

Code Analysis:

1. String Modification:

- Time Complexity: $O(n)$
 - Explanation: Iterates through each character once.
- Space Complexity: $O(n)$
 - Explanation: Creates a new string with modified characters.

2. Stack and Queue Operations:

- Pushing to Stack and Adding to Queue:
 - Time Complexity: $O(n/2)$
 - Explanation: Iterates through half of the characters.
 - Space Complexity: $O(n/2)$
 - Explanation: Stores half of the characters in both the stack and the queue.
- Stack and Queue Comparison:
 - Time Complexity: $O(n/2)$
 - Explanation: Iterates through half of the characters.
 - Space Complexity: $O(1)$
 - Explanation: Uses a constant amount of extra space.

3. Palindrome Check:

- Calling **isPalindrome** Method:
 - Time Complexity: $O(n)$
 - Explanation: Calls the **isPalindrome** method once.
 - Space Complexity: $O(n)$
 - Explanation: Additional space for variables used in the **isPalindrome** method.