Aror University of Art, Architecture, Design & Heritage Sukkur

Department of AI-Multimedia and Gaming

Lab 6: Sorting: Bubble Sort Date:01 Oct, 2024

Subject: Data Structure (CSC221), Fall 2024 Instructor: Abdul Ghafoor

Lab objectives: The objective of this lab is to understand and implement the Bubble Sort algorithm.

Lab Task 01:

- Write a Java program to implement the Bubble Sort algorithm. Your task is to sort an array of integers in ascending order using Bubble Sort.
- Define a method bubbleSort(int[] arr) that takes an array as input and sorts it using the Bubble Sort algorithm.

Input: 513462

Output: 123456

Lab Task 02: Implement Optimized Bubble Sort with Early Stopping

- Write a Java program to implement an optimized version of the Bubble Sort algorithm that stops early if the array is already sorted during any pass through the array.
- Define a method earlyStopBubbleSort(int[] arr) that implements Bubble Sort.

Lab Task 03: Sort a List of Strings by Length

- Modify the Bubble Sort algorithm to sort a list of strings by their lengths in ascending order.

Input: ["apple", "pie", "banana", "cat"]

Output: ["pie", "cat", "apple", "banana"]

LeetCode

https://leetcode.com/problems/merge-sorted-array/description/?envType=problem-list-v2&envId=sorting

https://leetcode.com/problems/intersection-of-two-arrays-ii/description/?envType=problem-list-v2&envId=sorting

https://leetcode.com/problems/find-the-difference/description/?envType=problem-list-v2&envId=sorting