Exercise 6: Library Management System

**Time Complexity Comparison:**

* **Linear Search:** O(n). In the worst case, it checks every element once.
* **Binary Search:** O(log n). More efficient for large datasets, but requires the data to be sorted.

**When to Use Each Algorithm:**

* **Linear Search:**
  + Use for small datasets or when the dataset is unsorted.
  + Simple to implement and doesn’t require any pre-processing.
* **Binary Search:**
  + Use for large datasets where the data is already sorted.
  + Requires sorting the data first if it’s not already sorted, which has its own time complexity of O(n log n) for efficient sorting algorithms like Merge Sort or Quick Sort.