CSE225L: Data Structures and Algorithm Lab
Midterm Assignment
Total Marks: 20
Deadline: 09th October, 2020, 11:59 AM (NOT PM)
North South University

Instructions:

Read the following instructions carefully before proceeding to the questions.

1. You may download and use the implementation codes of sorted and unsorted list from google classroom and modify them as necessary for this assignment.

2. There will be partial marking. So even if you do not manage to solve the whole problem, try to solve as much as you can.

3. There will be no mark for plagiarizing. If you plagiarize in any way, your submission will be rejected and you will get 0 for that task.

4. You need to submit your code in google classroom like any other assignments. Make sure that you have saved everything before submitting.

Task 1: [10 Marks] Write a function "reverse" in your queue class (linked list implementation) that reverses the whole queue.

In your driver file (main.cpp), create an integer queue, push some values in it, call the reverse function to reverse the queue and then print the queue.

Task 2: [10 Marks] Modify the implementation of binary search tree and add two functions. First one should count the number of leaf nodes and the second one should calculate the height of the tree.

In the driver file, create an integer binary search tree, insert 10 integers in the tree and finally print the number of leaf nodes and the height of the tree.

Task 3: [5 Marks] Use a Binary Search Tree to implement Sorted List class. The sorted list class should have all the functionalities of a regular sorted list class.

In the driver file, create a Sorted List object, insert a few items in it and finally print the List.