CSCI 236 Python Programming Fall 2018

Midterm Exam

1. You’ve been hired to help write the software for an automatic change dispenser, the kind you see attached to a cash register, that automatically dispenses the right coins depending on the amount of change that’s owed to the customer. Write a program that first prompts for a number from 0 to 99 (representing the amount of change that’s due) and then outputs the number of quarters, dimes, nickels, and pennies that should be dispensed.
2. Draw a game board for playing chess or checkers. It’s a simple grid of 8x8 squares, in which the squares alternate between two colors and the starting color in each row alternates as well, so that you end up with a checkerboard pattern. (Google for a chess board image if you’re unsure.)
3. A checksum is a single number that can act as a kind of “digital signature” of a long string. Just like how two people will have different handwritten signatures, two strings can have two different digital signatures. There are many ways to calculate the checksum of any arbitrary string; the more complex the calculation, the less likely it is for two strings to have the same checksum value.

Write a program that prompts for a string of characters and outputs the checksum. The checksum for this program should simply be the sum of the ord() values of each character, modulo 10. For example, the checksum for the word “cat” would be (99 + 97 + 116) % 10 which is 2.

1. Write a program that reads a file containing a list of numbers, and displays the sum.
2. Write a program that can report the number of times a certain letter appears in a string. Prompt the user for the string and the letter to search for and display the number of times that letter appears.