Programming Lab (Lab 8)

zyBooks Chapter 5, Raptor & Python

Leonardo Fusser, 1946995

Experiment Performed on **16 October 2019**
Report Submitted on **23 October 2019**

Department of Computer Engineering Technology
Programming Fundamentals
Subash Handa

VANIER
CÉGEP / COLLEGE
Learning today Leading tomorrow

Table of Contents

INTRODUCTION

- In this lab, we used a combination of practices. We read chapter 5 of "Programming Fundamentals" in zyBooks. Following the reading, we wrote two separate programs in Python. The first one was to calculate a person's BMI and determine if that person has a healthy BMI. The second one was to format the number of seconds into easier interpretations (either display in seconds, minutes, hours, days or all of them).

OBJECTIVES

- Further enhance our understanding in Python.
- Develop more efficient ways to create code in Python.
- Further enhance our understanding with flowcharts.

MATERIAL USED

- (1x) computer for zyBooks, Python & Raptor.

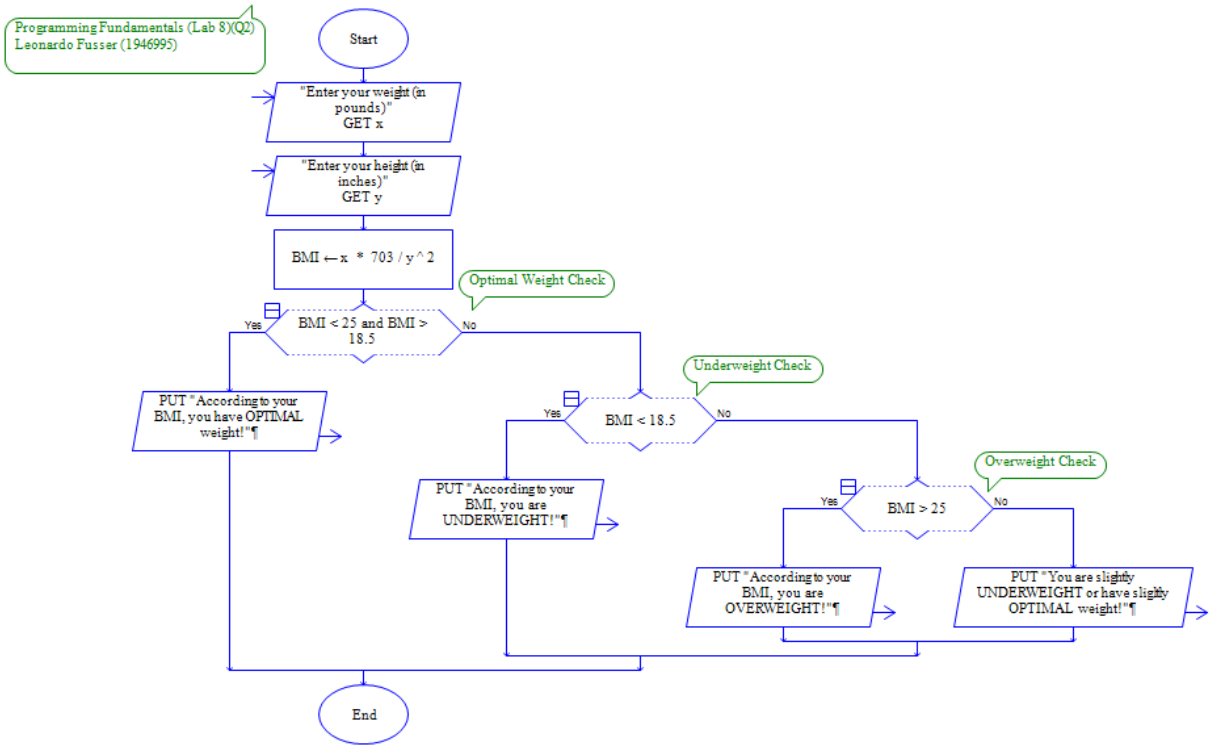
PROCEDURE

- *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)

Flowchart for Question 2



Python code for Question 2

File Edit Format Run Options Window Help

```
#This program is desinged to calculate a person's BMI and determine if they are overweight or underweight.
#The weight is in pounds and the height is in inches. The values are inputted by the user.

#Program made by Leonardo Fusser (1946995)
#Programming fundamentals
#Lab 8 (Q2)
#Subash Handa



#[Start of Program]



#deine variables
weight = float()
height = float()
BMI = float()

#user input error checking
while True:
    try:
        print("Please enter your weight (in pounds): ")
        weight = float(input())
        break
    except ValueError:
        print("Bad input, try again! Please enter your weight (in pounds): ")
        continue

while True:
    try:
        print("Please enter your height (in inches): ")
        height = float(input())
        break
    except ValueError:
        print("Band input, try again! PLease enter your height (in inches): ")
        continue

#calculations
BMI = (weight *703) /height**2

#page break
```

```python
#deine variables
weight = float()
height = float()
BMI = float()

#user input error checking
while True:
    try:
        print("Please enter your weight (in pounds): ")
        weight = float(input())
        break
    except ValueError:
        print("Bad input, try again! Please enter your weight (in pounds): ")
        continue

while True:
    try:
        print("Please enter your height (in inches): ")
        height = float(input())
        break
    except ValueError:
        print("Band input, try again! PLease enter your height (in inches): ")
        continue

#calculations
BMI = (weight *703) /height**2

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

#conditional statements
if BMI < 18.5:
    print("Your results from your BMI conclude that you're underweight!", round(BMI, 2))
elif BMI > 25:
    print("Your results from your BMI conclude that you're overweight!", round(BMI, 2))
    print("Your results from your BMI conclude that you have an optimal weight!", round(BMI, 2))



#[End of Program]
```

Python code output for Question 2

```
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul  8 2019, 19:29:22) [MSC v.1916 32 bit
Type "help", "copyright", "credits" or "license()" for more information.
>>>
 RESTART: C:\Users\Leonardo Fusser\Google Drive\Leonardo CEGEP\Vanier (Year 1, 2
\Lab #8\Python\Programming Fundamentals (Lab 8)(Q2)_Leonardo Fusser.py
Please enter your weight (in pounds):
100
Please enter your height (in inches):
70
--------------------------------------------------------------------------------
Your results from your BMI conclude that you're underweight! 14.35
>>>
```

Python code for Question 3

```
#This program is designed to correctly format the amount of seconds to either the amount of minutes, hours, days or all three of them.
#The amount of seconds is inputted by the user.

#Program made by Leonardo Fusser (1946995)
#Programming Fundamentals
#Lab 8 (Q3)
#Subash Handa



#[Start of Program]




#define variables
seconds = float()
minutes = float()
hours = float()
days = float()
duration_mins = float(60.0)
duration_hrs = float(3600.0)
duration_days = float(86400.0)

#input error validation
while True:
        try:
            print("Enter a number of seconds: ")
            seconds = float(input())
            break
        except ValueError:
            print("Try again! Enter a number of seconds: ")

#Function 1
def minutesFunction(seconds):
    if seconds >= 60:
        minutes = seconds / duration_mins
        minutes = round(minutes, 2)
        return minutes
    else:
        print("There are not enough seconds to convert into minutes!")
```

```
def minutesFunction(seconds):
    if seconds >= 60:
        minutes = seconds / duration_mins
        minutes = round(minutes, 2)
        return minutes
    else:
        print("There are not enough seconds to convert into minutes!")

#Function 2
def hoursFunction(seconds):
    if seconds >= 3600:
        hours = seconds / duration_hrs
        hours = round(hours, 2)
        return hours
    else:
        print("There are not enough seconds to convert into hours!")

#Function 3
def daysFunction(seconds):
    if seconds >= 86400:
        days = seconds / duration_days
        days = round(days, 2)
        return days
    else:
        print("There are not enough seconds to convert into days!")

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

#user output
print("The number of seconds: ", seconds)
print("The number of minutes: ", minutesFunction(seconds))
print("The number of hours: ", hoursFunction(seconds))
print("The number of days: ", daysFunction(seconds))



#[End of Program]
```

Python code output for Question 3

```
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 #8\Python\Programming Fundamentals (Lab 8)(Q3)_Lec
Enter a number of seconds:
3000
-----------------------------------------------------
The number of seconds:  3000.0
The number of minutes:  50.0
There are not enough seconds to convert into hours!
The number of hours:  None
There are not enough seconds to convert into days!
The number of days:  None
>>>
```