CS11 Programming Assignment # 2 due Thursday 30 Sept. 1999

The Travel Agent

Your job is to write a program for a traveller who is trying to budget an upcoming trip. Using this program should ensure that there will be no significant expenses overlooked when computing the trip's total cost. Your program will ask the user to enter the prices for various aspects of the journey, and at the end the program will print an itemized budget.

The purpose of this assignment is to introduce the concept of program modularity. You will tackle a problem by dividing it into logical pieces, and implementing each piece with its own function. Often, C++ programs are written as a collection of many small functions, rather than a few big ones. You will gain experience writing several different functions representing the various expenses. Some functions may have parameter(s) and return a value, some may have parameters but return no value, some may return a value but have no parameters, and some may have neither parameters nor a return value. When you read the descriptions below of the functions that you need, you will need to decide what the parameters are, if any, and you need to determine what kind of value needs to be returned, if any.

You are required to implement ten functions in your program. One of these functions is the *main*() function, and the other nine may be called from within *main*(). Here is a description of the nine extra functions that you need (and they must be invoked in this order):

1. a function that welcomes the user to the program
2. a function that gets the round-trip airfare from the user
3. a function that gets the rate of sales tax from the user – for example, if the rate is 4½ per cent, then the user will type 4.5
4. a function that asks the user for the number of nights to reserve a hotel room, and the nightly rate, and then computes the total cost of the room
5. a function that asks the user for how many breakfasts, lunches and dinners he will need to pay for, and then computes the total cost of meals
6. a function that asks the user for the distance between the hotel and the airport, and uses this distance to compute the round-trip cost of a taxi
7. a function that asks the user for the conference registration fee and the number of proceedings to purchase, and then computes this total registration cost
8. a function that asks the user to project expenses for miscellaneous items such as souvenirs, supplies and entertainment
9. a function that adds up the total cost of the trip and prints an itemization of each type of expense, along with the total

Assumptions and Hints:
1. The sales tax will only be applied to the cost of the hotel room and for the miscellaneous expenses.

2. Assume that each meal will cost as follows: $3 for breakfast, $6 for lunch, $12 for dinner.
3. The taxi driver will charge $3 per mile driven.
4. Each copy of the conference proceedings will cost $40.
5. I shall provide an example executable file so that you can compare your output to mine. Using a PC in 201 Riley Hall, double-click on the "Shortcut to Home on Servercsdept2", and then "Fall 99", and then "Cs11B-OUT". You should see a file called p2.exe.
6. You should consider the appearance of the I/O as a reflection of your own travel agency, so you will want to impress the customers with a professional-looking layout.

Example I/O:

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*************************************************
*      Welcome to the Furman Travel Agency      *
* This program will help you budget your trip. *
*************************************************

What is the round-trip airfare?       424

What is the sales tax rate at your destination, in per cent?  14

How many nights will you spend in the hotel?  5
What is the nightly rate for the hotel room?  195

How many days do you need to pay for breakfast?  4
How many days do you need to pay for lunch?       3
How many days do you need to pay for dinner?      4

How many miles is the hotel from the airport?    6

What is the conference registration fee?         390
How many extra copies of the proceedings do you want?  2

How much do you plan to spend on souvenirs?       100
How much do you plan to spend on supplies?        50
How much do you plan to spend on entertainment?  20


Here is your budget summary:

     Cost of airfare        $  424.00
     Cost of hotel          $ 1111.50
     Cost of meals          $   78.00
     Cost of taxi           $   36.00
     Cost of registration $  470.00
     Miscellaneous          $  193.80
     ----------------------------
     Total travel cost    $ 2313.30

Thank you for using the Furman Travel Agency.  Have a great trip!
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