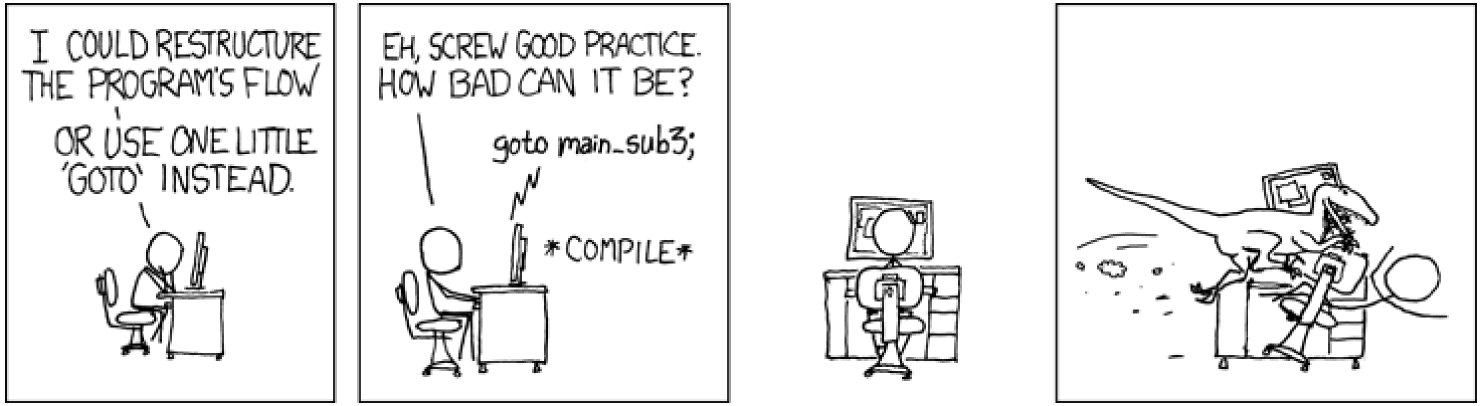
CSc 110, Autumn 2017

Lecture 32: 2D Structures

Adapted from slides by Marty Stepp and Stuart Reges


I COULD RESTRUCTURE THE PROGRAM'S FLOW
OR USE ONE LITTLE 'GOTO' INSTEAD.
EH, SCREW GOOD PRACTICE. HOW BAD CAN IT BE?
goto main_sub3;
COMPILE

Exercise

Consider the following function:

```
    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