

Week 1 lab essay sample



**ASSIGN
BUSTER**

Week 1 Lab

TCO 1: Given a simple problem, design and desk-check a solution that is expressed in terms of pseudocode, flowchart, and/or input-process-output (IPO) diagrams.

Lab

This exercise will cover the steps used to create a solution. You will use variable lists, IPO charts, pseudocode, flowcharts, and desk-checking.

Rubric

Point distribution for this activity:

Lab Activity

Document

Points possible

Points received

Part 1

10

Part 2

10

Part 3

10

Part 4

10

Part 5

10

Total Points

50

Problem:

You have an idea for a restaurant tip calculator app that you want to develop to use on your mobile phone when you go out to eat. You can enter the amount of the check before taxes, the tax rate, and the tip percentage. It should display the amount before taxes, the dollar amount of the taxes, the dollar amount of the tip (calculated on amount before taxes), and the total amount including taxes and tip.

1—Variable List With Data Type

List all variables you will use (use valid variable names). Indicate whether the data type is string, integer, or decimal, and so on. checkAmount double

taxRate double

tipPercent double

taxAmount double

tipAmount double

grandTotal double

2—IPO Model

List the inputs, any processes/calculations, and the outputs. Use the same valid variable names you used in Step 1.

Inputs

Process (calculations)

Outputs

checkAmount

taxRate

tipPercent

$\text{taxAmount} = \text{checkAmount} * \text{taxRate}$

$\text{tipAmount} = \text{checkAmount} * \text{tipPercent}$

$\text{grandTotal} = \text{checkAmount} + \text{taxAmount} + \text{tipAmount}$

checkAmount

taxAmount

tipAmount

grandTotal

3—Flowchart

Use MS Visio to create a flowchart. Paste the flowchart here, or attach it as a separate document. Use the same valid variable names you used in Step 1.

4—Pseudocode

Describe your solution using pseudocode. Use the same valid variable names you selected in Step 1. Start

Output “ Enter Check Amount: “

Input checkAmount

Output “ Enter taxRate: “

Input taxRate

Output “ Enter tipPercent: “

Input tipPercent

taxAmount = checkAmount * taxRate

tipAmount = checkAmount * tipPercent

grandTotal = checkAmount + taxAmount + tipAmount

Output “ Check Amount is “ + checkAmount

Output “ Tax Amount is “ + taxAmount

Output “ Tip Amount is “ + tipAmount

Output “ Grand Total is “ + grandTotal

End

5—Desk-Check

Desk-check your solution using the following sample data.

Amount of check before taxes: \$28. 50

Tax rate: 6%

Tip percentage: 18%

Enter the expected outputs.

Expected total tax amount _____

Expected total tip amount _____

Expected total including tax and tip _____

For each variable in your program, write the variable name selected in Step 1, in the heading for the variable columns (not all columns may be used). For each step in your algorithm, write its step number in the left column (not all rows may be used). Using the sample inputs above, enter the value of each

variable after each step has been executed. Note any output displayed to the user.

Step

Variables (write variable names in first line below)

Output

Enter step numbers

1

2

3