Objectives

- More on dictionaries!
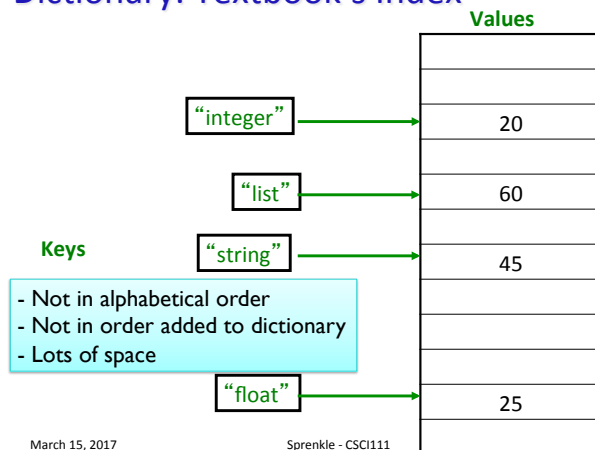
Review: Dictionaries

- What is a dictionary in Python?
- What is the syntax for creating a new dictionary?
- How do we access a key's value from a dictionary?
  - What happens if there is no mapping for that key?
- How do we create a key → value mapping in a dictionary?

Dictionary: Textbook's Index

Values

"integer" →	20
"list" →	60
Keys "string" →	45
- Not in alphabetical order - Not in order added to dictionary - Lots of space	
"float" →	25

Adding/Modifying Key-Value Pairs

- Syntax:
  `<dictionary>[<key>] = <value>`

- `directory['registrar'] = 8455`
  - Adds mapping for `'registrar'` to 8455
  - **OR**
  - Modifies old entry if it existed to 8455

1

Methods `keys()` and `values()`

- Don't actually return a `list` object
- But can be used similarly to a list
- If you want to make them into a list
  - Example:

```
keys = list(mydict.keys())
```

Using Dictionaries

`using_dictionary.py`

- Demonstrate lots of operations, methods, etc. in using dictionaries

Problem

`years_dictionary.py`

- Part 1:
  - Given a file of the form
    - <lastname> <class>
  - Goal: I want to quickly find out what a student's class is
    - How do we want to model the data?
    - What is the key? What is the value?
    - How to display the mapping in a pretty way?
    - What order is the data printed in?
- Part 2:
  - Prompt user for the last name of the student
  - Display the student's graduation year

Algorithm to Problem

- Create an empty dictionary
- Read in the file line by line
  - Split the line
  - From the split, get the last name and the year
  - Add a mapping of the last name to the year in the dictionary
    - (accumulate the data in the dictionary)
- Process the data in the dictionary, e.g.,
  - Display it, in sorted order
  - Get user input to get answers

Modify Last Problem

- Modify previous program to show the student's expected graduation year

`years_dictionary2.py`

3