IDSN 542: Machine Intelligence

Homework 1 Due: 9/10 @ 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):

```
'''
Your Name
IDSN 542, Fall 2025
Your 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 39.37 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 2.2 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 (use the ** to calculate an exponent).
- Output the person's BMI. Your output should look similar to this:

```
Sally's BMI 23.9.
```

Part 6: Repeat parts 1 through 5 until the user enters an empty string for the name

A Note on Style

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 for one repetition. As usual, you don't have to follow the prompts below exactly. You can be creative. 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
Sally's BMI is 23.9.

Hello, whose BMI shall I calculate?
```

Deliverables

A compressed folder containing **hw01.py**, named **Homework01.zip**. Submit your ZIP file to Brightspace.

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	7
Part 6: Repeat steps 1 through 5	5
Total	**25**