IS115 Introduction to Programming 2018

Assignment #8 - Total Points = 100 points

Date Assigned: Check Canvas

Date Due: Check Canvas

DO NOT share your answers with anyone. DO NOT collaborate on completing work with anyone. DO NOT use the Internet to search for solution to assignments. DO NOT pay anyone to write your code. Failure to meet this requirement leads to a violation of the academic integrity principles.

This assignment is based on the material covering **Python concepts of chapters 3 and 4 of our optional textbook.**

In **Python**, comment lines start with the # symbol. You may also highlight the text you want to be commented, click Format/Comment Out Region. Make sure to include comments throughout your code explaining the key steps of the program.

Write pseudocode (10 points) and python code with output (10 points) for the following. Please ensure that a screenshot of the output is attached to the document as advised in class.

1) Ask for total amount for an online shopping order and calculate the shipping cost based on the following table. Also, calculate the total cost (order amount + shipping cost). Of course, one must also ask for the destination location (within USA or Canada). If the total input order is 0 or less or it is more than $10,000, display an error message and do not perform any calculation. Issue an error message, if the destination is not one of USA or Canada. When comparing the country values, don't

worry about looking for the case of the entry. You can assume that the valid country values are USA and Canada. So, if the user enters canada (all lower case), this is considered to be an invalid destination. **Make sure to format the amount of shipping cost to 2 digits after the decimal point.**

Order Total	Ship Amount within USA	Ship to Canada
0 to less than $50	$6	$8
$50 to less than $100	$9	$12
$100 to less than $150.00	$12	$15
$150 or more	0	0

Sample test cases: Note that this is not a complete set of test cases. Your output should look similar to the following:
Destination = Japan
ERROR – Unknown destination
Destination = Canada
Order total = 11000
ERROR – Invalid order total
Destination = USA
Order total = -1
ERROR – Invalid order total
Destination = canada
Order total = 100
ERROR – Invalid destination
Destination = USA
Order total = 70
Shipping cost = 9
Total cost = 79
Destination = USA
Order total = 200
Shipping cost = 0
Total cost = 200
Destination = Canada
Order total = 120
Shipping cost = 15
Total cost = 135

2)A college professor collects books every day over a number of days. Write a program that asks the professor for the number of days he wishes to collect books. For each of the days, ask the professor for the number of books he collected. **Calculate and display the total number of books collected**. **Do not allow the professor to enter a negative value for number of days and the number of books collected (he just can't type!)** (hint: use loops to validate entries). In all incorrect cases for input, display an appropriate message and allow the professor to enter a valid value. **Clearly explain the output**. Don't just display a value. For example, instead of displaying 800 for a given monetary value, display something like: value = $800.
Sample test case – part a) your output should look similar to the following:
Number of days = -1

Invalid – try again
Number of days = -5
Invalid – try again
Number of days = 3
Number of books = -1
Invalid – try again
Number of books = -3
Invalid – try again
Number of books = 5
Number of books = 12
Number of books = -3
Invalid – try again
Number of books = 8
Total number of books collected = 25

3) A bank charges $8 per month plus the following fees:

Check fee	Number of checks
$.09 each	Fewer than 20 checks
$.07 each	20 – 39 checks
$.06 each	40 – 59 checks
$.05 each	60 or more checks

If the number of checks is a negative number or 0, issue an error message and do not calculate anything.
The program should ask the user for the number of checks and compute and display the total fee.

For example, if a person writes 10 checks, the fees displayed will be: $8.9. How did I get this

number? (8 + 10*.09). Note that you're using decision statements to decide how the calculation will

be performed. How about if the number of checks written is 42? The fee will be: $10.52. **Make sure**

to format the amount of checking fee to 2 digits after the decimal point.

4) a program to perform the following series of steps:
i. Prompt the user to enter 2 integers: first and second. Make sure the first is less than the second number and allow the user to enter a valid set of numbers. This is a simple loop.
ii. Display all the even numbers between first and second.
iii. Calculate and display the total of all even numbers between first and second.
iv. Display all the odd numbers between first and second.
v. Calculate and display the total of all odd numbers between first and second.
vi. Display the numbers, their squares and their cubes for all the numbers between first and second, with steps of 1. **Clearly explain the output.**

Test case – for part b) – your output should look similar to the following:

First = 10
Second = 5
Invalid – first must be less than the second number – try again
First = 10
Second = 3
Invalid – first must be less than the second number – try again
First = 2
Second = 9
The list of even numbers:
2
4
6
8
Total Even = 20
The list of odd numbers:
3
5
7
9
Total Odd = 24
Number, squared, cubed
2 4 8
3 9 27
…
9 81 729