CSC 212: Data Structures and Abstractions

Fall 2018

University of Rhode Island

Weekly Problem Set #7

Due Thursday 11/8 at the beginning of class. Please turn in neat, and organized, answers hand-written on standard-sized paper **without any fringe**. At the top of each sheet you hand in, please write your name, and ID.

1. For each of the following please provide the worst case time complexity for a Singly Linked List (SLL), as well as a Doubly Linked List (DLL).

Function	SLL	SLL without Tail	DLL
`int size();`			
`int at(int);`			
`int front();`			
`int back();`			
`bool empty();`			
`void clear();`			
`void set(int, int);`			
`void push_back(int);`			
`int pop_back();`			
`void insert(int, int);`			
`void erase(int);`			
`void reverse();`			

2. How many pointers are required for a SSL of length n? How many pointers are required for a DLL of length n?

3. Describe how to reverse a SLL without a tail.

4. What is required to change a linked list into a queue? What about a stack?

5. Draw the state of an empty stack and an empty queue after running the following functions for each:

```
push(1); push(2); push(3); pop(); push(4); pop(); pop(); push(5)
```