

## 1. Introduction

Provides a brief overview of the function of the system and the reasons for its development, its scope, and references to the development context.

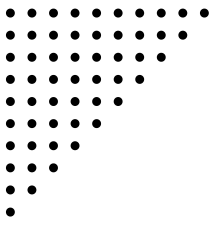
### 1.1 Purpose

The purpose of the specification document is to offer a detailed description of a system's design so that software development may begin with a clear understanding of what needs to be built and how it should be built.

### 1.3 Overview

**The software design document consists of:**

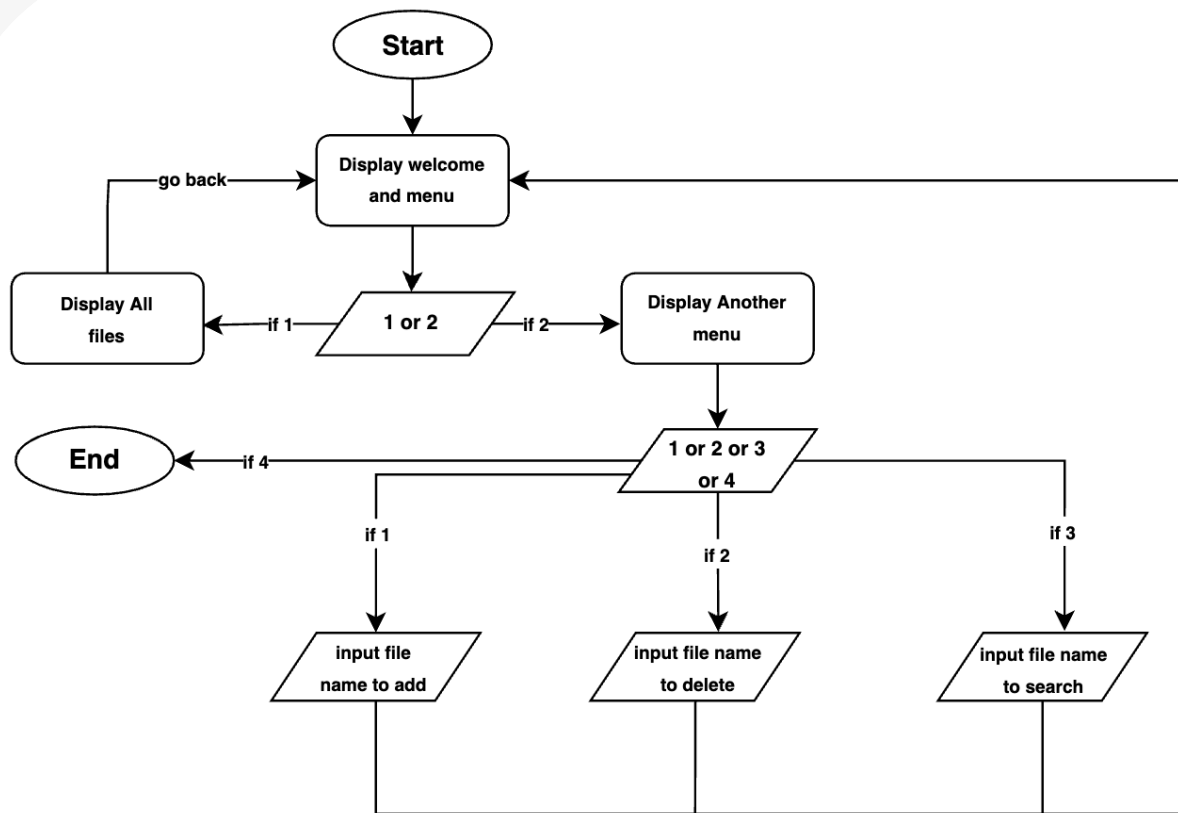
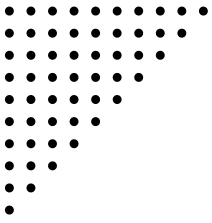
- Number and duration of sprints required
- System's Flowchart
- Data structures
- Sorting Algorithm
- GitHub repository
- Conclusion

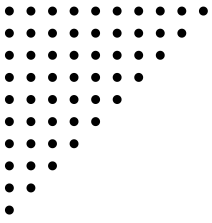


# LOCKEDME.COM

Number and duration of sprints required  
Lulwah M E AlDyouly

| Sprint                             | Functions to be implemented/delivered  | Status    |
|------------------------------------|--|-----------|
| Sprint 1<br>Day 1<br>(27-Nov-2022) | <ul style="list-style-type: none"><li>• Specification document</li><li>• Search and Sort techniques</li><li>• Data structures used for the project</li></ul> | Completed |
| Sprint 2<br>Day 2<br>(27-Nov-2022) | <ul style="list-style-type: none"><li>• User interactions</li><li>• Setting up Git and GitHub account</li></ul>  | Completed |
| Sprint 3<br>Day 2<br>(27-Nov-2022) | <b>Developing</b> <ul style="list-style-type: none"><li>• Show files feature</li><li>• Add file feature</li><li>• Delete feature</li></ul>                   | Completed |
| Sprint 4<br>Day 4<br>(27-Nov-2022) | <ul style="list-style-type: none"><li>• Search feature</li><li>• Complete code</li></ul>   | Completed |
| Sprint 5<br>Day 5<br>(Date)        | <ul style="list-style-type: none"><li>• GUI Implementation for the app</li></ul>   | Future    |





## Alternative 1: (Array List)

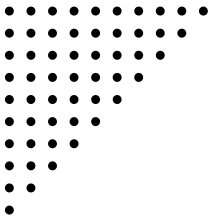
It's a data structure that contains a collection of data components of the same type.

## Alternative 2: (Link List)

It's a linear data structure in which elements are placed in nodes, which are unordered elements.

| Design Goals | Alternative 1   | Alternative 2  |
|--------------|---|--|
| Reliability  | Less reliable because if there are any modifications or inaccurate data entered, the entire array must be erased and a new array generated. | Because changes are easier to deal with in a linked list, it is more reliable.   |
| Performance  | Insertion and deletion are slower. As well as the utilization memory is inefficient, so the performance is slow.                            | Insertion and deletion are faster, there is an increase in performance. In addition, memory use is efficient, but it took time in the middle and the end sometimes so, the performance is slow |
| Flexibility  | Flexible because the array list capacity and size are not fixed   | flexible because the linked list is dynamics and does not have a fixed size.   |

**I will choose alternative 2 based on the preceding analysis since it best satisfies our design goals of reliability, performance, and flexibility.**



## **Alternative 1: (Linear search)**

Belongs to the brute force design technique, which has an  $O(1)$  best-case performance complexity and an  $O(N)$  worst-case performance complexity. The quick sort algorithm will accept objects as parameters in this application.

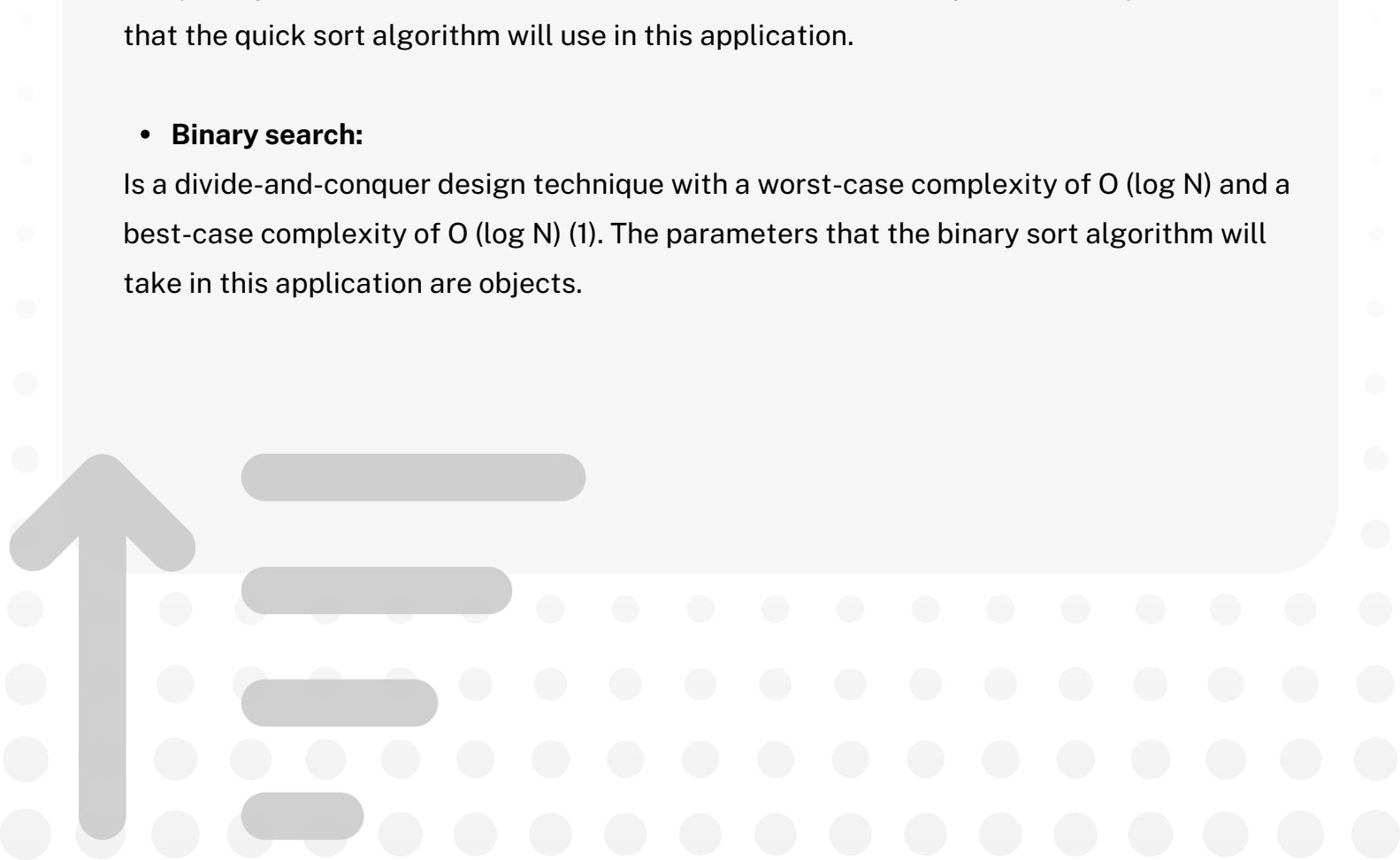
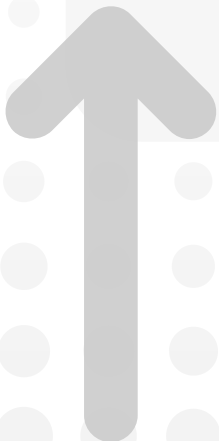
## **Alternative 2: (Divide and conquer algorithm)**

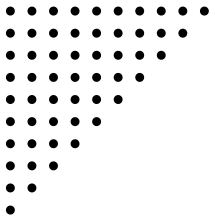
- **Quick sort:**

Quick sort relates to the divide and conquers design technique, with an  $O(n \log n)$  complexity in the best case and  $O(n^2)$  in the worst scenario. Objects are the parameters that the quick sort algorithm will use in this application.

- **Binary search:**

Is a divide-and-conquer design technique with a worst-case complexity of  $O(\log N)$  and a best-case complexity of  $O(1)$ . The parameters that the binary sort algorithm will take in this application are objects.





# LOCKEDME.COM

GitHub repository and Conclusion  
Lulwah M E AlDyouly

## GitHub Repository Link:



<https://github.com/Lulwahh/ProjectPhase1>

## Conclusion:

To conclude, this project challenges me to think outside the box by enticing me to experiment with and analyze the issues, resources, and things that people will usually experience in their chosen careers.