COSC 1435 Introduction to Problem Solving with Computers I

Homework Assignment 2

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Pseudocode & Flowcharts

***Represent the algorithm of each problem in both pseudocode and flowchart***

***Please follow proper pseudocode conventions and make sure that your flowcharts are neatly organized and easy to trace***

1. Design an algorithm for a company that sells three types of bags: small, medium, and large. They sell for $2.00, $3.50, and $4.00 respectively. This algorithm is to read three numbers input by the user. The first number indicates how many small bags the customer has ordered. The second number indicates how many medium bags the customer has ordered. And the last number indicates how many large bags the customer has ordered. The algorithm will calculate and print to the screen the *total* cost of the bags, the sales tax charged at a rate of 7.5%, and the total sale including sales tax.

Print “Enter 3 values The 1st for slam bags, 2nd for medium and finally 3rd for large”

Price 🡨 0

Get S, M, L

Price 🡨 S \* 2.00

Price 🡨 Price + M \* 3.50

Price 🡨 Price + L \* 4.00

Total 🡨 price \* 1.075

Print “your total is: “ Total

A picture containing clock

Description automatically generated

1. Design an algorithm that will **repeatedly** get as input a single data value *x* and will output the two values of *x*2 and 1/*x*. This process should repeat until the input value for *x* is 999, at which time the algorithm terminates.

A close up of a map

Description automatically generatedPrint “Enter a number”

Get number

While(number != 999)

AnswerOne 🡨 number^2

AnswerTwo 🡨 1/number

Print AnswerOne

Print AnswerTwo

Print “Enter a Number”

End While

END

1. Design an algorithm that takes as input two integers, *a* and *b*, and outputs the sum of all the integers between *a* and *b* inclusive. You may assume that *a* < *b* and that *a* > 0 and *b* > 0.

Print “enter 2 values”

A close up of a map

Description automatically generatedGet a, b

Count 🡨 a

Sum 🡨 0

While(count >= b)

Sum 🡨 sum + count

Count 🡨 count + 1

End while

Print Sum

1. Design an algorithm where the user inputs the length and width of a carpet in feet and the cleaning cost per square foot. The cost is double for every square foot past the first 100. Calculate and output the area of the carpet (square feet) and the cost of cleaning the carpet.

Print “enter the length and width of carpet as well as the cleaning cost per square foot”

Get L , W, Cost

Spending 🡨 0

Area 🡨 L\*W

If(Area > 100)

Extra 🡨 Area – 100

Spending 🡨 extra \* (cost\*2)

End if

Spending 🡨 Spending + (Area \* Cost)

Print “The area of the carpet is: “Area

Print “The cost of cleaning is: ” Spending

A close up of a map

Description automatically generated

**What to submit?**

* Please use this document to submit your answers (Save As). Write your answers under the respective questions. Make sure you write your name in the designated space.
* The name of the file must be **firstInitialLastNameAssign2.docx.** Example, for the name Joe Smith, the file name should be **jSmithAssign2.docx**
* Submit the file to Blackboard by the due date