Assignment Question

Write a Python function to find the **second greatest number** in a given list of integers. Your function should handle cases where the list may contain duplicate values and should return `None` if there is no second greatest number (e.g., if the list has fewer than two unique numbers).

Requirements:

1. Define a function named `second_greatest`.

2. The function should take a list of integers as input and return the second greatest number.

3. If the list has fewer than two unique numbers, return `None`.

4. Write test cases to validate your function.

Example Input & Output:

1. Input: `[10, 20, 4, 20, 10]`

   Output: `10`

2. Input: `[5, 5, 5]`

   Output: `None`

Instructions:

- You may use built-in functions like `max()` but try to come up with a solution that efficiently handles duplicate values.

- Ensure your code is well-documented and includes comments explaining your logic.

Bonus Challenge**: Can you solve the problem without using any built-in functions like `sorted()`?