



DSA521S DATA STRUCTURES AND ALGORITHMS SEMESTER2 2024

GROUP ASSIGNMENT PROJECT

Sn	Name	Student Number		Specialization	Role played in the project
1	Shitayi Petrus(TL)	223138134		Bachelor of Cyber Security	I coordinated the project and worked on setting up the main interface (GUI) for the LFG phonebook system, including the JFrame, layout, text area, and buttons.
2	Rogelio van Wyk	224064959		Bachelor of Cyber Security	I implemented the Save Contact and Call Contact features, allowing users to add new contacts and simulate making calls.
3	Erick Lucia	224090704		Bachelor of Computer Science	I handled the Delete Contact feature, removing contacts from the list, and the Display All Contacts function, which shows all saved contacts.
4	Jonas Erkison	223086517		Bachelor of Cyber Security	I developed the Update Contact feature for modifying contact details and the Search Contact functionality to find contacts by name.
5	Angula Abigail	224020633		Bachelor of Computer Science	I implemented the Sort Contacts feature, which sorts contacts



					alphabetically, and ensured proper validation for phone number input.
6	Thobias Shaanika	224076914		Bachelor of Computer Science	I focused on Error Handling and overall Code Optimization, ensuring the system handles invalid inputs and performs efficiently.

Name of Team Leader(TL):Shitayi Petrus

TITLE OF PROJECT:

> Development of a phonebook system SafeLock

1.0 DESCRIPTION OF PROJECT:

- SafeLock is an phone book system that allows users to search, sort contacts ,delete , insert, update and display contacts within the phone book system. It provides functions like Contact management module: responsible for inserting, updating, deleting, and searching contacts
- Display module: Handles displaying all contacts and sorting them
- Efficiency analysis module: analyses the performance of the search algorithm

2.0 FUNCTIONALITIES PROVIDED BY THE SOFTWARE:

The following are the functionalities and services that the E-Banking system will render:

Functions



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- **Contact management module:** responsible for inserting, updating, deleting, and searching contacts
- **Display module:** Handles displaying all contacts and sorting them
- **Efficiency analysis module:** analyses the performance of the search algorithm

Modules

- **Insert Contact:** Add a new contact to the phonebook.
- **Search Contact:** Look for a contact by name or number.
- **Display All Contacts:** Show all the contacts in the phonebook.
- **Delete Contact:** Remove a contact by name or number.
- **Update Contact:** Modify an existing contact.
- **Sort Contacts:** Sort the contacts alphabetically for faster search (optional).
- **Efficiency Analysis:** Measure time complexity.

The following screenshots demonstrates using the phonebook



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The image shows a screenshot of a software application window titled "SafeLock Phone Book". The window has a standard Windows-style title bar with a minimize button, a maximize button, and a close button. The main area of the window is a large, empty rectangular box, likely intended for displaying a list of contacts. Below this box, there are six buttons arranged in two rows. The first row contains "Save Contact", "Delete Contact", and "Update Contact". The second row contains "Display All Contacts", "Call Contact", and "Sort Contacts". A third button, "Search Contact", is positioned centrally below the second row of buttons.



Saving a contact:

The screenshot shows a window titled "SafeLock Phone Book" with a search bar and a list of contacts. An "Input" dialog box is open in the foreground, asking for a name. The dialog has a green question mark icon and the text "What is the name of the person you would like to save? (Firstname Lastname)". The input field contains the text "Henry Stephanus". Below the input field are "OK" and "Cancel" buttons. In the background, the "SafeLock Phone Book" window has buttons for "Display All Contacts", "Call Contact", "Sort Contacts", and "Search Contact".



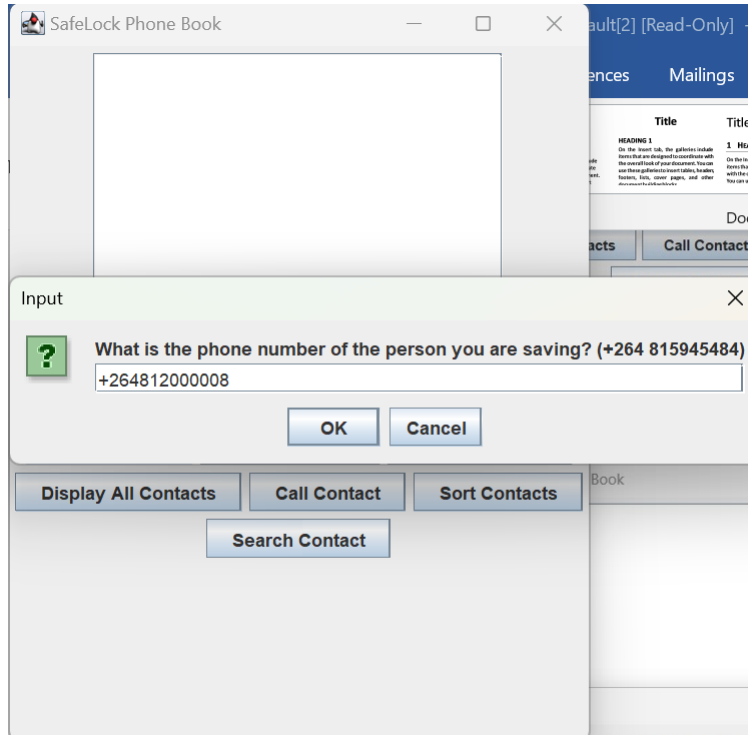
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Deleting a contact from the phonebook:

Deleted contact:



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SafeLock Phone Book

Saving contact Henry Stephanus: 264812000008
Contact List:
Henry Stephanus: 264812000008
Deleted contact: Henry Stephanus

Save Contact Delete Contact Update Contact

Display All Contacts Call Contact Sort Contacts

Search Contact



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Updating an Existing contact:

CONTACT LIST

Simon Salom: 264817062085

Updated contact Simon Salom to new number: 2

Save Contact Delete Contact Update Contact

Display All Contacts Call Contact Sort Contacts

Search Contact

Calling a contact:



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Updated contact Simon Salom to new number: 264
Calling Simon Salom

av

Save Contact Delete Contact Update Contact

Display All Contacts Call Contact Sort Contacts

Search Contact