

MyMaths Java Class and Test Documentation

Software Name

MyMaths - Java Mathematical Utilities

Purpose

The **MyMaths** software provides a utility class in Java for calculating the **greatest common divisor (GCD)** of two integers. The **MyMaths** class implements an efficient algorithm based on the Euclidean method to compute the GCD. Additionally, it includes a **MyMathsTest** class to ensure reliable functionality and validate edge cases using JUnit 5 for comprehensive testing.

Install

Prerequisites

- **Java Development Kit (JDK):** Ensure JDK 8 or above is installed.
- **JUnit 5:** This testing framework is required to run the test class.

Setup

To include this functionality in a Java project:

1. **Download or clone** the MyMaths and MyMathsTest class files.
2. **Add JUnit 5** to your project if it's not already available.

Usage

MyMaths Class

The **MyMaths** class includes a method for calculating the GCD of two integers.

- **Method:**
 - `int gcd(int m, int n)`: Calculates the greatest common divisor of m and n. It automatically adjusts if n is larger than m.

MyMathsTest Class

The **MyMathsTest** class uses JUnit 5 to verify the accuracy and coverage of the gcd method, ensuring that:

1. The function works as expected with standard input (Statement Coverage).
2. The function covers both branches of the conditional logic in the algorithm (Branch Coverage).

Contributing

Contributions to improve or expand this mathematical utilities class are welcome! To contribute:

1. **Fork the repository.**
2. **Create a new branch** for your feature or fix.
3. **Commit your changes** with clear and descriptive messages.
4. Submit a **pull request**, detailing the modifications and the rationale behind them.

Please ensure contributions maintain code clarity, quality, and consistency.

Citation Hint

If you use this code in an academic context, please provide a citation or acknowledgment to the **MyMaths Java Mathematical Utilities** project.

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