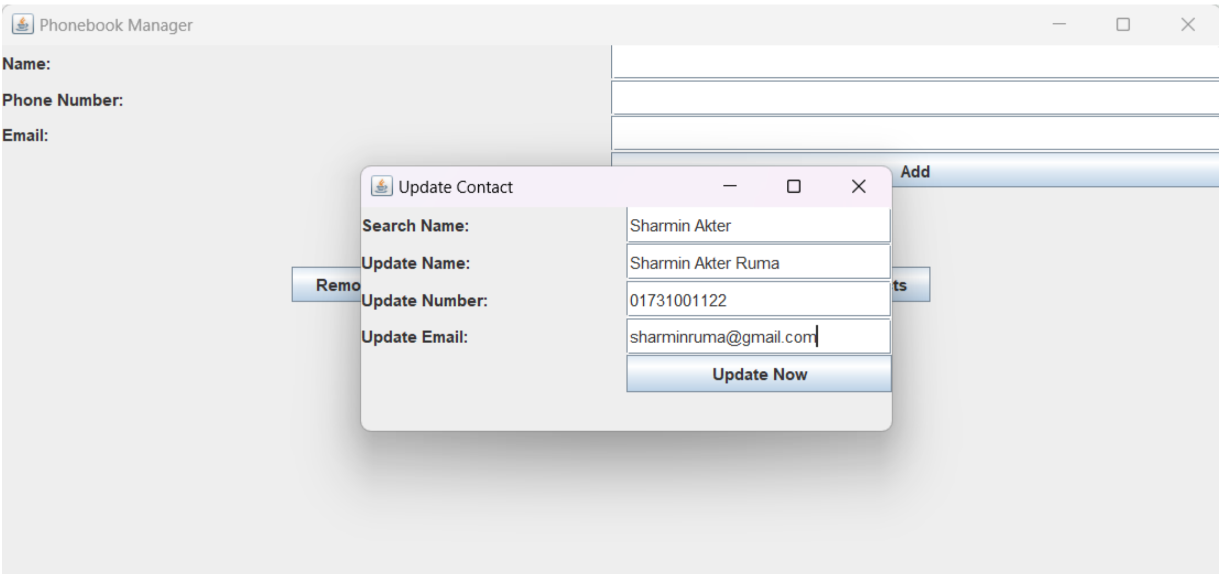
Enter Name to Search:

Sharmin Akter



Contact Found:
Name: Sharmin Akter
Phone Number: 01550556121
Email: sharmin@gmail.com

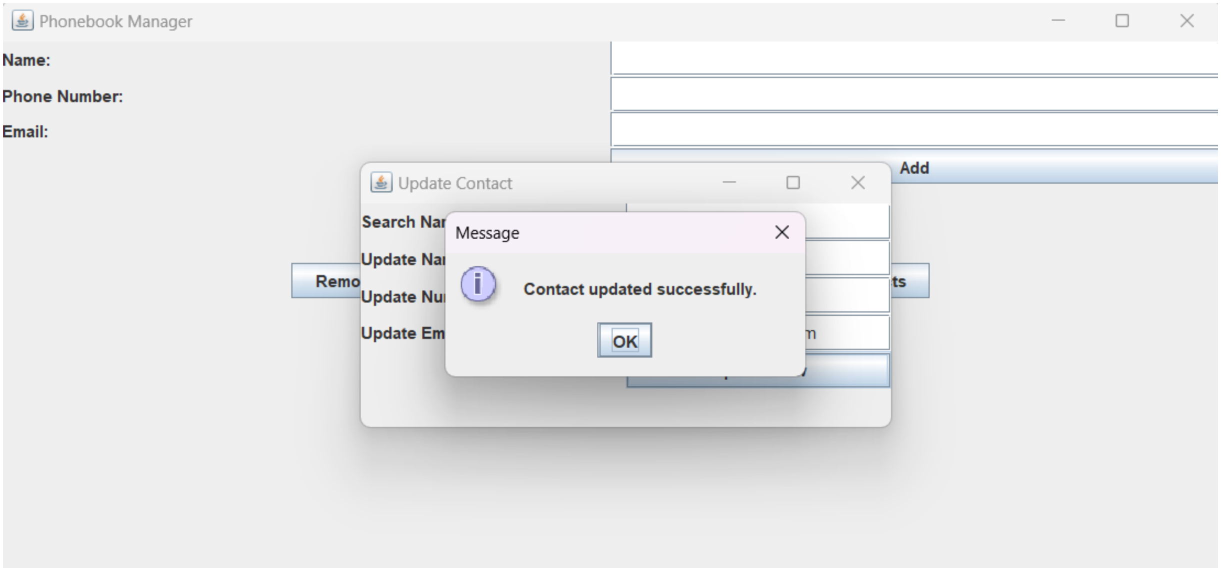
### 2.3.4 Update Person



Name:
Phone Number:
Email:

Update Contact

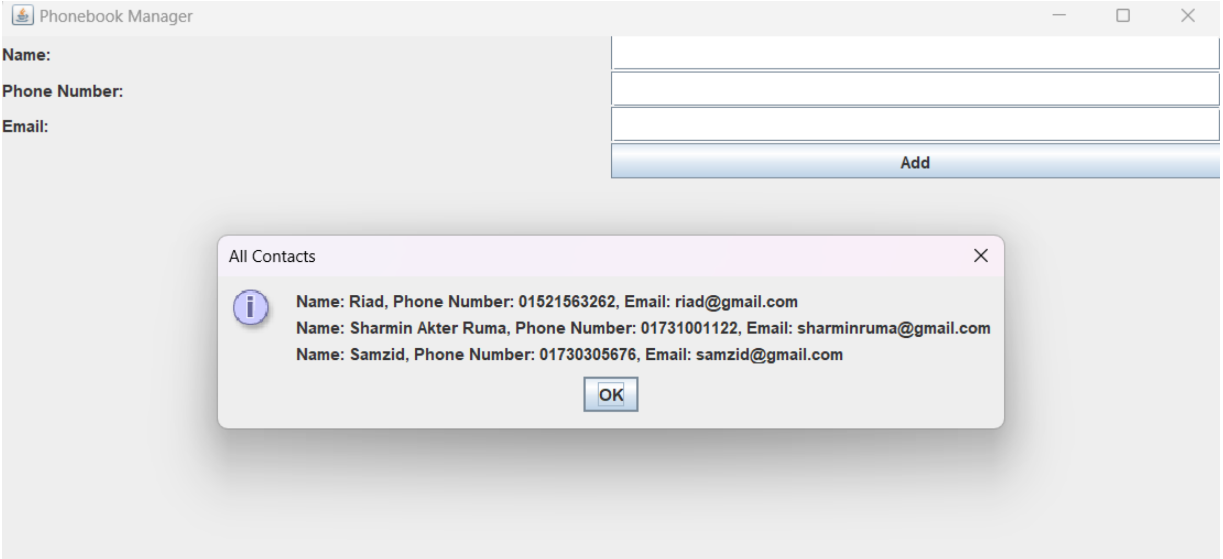
Search Name: Sharmin Akter
Update Name: Sharmin Akter Ruma
Update Number: 01731001122
Update Email: sharminruma@gmail.com



Name:
Phone Number:
Email:

Message

Contact updated successfully.

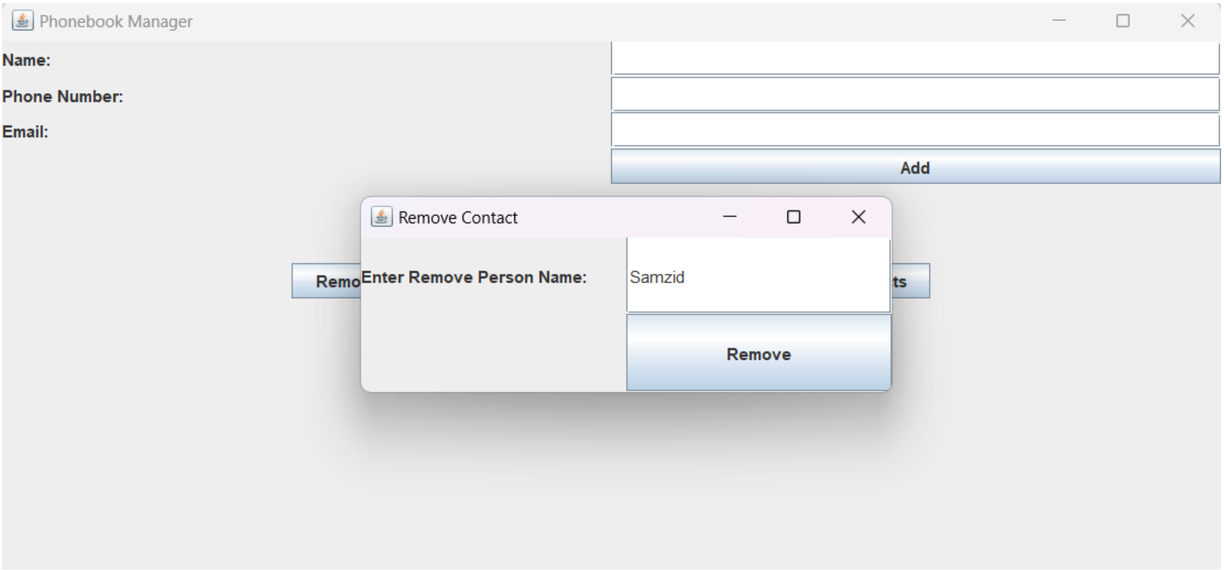


Name:
Phone Number:
Email:

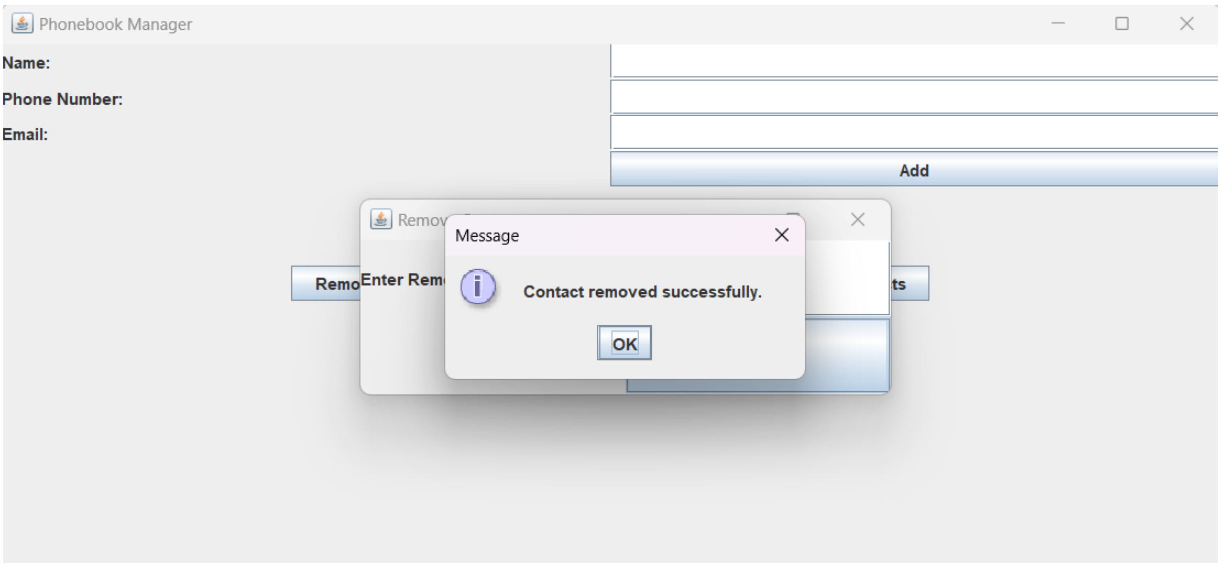
All Contacts

Name: Riad, Phone Number: 01521563262, Email: riad@gmail.com
Name: Sharmin Akter Ruma, Phone Number: 01731001122, Email: sharminruma@gmail.com
Name: Samzid, Phone Number: 01730305676, Email: samzid@gmail.com

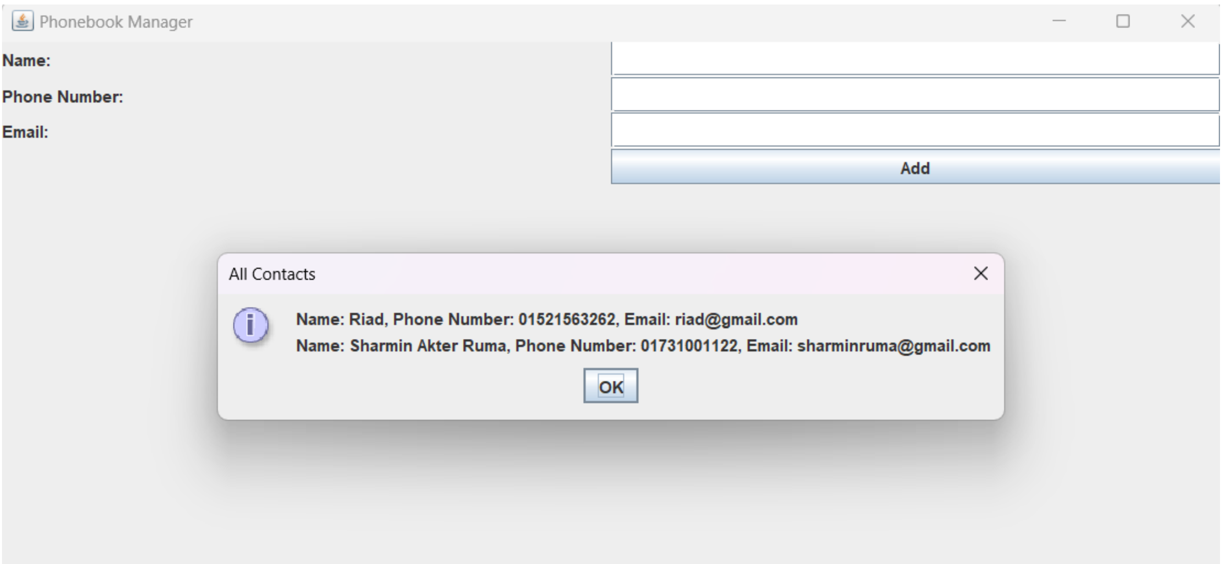
## 2.3.5 Remove Person



Enter Remove Person Name: Samzid



Contact removed successfully.



Name: Riad, Phone Number: 01521563262, Email: riad@gmail.com
Name: Sharmin Akter Ruma, Phone Number: 01731001122, Email: sharminruma@gmail.com

## 2.4 Algorithm

**Algorithm 1:** Simple Algorithm for this Phonebook Management System

```
Initialize an empty phonebook.
Start the phonebook management system.
Repeat the following steps until the user chooses to exit
Display the menu options for the user : 1.Add a contact 2.View All Contacts 3.Search
  for a person by name 4.Update a person's information 5.Remove a person by name
if If the user chooses to add a contact: then
    • Prompt the user to enter the person's name and phone number and email.
    • Create a new contact object with the provided information
    • Add the contact to the phonebook.
if the user chooses to search for a person by name then
    • Prompt the user to enter the name of the person to search for
    • Iterate through the contacts in the phonebook:
    • If a contact's name matches the search name, display the contact's information.
    if no contact is found then
        Display a message indicating that the person was not found.
if the user chooses to update a person's information: then
    • Prompt the user to enter the name of the person to update.
    • Iterate through the contacts in the phonebook:
    if a contact's name matches the update name then
        Display enter the new phone number.
    • Update the contact's phone number.
    • Display a success message.
    if no contact is found then
        Display a message indicating that the person was not found.
if the user chooses to remove a person by name then
    • Prompt the user to enter the name of the person to remove.
    • Iterate through the contacts in the phonebook
    if a contact's name matches the remove name then
        Remove the contact from the phonebook.
    • Display a success message.
    if no contact is found then
        Display a message indicating that the person was not found.
End the phonebook management system.
```

# Chapter 3

# Performance Evaluation

## 3.1 Simulation Environment

The phonebook management system was tested in NetBeans and Iltetlij Software environment. The environment consisted of a set of test cases that were used to test the functionality of the system.

## 3.2 Results Analysis

The results of the tested in NetBeans and Iltetlij Software showed that the phonebook management system was able to successfully complete all of the test cases. The system was also able to handle a large number of contacts without any performance issues.

## 3.3 Results Overall Discussion

The overall results of the compiler showed that the phonebook management system is a reliable and capable application. The system is able to meet the needs of users who need to keep track of a large number of contacts.

# Chapter 4

# Conclusion

## 4.1 Discussion

The phonebook management system is a simple and easy-to-use application that provides all of the basic features that users would expect from a phonebook application. The system is reliable and capable, and it is able to handle a large number of contacts without any performance issues.

## 4.2 Limitations

The phonebook management system has a few limitations. The system does not allow users to import or export contacts, and it does not provide any features for managing groups of contacts.

## 4.3 Scope of Future Work

The following are some of the areas where future work could be done on the phonebook management system:

1. Add the ability to import and export contacts.
2. Add the ability to manage groups of contacts.
3. Improve the user interface.
4. Add Database and improve the user data privacy.
5. Add additional features, such as the ability to send emails and text messages to contacts.

# References

[1] T. (2018, February 25). Telephone Directory System Project in Java - ProjectsGeek. ProjectsGeek. https://projectsgeek.com/2018/02/telephone-directory-system-project-in-java.html

[2] NetBeans, A. (n.d.). Welcome to Apache NetBeans. Welcome to Apache NetBeans. https://netbeans.apache.org/