COP 3223 Program #1: Vacation Planning

Due date: Please consult WebCourses for your section

Notes

1. Please read the notes on Code::Blocks provided on the course web page.

Objectives

1. To give students practice at typing in, compiling and running simple programs.
2. To learn how to read in input from the user.
3. To learn how to use assignment statements and arithmetic expressions to make calculations.

Introduction: Vacations

Arup was tardy getting together the class because of a planned vacation (to attend a wedding). Unfortunately, as Arup found out, traveling with a full family (as opposed to just traveling alone), can get expensive. In this assignment you will write four separate programs in all. The first three will calculate a family's travel, food and lodging costs while the fourth will put together all of the first three programs to calculate a total vacation cost.

Part A: Travel Costs (travel.py)

Each vacation involves some travel costs. Typically, these include flying and renting a car. Write a program to calculate the travel costs of a family. Your program should prompt the user for the following information:

1) The number of people in the family
2) The number of days spent on vacation
3) The cost of a single plane ticket (round trip) in dollars

For the purposes of this problem, assume that the cost of the rental car per day is simply $20/per person. (Thus, a rental car big enough for 3 people would cost $60/day.)

Input Specification

All three input values will be positive integers.

Output Specification

Output a single line with the following format:

```
Your family will spend $X on travel costs for your vacation.
```

where X represents the total travel costs for the specified vacation. Do not worry about the number of digits that print after the decimal.

Sample Program Run (User Input in Bold)

```
How many people are in the family?
4
How many days will your family be on vacation?
3
What is the cost of a plane ticket, in dollars?
200
Your family will spend $1040 on travel costs for your vacation.
```

Part B: Food Costs (food.py)

Unfortunately, when on vacation, a family must typically eat out. In most situations, breakfast and lunch are eaten at fast-food restaurants that require no tip while dinner is eaten at a sit down restaurant that requires a tip. Write a program to calculate the food costs of a family. Your program should prompt the user for the following information:

1) The number of people in the family.
2) The number of days spent on vacation (assume full days with 3 meals/day)
3) The sales tax in the local area of the vacation, as a percentage.

In order to make your calculation, use the following constants:

```
BKF_COST_PERSON = 5
LNC_COST_PERSON = 8
DIN_COST_PERSON = 13
TIP_PERC = 18
```

Note: The first three are in dollars and the last is a percentage.

Input Specification

The first two values will be positive integers while the last will be a positive real number less than 20.

Output Specification

Output a single line with the following format:

```
Your family will spend $X for food on your vacation.
```

where X represents the total food costs for the specified vacation. Do not worry about the number of digits that print after the decimal.

Sample Program Run (User Input in Bold)

```
How many people are in the family?
4
How many days will your family be on vacation?
3
What is the sales tax percentage in the vacation locale?
6.5
Your family will spend $362.19 for food on your vacation.
```

Part C: Hotel Costs (hotel.py)

Last, but not least, there are typically hotel costs when a family travels. For this program, compute the cost of a family staying in a hotel. Your program should prompt the user to enter the following information:

1) The number of people in the family.
2) The number of days spent on vacation (assume full days with 3 meals/day)
3) The sales tax in the local area of the vacation, as a percentage.

Assume that a full hotel room houses 4 people and costs $100 per night. For smaller hotel rooms, there's a per person charge of $30. (Thus, for a family of 10, two full rooms would fit 8 people, costing $200/night and a third room would have 2 people, costing $60/night for a grand total of $260/night for the family.)

Input Specification

The first two values will be positive integers while the last will be a positive real number less than 20.

Output Specification

Output a single line with the following format:

```
Your family will spend $X for lodging on your vacation.
```

where X represents the total hotel costs for the specified vacation. Do not worry about the number of digits that print after the decimal.

Sample Program Run (User Input in Bold)

```
How many people are in the family?
5
How many days will your family be on vacation?
3
What is the sales tax percentage in the vacation locale?
6.5
Your family will spend $415.35 for lodging on your vacation.
```

Part D: Total Cost (vacation.py)

Combine your three programs into one which prompts the user to enter 4 pieces of information and calculates the total cost of the whole vacation, which is the sum of the travel, food and hotel costs.

Sample Program Run (User Input in Bold)

```
How many people are in the family?
4
How many days will your family be on vacation?
3
What is the cost of a plane ticket, in dollars?
200
What is the sales tax percentage in the vacation locale?
6.5
Your family will spend $1721.69 in total for your vacation.
```

Deliverables
Four source files:

1) *travel.py*, for your solution to problem A
2) *food.py* for your solution to problem B
3) *hotel.py* for your solution to problem C
4) *vacation.py* for your solution to problem D

All files are to be submitted over WebCourses.

Restrictions
Although you may use other compilers and coding environments, your program must run in IDLE.

Grading Details
Your programs will be graded upon the following criteria:

1) Your correctness

2) Your programming style and use of white space. Even if you have a plan and your program works perfectly, if your programming style is poor or your use of white space is poor, you could get 10% or 15% deducted from your grade.