*Turn on the Navigation Pane in Word when viewing this document:* **View tab > enable Navigation pane**

# Program Specification

* *Program title:* *Budget Tool*
* *File name:* Ch4-HW-Budget-Tool.py
* *Due Date:* see Canvas for due date
* *Main objective:* *Victorino Financial Planners* is a local financial business providing comprehensive as well as basic financial services to their clients. They are requesting that you write a program that allows a user to enter the client’s current income and expenses, and generates a summary analysis of the data. The system should be flexible enough to allow the user to enter an unlimited amount of income and expense entries. The system should prompt the user for the month name, as well as the name and amount for each income item and expense item. Finally, a summary table analyzing the data should be displayed.
* Refer to the sample *Execution Screenshot* below for additional details.
  + Red, bold text is a calculated or determined value.
  + Black, bold text is data entry.

# Read before starting

* The expectation is that students have read the *entire* chapter and watched *all* lecture recordings before beginning this assignment.
* Reminder: This is an *individual* assignment. Students are expected to complete this assignment independently and without the assistance of others. If you need help, contact your instructor via email or visit during office hours.
  + When emailing your instructor, please provide as much information as possible:
    1. State what the issue is and provide line numbers.
    2. Attach your \*.py file *zipped* as outlook does not permit attaching these files.
    3. Also, copy & paste the snippet of code where the issue is occurring within the email. If I am not at a computer when I see your email, I may be able to respond by seeing the snippet of code.
* I recommend that you read the entire assignment before beginning.
* Periodically review the ***Assignment Tips & Updates*** page in our module looking for tips as well as any ***required*** updates to this assignment.
* **If you generate an *infinite* loop, press Ctrl+C** (or close the Shell window) to cancel the execution.
* **This code must be free of syntax errors or it will not be graded. Thus, comment out any code that crashes, or for a better grade, improve the code and submit it one day late with a 10% deduction.**

# Getting Started

* Open IDLE > open the *Editor Window* (File >NEW)
* Click File > Save As…
* Locate your Chapter 4 folder for this course
* Save your file as: **Ch4-HW-Budget-Tool.py**

# Execution Screenshot

|  |
| --- |
| 1. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 2. Welcome to Victorino Financial Planners 3. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 4. What month is this budget analysis for: **September** 5. -------------- INCOME DATA ENTRY -------------- 6. Enter income name: **ABC Property Mgmt** 7. Enter income amount: **5000.00** 8. >>> Do you have more income to enter (y/n)? **y** 9. Enter income name: **Consulting Services** 10. Enter income amount: **2000.50** 11. >>> Do you have more income to enter (y/n)? **n** 12. Income Summary 13. ------------------------- 14. Total income: $7,000.50 15. Total entries: 2 16. -------------- EXPENSES DATA ENTRY -------------- 17. Enter number of expenses: **2** 18. Enter expense name: **Energy** 19. Enter expense amount: **300.00** 20. Enter expense name: **Water** 21. Enter expense amount: **180.50** 22. Expenses Summary 23. ------------------------- 24. Total expenses: $480.50 25. Total entries: 2 26. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 27. Victorino Financial Planners 28. Personal Budget Tool 29. for September 30. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 31. Total Avg/Entry 32. Income $7,000.50 $3,500.25 33. Expenses 480.50 240.25 34. ---------------------------------- 35. Net 6,520.00 (Excellent! Net is >= 25% of income) |

# Instructions

1. Include the required assignment header comment lines at the top of your code (as before).
2. Add the comments lines shown below:
   1. As our code is becoming more complex, the separation of input, process, and output for our entire program is no longer possible. However, continue to think in those terms for each section of your code: 1) what do I need up front? (input), 2) what do I need to calculate/determine? (process), and 3) what do I need to display? (output)

|  |
| --- |
| #Generate header lines  #Process Income  #Process Expenses  #Generate Summary Table |

1. Readability – you will be graded on readability. At a minimum, make sure to leave blank lines between each section. Also, leave a space between values, variables, operators, etc. –   
   e.g. a = b + 10, or print('hello', 'world')
2. Processing & Output Requirements

I recommend that you work on one section at a time in the following order.

* 1. *Generate header lines* – see the execution screenshot. Make sure to capture the month name.
  2. *Process Income* – write a **WHILE** loop for this part of your code allowing the user to enter the income name & income amount. Perform any calculations that are necessary. Ask the user if they want to continue adding another income entry. When the user has completed entering values, display the income summary.
     1. *Tip*: when testing, you do not have to use the long names and the exact values as shown in the execution screenshot. That takes too much time. Learn to speed up testing. However, make sure that you do eventually test these particular values as well as others – as we will.
     2. *Tip*: On the total income line, use the *sep* argument to remove the extra space that the print() automatically adds.
  3. *Process Expenses* – write a **FOR** loop for this part of your code. Ask the user up front, how many entries they will have and use that value on the for clause. Allow the user to enter the expense name & expense amount. Perform any calculations that are necessary. When the user has completed entering values, display the expense summary.
     1. *Tip*: be consistent in the naming of *variables*. If you use *expense* (i.e. singular) or *expenses* (i.e. plural), then use that approach with all expense-related variables*.* Otherwise, you will be chasing down syntax issues frequently due to inconsistent names.
  4. *Calculate Net Income* – calculate the net income. If the net income is at least 25% of the total income, then generate a congratulatory message as shown in the screenshot; otherwise, generate a reminder to reduce their expenses. This message is displayed in the summary table.
  5. *Generate Summary Table* – you should have calculated all values needed for this table. Generate the table, properly formatted.

# Submitting the Assignment

* First, review the ***Assignment Tips & Updates*** page to see if there are any additional requirements to this assignment – denoted with the tag: **[required].**
* To submit the assignment, go to Canvas and open the assignment link.
* Upload your \*.py file**.** You may upload more than once as long as it is before the due date & time. Only the final submission will be graded. Assignments will be accepted one day late albeit with a 10% deduction.