

MyMaths Class

The MyMaths class provides a method for calculating the **Greatest Common Divisor (GCD)** of two integers using the Euclidean algorithm. This method is commonly used in mathematics to find the largest integer that can evenly divide two given integers.

Method Details

public int gcd(int m, int n)

- **Purpose:** Calculates the GCD of two integers, m and n.
- **Parameters:**
 - m: The first integer.
 - n: The second integer.
- **Returns:** The greatest common divisor of m and n as an integer.
- **Description:**
 - If n is greater than m, the values are swapped to ensure $m \geq n$.
 - The method then enters a loop where it repeatedly assigns m the value of n and n the remainder of $m \% n$ until n reaches zero.
 - The final non-zero value of n is returned as the GCD.

MyMathsTest Class

The MyMathsTest class is a test suite for the MyMaths class, written to verify that the gcd method behaves as expected. This class uses the **JUnit testing framework** to perform **unit tests**.

Test Methods

testStatementCoverage()

- **Purpose:** Tests a basic case of the gcd method to achieve **statement coverage** (ensuring each line in gcd is executed at least once).
- **Assertions:**
 - Checks if gcd(8, 12) returns 4 with the assertion: assertEquals(4, myMaths.gcd(8, 12), "GCD von (8, 12) sollte 4 sein");

testBranchCoverage()

- **Purpose:** Tests multiple cases of the gcd method to achieve **branch coverage** (ensuring each conditional branch is evaluated both true and false).
- **Assertions:**
 - Checks if gcd(8, 12) returns 4, covering a case where $n < m$.
 - Checks if gcd(8, 8) returns 8, covering a case where both numbers are equal.