Assignment One

This is an individual assignment. **Plagiarism is strictly prohibited**.

In this assignment, you extend the doubly linked list class DList given in the textbook. The subclass is named MyDlist. You need to implement the following constructors and methods of MyDlist:

1. public MyDlist(). This constructor creates an empty doubly linked list.
2. public MyDlist(String f). This constructor creates a doubly linked list by reading all strings from a text file named f. Assume that adjacent strings in the file f are separated by one or more white space characters. If f is "stdin", MyDlist("stdin") creates a doubly linked list by reading all strings from the standard input. Assume that each input line is a string and an empty line denotes end of input.
3. public void printList(). This instance method prints all elements of a list on the standard output, one element per line.
4. public static MyDlist cloneList(MyDlist u). This class method creates an identical copy of a doubly linked list u and returns the resulting doubly linked list.
5. public static MyDlist union(MyDlist u, MyDlist v). This class method computes the union of the two sets that are stored in the doubly linked lists u and v, respectively, and returns a doubly linked list that stores the union. Each element of a set is stored in a node of the corresponding doubly linked list. Given two sets A and B, the union of A and B is a set that contains all the distinct element of A and B. Include the detailed time complexity analysis of this method in big O notation immediately above the source code of this method as comments.
6. public static MyDlist intersection(MyDlist u, MyDlist v). This class method computes the intersection of the two sets that are stored in the doubly linked lists u and v, respectively, and returns a doubly linked list that stores the intersection. Each element of a set is stored in a node of the corresponding doubly linked list. Given two sets A and B, the intersection of A and B is a set that contains all the elements of A that are also in B. Include the detailed time complexity analysis of this method in big O notation immediately above the source code of this method as comments.

We assume that all the elements of a set are distinct.

How to submit your code?

Login to your CSE account and submit your MyDlist.java that contains only the class MyDlist by using the **give** command as follows:

give cs9024 assn1 MyDlist.java

Late submission

No late submission will be accepted.

Marking

The full mark of this assignment is 6. Marking is based on the correctness and efficiency of your code. Your code must be well commented.

Deadline

The deadline is 11:59:59 pm, 27 August.