

Assignment 5

Before attempting this project, be sure you have completed all of the reading assignments, non-graded exercises, discussions, and assignments to date.

Write a Java program as follows:

- (1) Prompt the user which action they want to take:
 - (a) Convert pounds into kilograms
 - (b) Convert height in inches to centimeters
 - (c) Calculate BMI display category
 - (d) Exit program
- (2) Programs at minimum must have the following methods:
 - (a) Convert weight method gets pounds and returns kilograms
 - (b) Convert to height method that gets height in inches and returns meters
 - (c) Calculate BMI method that gets weight in kilograms and height in meters and returns BMI value
- (3) For each action the user should be prompted for corresponding data and given the appropriate output
- (4) User should be able to select one action and then get prompted again for selection until they select exit choice

Use the following for calculations

- To convert from pounds to kilograms use the formula: 1 pound = 0.45 kilograms
- To convert from height in inches to centimeters use the following formula: 1 inch = 2.54 cm
- To calculate BMI use the formula: $\text{weight-kg} / \text{height-cm}^2 * 10,000$
- For categories use:
 - Underweight < 18.5
 - Normal 18.5 - 24.99
 - Overweight 25.0 - 29.99
 - Obese >30.0

Test program:

A minimum of 4 test cases should be supplied in the form of table with columns indicating the input values, expected output, actual output and if the test case passed or failed. This table should contain 4 columns with appropriate labels and a row for each test case. An example template is shown below. Note that the actual output should be the actual results you receive when running your program and applying the input for the test record.

Make sure your Java program is using the recommended style such as:

- Javadoc comment up front with your name as author, date, and brief purpose of the program
- Comments for variables and blocks of code to describe major functionality
- Meaningful variable names and prompts
- Identifiers are written in upper CamelCase

- Class name starts with upper case letter and variables in lower case letter
- Constants are written in All Capitals
- Use proper spacing and empty lines to make code human readable

Capture execution:

You should capture and label screen captures associated with compiling your code, and running each of your test cases.

Here is a sample run:

RUN:

```

MENU
1: Convert pounds into kilograms
2: Convert height in inches to centimeters
3: Calculate BMI using weight in kilograms and display category
9: Exit program

Enter your selection : 1

    Enter weight in pounds : 150
    150.0 lbs = 67.5 kg

MENU
1: Convert pounds into kilograms
2: Convert height in inches to centimeters
3: Calculate BMI using weight in kilograms and display category
9: Exit program

Enter your selection : 2

    Enter height in inches : 58
    58.0 inches = 147.32 cm

MENU
1: Convert pounds into kilograms
2: Convert height in inches to centimeters
3: Calculate BMI using weight in kilograms and display category
9: Exit program

Enter your selection : 3

    Enter weight in kg and height in centimeters separated by space : 67.5 147.32
    BMI=31.101429622597657 Category=Obese

MENU
1: Convert pounds into kilograms
2: Convert height in inches to centimeters
3: Calculate BMI using weight in kilograms and display category
9: Exit program

Enter your selection : 9

```

Thank you for using the program. Goodbye!

Example test cases:

Input	Expected Output	Actual Output	Pass?
Selection=1 weight=150	150.0 lbs = 67.5 kg	150.0 lbs = 67.5 kg	Yes
Test Case 2			
Test Case 3			
Test Case 4			

Submission requirements

Deliverables include Java program (.java) and a single Word (or PDF) document. The Java and Word/PDF files should be named appropriately for the assignment (as indicated in the SubmissionRequirements document).

The word (or PDF) document should include screen captures showing the successful compiling and running of each of the test cases. Each screen capture should be properly labeled clearly indicated what the screen capture represents. The test cases table should be included in your Word or PDF document and properly labeled as well.

Submit your files to Assignment 5 submission area no later than the due date listed in your online classroom.

Grading Rubric:

The following grading rubric will be used to determine your grade:

Attribute	Level (15-20 points)	Level (5-15 points)	Level 0 (0 - 5 points)
User input and loop	Correct or almost correct prompts and captured input and loop code	Mistakes in prompts and/or capture of input and/or loop	Missing or close to missing user input and/or loop
Calculation and output	Correct or almost correct calculation for each selection and output	Mistakes in calculations and/or output	Missing or significantly incorrect calculation and/or output
Methods	Code is correctly implemented using methods	Calculation code is not all in separate methods	Calculations are not implemented as methods
Test Cases	Correct or almost correct	Mistakes or incomplete test	Missing or significantly incorrect test cases

	test cases and test execution	cases and execution	
Program documentation and style	Correct or almost correct program comments, identifiers, and screen captures	Mistakes or incomplete documentation and/or style	Missing or significantly incorrect documentation and/or style