Body Mass Index (BMI) App

NAME: ZULKIFLI TEMITOPE SALAMI

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PROGRAM DESCRIPTION: A simple program to calculate the body mass index (BMI) of a person using input from the user for weight in pounds, height in inches. The BMI and a difference in the users BMI if they lost weight, successively in increment of 5 to a maximum of 15% of their weight would be calculated and displayed. The relative category of the weight and successive increment in loss of weight would be displayed.

PROGRAM NAME: BodyMassIndex (BMI) App.

Step 1:

* Output:

This would be a simple Python application that will display the Body Mass Index (BMI) of a person, the height in inches, weight in pounds, successive weight increment in loss of weight and weight category

Step 2:

* Input: Height In Inches, Weight In Pounds

Step 3:

* Process:

By utilizing variables and constant(s), accept input from the user, determine the successive weight increment in loss of weight up to 15% of input weight, implement formulae; BMI = (weight / height \* height) \* 703

Step 4:

PLAN: 1 of 4

* Initialization:

float variable height\_in\_inches for input

integer MINIMUM\_HEIGHT as a constant

integer MAXIMUM\_HEIGHT as a constant

float variable weight\_in\_pounds for input

integer MINIMUM\_WEIGHT as a constant

float WEIGHT\_PERCENT as a constant

float weight\_maximum as a variable

float variable bmi for output

integer CONVERSION\_FACTOR a constant

integer CATEGORY\_ONE as a constant

integer CATEGORY\_TWO as a constant

integer CATEGORY\_THREE as a constant

integer CATEGORY\_FOUR as a constant

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* Initialize a condition as True to enter a loop
* Input

display the message “ Please enter the person's height in inches: ”

Validate input and store the user input in the variable height\_in\_inches

Display error message if input is not numeric, or input less than 20 or greater than 120.

display the message “ Please enter the person's weight in pounds: “

Validate input and store the users input in the variable weight\_in\_pounds

Display error message if input is not numeric, or input less than 10

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* Processing:

1. prompt the program to calculate the bmi of the user using the entered variables and in a range of weight\_in\_pounds to weight\_maximum

bmi = (weight\_increment/height\_in\_inches\*height\_in\_inches)\* CONVERSION\_FACTOR

1. round the calculated BMI showing one decimal place

round(bmi, 1)

1. bmi < CATEGORY\_ONE is determined as “severely underweight”

bmi >= CATEGORY\_ONE and < CATEGORY\_TWO is determined as “underweight”

bmi >= CATEGORY\_TWO and < CATEGORY\_THREE is determined as “healthy”

bmi >= CATEGORY\_THREE and < CATEGORY\_FOUR is determined as “overweight”

bmi >= CATEGORY\_FOUR is determined as “obese”

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* Output:

1. print the message ('The BMI for a ',height\_in\_inches,' tall person who weighs’,weight\_in\_pounds,' is ',round(bmi, 1),which is categorized as,bmi\_category)
2. prompt user “Would you like to enter data for another person? (yes/no): “

validate user input as alphabetic and either yes or no

if yes, continue loop

if no, break loop

1. Input: Press Enter to end this application...

Step 5:

* Desk Check

|  |  |  |
| --- | --- | --- |
| Height (inch) | Weight (lb) | Result |
| tall | null | Program prompts user for valid input height |
| -1 | null | Program prompts user for valid input height |
| 67.5 | tiny | Program prompts user for valid input weight |
| 67.5 | -2 | Program prompts user for valid input weight |
| 67.5 | 173 | Program runs perfectly |
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