**PSG College of Technology**

**Department of AMCS**

**II Sem M.Sc.**

**Data Structures Lab**

**Problem Sheet 1**

**Basic Programs in Arrays**

| 1. Count the number of repeated elements in n array. 2. For the given array of 0’s and 1’s in an unsorted order, output the array with 0’s followed by 1’s. 3. Remove the duplicates in the array. 4. Write an algorithm for finding counting inversions in an array. Inversion is a pair (i,j) such that for an array A = {a1, a2, a3,...., an}, and ai<aj and i > j. |
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| 1. Write an algorithm to find i and j in an array A for any key such that A[j]2 + A[i]2 = key. 2. Suppose an array A has n distinct integers. Increasing sequence is given as A[1].........A[k] and decreasing sequence is given as A[k+1]........A[n]. Write an algorithm for finding k. 3. Given an array **arr[]** having **4** integer digits only. The task is to return the maximum **24 hour time** that can be formed using the digits from the array. **Note** that the minimum time in 24 hour format is **00:00**, and the maximum is **23:59**. If a valid time cannot be formed then return **-1**.   **Examples:**  **Input:** arr[] = {1, 2, 3, 4} **Input:** arr[] = {5, 5, 6, 6} **Output:** 23:41 **Output:** -1   1. Given an array **arr[]**, the task is to make all the array elements equal with the given operation. In a single operation, any element of the array can be either multiplied by **2** or by **3**. If its possible to make all the array elements equal with the given operation then print **Yes** else print **No**.   **Examples:**  **Input:** arr[] = {50, 75, 100} **Input:** arr[] = {10, 14} **Output:** Yes **Output:** No {50\*2\*3, 75\*2\*2, 100\*3} = {300, 300, 300}  ------------------------------------------------- THE END -------------------------------------------------- |