

1. Find Frequency.

Given a array of **N** positive integers and an integer **X**. The task is to find the **frequency** of X in vector.

1. Input: N = 5

array = {1, 1, 1, 1, 1}

X = 1

Output: 5

2. Input: N= 5

array = {1, 2, 2, 3, 5}

X = 2

Output: 2

2. Find union and intersection of two sorted array.

1. Input: arr1[] = {1, 3, 4, 5, 7} arr2[] = {2, 3, 5, 6}
Output: union---> {1, 2, 3, 4, 5, 6, 7} intersection---> {3, 5}
2. Input: arr1[] = {1,1,1,2,2,7,9,9} arr2[] = {1,1,3,3,7,8,8,8}
Output: union---> {1,2,3,7,8,9} intersection---> {1,2,7}

3. Chocolate distribution problem:

Given an array of n integers where each value represents the number of chocolates in a packet. Each packet can have a variable number of chocolates. There are m students, the task is to distribute chocolate packets such that:

1. Each student gets one packet.
2. The difference between the number of chocolates in the packet with maximum chocolates and packet with minimum chocolates given to the students is minimum.

1. **Input :** $arr[] = \{7, 3, 2, 4, 9, 12, 56\}$, $m = 3$

Output: Minimum Difference is 2

2. **Input :** $arr[] = \{3, 4, 1, 9, 56, 7, 9, 12\}$, $m = 5$

Output: Minimum Difference is 6

4. Longest Consecutive subsequence.

Given an array of integers, find the length of the longest sub-sequence such that elements in the subsequence are consecutive integers, the consecutive numbers can be in any order.

1. **Input:** `arr[] = { 1, 9, 3, 10, 4, 20, 2 }`
Output: 4 { 1, 3, 4, 2 }
2. **Input:** `arr[] = { 36, 41, 56, 35, 44, 33, 34, 92, 43, 32, 42 }`
Output: 5 { 36, 35, 33, 34, 32 }

5. Find minimum number of merge operations to make an array palindrome.

Given an array of positive integers. We need to make the given array a 'Palindrome'. The only allowed operation is "merging" (of two adjacent elements). Merging two adjacent elements means replacing them with their sum. The task is to find the minimum number of merge operations required to make the given array a 'Palindrome'.

1. Input : arr[] = {15, 4, 15}

Output : 0

2. Input : arr[] = {1, 4, 5, 1}

Output : 1

3. Input : arr[] = {11, 14, 15, 99}

Output : 3