**CS2302 Data Structures**

**Fall 2020**

**Singly Linked List**

1. Write a function that receives a list L and removes all nodes but the first and the last node in a SLL.  
   *Challenge: write a function that receives a list L and removes the first and last node in L.*
   * Input: 1 -> 2 -> 3 -> 4.
   * Output: 1 -> 4
2. Write a function (iterative/recursive) that takes an integer n and subtracts the data from the nodes by n.
   1. Input: 1 -> 2 -> 3 -> 4, n = 2
   2. Output: -1 -> 0 -> 1 -> 2
3. Write a **recursive** function that receives the head of the SLL and an integer k and prints the kth element to last.
   1. Input: 5 -> 2 -> 6 -> 0 -> 1, k = 2
   2. Output: 0
4. Write a function that receives a list L and reverses the nodes in L in-place, that is, *that the algorithm does not use extra space for manipulating the input.* Your algorithm must have a O(1) space complexity. **(Extra credit: Dr. Aguirre & Dr. Fuentes)**
   1. Input: 7 -> 1 -> 4 -> 6
   2. Output: 6 -> 4 -> 1 -> 7