Experiment 3.1

Student Name: Kamal Ale Magar   **UID: 21BCS10155**
Branch: BE-CSE   **Section/Group:CC_616/ B**
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Subject Name: Java Lab
Subject Code:21CSH-319

1. **Aim:** Create a palindrome creator application for making a longest possible palindrome out of given input string.

2. **Objective:**

   • To learn about concept of HashMap in java.

   • To learn about concept of String in java.

3. **Code:**

```java
import java.util.Scanner;

public class LongestPalindromeCreator {
    public String longestPalindrome(String s) {
        if (s.length() <= 1) {
            return s;
        }

        int maxLen = 1;
        String maxStr = s.substring(0, 1);

        for (int i = 0; i < s.length(); i++) {
            for (int j = i + maxLen; j <= s.length(); j++) {
                if (j - i > maxLen && isPalindrome(s.substring(i, j))) {
                    maxLen = j - i;
                    maxStr = s.substring(i, j);
                }
            }
        }

        return maxStr;
    }

    private boolean isPalindrome(String str) {
        int left = 0;
        int right = str.length() - 1;
```

```java
        while (left < right) {
            if (str.charAt(left) != str.charAt(right)) {
                return false;
            }
            left++;
            right--;
        }

        return true;
    }

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter the input string: ");
        String input = scanner.nextLine();
        scanner.close();

        LongestPalindromeCreator solution = new LongestPalindromeCreator();
        String longestPalindrome = solution.longestPalindrome(input);
        System.out.println("Longest palindrome: " + longestPalindrome);
    }
}
```

Output:-

```
Enter the input string: kamal
Longest palindrome: ama
PS E:\All\STUDY\Sixth Semester\Java\Code>
```

4. Learning Outcomes:

- Learnt about concept of HashMap in java.
- Learnt about concept of String in java.