# Smt. Chandaben Mohanbhai Patel Institute of Computer Applications

## BCA – Semester III

## CAUC201 – Fundamental of Data Structures and Algorithms

| Practical Assignment – 3<br>Programs on Sorting and Searching | |
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| **1** | Write a program to accept n elements and check whether a given element is present or not.<br>Algorithm: Linear Search, Binary Search - (For Numeric Data Type)<br>Input: Enter the Size of the Array: 5<br>Enter the Array Elements: 10 20 30 40 50<br>Enter the Searching Element: 30<br>Output: Element is Present |
| **2** | Write a program to accept a string and check whether a given character is present or not.<br>Algorithm: Linear Search, Binary Search - (For Character Data Type)<br>Input: Enter the String: CMPICA<br>Enter the Searching Character: M<br>Output: Character is Present |
| **3** | Write a program to accept n string elements (city names) and check whether a given city is present or not.<br>Algorithm: Linear Search, Binary Search - (For String-based Data)<br>Input: Enter the Size of the Array: 4<br>Enter the City Names: MUMBAI PUNE AHMEDABAD BANGALORE<br>Enter the Searching City: PUNE<br>Output: City is Present |
| **4** | Write a program to accept n elements and arrange them in Ascending order.<br>Algorithm: Bubble Sort, Selection Sort, Insertion Sort - (For Numeric Data Type)<br>Input: Enter the Size of the Array: 5<br>Enter the Array Elements: 10 50 20 40 30<br>Output: 10 20 30 40 50 |

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| **5** | Write a program to accept a string and arrange its characters in Ascending order.<br>Algorithm: Bubble Sort, Selection Sort, Insertion Sort - (For Character Data Type)<br>Input: Enter the String: CMPICA<br>Output: ACCIMP |
| **6** | Write a program to accept n string elements (city names) and arrange them in in Ascending order.<br>Algorithm: Bubble Sort, Selection Sort, Insertion Sort - (For String-based Data)<br>Input: Enter the Size of the String: 4<br>Enter the City Names: MUMBAI PUNE AHMEDABAD BANGALORE<br>Output: AHMEDABAD BANGALORE MUMBAI PUNE |
| **7** | Write a program to merge two sorted arrays into a single sorted array in ascending order using Merge Sort.<br>Input:<br>Array1: 10 20 30 40 50<br>Array2: 5 6 25 35 45 46<br>Output: 5 6 10 20 25 30 35 40 45 46 50 |