

Linked List in Scala

[Readme \(readme\)](#)[Test Suite \(../linked-list\)](#)

Linked List

Write a Singly-Linked List implementation that uses the Proxy pattern

Dequeues have four fundamental operations (using Array terminology):

- push (insert value at back)
- unshift (insert value at front)
- pop (remove value at back)
- shift (remove value at front)

The difference between deque and Array performance is that a deque implements all of these operations in constant time. Even clever implemetations of Array will often have to copy the entire Array in order to unshift.

Under the hood we'll use an Element class with two fields, `next` and `prev`, that are both writable.

To make the API usable, you'll use a Deque class as a proxy for this list. There two good ways to implement Deque: maintain separate references to the first and last Element, or maintain a reference to one of them and ensure that the list is circular.

To keep your implementation simple, the tests will not cover error conditions. Specifically: pop or shift will never be called on an empty Deque.

In languages that do not have good support for mutability (such as Elixir or Erlang), you may choose to implement a functional Deque where shift and pop have amortized $O(1)$ time. The simplest data structure for this will have a pair of linked lists for the front and back, where iteration order is front ++ reverse back.

The Scala exercises assume an SBT project scheme. The exercise solution source should be placed within the exercise directory `/src/main/scala`. The exercise unit tests can be found within the exercise directory `/src/test/scala`.

To run the tests simply run the command `sbt test` in the exercise directory.

For more detailed info about the Scala track see the help page (<http://help.exercism.io/getting-started-with-scala.html>).

Source

Inspired by 'Data Structures and Algorithms with Object-Oriented Design Patterns in Ruby', singly linked-lists. [view source](#)

(<http://www.brpreiss.com/books/opus8/html/page96.html#SECTION00430000000000000000>)



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