CSc 110, Autumn 2017

Lecture 32: 2D Structures

Adapted from slides by Marty Stepp and Stuart Reges
Exercise

Consider the following function:

```python
def mystery(all, letters):
    for i in range(all):
        if all[i] in letters.values():
            if all[i] not in letters.keys():
                letters[all[i]] = i
        else:
            letters[all[i]] += i
    return result
```

What is in the dictionary after calls with the following parameters?

all: [b, l, u, e]  letters: {s:b, p:t, o:u, t:t}
dictionary: _____________________________________________________________

all: [k, e, e, p]  letters: {s:y, a:k, f:e, e:f}
dictionary: _____________________________________________________________

all: [s, o, b, e, r]  letters: {b:b, o:o, o:o, k:k, s:s}
dictionary: _____________________________________________________________
What is the right structure?

• You want to store a bunch of colors so you can later choose one at random.
• Batting order of a baseball team.
• Students names and their grades on a project.
• Friends names and their phone numbers
• Height, width and location of a sports field.
• Movies a person has watched.
• Items in a shopping cart.
• A student's grades.
What is the right structure?

• The grades for all students in a class
• All books in a store arranged by category
• Many recipes each containing many steps
• Phone numbers that have been called this month on a phone plan divided by area and country code for billing simplicity
Exercise

• We would like to store data for the class so that we can:
  • Access the entire class list easily
  • Access a section list easily

• What structure is appropriate for this problem?
  • Sometimes it can be helpful to store a structure inside another structure