IDSN 599: Machine Intelligence

Homework 1   Due: 9/15/2021 @ 11:59PM

Goal

In this assignment, you will write a program that will calculate the body mass index (BMI) based on user input.

Setup

- Create a Python file called **hw01.py**.
- Your **hw01.py** file must begin with comments in the following format (replace the name and email with your actual information):

```
'''
Name
IDSN 599, Fall 2021
USC email
Homework 1
'''
```

Requirements

The assignment is broken into several parts. Complete each part before moving on to the next.

Part 1: Prompt for input

- Ask the user for their name.
- Ask the user for their height in feet and inches. Ask for feet first then inches.
- Prompt the user for their weight in pounds. Store this value as a **float**.
- Output for Part 1 should look similar to this (user input is in **red**):

```
Hello, whose BMI shall I calculate? Sally
Okay first I need Sally's height. I'll take it in feet and inches.
Feet first... 5
Now inches... 6
Thanks. Now I need Sally's weight in pounds.
Please enter Sally's weight... 148
```

Part 2: Calculate total inches

- Create a variable to store the person's overall height in inches.
- Into this variable store:

$$(feetComponentOfHeight \times 12) + inchesComponentOfHeight$$

- If you'd like, output this value using **print** to check your math. Be sure to comment out the error check output later.

Part 3: Calculate height in meters

- Create another variable to store the person's overall height in meters.

- Since there are about 39.3701 inches in every meter, divide the person's height (converted to inches) by that factor and store it in the new variable. Make sure it's stored as a **float**.
- If you'd like, output this value using **print** to check your math. Be sure to comment out the output for error check later.

Part 4: Calculate mass in kilograms

- Create another variable to store the person's overall mass in kilograms. It should also store as a **float** value.
- There are about 2.20462 pounds in every kilogram, so divide the person's weight in pounds by that factor and store it in the new variable.
- If you'd like, output this value using **print** to check your math. Be sure to comment out the output for error check later.

Part 5: Calculate and output final BMI

- Create one more variable to store the person's overall BMI. Make sure it stores as a **float**.
- The calculation for BMI is:

$$massInKilograms \div (heightInMeters^2)$$

  NOTE: You do not need a square or exponent to calculate the 2nd term – there is a way to do that calculation using simple math operations.
- Output the person's BMI. Your output should look similar to this:

  `Sally's BMI 23.9.`

A Note on Style

Be sure to comment your code.

You will lose points if your variable names are not meaningful. Make sure you use variable names that correspond to what you are actually storing in the variables.

Full Sample Output

Below is sample output for a full run-through of the program. As usual, you are not required to be as descriptive as the text below, so long as you perform and display the required calculations. User input is in **red**.

```
Hello, whose BMI shall I calculate? Sally
Okay first I need Sally's height. I'll take it in feet and inches.
Feet first... 5
Now inches... 6
Thanks. Now I need Sally's weight in pounds.
Please enter Sally's weight... 118
Sally's BMI is 23.9.
```

Deliverables

1. A compressed folder containing **hw01.py**, named **Homework01**. This can be done by:
   a. WINDOWS:
      i. Select your file
      ii. Right click

    iii. Send to ->
    iv. Compressed (zipped) folder
    v. Rename this zipped folder to Homework01
    vi. Submit this zipped folder through Blackboard
  b. OSX:
    i. Select your file
    ii. Right click
    iii. Compress 1 item
    iv. Rename this Archive.zip to Homework01
    v. Submit this zipped folder through Blackboard

Grading

Item	Points
Part 1: Prompt for input	7
Part 2: Calculate total inches	2
Part 3: Calculate height in meters	2
Part 4: Calculate mass in kilograms	2
Part 5: Calculate and output final BMI	2
Part 6: Comments, style, and proper submission	5
Total	**20**