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## 0.1 ClassDef Main

# 1 Class: Main

## 1.1 Overview

The Main class serves as a container for several static utility methods and acts as the entry point for the Java application.

## 1.2 Description

This class provides basic functionalities through its static methods, which can be called without creating an instance of the class. It includes methods for arithmetic operations, factorial calculation, and printing messages.

The class contains the following key methods:

* **public static int add(int a, int b)** This method takes two integer parameters, a and b, and returns their sum. It performs a simple addition operation.
* **public static int factorial(int n)** This method calculates the factorial of a non-negative integer n using recursion. The base case for the recursion is when n is less than or equal to 1, in which case it returns 1. For any other positive integer, it returns n multiplied by the factorial of n - 1.
* **public static void greet(String name)** This method accepts a String parameter name and prints a personalized greeting message to the standard output. It is a void method and does not return any value.
* **public static void main(String[] args)** This is the main entry point of the application. When the program is executed, this method is called. It demonstrates the usage of the add, factorial, and greet methods by invoking them with sample values and printing the results to the console.

## 1.3 Usage Notes

* All methods in this class are static, meaning they belong to the class itself and can be invoked directly using the class name (e.g., Main.add(5, 10)) without needing to create an object of the Main class.
* The factorial method uses recursion. Providing a very large integer as input may result in a StackOverflowError due to excessive recursive calls.
* The main method is the standard entry point for any executable Java program.

**Output Example**: The output shown in the example below is what is printed to the console when the main method is executed.

## 1.4 Example

The main method within the class provides a clear example of how to use the other static methods.

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!