



Experiment 3.1

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Subject Name: JAVA LAB

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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 and output:

```
import java.util.Scanner;

public class Palindrome {

    public static String longestPalindrome(String s) {

        int n = s.length();

        boolean[][] dp = new boolean[n][n];

        String ans = "";

        for (int len = 1; len <= n; len++) {

            for (int left = 0; left <= n - len; left++) {

                int right = left + len - 1;

                if (len == 1) {

                    dp[left][right] = true;

                } else if (len == 2) {

                    dp[left][right] = s.charAt(left) == s.charAt(right);

                } else {

                    dp[left][right] = dp[left + 1][right - 1] && (s.charAt(left) == s.charAt(right));

                }

            }

        }

        return ans;

    }

}
```

```
        }
        if (dp[left][right] && len > ans.length()) {
            ans = s.substring(left, right + 1);
        }
    }
}

return ans;
}

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();

    System.out.println("Input string: " + input);
    System.out.println("Longest palindromic substring: " + longestPalindrome(input));
}
}
```

4. Output:

```
Enter the input string: abbajkabbaabbaabbakj
Input string: abbajkabbaabbaabbakj
Longest palindromic substring: jkabbaabbaabbakj

Process finished with exit code 0
```