# Assignment 1 | 18/07/2022 | DSA Lab

1. WAP to find out the smallest and largest element stored in an array of n integers.
2. WAP to reverse the contents of an array of n elements.
3. WAP to search an element in an array of n numbers.
4. WAP to sort an array of n numbers.
5. Given an unsorted array of size n, WAP to find number of elements between two elements a and b (both inclusive).

   Input : arr = [1, 2, 2, 7, 5, 4], a=2 and b=5

   Output : 4

   (The numbers are: 2, 2, 5, 4)

   If a=6 b=15, then output will be 0

6. Given an array, WAP to print the next greater element (NGE) for every element. The next greater element for an element x is the first greater element on the right side of x in array. Elements for which no greater element exist, consider next greater element as -1.

   **Sample Input & Output**

   For the input array [2, 5, 3, 9, 7], the next greater elements for each element are as follows.

| Element | NGE | Element | NGE |
|---|---|---|---|
| 2 | 5 | 9 | -1 |
| 5 | 9 | 7 | -1 |
| 3 | 9 | | |

7. Let A be nXn square matrix array. WAP by using appropriate user defined functions for the following:

   a) Find the number of nonzero elements in A

   b) Find the sum of the elements above the leading diagonal.

   c) Display the elements below the minor diagonal.

   d) Find the product of the diagonal elements.

8. Given an unsorted array arr[] and two numbers x and y, find the minimum distance between x and y in arr[]. The array might also contain duplicates. You may assume that both x and y are different and present in arr[].
   Input: arr[] = {3, 5, 4, 2, 6, 5, 6, 6, 5, 4, 8, 3}, x = 3, y = 6
   Output: Minimum distance between 3 and 6 is 4.

## Home Assignments

1. WAP to find out the second smallest and second largest element stored in an array.
2. WAP to arrange the elements of an array such that all even numbers are followed by all odd numbers.
3. Write a program to replace every element in the array with the next greatest element present in the same array.
4. WAP to replace every array element by multiplication of previous and next of an n element.
5. WAP to sort rows of a matrix having m rows and n columns in ascending & columns in descending order.