Problem 2523: Closest Prime Numbers in Range

Problem Information

Difficulty: Medium
Acceptance Rate: 51.58%
Paid Only: No
Tags: Math, Number Theory

Problem Description

Given two positive integers `left` and `right`, find the two integers `num1` and `num2` such that:

* `left <= num1 < num2 <= right `. * Both `num1` and `num2` are prime numbers. * `num2 - num1` is the **minimum** amongst all other pairs satisfying the above conditions.

Return the positive integer array `ans = [num1, num2]`. If there are multiple pairs satisfying these conditions, return the one with the **smallest** `num1` value. If no such numbers exist, return `[-1, -1]`_._

Example 1:

Input: left = 10, right = 19 **Output:** [11,13] **Explanation:** The prime numbers between 10 and 19 are 11, 13, 17, and 19. The closest gap between any pair is 2, which can be achieved by [11,13] or [17,19]. Since 11 is smaller than 17, we return the first pair.

Example 2:

Input: left = 4, right = 6 **Output:** [-1,-1] **Explanation:** There exists only one prime number in the given range, so the conditions cannot be satisfied.

Constraints:

* `1 <= left <= right <= 106`

Code Snippets

C++:

```
class Solution {
public:
vector<int> closestPrimes(int left, int right) {

}
};
```

Java:

```
class Solution {
public int[] closestPrimes(int left, int right) {

}
}
```

Python3:

```
class Solution:
def closestPrimes(self, left: int, right: int) -> List[int]:
```