Lab 1: level 3 class activities

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This set of activities is for those who think they mastered the topics in Level 1 activity and Level 2 activity.

Lab 1.1 Doubly Linked Queue

1. Make a new project/package to implement a doubly linked list queue data structure. Check the book for some references on how to do this (Section 4.7) and see Figure 1. Don't forget to include the queue interface! Your code should be an elegant extension of the existing code (the code I shared with you on Canvas). Make sure to include all necessary packages/ classes/ interfaces for your implementation to work. This is a very fun exercise with references. DLLNode class is already implemented in the book, but now you need to implement a queue logic using the doubly linked list. Notice that now you have two links for each node: one forward link to the next element in the queue, and one backward linking to the previous element. If you don't trust your implementation, try to print the queue in reverse!

2. Write a palindrome detection application using your queue. **But note, use only(!) your doubly linked queue data structure, without using stack**. You can implement the method in the doubly linked queue class, and add the method to the interface as well.

Figure 1: Doubly linked queue.