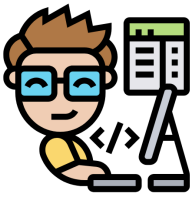

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Longest Palindromic Substring

You are given a string s. Your task is to find and return the longest palindromic substring within the given string. A palindrome is a string that reads the same forwards and backwards.

Input:
A string s of length n. The length of the string satisfies $1 \leq n \leq 1000$.

Output:

- Return the longest substring of s that is a palindrome. If there are multiple solutions, return the first one that occurs.

Examples:

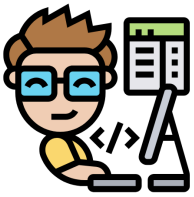
- Example 1
  Input: "babad"
  Output: "bab"
  Explanation: Both "bab" and "aba" are palindromic substrings, but since "bab" appears first in the string, it is returned.

Constraints:

- $1 \leq$ s.length ≤ 1000
- s consists of only lowercase English letters.

Test Cases:

1. Input: "babad"
   Output: "bab"
2. Input: "cbbd"
   Output: "bb"
3. Input: "a"
   Output: "a"
4. Input: "aaaa"
   Output: "aaaa"
5. Input: "abc"
   Output: "a"



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Edge Cases:

1. Single character string: The entire string is the palindrome.
2. String with all identical characters: If the string consists of repeated characters, the whole string is the longest palindrome.
3. No palindrome longer than 1: If the string does not have a palindrome longer than 1 character, return any single character.