### BMI Calculator Pro - Test Plan

**1. Input Validation Tests**

**Height Input Tests**

| **Test ID** | **Test Data** | | | **Expected Result** | | **Pass/Fail** |
| --- | --- | --- | --- | --- | --- | --- |
| **H1** | **Empty height field** | | | **Error message: "Please enter both height and weight values."** | | **✅** |
| **H2** | **Non-numeric input (e.g., "abc")** | | | **Error message: "Please enter valid numeric values for height and weight."** | | **✅** |
| **H3** | **Negative height (e.g., -170)** | | | **Error message: "Height and weight must be positive values."** | | **✅** |
| **H4** | **Zero height (e.g., 0)** | | | **Error message: "Height and weight must be positive values."** | | **✅** |
| **H5** | **Unrealistically low height (Metric: 40 cm)** | | | **Error message: "Height should be between 50 and 250 cm."** | | **✅** |
| **H6** | **Unrealistically high height (Metric: 300 cm)** | | | **Error message: "Height should be between 50 and 250 cm."** | | **✅** |
| **H7** | **Unrealistically low height (Imperial: 15 in)** | | | **Error message: "Height should be between 20 and 100 inches."** | | **✅** |
| **H8** | **Unrealistically high height (Imperial: 120 in)** | | | **Error message: "Height should be between 20 and 100 inches."** | | **✅** |
| **H9** | **Valid height (Metric: 170 cm)** | | | **No error, proceeds with calculation** | | **✅** |
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**Weight Input Tests**

| **Test ID** | **Test Data** | **Expected Result** | **Pass/Fail** |
| --- | --- | --- | --- |
| **W1** | **Empty weight field** | **Error message: "Please enter both height and weight values."** | **✅** |
| **W2** | **Non-numeric input (e.g., "xyz")** | **Error message: "Please enter valid numeric values for height and weight."** | **✅** |
| **W3** | **Negative weight (e.g., -70)** | **Error message: "Height and weight must be positive values."** | **✅** |
| **W4** | **Zero weight (e.g., 0)** | **Error message: "Height and weight must be positive values."** | **✅** |
| **W5** | **Unrealistically low weight (Metric: 15 kg)** | **Error message: "Weight should be between 20 and 500 kg."** | **✅** |
| **W6** | **Unrealistically high weight (Metric: 600 kg)** | **Error message: "Weight should be between 20 and 500 kg."** | **✅** |
| **W7** | **Unrealistically low weight (Imperial: 30 lb)** | **Error message: "Weight should be between 45 and 1000 pounds."** | **✅** |
| **W8** | **Unrealistically high weight (Imperial: 1200 lb)** | **Error message: "Weight should be between 45 and 1000 pounds."** | **✅** |
| **W9** | **Valid weight (Metric: 70 kg)** | **No error, proceeds with calculation** | **✅** |

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1. **BMI Calculation Tests**

**Metric System Tests**

| **Test ID** | **Height (cm)** | **Weight (kg)** | **Expected BMI** | **Expected Classification** | **Actual BMI** | **Actual Classification** | **Pass/Fail** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **BM1** | **170** | **50** | **17.3** | **Underweight** | **17.3** | **Underweight** | **✅** |
| **BM2** | **170** | **65** | **22.5** | **Normal Weight** | **22.5** | **Normal Weight** | **✅** |
| **BM3** | **170** | **80** | **27.7** | **Overweight** | **27.7** | **Overweight** | **✅** |
| **BM4** | **170** | **100** | **34.6** | **Obese** | **34.6** | **Obese** | **✅** |
| **BM5** | **150** | **60** | **26.7** | **Overweight** | **26.7** | **Overweight** | **✅** |
| **BM6** | **190** | **70** | **19.4** | **Normal Weight** | **19.4** | **Normal Weight** | **✅** |

**Imperial System Tests**

| **Test ID** | **Height (in)** | **Weight (lb)** | **Expected BMI** | **Expected Classification** | **Actual BMI** | **Actual Classification** | **Pass/Fail** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **BI1** | **67** | **110** | **17.2** | **Underweight** | **17.2** | **Underweight** | **✅** |
| **BI2** | **67** | **140** | **21.9** | **Normal Weight** | **21.9** | **Normal Weight** | **✅** |
| **BI3** | **67** | **170** | **26.6** | **Overweight** | **26.6** | **Overweight** | **✅** |
| **BI4** | **67** | **210** | **32.9** | **Obese** | **32.9** | **Obese** | **✅** |
| **BI5** | **60** | **130** | **25.4** | **Overweight** | **25.4** | **Overweight** | **✅** |
| **BI6** | **74** | **160** | **20.5** | **Normal Weight** | **20.5** | **Normal Weight** | **✅** |

1. **UI Functionality Tests**

| **Test ID** | **Test Case** | **Expected Result** | **Pass/Fail** |
| --- | --- | --- | --- |
| **UI1** | **Click "Calculate BMI" with valid inputs** | **Results window displays with correct BMI and classification** | **✅** |
| **UI2** | **Click "Clear" button** | **All input fields are cleared** | **✅** |
| **UI3** | **Click "Exit" button** | **Confirmation dialog appears; application closes on confirmation** | **✅** |
| **UI4** | **Switch from Metric to Imperial** | **Unit labels change to "in" and "lb"** | **✅** |
| **UI5** | **Switch from Imperial to Metric** | **Unit labels change to "cm" and "kg"** | **✅** |
| **UI6** | **Click "Back to Calculator" from results window** | **Returns to main input window** | **✅** |
| **UI7** | **Verify color coding of BMI categories** | **Underweight: Blue, Normal: Green, Overweight: Orange, Obese: Red** | **✅** |

1. **Edge Case Tests**

| **Test ID** | **Test Case** | **Expected Result** | **Pass/Fail** |
| --- | --- | --- | --- |
| **EC1** | **BMI exactly 18.5** | **Classification: "Normal Weight"** | **✅** |
| **EC2** | **BMI exactly 25.0** | **Classification: "Overweight"** | **✅** |
| **EC3** | **BMI exactly 30.0** | **Classification: "Obese"** | **✅** |
| **EC4** | **Decimal inputs (e.g., 170.5 cm, 65.3 kg)** | **Correct calculation with decimal precision** | **✅** |
| **EC5** | **Very large but valid inputs** | **Correct calculation without overflow** | **✅** |

**5. Test Results Summary**

After running all tests, document:

* Number of tests passed: All tests passed.
* Number of tests failed: 0 tests failed.
* Issues found: 0
* Fixes implemented: N/A

**6. Screenshot of Successful Test**

A screenshot of a computer

AI-generated content may be incorrect.