Data Structures: Linked Lists
• AI News Bias Tool Created By USC Computer Scientists, Amy Blumenthal | November 6, 2020

• USC computer scientists have developed a tool to automatically detect bias in news.

• The work, which combines natural language processing and leverages moral foundation theory to understand the structures and nuances of content that are consistently showing up on left-leaning and right-leaning news sites, was presented at the International Conference on Social Informatics in the paper “Moral Framing and Ideological Bias of News.”

• The researchers intend to help consumers understand viewpoints that are being presented when they are unfamiliar with a news source.
Class Updates

- Grading Reminders:
  - Make sure you’re doing the lecture quizzes on Gradescope. Unlimited attempts!
  - P == C- == 200/400 points (straight sum)
- Ants project is out!
  - 2 parts, partner project
  - Early Checkpoint, Composition Grading, Extra Credit Options!
Why "Data Structures"? (Next 2 lectures)

• Data Structures
  - OOP helps us organize our *programs*
  - Data Structures help us organize our data!
  - You already know lists and dictionaries!
  - We’ll see two new ones today
• Enjoy this stuff? Take 61B!
• Find it challenging? Don’t worry! It’s a different way of thinking.
Linked Lists
Data Structures

A data structure is a way to organize or model a bunch of independent pieces of data.

- Lists (arrays)
- Dictionaries
- Tuples

A class, on its own, is not necessarily a data structure, it represents a new data type.

- a "car" or a "person" is an instance of that data type.
- Lists, Dicts, etc are also data types; their goal is to organize other data.

These are common patterns that can be used to solve a wide variety of problems.

Sometimes we’re giving structure to make it easier as a programmer, sometimes we’re trying to be fast or efficient. (Next lecture!)
**Linked Lists**

- A Recursive List, sometimes called a “rlist”
- Linked lists contain other linked lists
- A series of items with two pieces:
  - A value, usually called *first*
  - A “pointer” to the *rest* of the items in the list.

![Diagram of linked list with values 12, 99, 37, and an end marker]

- We’ll use a very small Python class “Link” to model this.
Recursion Is Implicit

self.rest