Module 3: 3.4

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1.

```java
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        int[] numbers = {5, 2, 9, 1, 5, 6};
        int searchValue;
        System.out.println("Unordered list:");
        displayArray(numbers);
        bubbleSort(numbers);
        System.out.println("\nOrdered list:");
        displayArray(numbers);
        System.out.print("\nEnter a number to search for: ");
        searchValue = scanner.nextInt();
        int position = linearSearch(numbers, searchValue);

        if (position != -1) {
            System.out.println("Number " + searchValue + " found at position " + position + " in t
        } else {
            System.out.println("Number " + searchValue + " not found in the ordered list.");
        }

        scanner.close();
    }
    private static void displayArray(int[] array) {
        for (int num : array) {
            System.out.print(num + " ");
        }
        System.out.println();
    }
    private static int linearSearch(int[] array, int value) {
        for (int i = 0; i < array.length; i++) {
            if (array[i] == value) {
                return i;
            }
        }
        return -1;
    }
```

```java
    }
    private static void bubbleSort(int[] array) {
        int n = array.length;
        for (int i = 0; i < n - 1; i++) {
            for (int j = 0; j < n - 1 - i; j++) {
                if (array[j] > array[j + 1]) {
                    int temp = array[j];
                    array[j] = array[j + 1];
                    array[j + 1] = temp;
                }
            }
        }
    }
}

```

Output :

```
Unordered list:
5 2 9 1 5 6

Ordered list:
1 2 5 5 6 9

Enter a number to search for: 4
Number 4 not found in the ordered list.
```