**Daily Energy Consumption**

This calculator can be useful for people who want to estimate their daily energy consumption and adjust their diet and exercise accordingly.

**Project:**

This is an object-oriented implementation of a daily energy consumption calculator, which takes as input the user's weight, height, age, gender and physical activity factor. It calculates their main exchange and daily energy consumption using the Harris-Benedict formula.

The \_\_init\_\_ method sets the initial values for the input parameters and also initializes the main\_exchange and daily\_energy\_consumption to None.

The @property decorator and the corresponding setters are used to ensure that the inputs are valid.

The calculate\_main\_exchange method calculates the main exchange based on the person's gender, weight, height, and age.

The calculate\_daily\_energy\_consumption method calculates the daily energy consumption based on the main exchange and physical activity factor.

The \_\_repr\_\_ method prints out the main exchange and daily energy consumption once they have been calculated.

Finally, the commented out code at the bottom is an example of how to use the DailyEnergyConsumption class.

To use the calculator, you can create a new instance of the DailyEnergyConsumption class with the user's parameters, then call the calculate\_main\_exchange and calculate\_daily\_energy\_consumption methods to obtain the results.

**Unit Testing**

This unit testing code is written using Python's built-in unittest framework, which allows developers to write tests for their code and automate the testing process.

The tests are designed to run automatically and will raise an error if any of the assertions fail, indicating that there is an issue with the code being tested. By running these tests frequently during development, developers can catch and fix issues early, which can save time and resources in the long run.

Overall, unit testing is an essential part of software development, and this code demonstrates how automated testing can be used to ensure that code is working as intended.