Lab Exercises

1. Implement the bubble sort algorithm to sort the in descending order (starting from the initial pass). Take array [10] = {5,1,3,6,2,9,7,4,8,10}. You can also take your array as user input.

2. You are tasked with implementing the Shell Sort algorithm to sort the weights of employees in a company. However, instead of using the traditional gap sequence (where the gap is divided by 2), you must create and implement a custom gap sequence of your choice that you think can align with the problem.

3. You are asked to sort a list of product prices for a retail store using Comb Sort. However, instead of using the standard shrink factor of 1.3 (as typically used in Comb Sort), you must create and implement a custom shrink factor of your choice that you think can align with the problem.

4. In a bustling corporate office, the facilities management team is tasked with organizing the seating arrangements for employees based on their designations. The office layout consists of rows of computer desks, and each desk has a designated employee. The priority is to sort out the computer desks for employees using the Insertion Sort algorithm, with the designation determining the sorting order. The higher the designation, the closer the employee should be seated to the corner office. The designations and their corresponding priorities are as follows:

   i. CEO (Chief Executive Officer) - Highest Priority
   ii. CTO (Chief Technology Officer)
   iii. CFO (Chief Financial Officer)
   iv. VP (Vice President)
   v. MGR (Manager)
   vi. EMP (Employee) - Lowest Priority

Here's the initial arrangement of employees' desks from left to right:

   i. Employee (EMP)
   ii. CFO (Chief Financial Officer)
   iii. Manager (MGR)
   iv. Employee (EMP)
   v. VP (Vice President)
   vi. CTO (Chief Technology Officer)
   vii. Manager (MGR)
   viii. CEO (Chief Executive Officer)

5. Develop C++ solution such that day month and year are taken as input for 5 records and perform Sorting Dates based on year using Selection Sort. Note: Input must be taken from user.
[Hint: Struct or Class can be used]
It`s not strictly necessary to take inputs in the format as shown in example, but, the output should be in the given format.

Example Input:	**Example Output:**
01/02/2022	4/07/2015
5/01/2018	5/01/2018
4/07/2015	12/10/2021
12/10/2021	01/02/2022
11/12/2023	11/12/2023

6. A clerk at a shipping company is charged with the task of rearranging a number of large crates in order of the time they are to be shipped out. Thus, the cost of compares is very low relative to the cost of exchanges (move the crates). The warehouse is nearly full: there is extra space sufficient to hold any one of the crates, but not two. Which sorting method should the clerk use? Implement this question via a user generated array?