Lab Assignment
Week-6 Lab B

1. Given an unsorted array of size n. Array elements are in the range of 1 to n. One number from set {1, 2, …n} is missing and one number occurs twice in the array. Find these two numbers.

   Examples:

   Input: *arr[] = {3, 1, 3}*

   Output: *Missing = 2, Repeating = 3*

   Explanation: *In the array, 2 is missing and 3 occurs twice*

   Input: *arr[] = {4, 3, 6, 2, 1, 1}*

   Output: *Missing = 5, Repeating = 1*

2. *Given a sorted array and a value x, the ceiling of x is the smallest element in an array greater than or equal to x, and the floor is the greatest element smaller than or equal to x. Assume that the array is sorted in non-decreasing order. Write efficient functions to find the floor and ceiling of x.*

   Examples :

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   For example, let the input array be {1, 2, 8, 10, 10, 12,
   19}

   For x = 0:    floor doesn't exist in array,  ceil  = 1

   For x = 1:    floor  = 1,  ceil  = 1

   For x = 5:    floor  = 2,  ceil  = 8
   ```

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For x = 20:   floor  = 19,  ceil doesn't exist in array
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3. *Given an unsorted array and a number n, find if there exists a pair of elements in the array whose difference is n.*

   Examples:

   Input: *arr[] = {5, 20, 3, 2, 50, 80}, n = 78*

   Output: *Pair Found: (2, 80)*