Table of Contents

## 0.1 ClassDef Main

# 1 Class: Main

## 1.1 Overview

The Main class serves as the primary entry point for the application and provides a collection of static utility methods for basic mathematical operations and console output.

## 1.2 attributes

This class does not have any attributes. It contains static methods that operate on the parameters passed to them.

## 1.3 Description

The Main class is a container for several static methods, meaning they can be called directly on the class without needing to create an object instance. It also contains the main method, which is the standard entry point for a Java application.

The class includes the following utility methods:

* add(int a, int b): A simple function that accepts two integer parameters, a and b, and returns their sum.
* factorial(int n): A recursive function that calculates the factorial of a non-negative integer n. The base case is when n is less than or equal to 1, where it returns 1. Otherwise, it recursively calls itself with n - 1 and multiplies the result by n.
* greet(String name): A void function that takes a String parameter name and prints a personalized greeting message to the standard output console.

The main(String[] args) method demonstrates the usage of these utility functions by calling them with sample values and printing the results to the console.

// Example of the factorial logic  
// factorial(5)  
// 5 \* factorial(4)  
// 5 \* 4 \* factorial(3)  
// 5 \* 4 \* 3 \* factorial(2)  
// 5 \* 4 \* 3 \* 2 \* factorial(1)  
// 5 \* 4 \* 3 \* 2 \* 1 = 120

## 1.4 Usage Notes

* All helper methods (add, factorial, greet) are static and should be invoked directly on the Main class (e.g., Main.add(5, 10)).
* The factorial method is recursive. Providing a very large integer as input may lead to a StackOverflowError.
* The greet method prints its output directly to System.out and does not return any value.

## 1.5 Example

The provided main method serves as a clear example of how to use the class’s functions.

public static void main(String[] args) {  
 System.out.println("Sum: " + add(5, 10));  
 System.out.println("Factorial: " + factorial(5));  
 greet("Prateek");  
}

**Output:**

Sum: 15  
Factorial: 120  
Hello, Prateek!