

# [Week 1 lab essay sample](https://assignbuster.com/week-1-lab-essay-sample/)

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

taxAmount = checkAmount \* taxRate

tipAmount = checkAmount \* tipPercent

grandTotal = checkAmount + taxAmount + 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