

Week 4 - Overview

Up until now we have been looking at peripheral data structures or algorithms. This week we will dive into linear data structures, or how things are ordered as items are added or removed.



Objectives

During this week, you will:

- Differentiate between linear structures in terms of how items are ordered, added, and removed.
- Produce examples of linear data structures.

Readings

You will be responsible for reading the following chapters this week:

- *Data Structures and Algorithms in Python* by Michael Goodrich
 - 6. Stacks, Queues, and Deques
 - 7. Linked Lists

Additional pages are available in this module reviewing:

- [Linear Structures \(https://maryville.instructure.com/courses/43640/pages/linear-structures\)](https://maryville.instructure.com/courses/43640/pages/linear-structures)
- [Stacks \(https://maryville.instructure.com/courses/43640/pages/stacks\)](https://maryville.instructure.com/courses/43640/pages/stacks)
- [Queues \(https://maryville.instructure.com/courses/43640/pages/queues\)](https://maryville.instructure.com/courses/43640/pages/queues)
- [Deque \(https://maryville.instructure.com/courses/43640/pages/deques\)](https://maryville.instructure.com/courses/43640/pages/deques)

- [Lists \(https://maryville.instructure.com/courses/43640/pages/lists\)](https://maryville.instructure.com/courses/43640/pages/lists) (including [Unordered Lists \(https://maryville.instructure.com/courses/43640/pages/unordered-lists\)](https://maryville.instructure.com/courses/43640/pages/unordered-lists) and [Ordered Lists \(https://maryville.instructure.com/courses/43640/pages/ordered-lists\)](https://maryville.instructure.com/courses/43640/pages/ordered-lists))
- [Do Together - A Simple Stack \(https://maryville.instructure.com/courses/43640/pages/do-together-a-simple-stack\)](https://maryville.instructure.com/courses/43640/pages/do-together-a-simple-stack)

Resources

This week highlights resources available through Runestone Interactive. This open education resource provides open source textbooks for computer science and programming content. The materials are licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International Licence. You may access the source material using the link below.

- Miller, B. & Ranum, D. (2011). *Problem solving with algorithms and data structures using python* (2nd ed.). Retrieved from <http://interactivepython.org/runestone/static/pythonds/index.html> (<http://interactivepython.org/runestone/static/pythonds/index.html>)