**National University of Computer and Emerging Sciences**



Lab Manual 1

for

Data Structures Lab

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| Section | BCS-3B |
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**Objectives:**

In this lab, students will practice:

* Searching Algorithms
* Sorting Algorithms

**Question 1:** Write a C++ program to search an element from an array. You are required to ask the user the enter size and elements of the array. Apply Selection sort on the entered array. Further ask the user to search an element. If the element is present print “Present” else “Not Present”. Also print the index of the element on which it is present. (USE BINARY SEARCH)

**Sample Output:**

Enter the size of the array: 7

Enter the elements of the array: 5, 4, 8, 5, 1, 6, 3

Sorted Array: 1, 3, 4, 5, 5, 6, 8

Search an Element: 5

The searched element is Present on index 0 and 3.

**Question 2:** Write a C++ program to sort given array using insertion sort.

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| --- | --- | --- | --- | --- | --- |
| **8** | **2** | **10** | **1** | **3** | **15** |

**Sample Output:**

Unsorted array: 8, 2, 10, 1, 3, 15

Sorted Array: 1, 2, 3, 8, 10, 15

**Question 3:** Write a C++ program to sort given array using merge sort.

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| --- | --- | --- | --- | --- | --- | --- |
| **2** | **1** | **10** | **7** | **3** | **6** | **5** |

**Sample Output:**

Unsorted array: 2, 1, 10, 7, 3, 6, 5

Sorted Array: 1, 2, 3, 5, 6, 7, 10

For Reference



