Assignment 3
Computer Science Tutor

A doubly linked list L is a data-structure that can be used to maintain an ordered set of data elements. Typically it allows the following operations:

Isempty()
- equal to true, if the list L is empty
- equal to false, if the list L contains at least one element

Insert(data)
- if the data element is not already stored in L, it will be stored in L
- if the data element is already stored in L, nothing happens

Delete(data)
- if the data element is stored in L, it will be deleted from L
- if the data element is not stored in L, nothing happens

List()
- an ordered list of the elements stored in L will be printed

Query(data)
- equal to true, if the data element is stored in L
- equal to false, if the data element is not stored in L

Max()
- if the list L is not empty, equal to the largest element stored in L
- if the list L is empty, equal to -1

Min()
- if the list L is not empty, equal to the smallest element stored in L
- if the list L is empty, equal to -1

In this assignment you are asked to implement an ordered doubly linked list that stores strictly positive integers ordered from small to large. A user should be able to issue commands at the command line that have the following forms and results:

'e'	the program will respond with 'L is empty', or 'L is not empty', if the list L is empty, not empty, respectively.
'I <number>'	where <number> is a strictly positive integer, resulting in the <number> being inserted in L.
'D <number>'	where <number> is a strictly positive integer, resulting in the <number> being deleted from L.
'L'	resulting in a listing of all the elements stored in L ordered from small to large.
'Q <number>'	where <number> is a strictly positive integer, resulting in '<number> is element of L', if <number> is stored in L, and '<Number> is no element of L', if <number> is not stored in L.
'M'	results in the output '<number> is the largest element in L'.
'm'	results in the output '<number> is the smallest element in L'.
'q'	the program stops.