CS153/453 Fall 2017

HW 5

Due: Monday Sept 25, 2017 11:59pm (before midnight)

Part I (Old Homework Revisited)

Task 1 Re-do Homework 1 with a while-loop. The program should ask for an amount in dollars, and return the number of chocolate bars that one can have by spending the money, and redeeming all the coupons available. You should use the multiple assignment statement

```
(numberOfBars, numberOfCoupons) = (numberOfBars + 1, numberOfCoupons - 9)
```

as the body of your loop.

Task 2 Re-do Task 5 (Lottery Winner) of Homework 2. You should ask for a lump sum payment amount (for example, %650,000), a multi-payment option annual payment amount (for example, $50,000), the number of years for the multi-payment option (for example, 20 years), and the annual interest rate (for example, 5%). You are asked to print a table showing how the amount of money for the multi-payment option grows for each year, and reports which option is more rewarding.

Task 3 Re-do Task 2 of Homework 3. You should not destroy the given `bit_list` when calculating the decimal value. That is, there is no need to repeatedly popping off the 0-th element. Instead, use a for-statement to process each bit in the list in order. You cannot assume how long the bit list can be. Prints out the equivalent decimal value.

Task 4 Re-do Task 2 of Homework 4. You cannot assume that `toss` has only 5 elements. That is, we may have more than 5 dice. You should use a for-loop to process each element in `toss` to update the scores. As before, report the maximum possible score.

Part II (Medal Counts)

Problem Statement

Given the results of the olympic disciplines, return the medal counts for each country. The results of the disciplines are given as a list of String triples, where each element is in the format (GGG,SSS,BBB). GGG, SSS and BBB are the 3-letter country codes (three capital letters from 'A' to 'Z') of the countries winning the gold, silver and bronze medal, respectively.

The medal counts is a dictionary with a key for each country appearing in results list. Each key-value pair is in the format "CCO": [G,S,B], where G, S and B are the number of gold, silver and bronze medals won by country CCO, e.g. "AUT": [1,4,1].

Example 1

```
results = [("ITA","JPN","AUS"), ("KOR","TPE","UKR"), ("KOR","KOR","GBR"),
           ("KOR","CHN","TPE")]

Returns:
{ "KOR": [3,1,0], "ITA": [1,0,0],  "TPE": [0,1,1],  "CHN": [0,1,0],
  "JPN": [0,1,0], "AUS": [0,0,1],  "GBR": [0,0,1],  "UKR": [0,0,1]
}
```

These were the results of the archery competitions in Athens, 2004.

Example 2

```
results = [("USA","AUT","ROM")]

Returns: { "USA": [1,0,0],  "AUT": [0,1,0],  "ROM": [0,0,1] }
```

Example 3

```
results = [("GER","AUT","SUI"), ("AUT","SUI","GER"), ("SUI","GER","AUT")]

Returns: { "AUT": [1,1,1],  "GER": [1,1,1],  "SUI": [1,1,1] }
```

Task 5 (For CS453 only) Assume that `results` list has been read. (That is, it's up to you whether to read in the results, or set the results list directly in a program.) Write a program that will create the medal counts dictionary, and print a copy of it. Note: You do not know in advance the list of country names that may appear in the `results` list.