

CSI 31 LECTURE NOTES (Ojakian)

Topic 11: Lists, Sets, and Dictionaries

OUTLINE

(References: Sweigart ch 4, 5 AND Goldwasser/Letscher 12.1, 12.2, 12.3, 12.4)

1. Recall: Lists
 2. Sets (see **more advanced online book** at Course Materials: Basics- Sets)
 3. Dictionaries
 4. Bringing in Objects
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1. Recall: Lists

(a) More List methods:

- i. `insert(index, val)`
- ii. `remove(val)`
- iii. `sort()`

(b) Examples

PROBLEM 1. Write a program that prompts the user for numbers till “Enter” is hit. The median of these numbers is returned.

***PROBLEM* 2.** Write a program that prompts the user for numbers till “Enter” is hit. Then print out the following:

- The list in increasing order
- The list in decreasing order
- The number of times 77 is entered and the number of times “bcc” is entered

2. Sets

(a) Commands: Creating, `in`, `add`, `remove`, empty set- `set()`, `union`, `intersection`, use with for-loops.

PROBLEM 3. Write a program that repeatedly prompts the user till the user just hits return. It then prints all the items inputted, without repeating items.

3. Dictionaries

- (a) Key-value pairs.
- (b) Commands: Creating, indexing, setting new values, empty dictionary- {}, in, use with for-loops.

PROBLEM 4. *We will write a program with two phases: In phase 1, the program gathers information to build a mini data base, and in phase 2, the user can ask questions about this data base.*

Write a program that repeatedly prompts the user for input; we will assume that the user always inputs just a single lower case letter at each prompt. This first phase is ended when the user just hits return without entering a letter.

For the second phase, the program will repeatedly prompt the user asking which letter she is interested in; whatever letter she enters, the program will print out how many of this letter were entered in the first phase. The second phase is ended when the user just hits return.