

Shiv Nadar University
CSD101: Introduction to Computing and Programming
Lab #12
Linked structures and applications

Max marks: 80

Due on/before: 22.00, 22-Nov-2021.

14-Nov-2021

- 1. This is the last graded lab. There will be no graded lab in the last week of November.*
 - 2. Ten best from 11 labs (Lab 1 was not graded)+upto 4 projects will be considered for grading.*
 - 3. **Important:** If you have submitted more than 4 projects then you will have to indicate which 4 should be graded. TAs already have lot of grading load so they will grade at most four projects that you have indicated.*
 - 4. Pl. ensure that all labs, projects that you have submitted have been graded by the end of the semester.*
1. Using the code for the singly linked list (code is on course website in L22) as a base implement the following:
 - (a) A doubly linked list that has the operations create, add, delete, isEmpty similar to the singly linked list. That is add and delete at a specific position. The doubly linked list should have pointers to both the beginning of the list and the end of the list since it can be traversed in both directions.
 - (b) Add a function search that searches for a data value (an int) in the list and returns its position if it exists and -1 if it does not. Also add another function length which returns the length of the list.
 - (c) Use the doubly linked list to implement a Queue that has the add, delete and isEmpty operations.

[40,20,20=80]