

CSC108H Lecture 34

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ConcepTest

[5, 9, 0, 4, 6, 8, 2]

What will be the list after one pass of bubble sort?

- ▶ A. [5, 0, 9, 6, 4, 2, 8]
- ▶ B. [5, 9, 0, 4, 6, 2, 8]
- ▶ C. [5, 0, 9, 4, 6, 8, 2]
- ▶ D. [5, 0, 4, 6, 8, 2, 9]

ConcepTest

[2, 10, 1, 7, 15, 9, 1]

What will be the list after one pass of bubble sort?

- ▶ A. [2, 1, 7, 15, 9, 1, 10]
- ▶ B. [2, 1, 7, 10, 9, 1, 15]
- ▶ C. [2, 1, 10, 7, 15, 9, 1]
- ▶ D. [2, 1, 10, 7, 15, 1, 9]

Timing the Algorithms

- ▶ Let's take a guess at which of the three sorting techniques is fastest
- ▶ We'll run timing experiments on lists of several sizes
- ▶ ... and we'll show how much faster the built-in sort is, so you keep taking CSC courses!

ConceptTest

(I didn't do this in lecture, but it is good practice.) Here is a list and that list after each pass of a sort.

[5, 9, 0, 4, 6, 8, 2]

[5, 9, 0, 4, 6, 8, 2]

[5, 9, 0, 4, 6, 8, 2]

[0, 5, 9, 4, 6, 8, 2]

[0, 4, 5, 9, 6, 8, 2]

[0, 4, 5, 6, 9, 8, 2]

[0, 4, 5, 6, 8, 9, 2]

[0, 2, 4, 5, 6, 8, 9]

Which sort is this?

- ▶ A. Selection
- ▶ B. Insertion
- ▶ C. Bubble

Review

Major Topics

- ▶ Strings
- ▶ Boolean conditions, if-statements, loops
- ▶ Lists and tuples
- ▶ Files
- ▶ Dictionaries
- ▶ Testing
- ▶ Algorithm analysis
- ▶ Sorting

Finding Bugs (count_chars.py)

This program has a bug. Give an example that shows incorrect behavior.

```
def count_chars(s, L):  
    '''(str, list of str) -> int  
    L is a list of unique one-character strings.  
    Return a dictionary whose keys are the characters in L  
    and whose values are the frequencies, in s,  
    of each character. If the character does not appear  
    in s, its frequency will be 0.  
    '''  
    freq_dict = {}  
    for c in s:  
        freq_dict[c] = 0  
  
    for c in s:  
        if c in freq_dict:  
            freq_dict[c] += 1  
  
    return freq_dict
```