Name: Josiah Kowalski [Assignment 04.07 TDEE]

**Each assignment has three parts.**

**Part One:** Follow the assignment directions and create an outline of your program (pseudocode).

**Insert your pseudocode here:**

/\*\*

 \* Program to calculate the Total Daily Energy Expenditure

 \*

 \* @Josiah K.

 \* @11/19/19

 \*/

import java.util.Scanner;

import javax.activity.ActivityCompletedException;

import jdk.internal.dynalink.beans.StaticClass;

public class TDEE

{

    public static void main(String [] args)

    {

        Scanner in = new Scanner(System.in);

        try {

        // Input: Gather information from user

        System.out.println("Please enter your name: ");

        String name = in.nextLine();

        System.out.println("Please enter your gender: (M/F): ");

        String gender = in.next();

        // BMR Calculator

                //local variables

                    double kilogramsPerPound = 0.453592;

                    double centimetersPerInch = 2.54;

                    double weightKilograms;

                    double heightCentimeters;

                    double metabolicRate;

                //user input

                    System.out.println( "Please enter your age: " );

                    String ageString = in.next();

                    int ageYears = Integer.parseInt(ageString);

                    System.out.println( "Please enter your height in feet and inches (#'#\"): " );

                    String heightString = in.next();

                //Finds feet and inches then converts to int

                    int pos = heightString.indexOf("'");

                    String heightFeetString = heightString.substring(0, pos);

                    int heightFeet = Integer.parseInt( heightFeetString );

                    int heightInches = 0;

                    if (heightString.length() > pos+1)

                    {

                        String heightInchesString = heightString.substring(pos+1, heightString.indexOf("\""));

                        heightInches = Integer.parseInt( heightInchesString );

                    }

                //user input

                    System.out.println( "Please enter your weight in pounds: " );

                    String weightString = in.next();

                    int weightPounds = Integer.parseInt( weightString );

                //unit conversion

                    int heightTotal = heightFeet \* 12 + heightInches;

                    heightCentimeters = heightTotal \* centimetersPerInch;

                    weightKilograms = weightPounds \* kilogramsPerPound;

                //BMR calculation

                    if(gender.equalsIgnoreCase("M"))

                    {

                    metabolicRate = 13.397 \* (weightKilograms) + 4.799 \* (heightCentimeters) - 5.577 \* (ageYears) + 88.362;

                    }

                    else

                    {

                        metabolicRate = 9.247 \* (weightKilograms) + 3.098 \* (heightCentimeters) - 4.330 \* (ageYears) + 447.593;

                    }

                //rounding the values

                    double metabolicRateRounded = Math.round(metabolicRate \* 10d) / 10d;

                    double weightKilogramsRounded = Math.round(weightKilograms \* 100d) / 100d;

                    double heightCentimetersRounded = Math.round(heightCentimeters \*100d) / 100d;

            //End of BMR calculation

        // Activity Level Menu

        System.out.println();

        System.out.println("Select Your Activity Level");

        System.out.println("[A] Resting (Sleeping, Reclining)");

        System.out.println("[B] Sedentary (Minimal Movement)");

        System.out.println("[C] Light (Sitting, Standing)");

        System.out.println("[D] Moderate (Light Manual Labor, Dancing, Riding Bike)");

        System.out.println("[E] Very Active (Team Sports, Hard Manual Labor)");

        System.out.println("[F] Extremely Active (Full-time Athelete, Extremely Heavy Manual Labor)");

        System.out.println();

        System.out.print("Enter the letter corresponding to your activity level: ");

        String choice = in.next();

        System.out.println();

        // Processing:

        // Activity Factor

        double activityFactor = 0.0;

        if(choice.equalsIgnoreCase("A"))

        {

            activityFactor = (1.0);

        }

        else if(choice.equalsIgnoreCase("B"))

        {

            activityFactor = (1.3);

        }

        else if((choice.equalsIgnoreCase("C")) && (gender.equalsIgnoreCase("M")))

        {

            activityFactor = (1.6);

        }

        else if((choice.equalsIgnoreCase("C")) && (gender.equalsIgnoreCase("F")))

        {

            activityFactor = (1.5);

        }

        else if((choice.equalsIgnoreCase("D")) && (gender.equalsIgnoreCase("M")))

        {

            activityFactor = (1.7);

        }

        else if((choice.equalsIgnoreCase("D")) && (gender.equalsIgnoreCase("F")))

        {

            activityFactor = (1.6);

        }

        else if((choice.equalsIgnoreCase("E")) && (gender.equalsIgnoreCase("M")))

        {

            activityFactor = (2.1);

        }

        else if((choice.equalsIgnoreCase("E")) && (gender.equalsIgnoreCase("F")))

        {

            activityFactor = (1.9);

        }

        else if((choice.equalsIgnoreCase("F")) && (gender.equalsIgnoreCase("M")))

        {

            activityFactor = (2.4);

        }

        else if((choice.equalsIgnoreCase("F")) && (gender.equalsIgnoreCase("F")))

        {

            activityFactor = (2.2);

        }

        else

        {

            System.out.println("You did not choose an option!");

        }

        // Calculate TDEE

        double tDEE = metabolicRateRounded \* activityFactor;

        // Output: Print Results

        System.out.println("Name: " + name + "\t\t\tGender: " + gender);

        System.out.println("Weight: " + weightKilogramsRounded + " kg \t\tHeight: " + heightCentimetersRounded + " cm");

        System.out.println("BMR: " + metabolicRateRounded + " calories " + "\t\tActivity Factor: " + activityFactor);

        System.out.println("TDEE: " + tDEE + " calories ");

    } catch(Exception e) {

    } finally {

        // close scanner variable

        in.close();

    }

    }

}

**Part Two:** Code the program. Use the IDE to code and test your program.

**Example of expected output:** The output for your program should resemble the screen shot at the end of the assignment description. Your specific results will vary depending on the choices you make about the design and the input provided.

**Insert a copy of your code from the IDE here:**

**Part Three:** Complete the Post Mortem Review (PMR). Write thoughtful two to three sentence responses to all the questions in the PMR chart.

|  |  |
| --- | --- |
| **Review Question** | **Response** |
| What was the purpose of your program? |  |
| How could your program be useful in the real world? |  |
| What is a problem you ran into, and how did you fix it? |  |
| Describe one thing you would do differently the next time you write a program. |  |