Loops

# Instructions

Complete the problems below by having MATLAB compute them sequentially from a .m file.

Now that you have learned how to use sections. Each problem should be in one .m file but separated by sections. Remember, if you want to use clc;clear;close all; statements for yourself that is fine, but YOU MUST COMMENT IT OUT before submitting.

# Problems

1. Body Mass Index (BMI) is a measure of obesity. In standard units, it is calculated by the formula

Where *W* is weight in pounds, and *H* is height in inches.

Write a program that calculates the *BMI* of a person. The program should ask the person to enter his or her weight (lb) and height (in). The program displays the result to the user as a sentence that reads: “Your BMI value is XXX, which classifies you as SSSS” where XXX is BMI rounded to the nearest tenth and SSSS corresponds to the classification of either “underweight” for BMI < 18, “healthy” for BMI >18 and <24, “overweight” for BMI >24 and <30, and “obese” for BMI >30.

1. The following are formulas for calculating the training heart rate (THR) for men and women:

For men (Karvonen formula):

For women:

Where *AGE* is the person’s age, *RHR* is the resting heart rate, and *INTEN* the fitness level (0.55 for low, 0.65 for medium, 0.8 for high fitness). Write a program that determines the *THR.* The program should ask the user to enter their gender (1 for male, 2 for female), age (number in years), resting heart rate (number in beats per minute), and fitness level (1 for low, 2 for medium, 3 for high). The program should be able to warn the user when they have entered in an invalid value and ask them to enter a valid value to proceed. Once the user has input valid values, the program displays the training heart rate.