C/C++ Programming in UNIX

Lab 05

Create one single .c file and use functions for the questions (e.g. ex01, ex02, … for the function names)

1. Input an array of integers, return indices of the two numbers such that they add up to a specific target. You may not use the same element twice.
   input numbers = [2, 7, 11, 15], target = 9 => return [0,1]

2. Median of a sorted array:

- If the number of values is odd, the median is the middle value
- If the number of values is even, the median is the average of the two middle values

   Find the median of the two sorted arrays (optional: your solution should be O(log(m+n)), m n is size of two arrays)
   Example: array1 = [1, 2] array2 = [3, 4] => median is (2 + 3) / 2 = 2.5

3. Write a program to input an array of m x n. Sort the odd column in increasing order and the even column in decreasing order

4. Input an array of n x n (n is even). Sort the 1st diagonal in increasing order and the 2nd diagonal in decreasing order. 1st diagonal starts with element [0,0], 2nd diagonal starts with elements [n-1,0]

5. Input an array of m x n with all distinguished elements. Find the minimum element of each row then find the maximum number from those

6. Input an array of n integers. Sort all the prime numbers in increasing order
   Example: **2** 1 **3** 4 8 6 **7** 9 **2** => **2** 1 **2** 4 8 6 **3** 9 **7**

7. Input an array of n integers. Find the largest sorted sub array (sorted array increasing/decreasing and has the largest number of elements)
   Example: array = 2 5 3 4 8 9 7 6 10 => result = 3 4 8 9 or 9 7 6

8. Given an array of n integers. Write a program to find a sub array which contains consecutive positive values from the original array and have largest sum of its elements
   Example: array = -2 3 6 5 -9 8 11 -4 9 => result = 8 11