# Lab W2D2

**Question 1. Practice Radix Sort**

Repeat what I have done in Slides 24 and 25. Let Radix be 9. Array to be sorted is {179, 721, 639, 549, 292, 427, 335, 435, 62}.

**Question 2. Experimenting with lower bound**

Devise an algorithm to sort 4 elements using exactly 5 comparisons in the worst case. Does this violate the theoretical lower bound? Justify your answer.

**Question 3. Exploring new ideas: Forward and backward sorted array (FBS array)**

Definition

An array is said to be a FBS array if it satisfies the following three conditions.

(1) Elements in the odd locations are sorted in the ascending order.
(2) Elements in the even locations are sorted in the descending order.
(3) Every element in the even locations are <= every element in the odd locations.

Example {7, 20, 10, 19, 10, 17, 14, 15, 15}

Devise an algorithm to FBSsort (that will make an array a FBS array). What is the asymptotic running time of your algorithm? What is the fastest possible asymptotic running time for such an algorithm? Prove your answer.