**Design Document – Calculates Body Mass Index**

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**Program Requirements:**

This program will allow the user to input the number of patients, their weight, height, and calculate the body mass index at a clinic.

**Program Inputs:**

* Number of patients (integer)
* Weight of patient in pounds (double)
* Height of patient in inches (double)

**Program Outputs:**

* Body Mass Index (double, one decimal number).
* Normal, if the range of patient’s BMI is between 18.5 to 25

(double quote).

* Underweight, if the range of patient’s BMI is less than 18.5.

(double quote).

* Overweight, if the range of patient’s BM! is greater than 25

(double quote).

**Test Plan:**

Case #1 Patient:

Patient: 15

While patient is less than 1 or patient is greater than 10.

Show ERROR: Re-enter number between 1 to 10.

Case #2 Weight:

Weight: -2

while weight is less than 0.1.

Show ERROR: Re-enter number greater than 0.

Case #3 Height:

Height: 0

While height less than 0.1

Show ERROR: Re-enter number greater than 0.1.

Case #4 For Loop numPatient = 1:

If numPatient is less than or equal to patient.

End loop and calculate.

Case #5:

Patient: 2

Weight of patient 1 in pounds: 165

Height of patient 1 in inches: 65

Show: Patient 1 bMi and your range is Overweight.

Weight of patient 2 in pounds: 147

Height of patient 2 in inches: 65

Show: Patient 2 bMi and your range is Normal.

**Solution Overview:**

* Have the user input number of patient(s), weight in pounds, height in inches.
* While (patient < 1 || patient > 10).
  + ERROR: Re-enter number between from 1 to 10.
* For (int numPatient = 1; numPatient <= patient; numPatient++).
  + - End the loop and calculate
* While weight < 0.1
  + ERROR: Re-enter number greater than zero.
* While height < 0.1
  + ERROR: Re-enter number greater than zero.
  + bMi = (weight \* 703) / (pow (height, 2))
* Output:
  + bMi
  + Underweight, if bMi is less than 18.5
  + Normal, if bMi is greater or equal to 18.5 and bMi is less than or equal to 25
  + Overweight, if bMi is greater than 25

**Algorithm Flowchart:**

A close up of a map

Description generated with high confidence