

National University of Computer and Emerging Sciences



Lab Manual
for
Programming Fundamentals

Course Instructor	Ms. Arooj Khalil
Lab Instructor(s)	Ms. Saleha Batool Ms. Nimra Abbas
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Department of Computer Science
FAST-NU, Lahore, Pakistan

Question # 1:

Write a program for selection sort that compares the first element in the array with all the other elements in the array. At the end of this comparison, the smallest element in the array is placed in the first position. In the next pass, using the same approach, the next smallest element in the array is placed in its correct position. This continues till N elements, or till the entire array is sorted.

Output:

Input list of elements to be sorted

11 5 2 20 42 53 23 34 101 22

Sorted list of elements is

2 5 11 20 22 23 34 42 53 101

Number of passes required to sort the array: 10

Question # 2:

Write a C++ program to implement Insertion Sort

Output:

Input list is

12 4 3 1 15 45 33 21 10 2

Sorted list is

1 2 3 4 10 12 15 21 33 45

Problem 3:

You are given an array. You need to sort the even positioned elements in the ascending order and the odd positioned elements in the descending order. Apply insertion sort to sort them.

Input : a[] = {7, 10, 11, 3, 6, 9, 2, 13, 0}

Output : 11 3 7 9 6 10 2 13 0

Even positioned elements after sorting in
ascending order : 3 9 10 13

Odd positioned elements after sorting in
descending order : 11 7 6 2 0

Problem 4:

Write a program in C++ where you can search, insert, and delete an item in a sorted array.