

## CS302: Design and Analysis of Algorithms Assignment 02

**Due Date: 14th Oct 2020**  
**Group Assignment of 2**

**Total Marks: 100 Points**

1. Illustrate (by steps) on the array  
A = {0.635, 0.860, 0.450, 0.450, 0.251, 0.101, 0.981, 0.327, 0.011}  
the operations by Quick Sort, Radix Sort, Bucket Sort. For Counting Sort, use  
B = {4, 2, 8, 9, 0, 1, 1, 3, 3, 3}. Discuss Time Complexity of each sorting algorithm  
[20 Points]
  
2. Solve 8.2.2, 8.2.3, 8.3.1, 8.3.2, 8.3.3, 8.3.4 from Book [30 Points]
  
3. Given an array of integers, write pseudocode that can find and print contiguous  
subarray with maximum sum in it. Design two algorithms, one with  $O(n)$   
complexity and  $O(n \log n)$  complexity. Use simple example to illustrate. Also  
use loop invariant to prove its correctness [50 Points]