# Exercise 6: Library Management System

## 1. Understand Search Algorithms

Linear Search:

* Checks each element one by one until the target is found.
* Simple but inefficient for large datasets.

Binary Search:

* Works on sorted data only.
* Divides the search interval in half repeatedly.
* Much faster than linear search for large datasets.

## 4. Analysis

Time Complexity Comparison:

* Linear Search: O(n)
* Binary Search: O(log n)

When to Use:

* Use Linear Search when data is small or unsorted.
* Use Binary Search when data is large and already sorted.