Project Report: BMI Calculator

Project Title

BMI Calculator Using Python

Objective

To create a simple command-line Python program that:
- Accepts user input for height and weight in different units (meters/feet and kg/lbs),
- Converts them into a standard format,
- Calculates the Body Mass Index (BMI) using the formula:
  BMI = weight (kg) / (height (m))^2
- Interprets the result using standard BMI classification categories.

Tools & Technologies Used

- Language: Python
- IDE/Platform: Google Colab / Jupyter Notebook
- Libraries: No external libraries used (pure Python)

Code Structure

Step 1: Unit Conversion Functions

Two functions are defined:
- convert_height_to_meters(height, unit): Converts feet to meters if needed.
- convert_weight_to_kg(weight, unit): Converts pounds (lbs) to kilograms (kg) if needed.

Step 2: BMI Calculation Function

The BMI formula is applied using the cleaned and converted inputs:
bmi = weight_kg / (height_m ** 2)

Step 3: BMI Interpretation

This function categorizes the BMI into the following standard categories:
- Underweight: BMI < 18.5
- Normal weight: 18.5 ≤ BMI < 24.9
- Overweight: 25 ≤ BMI < 29.9
- Obese: BMI ≥ 30

Step 4: User Interaction & Output

The user is prompted to enter:
- Height and its unit
- Weight and its unit

The program then:
1. Converts the values to meters and kilograms.
2. Calculates the BMI.
3. Displays the result with an emoji indicator of health status.

Sample Output

Enter your height: 5.8
Is the height in 'meters' or 'feet'? feet
Enter your weight: 66
Is the weight in 'kg' or 'lbs'? kg

Your BMI is: 21.46
Category: Normal weight

Features

- Accepts multiple input formats (feet/meters, kg/lbs).
- Provides real-time feedback to the user.
- Includes error handling for invalid inputs.
- Categorizes BMI using WHO standards.
- Lightweight and requires no external dependencies.

Conclusion

This project demonstrates the use of basic Python programming, including:
- Conditional logic
- Functions
- User input/output
- Unit conversion
- Arithmetic operations

The BMI calculator is a simple yet practical health tool and serves as a great beginner-level project for those learning Python.

Future Enhancements

- Add a GUI using Tkinter or a web interface with Streamlit.
- Store user data in a file or database.
- Allow batch BMI calculation for multiple users.