PROJECT REPORT

ON

BMI CALCULATOR

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INTRODUCTION

The Body Mass Index (BMI) is a widely used measure of body fat based on an individual's weight and height. It is a simple calculation that can be used to determine whether an individual is underweight, normal weight, overweight, or obese.

This project aims to create a Body Mass Index (BMI) calculator using the Python programming language and the Tkinter library for creating a graphical user interface (GUI). The calculator will take the user's weight and height as input and will calculate the BMI using the standard formula: BMI = weight (kg) / height^2 (m^2).

The project begins by importing the necessary libraries, including Tkinter for creating the GUI, and math for performing calculations. The project then defines a BMICalculator class that creates a window with two entry widgets for the user to input their weight and height, and a button to calculate the BMI. The class includes a calculate_bmi method that calculates the BMI using the standard formula and displays the result in a label widget.

The user interface of the BMI calculator is simple and easy to use. The user inputs their weight and height in the entry widgets, and then clicks the calculate button to get their BMI. The user can then check the label to see their BMI and the interpretation of the result.

Overall, this project demonstrates how to create a functional BMI calculator using Python and Tkinter. The resulting program is a useful

tool for individuals to quickly and easily calculate their BMI, and can be easily customized to suit different needs or to add additional features.

We can consider Body Mass Index (BMI) as a substitute for direct measurements of body fat. Besides, BMI is a low-cost and easy-to-perform method of screening for weight classes that may cause health-related problems.

Understanding The Working Of BMI Calculator

A BMI Calculator accepts the weight and height of an individual and calculates the Body Mass Index (BMI) of that person.

For Example, if the height and weight of a person are 155 cm and 57 kg. The BMI of that person will be 23.73 (approx.), which signifies that the person is healthy.

Body Mass Index (BMI) is a measure of body fat on the basis of height and weight, respectively.

On the basis of the BMI of an individual, the calculator returns a statement stating the overall health of the person.

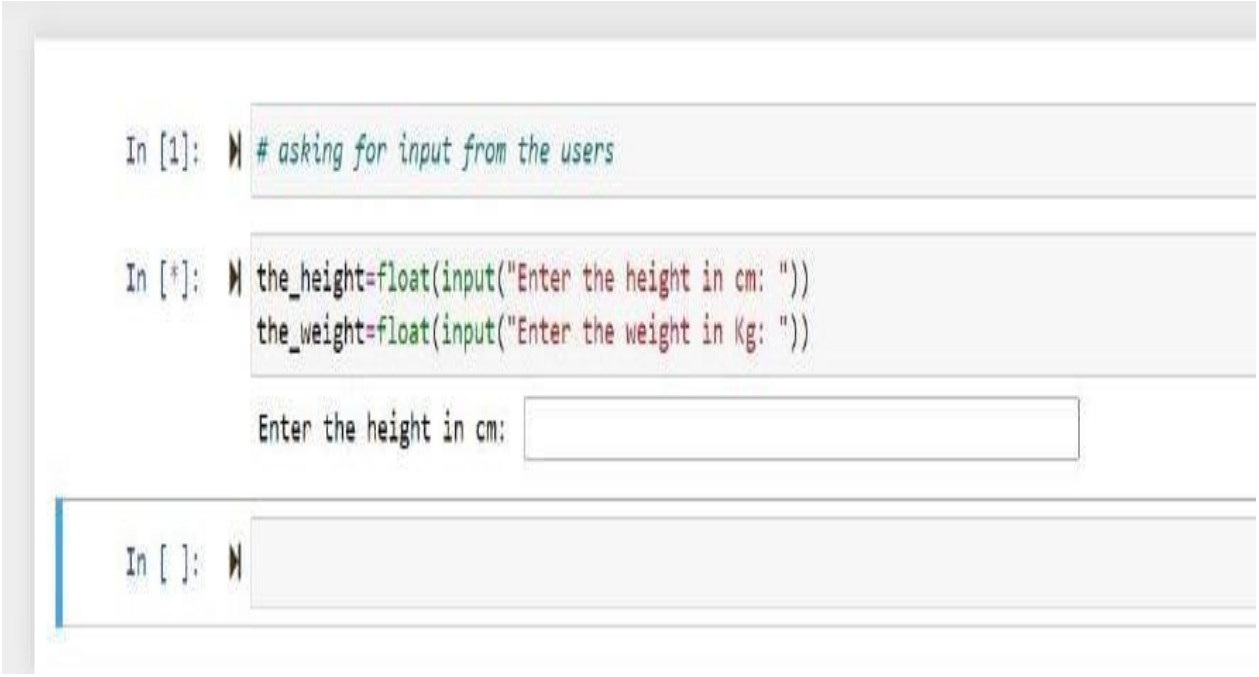
The following table shows how the classification of BMI is done in order to identify the health status of a person.

S. No.	BMI	WEIGHT STATUS
1.	Below 18.5	Underweight
2.	18.5 – 24.9	Normal
3.	25.0 – 29.9	Overweight
4.	30.0 and above	Obese

Now, let us begin coding the project.

Creating BMI Calculator Using Python

As the first step, we will create a New Python program file and name it **BMI_Calculator.py.** Within this file, we will begin by creating a block of code to ask the user their height and weight. We can easily accomplish this using the **input()** function.



Explanation:-

In the above snippet of code, we have defined two variables as **the_height** and **the_weight** which uses the **input()** function to accept input from the user. We have also included the **float()** function outside the **input()** function in order to convert the input string into the float data type so that we can perform calculations with it.

Next, we will calculate the Body Mass Index.

We will use the following formula in order to calculate BMI.

$$BMI = \frac{weight\ (kg)}{\{height\ (m)\}^2}$$

Let us implement the above formula in the Python program.

```
In [3]: # Defining a function for BMI

In [5]: the_BMI=the_weight/(the_height/100)**2
```

Explanation:-

In the above snippet of code, we have defined a function for BMI using the above formula. We have divided the height by 100 to convert the centimeters into meters.

Now, let us print the BMI.

Explanation:-

In the above snippet of code, we have printed a statement stating BMI of the person.

Now, we will print the statement stating the present health of the user based on their BMI. This block of code will be quite simplified for better understanding.

We will use the **if-elif-else** conditions for classification.

```
In [ ]: # using the if-elif-else conditions
```

```
In [ ]: if the_BMI <= 18.5:
            print("Oops! You are underweight.")
        elif the_BMI <= 24.9:
            print("Awesome! You are healthy.")
        elif the_BMI <= 29.9:
            the_print("Eee! You are over weight.")
        else:
            print("Seesh! You are obese.")
```

Explanation:-

In the above snippet of code, we have used the value of the variable **the_BMI** in the **if-elif-else** statement to check if the BMI of the person lies within one of the categories.

The program will print the statement on the following basis:

1. If BMI is less than or equal to **18.5** then the program returns the condition for **underweight.**

2. If BMI is less than or equal to **24.9** then the program returns the condition for **Healthy.**

3. If BMI is less than or equal to **29.9** then the program returns the condition for **overweight.**

4. If none of the above conditions are **True** then the program returns the condition for **obese.**

Hence, the program is completed.

Let us see the complete source code for the program and output for the same.

In [6]:

```
# asking for input from the users
the_height = float(input("Enter the height in cm: "))
the_weight = float(input("Enter the weight in kg: "))
# defining a function for BMI
the_BMI = the_weight / (the_height/100)**2
# printing the BMI
print("Your Body Mass Index is", the_BMI)
# using the if-elif-else conditions
if the_BMI <= 18.5:
    print("Oops! You are underweight.")
elif the_BMI <= 24.9:
    print("Awesome! You are healthy.")
elif the_BMI <= 29.9:
    the_print("Eee! You are over weight.")
else:
    print("Seesh! You are obese.")
```

```
Enter the height in cm: 160
Enter the weight in kg: 50
Your Body Mass Index is 19.531249999999996
Awesome! You are healthy.
```

Benefits Of BMI Calculator

Being underweight or overweight may be an indicator of various underlying health problems such as high BP, diabetes, heart disease, stroke, arthritis, breathing problems in overweight individuals, and malnutrition, vitamin deficiencies, anaemia, osteoporosis, poor immune system in underweight people.

The BMI calculator can come in handy to help people aim for fitness targets.

However, having said that, the tool isn't 100 per cent accurate, and has previously attracted some criticism in the past. The calculation fails to include waist measurement, which has become a deciding factor in many obesity-related cases.

In order to ensure complete health and fitness, people must first focus on a regular workout plan, balanced diet and hydration and proper sleep pattern.

Biography

- https://www.wikipedia.org
- https://www.javascript.com
- https://www.w3schools.com
- https://www.geeksforgeeks.org

THANK YOU