Programming Lab (Lab 9)

zyBooks, Chapter 5 & Python

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INTRODUCTION

- In this lab, we used a combination of practices. We finish chapter 5 of "Programming Fundamentals" in zyBooks. Following the reading, we wrote three separate programs in Python. The first one was to use the Turtle function to draw a spiral shape. The second one was to calculate how much money will be returned to a user depending on the number of bottles recycled. The last one involved calculating the total cost of a meal based on the user's selection. A raptor flowchart was created as well for the second program. Below outlines the work in greater detail.

OBJECTIVES

- Further enhance our understanding in Python.
- Further enhance our understanding with the "Turtle" module in Python.
- Develop more efficient ways to create code in Python.

MATERIAL USED

- (1x) computer for zyBooks and Python.

PROCEDURE

- *Step 1:* Read the instructions outlined in the **lab paper**.
- *Step 2:* Follow the instructions given from the **lab paper** (Follow the order of given instructions *i.e. "Read zyBooks first then do Python code"*).

RESULTS AND DISCUSSION

(Continued on next page)

Python code for Question 3

```
'''
This program is desinged to print out a spiral shape using the Turtle library.
There are no inputs required by the user.

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'''

#[Start of program]


#import Turtle library
import turtle

#Turtle variable assignments
myPen = turtle.Turtle()
myPen.speed(0)
myPen.color("#FFF000")

side=400
myPen.penup()
myPen.goto(-200,-200) #position cursor at the bootom right of the screen
myPen.pendown()

#Turtle start spiral
for i in range (1,100):
   myPen.forward(side)
   myPen.left(90)
   side=side-4


#[End of program]
```
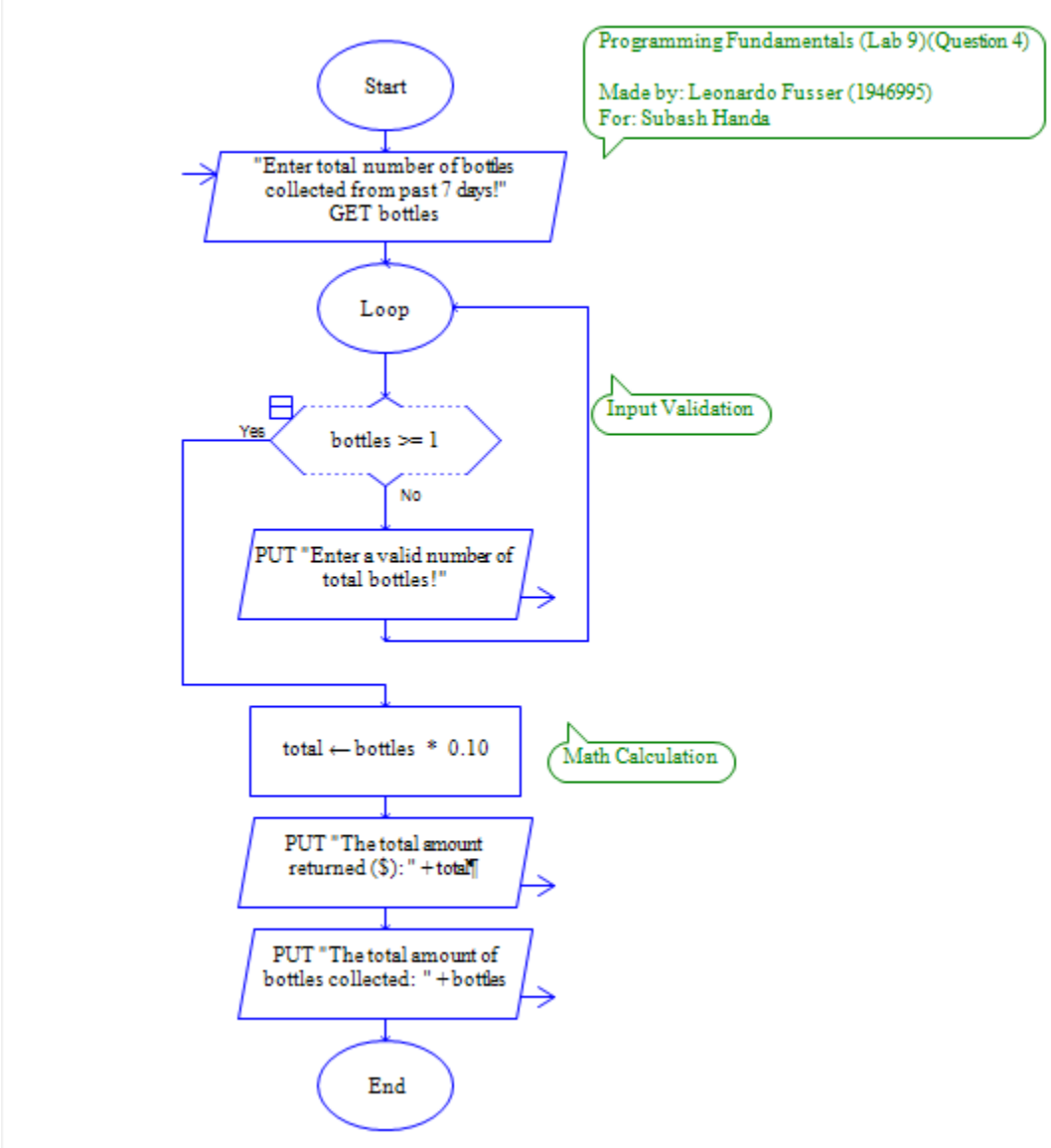

Ln: 35 Col: 0

Python code output for Question 3

Flowchart for Question 4



Python code for Question 4

```
'''
This program is desinged to calculate how much money will be paid out to a person after 7 days collecting bottles.
The number of bottles are inputted by the user.


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'''

#[Start of program]


#loop variables
count_days = 1
count_bottle_total = 0

#loop begin
while count_days <= 7:
        count_bottle = int(input("Enter amount of recycled bottles for day %d: " % (count_days)))
        #input error validation
        while count_bottle < 0:
            count_bottle = int(input("Please enter a valid number of bottles recycled for %d: " % (count_days)))
        count_bottle_total += count_bottle
        count_days += 1

#calculation payout
price_bottle = count_bottle_total * 0.1

#page break
print("-----------------------------------------------------")

#print to user
print("You recycled %d bottles and have received %.2f $." % (count_bottle_total, price_bottle))


#[End of program]
```

Ln: 38 Col: 17

Python code output for Question 4

```
File  Edit  Shell  Debug  Options  Window  Help
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8 2019, 19:2
Type "help", "copyright", "credits" or "license()" for
>>>
 RESTART: C:/Users/Leonardo Fusser/Google Drive/Leonard
/Lab #9/Python/Programming Fundamentals (Lab 9)(Q4)_Lec
Enter amount of recycled bottles for day 1: 5
Enter amount of recycled bottles for day 2: 4
Enter amount of recycled bottles for day 3: 3
Enter amount of recycled bottles for day 4: 2
Enter amount of recycled bottles for day 5: 7
Enter amount of recycled bottles for day 6: 6
Enter amount of recycled bottles for day 7: 5
-----------------------------------------------------
You recycled 32 bottles and have received 3.20 $.
>>>
```

Python code for Question 5

```
'''
This program is designed to calculate the total cost of purchasing a meal.
The selection choice is made by the user.

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'''

#[Start of Program]


#variable definition
burger = ('Yum Yum Burger costs $.99')
fries = ('Grease Yum Fries costs $.79')
soda = ('Soda Yum costs $1.09')
menu = [burger,fries,soda]

#user selection options
print('menu , sep='\n')

#page break
print('----------------------------------------')

#input validation
num_burgers = int(input("Enter number of Yum Yum Burgers: "))
while num_burgers < 0:
    print("Please enter a valid number of Yum Yum Burgers!")
    num_burgers = int(input())


num_fries = int(input("Enter number of Grease Yum Fries: "))
while num_fries < 0:
    print("Please enter a valid number of Yum Fries!")
    num_fries = int(input())


num_soda = int(input("Enter a valid number of Soda Yums: "))
while num_soda < 0:
    print("Please enter a valid number of Soda Yums!")
    num_soda = int(input())

#menu items cost
price_burger = num_burgers * 0.99
price_fries = num_fries * 0.79
price_soda = num_soda * 1.09

#price calculation
total = price_burger + price_fries + price_soda

#amount of tax charged
tax = 0.6
total_tax = tax * total

#meal price with tax
totalprice_taxed = total_tax + total

#page break
print("----------------------------------------")
```

Ln: 34 Col: 60

```
num_soda = int(input("Enter a valid number of Soda Yums: "))
while num_soda < 0:
    print("Please enter a valid number of Soda Yums!")
    num_soda = int(input())

#menu items cost
price_burger = num_burgers * 0.99
price_fries = num_fries * 0.79
price_soda = num_soda * 1.09

#price calculation
total = price_burger + price_fries + price_soda

#amount of tax charged
tax = 0.6
total_tax = tax * total

#meal price with tax
totalprice_taxed = total_tax + total

#page break
print("----------------------------------------")

#[print to user console]
print("Number of Yum Yum Burgers ordered: ", num_burgers)
print("Number of Grease Yum Fries ordered: ", num_fries)
print("Number of Soda Yums ordered: ", num_soda)
#page break
print("----------------------------------------")
print("The total cost of your meal is $ %.2f " % totalprice_taxed)
print("The total amount of tax charged is $ %.2f " % total_tax)



#[End of program]
```

Ln: 75 Col: 17

Python code output for Question 5

```
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8
Type "help", "copyright", "credits" or "licen
>>>
 RESTART: C:\Users\Leonardo Fusser\Google Dri
y
Yum Yum Burger costs $.99
Grease Yum Fries costs $.79
Soda Yum costs $1.09
--------------------------------------
Enter number of Yum Yum Burgers: 2
Enter number of Grease Yum Fries: 3
Enter a valid number of Soda Yums: 0
--------------------------------------
Number of Yum Yum Burgers ordered:  2
Number of Grease Yum Fries ordered:  3
Number of Soda Yums ordered:  0
--------------------------------------
The total cost of your meal is $ 6.96
The total amount of tax charged is $ 2.61
>>>
```