Green University of Bangladesh
Department of Computer Science and Engineering(CSE)

Faculty of Science and Engineering

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LAB REPORT NO #03

Course Title: **Web Programming Lab**

Course Code: CSE - 302 **Section: 213 D8**

Lab Experiment Name: JS function that checks whether a text is palindromeor not.

Student Details

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Lab Date **: 23/03/2024**

Submission Date **: 31/05/2024**

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[For Teachers use only: Don't Write Anything inside this box]

Lab Report Status

Marks: ………………………………… **Signature:.....................**

Comments:... **Date:..............................**

1. JS function that checks whether a text is palindrome or not.

In this lab, we explore the concept of palindrome detection using HTML and JavaScript. A palindrome is a word, phrase, or sequence of characters that reads the same backward as forward, ignoring spaces, punctuation, and capitalization. The provided code is a web-based application that takes user input, processes it to check if it is a palindrome, and displays the result to the user.

2. OBJECTIVES

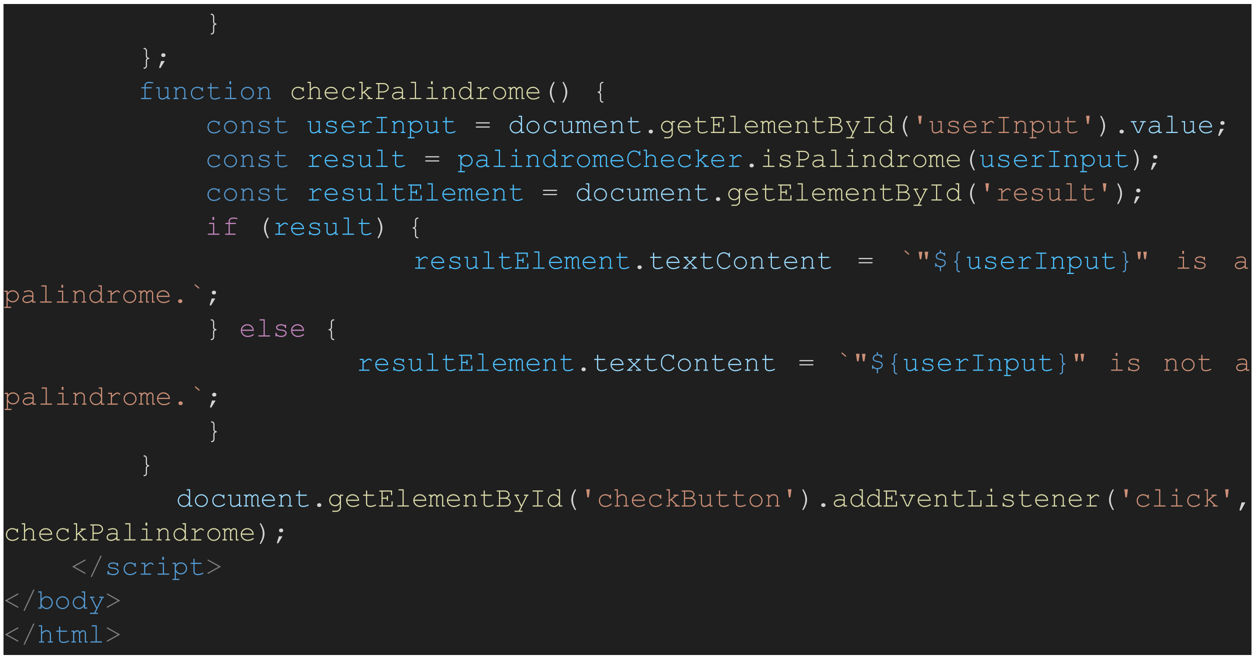
- Create an interactive web application to check for palindromes.
- Understand how to manipulate and validate strings in JavaScript.
- Utilize HTML for user input and JavaScript for processing and event handling.
- A palindrome is a word, phrase, number, or other sequences of characters that reads the same forward and backward (ignoring spaces, punctuation, and capitalization).

3. PROCEDURE

- ➢ Create a basic HTML structure with a header, an input field for user text, a button totrigger the palindrome check, and a paragraph to display the result.
- ➢ Define an object palindromeChecker with a method isPalindrome to check if a given textis a palindrome.
- ➢ Normalize the input text by removing non-alphanumeric characters and converting it tolowercase.
- ➢ Reverse the normalized text and compare it with the original normalized text.
- ➢ Create a function checkPalindrome to handle the button click event, retrieve user input,and use the palindromeChecker object to determine if the input is a palindrome.
- ➢ Attach an event listener to the button to trigger the check Palindrome function whenclicked.
- ➢ Normalize the Input: Remove any non-alphanumeric characters and convert the text to the same case to ensure that comparisons are case-insensitive.
- ➢ Reverse the Text: Reverse the normalized text.
- ➢ Compare: Compare the normalized text with its reversed version to determine if it is a palindrome.

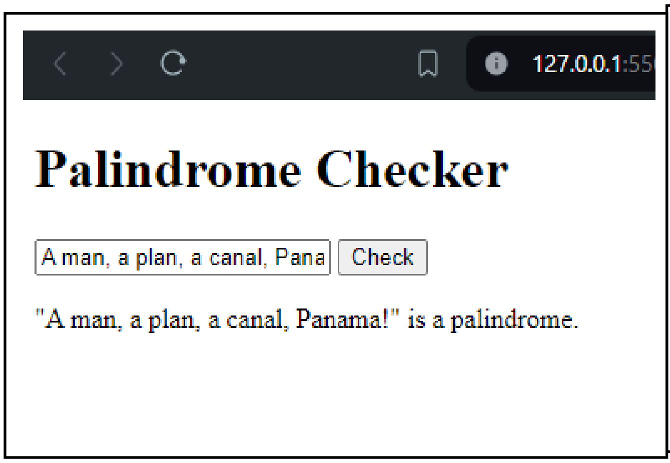
4. IMPLEMENTATION

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Palindrome Checker</title>
</head>
<body>
    <h1>Palindrome Checker</h1>
    <input type="text" id="userInput" placeholder="Enter text">
    <button id="checkButton">Check</button>
    <p id="result"></p>
    <script>
        const palindromeChecker = {
            isPalindrome: function (text) {
                        const cleanedText = text.replace(/[^A-Za-z0-9]/g,
'').toLowerCase();
                                                  const reversedText =
cleanedText.split('').reverse().join('');
                return cleanedText === reversedText;
```



```
            }
        };
        function checkPalindrome() {
            const userInput = document.getElementById('userInput').value;
            const result = palindromeChecker.isPalindrome(userInput);
            const resultElement = document.getElementById('result');
            if (result) {
                        resultElement.textContent = `"${userInput}" is a
palindrome.`;
            } else {
                     resultElement.textContent = `"${userInput}" is not a
palindrome.`;
            }
        }
          document.getElementById('checkButton').addEventListener('click',
checkPalindrome);
    </script>
</body>
</html>
```

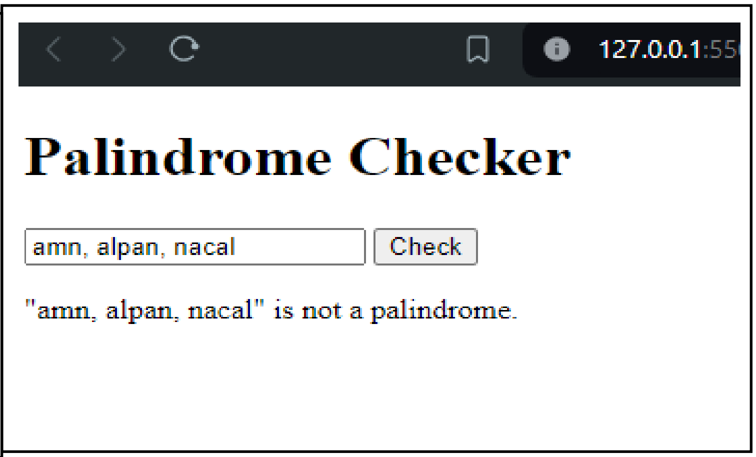
5. OUTPUT



Palindrome Checker

A man, a plan, a canal, Pana

"A man, a plan, a canal, Panama!" is a palindrome.



Palindrome Checker

amn, alpan, nacal

"amn, alpan, nacal" is not a palindrome.

6. DISCUSSION

In this lab, we developed a simple yet effective web application to check for palindromes:

★ **String Normalization:** Converting the input text to a uniform format by removing non-alphanumeric characters and converting all letters to lowercase ensures accurate comparison.

★ **String Reversal and Comparison:** By reversing the cleaned string and comparing it with the original cleaned string, we can determine if the text is a palindrome.

★ **Event Handling in JavaScript:** Using an event listener to trigger the palindrome check function when the user clicks the button demonstrates how to create interactive web applications.