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Data structures and Algorithms, SEMESTER 2, 2024

MODE OF STUDY: FULL-TIME

SN	Name	Student Number	Specialisation	Role played in the project	Mark over 100% (for lecturers use only)
1	Kirubel Hailu **(TL)**	224001213	Software Engineering	Developed the GUI interface code for the application.,	
2	Jian Cloete	224063561	Software Engineering	Responsible for comprehensive documentation of the project.	
3	Bradley Dentlinger	224086332	Software Engineering	Assisted in documentation and provided valuable research for the GUI	
4	Tadiwa Mukwenya	224018590	Cyber Security	Created pseudocode to outline the project's logic.	
5	Petrus Naanda	224081713	Software Engineering	Implemented functionality code and designed flowcharts.	
6	Prince Lee Shigwedha	224002126	Software Engineering	Contributed to the GUI code and designed flowcharts.	

Name of Team Leader (TL):
Kirubel Hailu

TITLE OF PROJECT:
Development of a Phonebook algorithm

DATE:
13/10/2024

1.0. DESCRIPTION OF PROJECT

Our Phonebook algorithm project allows for the insertion of contacts, storing and sorting them for faster search capabilities to not only retrieve and display the contacts but to allow the user to perform a vast variety of operations with that data .The algorithm will not only be able to insert contacts it will be able to delete them ,as well as be able to update already existing contacts .

2.0. FUNCTIONALITIES, SERVICES AND REQUIRMENTS (FSR) OF THE SOFTWARE

The main aim of this Group Assignment is for the students to create a algorithm to demonstrate all that have been leant in the Data structures And Algorithms during the semester. Students/groups are expected derive the functionalities/services and requirements (FSR). For example, the following are the FSR that the **Phonebook algorithm** will render:

	NAME OF MENU/ MODULE	**ACTOR**	**FSR AND DESCRIPTION/ROLE**
0.	main	User	**Users** are presented with a user-friendly menu of options, that they can perform by simply selecting one of them with a numeric value as well as the option to exist the program.
1.	insertContact	User	**Users** will be prompted to insert the contact's name and the phone number. The follow data will be then stored within an array. The user will then be notified that the contact has been uploaded successfully.
2.	searchContact	User	**Users** will be prompted for the contact's name and then the algorithm will then search through the entire record and retrieve the searched name and its related data. If the contact does not exist, the algorithm will let the user know through a message.
3.	displayAllContacts	User	The algorithm will first check if the phonebook contains contacts, if not it will present the **user** with a message. If there are contacts, then the algorithm will then display all contacts.
4.	deleteContact	User	The **user** will be prompted to enter the contact they want to delete, the algorithm will then search through the entire phonebook for that contact and if found it will delete the contact and display a message, if not found the user will be informed with a message that the contact was not found.
5.	updateContact	User	The user will first enter the contact that will be update, the algorithm will then search for the exact contact and prompt the user to enter the new phone number, upon success a message will be displayed. If contact was not found a message will be displayed.
6.	sortContacts	User	The algorithm will initially verify whether the phonebook has any contacts. If it doesn't, it will display a message to

			the user. If contacts are contained within the phonebook, it will then alphabetically sort the contacts by name.

3.0. HOW WE GOT THE FUNCTIONALITIES, SERVICES AND REQUIREMENTS (FSR) OF THE SOFTWARE

We got the functionalities, services and requirements (FSR) from the knowledge we have acquired from this course and from other courses we have completed. We have also done a vast amount of research from a variety of sources such as the internet to make sure we thoroughly understood the problem.