

# Problem 1044: Longest Duplicate Substring

## Problem Information

**Difficulty:** Hard

**Acceptance Rate:** 30.97%

**Paid Only:** No

**Tags:** String, Binary Search, Sliding Window, Rolling Hash, Suffix Array, Hash Function

## Problem Description

Given a string `s`, consider all `_duplicated substrings_` : (contiguous) substrings of `s` that occur 2 or more times. The occurrences may overlap.

Return **any** duplicated substring that has the longest possible length. If `s` does not have a duplicated substring, the answer is `""`.

**Example 1:**

**Input:** `s = "banana"` **Output:** `"ana"`

**Example 2:**

**Input:** `s = "abcd"` **Output:** `""`

**Constraints:**

`2 <= s.length <= 3 * 10^4` `s` consists of lowercase English letters.

## Code Snippets

**C++:**

```
class Solution {
public:
    string longestDupSubstring(string s) {
```

```
}  
};
```

### Java:

```
class Solution {  
    public String longestDupSubstring(String s) {  
  
    }  
}
```

### Python3:

```
class Solution:  
    def longestDupSubstring(self, s: str) -> str:
```