CS 112 Assignment 8b

Submit your finished code to the Dropbox. You will need to pass off the assignments with the TA or tutor during their office hours (their information is in the CS 112 Course Information section of the Table of Contents), or the instructor in class. Follow the formatting guide which is also found in the CS 112 Course Information section.

Read the instructions carefully. Make sure your output matches the example run.

Objectives:

In this assignment you will learn how to do the following:

- Use list slices to evaluate partial contents of a list
- Use the ‘in’ and ‘not in’ operators
- Call a function passing a list as an argument

Program: Passing a list to dups()

Add a function to your 8b assignment called dups that you call from main(), passing your list as an argument. The dups() function will not modify your original list but will return a new list containing all the duplicate numbers in the first list. Each duplicate value should only appear once in your list of duplicates.

Key program requirements:

- Add a function dups() to your assignment 8a.
- Use ‘in’, ‘not in’ and list slices to identify the duplicates in the list and save them to a new list that is returned to main.
- Your list of duplicates must NOT have any duplicate numbers in it.
- Do not use any Python function to identify duplicates. You must program the logic of identifying duplicates yourself.
- Use of global variables is NOT allowed

Ponder – Discuss the following with your partner. Failure to do this activity and discuss these questions before you attempt to pass off your program will result in a failed pass off.

- On a separate piece of paper, draw boxes that represent the various memory locations that will be used by your program.
- Since lists are mutable data types, how does this change your box representation of the memory locations you did in the Ponder bullet above compared to previous (before week 8) assignments?
- Discuss the difference between the following two for-loops. What information do you have in for-loop 1 that you do not have in for-loop 2?
  - for-loop 1: for i in range(len(myList)):
  - for-loop 2: for thing in myList:

<u>Example Run</u>

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This program will ask the user to enter a series of numbers.
The user may enter as many numbers as they wish, hitting the enter key with no data
when they wish to stop.
The program will then display the list of numbers, the sum total of those numbers and a
list of the duplicates in the list.

Please enter a number (or just hit enter to finish): 1
Please enter a number (or just hit enter to finish): 2
Please enter a number (or just hit enter to finish): 3
Please enter a number (or just hit enter to finish): 2
Please enter a number (or just hit enter to finish): 4
Please enter a number (or just hit enter to finish): 2
Please enter a number (or just hit enter to finish): 5
Please enter a number (or just hit enter to finish): 2
Please enter a number (or just hit enter to finish): 4
Please enter a number (or just hit enter to finish):

List Index     Item
   0             1
   1             2
   2             3
   3             2
   4             4
   5             2
   6             5
   7             2
   8             4

There are 9 items in the list.
The sum total of numbers in the list is 25.
The following numbers were duplicated in the list: [2, 4]
Would you like to play again? (Y/N): n
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