

University of Illinois at Urbana-Champaign
Dept. of Electrical and Computer Engineering

ECE 220: Computer Systems & Programming

Containers and Iterators

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A Container Holds Other Data Structures

What's a container?

- a **data structure**
- **containing** other **data structures**
- with specific access capabilities.

Examples include

- linked lists,
- heaps (the type used for MP9), and
- dynamically-sized arrays.

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Example: a Singly-Linked List Containing “Things”

For simplicity,

- consider a **singly-linked list**
- **containing “things.”**

How do the list elements hold “things?”

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Adding Containers to Structures Implies More Code

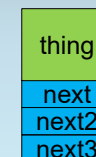
When we studied lists,

- we **added a `next` field**
- to a data structure
- **to create a linked list.**

And said: just

- **add more fields**
- **to create multiple lists.**

But **to do so**, we must **write code for each list separately.**



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