**Indian Institute of Technology (Indian School of Mines) Dhanbad**
**Data Structures Lab (NCSC104)**
**B.Tech (CSE)**

**Assignment- 11 (BST)** [2+4+4]

1. Given an unsorted array and a number n, find if there exists a pair of elements in the array whose difference is n.
   Hint: **Input:** arr[] = {90, 70, 20, 80, 50}, n = 45
   **Output:** No Such Pair
2. Given an array of time intervals where **arr[i] = [starti, endi]**, the task is to merge all the overlapping intervals into one and output the result, which should only have mutually exclusive intervals.
   Hint: **Input:** arr[] = [[7, 8], [1, 5], [2, 4], [4, 6]]
   **Output:** [[1, 6], [7, 8]]
   **Explanation:** We will merge the overlapping intervals [[1, 5], [2, 4], [4, 6]] into a single interval [1, 6].
3. Given **n** meetings in the form of **start[]** and **end[]**, where start[i] is the start time of the ith meeting and end[i] is the end time of ith meeting. The task is to print the meeting number of all the meetings which can be held in a **single room** such that the total number of meetings held is **maximized**. The meeting room can have only **one** meeting at a particular time.

**Hint**: The start time of one chosen meeting can't be equal to the end time of any other chosen meeting.

**Input:** start[] = {1, 3, 0, 5, 8, 5}, end[] = {2, 4, 6, 7, 9, 9} **Output:** 1 2 4 5

**Explanation:** We can attend the 1st meeting from (1 to 2), then the 2nd meeting from (3 to 4), then the 4th meeting from (5 to 7), and the 5th meeting from (8 to 9).