

# [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