**KARPAGAM COLLEGE OF ENGINEERING (AUTONOMOUS), COIMBATORE**

**CTS GENC Next Practice- Day-1**

**PROBLEMS**

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| **PROBLEM NO.** | **DESCRIPTION** |
|  | Find the point where maximum intervals overlap  Consider a big party where a log register for guest’s entry and exit times is maintained. Find the time at which there are maximum guests in the party. Note that entries in register are not in any order.  Example :  Input: arrl[] = {1, 2, 9, 5, 5}  exit[] = {4, 5, 12, 9, 12}  First guest in array arrives at 1 and leaves at 4,  second guest arrives at 2 and leaves at 5, and so on.  Output: 5  There are maximum 3 guests at time 5. |
|  | Find minimum difference between any two elements  Given an unsorted array, find the minimum difference between any pair in given array.  Examples :  Input : {1, 5, 3, 19, 18, 25};  Output : 1  Minimum difference is between 18 and 19  Input : {30, 5, 20, 9};  Output : 4  Minimum difference is between 5 and 9  Input : {1, 19, -4, 31, 38, 25, 100};  Output : 5  Minimum difference is between 1 and -4 |
|  | Count minimum number of subsets (or subsequences) with consecutive numbers Given an array of distinct positive numbers, the task is to calculate the number of subsets (or subsequences) from the array such that each subset contains consecutive numbers.  Examples:  Input : arr[] = {100, 56, 5, 6, 102, 58,  101, 57, 7, 103, 59}  Output : 3  {5, 6, 7}, { 56, 57, 58, 59}, {100, 101, 102, 103}  are 3 subset in which numbers are consecutive.  Input : arr[] = {10, 100, 105}  Output : 3  {10}, {100} and {105} are 3 subset in which  numbers are consecutive. |
|  | Minimize the sum of product of two arrays with permutations allowed Given two arrays, A and B, of equal size n, the task is to find the minimum value of A[0] \* B[0] + A[1] \* B[1] +…+ A[n-1] \* B[n-1]. Shuffling of elements of arrays A and B is allowed.  Examples :  Input : A[] = {3, 1, 1} and B[] = {6, 5, 4}.  Output : 23  Minimum value of S = 1\*6 + 1\*5 + 3\*4 = 23.  Input : A[] = { 6, 1, 9, 5, 4 } and B[] = { 3, 4, 8, 2, 4 }  Output : 80.  Minimum value of S = 1\*8 + 4\*4 + 5\*4 + 6\*3 + 9\*2 = 80. |
|  | Sort all even numbers in ascending order and then sort all odd numbers in descending order Given an array of integers (both odd and even), sort them in such a way that the first part of the array contains odd numbers sorted in descending order, rest portion contains even numbers sorted in ascending order.  Examples:  Input : arr[] = {1, 2, 3, 5, 4, 7, 10}  Output : arr[] = {7, 5, 3, 1, 2, 4, 10}  Input : arr[] = {0, 4, 5, 3, 7, 2, 1}  Output : arr[] = {7, 5, 3, 1, 0, 2, 4} |
|  | Minimum difference between max and min of all K-size subsetsLast Updated: 22-05-2018Given an array of integer values, we need to find the minimum difference between maximum and minimum of all possible K-length subsets.Examples :Input : arr[] = [3, 5, 100, 101, 102]K = 3Output : 2Explanation : Possible subsets of K-length withtheir differences are,[3 5 100] max min diff is (100 - 3) = 97[3 5 101] max min diff is (101 - 3) = 98[3 5 102] max min diff is (102 - 3) = 99[3 100 101] max min diff is (101 - 3) = 98[3 100 102] max min diff is (102 - 3) = 99[3 101 102] max min diff is (102 - 3) = 98[5 100 101] max min diff is (101 - 5) = 96[5 100 102] max min diff is (102 - 5) = 97[5 101 102] max min diff is (102 - 5) = 97[100 101 102] max min diff is (102 - 100) = 2As the minimum difference is 2, it shouldbe the answer for given array.Input : arr[] = {5, 1, 10, 6}k = 2Output : 1We get the above result considering subset{5, 6} |