Topic 3 Discussion 1

What is a deque? Write a small program that demonstrates the deque data structure. Create a Loom video in which you walk through your code and execute your program. Your video should not exceed 2 minutes.

A linear collection that supports element insertion and removal at both ends. The name deque is short for "double ended queue" and is usually pronounced "deck". Most Deque implementations place no fixed limits on the number of elements they may contain, but this interface supports capacity-restricted deques as well as those with no fixed size limit.

This interface defines methods to access the elements at both ends of the deque. Methods are provided to insert, remove, and examine the element. Each of these methods exists in two forms: one throws an exception if the operation fails, the other returns a special value (either null or false, depending on the operation). The latter form of the insert operation is designed specifically for use with capacity-restricted Deque implementations; in most implementations, insert operations cannot fail.

 time complexity of all deque operations is O(1). Additionally, the time complexity of insertion or deletion in the middle, given an iterator, is O(1); however, the time complexity of random access by index is O(n).

The twelve methods described above are summarized in the following table:

Table

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Text

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