

LEC 10 - Efficiency

Another Stack Implementation

Suppose that we made a new implementation of Stack that has the top represented by the beginning of the list. Which implementation is better?

- The original implementation is better because its operation can be completed in constant $O(1)$ time, where the new implementation must shift all elements when adding or removing an element, which scales linearly $O(n)$

Running Time Efficiency - Stacks, Queues, and Lists

- Accessing or assigning to any element by index takes constant time
- Inserting or removing an item at a given index takes time proportional to the number of items after the index