# Code for Teachers

*A practical approach to programming*

# Chapter 3-2:
# Lists

# Basic Concepts

- Lists are sequences of other data types
  - Can contain any data other data types
    - Including other lists!
- Lists are iterable
- Lists can be *sliced*
- Lists have built-in *methods* to operate on them
  - `append()`
  - `pop()`

```
things = [4,5,6,7]
stuff = [4,5.0,"six",False]
```

# Indices

- In Computer Science, we start counting at 0
- Every *element* of a list has an *index*

```
x = ["P","y","t","h","o","n"]
      0   1   2   3   4   5

x[3] → "h"
```

# Slices

- The `[]` syntax lets us create permutations of lists as well as access specific indices
- `list[i]` → element at index i
- `e in list` → returns True if the element e in the list, False otherwise
- `list[i:n]` → sublist starting at index i, up to (not including) index n
  - `list[:]` → copy of a list
- `list[i:n:s]` → sublist starting at index i, up to n, in intervals of size s
  - Skip-counting
  - Intervals can be negative

# List Methods

- `list.append(x)` → adds `x` to the end of list
- `list.pop()` → removes and returns the last element in list
  - `list.pop(i)` → removes and returns the element at index `i`

# Code Example: Name Reverser

- Take a name, and return it reversed
- Strings are lists!

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