Exercise\_4\_DSA\_Theory\_Solution

1. Understand Array Representation

In an array, all the elements are stored in contiguous memory locations. So, if we initialize an array, the elements will be allocated sequentially in memory. This allows for efficient access and manipulation of elements.

Analysis:

Since I have implemented an 1d array, and used linear search the time complexity is O(n).

Array however suffers from the following disadvantages :

Fixed size: Arrays have a fixed size that is determined at the time of creation. This means that if the size of the array needs to be increased, a new array must be created and the data must be copied from the old array to the new array, which can be time-consuming and memory-intensive.

Memory allocation issues: Allocating a large array can be problematic, particularly in systems with limited memory. If the size of the array is too large, the system may run out of memory, which can cause the program to crash.