Python BMI Calculator Offline Coding Challenge V7

To make the interview process smoother we ask that YOU please complete the BMI Challenge in YOUR own time which SHOULD not take more than 1 HOUR to code, this helps with DISCUSSION in 1st ROUND interviews and helps REDUCE the live coding interview time.

Problem Statement

Given the following JSON data

```
[{"Gender": "Male", "HeightCm": 171, "WeightKg": 96 },
 { "Gender": "Male", "HeightCm": 161, "WeightKg": 85 },
 { "Gender": "Male", "HeightCm": 180, "WeightKg": 77 },
 { "Gender": "Female", "HeightCm": 166, "WeightKg": 62},
 {"Gender": "Female", "HeightCm": 150, "WeightKg": 70},
 {"Gender": "Female", "HeightCm": 167, "WeightKg": 82}]
```

as the input with weight and height parameters of a person, we have to perform the following:

1) **Calculate the BMI** (Body Mass Index) using *Formula 1*, BMI Category and Health risk from Table 1 of the person and add them as 3 new columns
2) **Count the total number of overweight** people using ranges in the column BMI Category of Table 1, check this is consistent programmatically and add any other observations in the documentation
3) Create build, tests to make sure the code is working as expected and this can later be added to an automation build / testing / deployment pipeline
4) Write a solid production-grade Python3 Program to solve this problem, imagine this will be used in-product for 1 million patients. We are only interested in a **standalone backend application**, we are NOT expecting a UI, webpage, frontend, Mobile App, microsite, docker, web app etc. Simple and clean solution. Feel free to explore and use the standard Python libraries or any open source Python modules
5) Check in the documentation, configuration, code and tests into github and please email us the link with the URL pattern `https://www.github.com/<owner>/code-<date>-<your fullname>` and do NOT use Vamstar in URL, title or description. e.g. for me it could be `https://www.github.com/richard/code-20200917-richardfreeman`

Formula 1 - BMI

$$BMI(kg/m^2) = mass(kg) \ / \ height(m)^2$$

The BMI (Body Mass Index) in (kg/m^2) is equal to the weight in kilograms (kg) divided by your height in meters squared $(m)^2$. For example, if you are `175cm (1.75m)` in height and `75kg` in weight, you can calculate your BMI as follows: $75kg \ / \ (1.75m^2) = 24.49kg/m^2$

Table 1 - BMI Category and the Health Risk.

BMI Category	BMI Range (kg/m2)	Health risk
Underweight	18.4 and below	Malnutrition risk
Normal weight	18.5 - 24.9	Low risk
Overweight	25 - 29.9	Enhanced risk
Moderately obese	30 - 34.9	Medium risk
Severely obese	35 - 39.9	High risk
Very severely obese	40 and above	Very high risk

Evaluation Criterion

We will be evaluating your project with the following:

- 25% **Working code** and Python Programming Knowledge and clean code, reuse
- 25% Problem Analysis and **Solution Approach**
- 25% **Build and Testing** Approach
- 25% **Originality**, we deduct marks or reject any projects with directly copied or plagiarised code