**Assignment 1 –** *Python Practice: working with* functions & Strings

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***ASSIGNMENT MARK*: \_\_\_\_\_\_\_\_ / 50 Due Date: Friday, Feb. 2nd**

As always, all your answers should use functions and every function should have a documentation string explaining the purpose of the function. Use the Python template given below at the top of your program you submit (don’t forget to modify it to include your information; your name and your student number.)

# Program: cpsc111BV-w18-asg1.py   
# Author: Enter your Name and student number here  
# Class: CPSC 111BV  
# Date: 01/20/2018   
# Task: Assignment #1   
# Purpose: Solving simple functions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   
#

**Do not wait until the last minute to do this assignment in case you run into problems.**

Submit your assignment to the instructor by email at: drahmalki@gmail.com

**FYI**

# n will hold an integer provided by the user - take input from the user)

n = int(input("Enter number: "))

# nf will hold a float number provided by the user - take input from the user

nf = float(input("Enter number: "))

# st will hold a string provided by the user - take input from the user

st = input("Enter string: ")

print('n = ', n)

print('nf = ', nf)

print('st = ', st)

**Part 0 – Learning ahead of lecturing**

Complete the following task and indicate the time spent to complete it:

**''' Visit the website at** [**code.org**](https://code.org/learn) **and complete either the** [**Minecraft Hour of Code**](https://code.org/mc) **challenge or the** [**Code with Anna and Elsa**](https://studio.code.org/s/frozen/stage/1/puzzle/1) **challenge, including the videos (feel free to do both if time permits). Please note that the activities at the site are designed for all ages, but the content is solid computer science content that relates to what you will be learning this semester. When you have completed at least one Hour of Code challenge in 1-2 short sentences answer the following: '''**

1. Which of the challenges did you complete? Minecraft Hour of code
2. What is a loop?

The repetition of doing the same thing is called a loop. It not only saves your time but also opens up all kinds of neat options.

1. (Only if you do the Minecraft challenge) What is branching (also known as "if statements")? Branching is a conditional statement that allows the programmer to control that, if proved true, performs a function or output a data
2. (Only if you do the Code with Anna and Elsa challenge) What is a function?
3. How much time you spent on the task? About 40 minutes

**Part 1 - Simple Functions & algorithms**

1. Write a Python function **learning()** that asks for a user's name and what type of programming language they are learning. The program will then print out a line summarizing what was entered.

A session should look like the following:

What is your name? Ahmed

What programming language are you learning? Python

Today, I found out that Ahmed is learning a programming language called Python.

*Note: User input is underlined.*

2. Write a Python function **totalProfit()** that implements the following algorithm that computes the total profit of juice cans sold:

1. ask user for juice\_cost\_price (Input juice\_cost\_price)

2. ask user for juice\_sale\_price (Input juice\_sale\_price)

3. ask user for cans\_sold (Input cans\_sold)

4. unit\_profit = juice\_sale\_price - juice\_cost\_price

5. total\_profit = unit\_profit x cans\_sold

6. display total\_profit

3. Write a Python function **getInitials()** that prints **your initials** using nine rows of asterisks like the one below. Hint: Use print() function

|  |
| --- |
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**Part 2 – More Simple Functions**

1. Study the program below. It will input a temperature (in degrees Fahrenheit) and convert it into degrees Celsius. The result of the conversion will be output to the console.

The formula used to convert degrees Fahrenheit to degrees Celsius is as follows; degrees\_celsius = (degrees\_fahrenheit - 32.0) \* 5.0 / 9.0

#

# Programmer: Ahmed Malki

# Date : Jan. 20, 2018

#

# Program Description: Program to Convert a user entered Fahrenheit temperature into a

# corresponding Celsius temperature using the appropriate formula

#

# This function will input the degrees Fahrenheit from the user

def get\_degrees\_fahrenheit():

degrees\_fahrenheit = int(input("Please, enter your temperature in degrees Fahrenheit (oF): "))

print (" You have entered ", degrees\_fahrenheit, "oF\n")

return degrees\_fahrenheit

# to\_celsius: This function will convert degrees Fahrenheit into degrees Celsius

def to\_celsius(fah\_temp):

return (fah\_temp - 32.0) \* 5.0 / 9.0

# main/start program

fah = get\_degrees\_fahrenheit()

cel = to\_celsius(fah)

print ()

print ("The temperature in degrees Celsius, is : ", cel, "oC")

print ()

print ("Thank-you for using the Fahrenheit-Celsius conversion program")

Now, write your own Python program to input degrees Celsius temperature and convert to degrees Fahrenheit temperature. You can use the following formula for this purpose.

degrees\_fahrenheit = 9.0/5.0 \* degrees\_Celsuis + 32

Hint - you ***must*** use the Python program above, as a pattern for your own work. Make changes to this pattern so that it will input degrees Celsius and convert to degrees Fahrenheit.

**Part 3 – Algorithm Example**

Give an example of **your everyday life** simple task algorithm (other than the ones discussed in the Guide or in the lectures):

Check your algorithm against the **four criteria** listed from the definition of "algorithm" (**Topic 1.1 in the Guide**: unambiguous, solves a problem, legitimate input, and finite amount of time). **Does it miss any of these criteria?**

**Hint**: <http://www.cs.sfu.ca/CourseCentral/120/ggbaker/guide/parts/guide01>

a set of instructions that can be used to solve a problem.

written in a way that most people can understand and follow

“How to get to Alexander college from Kuan’s home”

1. Walk straight 450m from 9800 Odlin Rd to No.4 Rd bus stop on Cambie Rd.
2. Take 410 and get off at Aberdeen skytrain station.
3. Get on the train and then get off at the terminal station, Waterfront
4. Walk 170m straight form Waterfront station to Alexander college on the West hasting street.

**Happy computing!**

**N.B:** Next, you are going to make sure you can use the submission properly. This will be how you turn in your assignments electronically. The submission procedure only accepts **zip files (NOT rar Files)**, so you are going to create a “Asg1\_YourFirstName\_YourStudentID.zip” file containing all the programs you just wrote as well as this document with your name and student number added to it. To create a “.zip” file, find the directory where the files are saved and select all of them. If you right-click on one of the selected files, you should have the option to create an archive by choosing “Send to” then “Compressed “zipped” Folder”. Rename the created “.zip” file and give it the name Asg1\_YourFirstName\_YourStudentID.zip.

***10 marks will be deducted if:***

1. ***the email did not have a full name and a student # in the subject field or***
2. ***the procedure for zipped file is not followed or***
3. ***Python template and documentation are missing or***
4. ***This document, with your names and student numbers on it, are not included with the zipped file or***
5. ***Your classmate’s email is not included in CC or Bcc fields of the email***

**A score of zero (0) will be given to everyone whose email is empty.**