Programming Assignment 2

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For Questions 1 through 7 you will NOT be using the computer. You will be writing (typing) the programs using correct syntax and spacing. If there should not be a space, do not put one; if there should be a space make sure it has one.

1. **Write** an assignment statement for the following: (5 points)
   1. Blue 15
   2. Yellow 25
   3. Green 99

blue = 15

yellow = 25

green = 99

1. Using the variables created above **write** the “print” the expressions to the screen together in one line. (5 points)

print(blue, yellow, green)

1. You need the user of a program to enter their dog’s name. **Write** a statement that prompts the user to enter this data and assign the input to a variable that makes sense. Add comments. (10 points)

# create variable to assign the input

# added spacing after the colon

dogs\_name = input(‘Enter your dogs name: ‘)

1. A. You need the user of a program to enter the amount of income they made this week. **Write** a statement that prompts the user to enter this data and assigns the input to a variable that makes sense. Add comments. (10 points)

# create variable and assign input to the newly created variable

# added spacing after the colon

weekly\_income = input(‘Enter amount of income made this week: ‘)

B. What class type is the numeric answer from above? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Why?\_\_\_\_\_\_\_\_

The class type from the numeric answer above is a string. This is because the input function always returns a string even if the input value entered is a numeric data.

1. Create a variable. Print the variable in a sentence so that the created sentence incorporates the variable (but prints the expression; should not have any quotes in expression when printed) all on one line. (10 points)

first\_name = ‘Sergio’

print(‘Thanks for logging in’, first\_name)

1. Write **pseudocode** for this scenario: (10 points)

Suppose your phone plan allows you to use 700 minutes per month. If you use more than this limit in a month, you are charged an overage fee of 35 cents for each excess minute. Your phone shows you the number of excess minutes that you have used in the current month, but it does not show you how much your overage fee currently is. Until now you’ve been doing the math the old-fashioned way with a pencil, paper, and calculator. You would like to design a program that will simplify this task. You would like to be able to enter the number of excess minutes and have the program perform the calculation for you

- Input the number of excess minutes

- Input the overage fee (35 cents each excess minute)

- Calculate the monthly overage fee by multiplying the excess minutes and the overage fee

- Display the final amount of the overage fee

1. Create a **flowchart** for the above pseudocode. (10 points)

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Description automatically generated

Now you will use Interpreter Mode in Python for number 8 and 9.

1. Now create the program. Make sure to use comments and logical variables. Use the **interpreter** and copy and paste here. (10 points)

Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (Intel)] on win32

Type "help", "copyright", "credits" or "license" for more information.

>>> # creating a variable that will save the input of the excess minutes

>>> excess\_minutes = input('Input the amount of excess minutes: ')

Input the amount of excess minutes: 20

>>>

>>> # creating a variable that will save the input of the overage fee

>>> overage\_fee = input('Input the overage fee: ')

Input the overage fee: 0.35

>>>

>>> # converting the input of the 'excess\_minutes' and the 'overage\_fee' into a float class type.

>>> # multiplying the 'excess\_minutes' and the 'overage\_fee'

>>> monthly\_overage\_fee = float(excess\_minutes) \* float(overage\_fee)

>>>

>>> # Displaying the final amount of the monthly overage fee.

>>> print('Your current monthly overage fee is $', format(monthly\_overage\_fee, ',.2f'), sep='')

Your current monthly overage fee is $7.00

>>>

A screen shot of a computer

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1. You go grocery shopping and you purchase five items. Write a program (using variables and asking for input) that will get the price of each item, then displays the subtotal of the sale, displays the amount of sales tax, and displays the total (All 3 on separate line!). We will use sales tax of 7%. \*\* Declare and then initialize. Hint: float (30 points)
   1. Write the pseudocode
   2. Draw a Flow Chart
   3. Hand Check the program (look up if we didn’t get to in class)
   4. Copy and paste the program from **python interpreter**

Input the price of each item

Calculate subtotal by adding each item’s price together

Calculate the amount of sales tax by taking the subtotal and multiplying by the sales tax (7%)

Calculate the final total by taking the sales tax amount and the subtotal and adding them together

Display the subtotal

Display the sales tax amount

Display the final total

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>>> SALES\_TAX = .07

>>>

>>> item1 = float(input('Enter price of item 1: '))

Enter price of item 1: 10

>>>

>>> item2 = float(input('Enter price of item 2: '))

Enter price of item 2: 20

>>>

>>> item3 = float(input('Enter price of item 3: '))

Enter price of item 3: 30

>>>

>>> item4 = float(input('Enter price of item 4: '))

Enter price of item 4: 40

>>>

>>> item5 = float(input('Enter price of item 5: '))

Enter price of item 5: 50

>>>

>>> subtotal = item1 + item2 + item3 + item4 + item5

>>> sales\_tax\_amount = subtotal \* SALES\_TAX

>>> final\_total = sales\_tax\_amount + subtotal

>>>

>>> print('The subtotal is $', format(subtotal, ',.2f'), sep='')

The subtotal is $150.00

>>> print('The sales tax amount is $', format(sales\_tax\_amount, ',.2f'), sep='')

The sales tax amount is $10.50

>>> print('The final total is $', format(final\_total, ',.2f'), sep='')

The final total is $160.50

>>>

Hand Check the Program

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | SALES\_TAX | Item1 | Item2 | Item3 | Item4 | Item5 | subtotal | sales\_tax\_amount | final\_total |
| 1 | 0.7 | ? | ? | ? | ? | ? | ? | ? | ? |
| 2 | 0.7 | ? | ? | ? | ? | ? | ? | ? | ? |
| 3 | 0.7 | 10.0 | ? | ? | ? | ? | ? | ? | ? |
| 4 | 0.7 | 10.0 | ? | ? | ? | ? | ? | ? | ? |
| 5 | 0.7 | 10.0 | 20.0 | ? | ? | ? | ? | ? | ? |
| 6 | 0.7 | 10.0 | 20.0 | ? | ? | ? | ? | ? | ? |
| 7 | 0.7 | 10.0 | 20.0 | 30.0 | ? | ? | ? | ? | ? |
| 8 | 0.7 | 10.0 | 20.0 | 30.0 | ? | ? | ? | ? | ? |
| 9 | 0.7 | 10.0 | 20.0 | 30.0 | 40.0 | ? | ? | ? | ? |
| 10 | 0.7 | 10.0 | 20.0 | 30.0 | 40.0 | ? | ? | ? | ? |
| 11 | 0.7 | 10.0 | 20.0 | 30.0 | 40.0 | 50.0 | ? | ? | ? |
| 12 | 0.7 | 10.0 | 20.0 | 30.0 | 40.0 | 50.0 | ? | ? | ? |
| 13 | 0.7 | 10.0 | 20.0 | 30.0 | 40.0 | 50.0 | ? | ? | ? |
| 14 | 0.7 | 10.0 | 20.0 | 30.0 | 40.0 | 50.0 | 150.0 | ? | ? |
| 15 | 0.7 | 10.0 | 20.0 | 30.0 | 40.0 | 50.0 | 150.0 | 10.5 | ? |
| 16 | 0.7 | 10.0 | 20.0 | 30.0 | 40.0 | 50.0 | 150.0 | 10.5 | 160.5 |

A picture containing table

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