LAB INDEX

NAME: Vivek Kumar

UID: 21BCS8129

SECTION: WM-20BCS-616/A

SUBJECTNAME: Project Based Learning in Java Lab

SUBJECTCODE: 20CSP-314

Sr. No	Program	Date	Evaluation				Sign
			LW (12)	VV (10)	FW (8)	Total (30)	
1	Create an application to save the employee information using arrays.	09-08-2022					
2	Design and implement a simple inventory control system for a small video rentalstore.	23-08-2022					
3	Create a application to calculate interest for FDs, RDs based on certain conditions using inheritance.	02-09-2022					
4	Create a program to show the usage of Sets of Collection interface.	27-09-2022					
5	Create a program to set view of Keys from Java Hashtable.	27-09-2022					
6	Write a Program to perform the basic operations like insert, delete, display and search in list. List contains String object items where these operations are to be performed.	04-10-2022					
7	Create a menu-based Java application with the following options.1. Add an Employee2.Display All3.Exit If option 1 is selected, the application should gather details of the employee like employee name, employee id, designation and salary and store it in a file. If option 2 is selected, the application should display all the employee details. If option 3 is selected the application should exit.	14-10-2022					
8	Create a palindrome creator application for making a longest possible palindrome out of given input string.	01-11-2022					
9	Create a Servlet/ application with a facility to print any message on web browser.						
10	Create JSP application for addition, multiplication and division.						

CHANDIGARH UNIVERSITY

UNIVERSITY INSTITUTE OF NGINEERING
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Submitted By:	**Submitted To:**
Vivek Kumar(21BCS8129)	Neeru Sharma(E12950)

Subject Name	Project Based Learning in Java Lab
Subject Code	20CSP-321
Branch	Computer Science and Engineering
Semester	5th

DEPARTMENT OF
ACADEMIC AFFAIRS
Discover. Learn. Empower.

NAAC
GRADE A+
ACCREDITED UNIVERSITY

Experiment - 8

Student Name: Vivek Kumar   **UID: 21BCS8129**
Branch: BE-CSE(LEET)   **Section/Group:20BCS-WM-616/A**
Semester: 5th   **Date of Performance: 01/11/2022**
Subject Name: Project Based Learning in Java Lab **Subject Code: 20CSP-321**

1. Aim/Overview of the practical:
Create a palindrome creator application for making a longest possible palindrome out of given input string.

2. Task to be done/ Which logistics used:
Write the program to create an application to form a largest palindrome from given String.

3. Software Requirements (For programming-based labs):
- JDK-8 or any
- Eclipse-IDE for Java

4. Steps for experiment/practical/Code:

```java
package unit2;

import java.util.HashMap;
import java.util.Map;
import java.util.Scanner;

public class WorkSheet8 {

    public static String longestPalindrome(String str) {
        if (str == null || str.length() == 0) {
            return str;
        }
        Map<Character, Integer> freq = new HashMap<>();
        for (char ch: str.toCharArray()) {
            freq.put(ch, freq.getOrDefault(ch, 0) + 1);
        }
        String mid_char = "";
        StringBuilder left = new StringBuilder();
        for (var entry: freq.entrySet()){
            char ch = entry.getKey();
            int count = entry.getValue();
            if (count % 2 == 1) {
                mid_char = String.valueOf(ch);
            }
            left.append(String.valueOf(ch).repeat(count / 2));
        }
        StringBuilder right = new StringBuilder(left).reverse();
        return ("" + left + mid_char + right);
    }
}
```
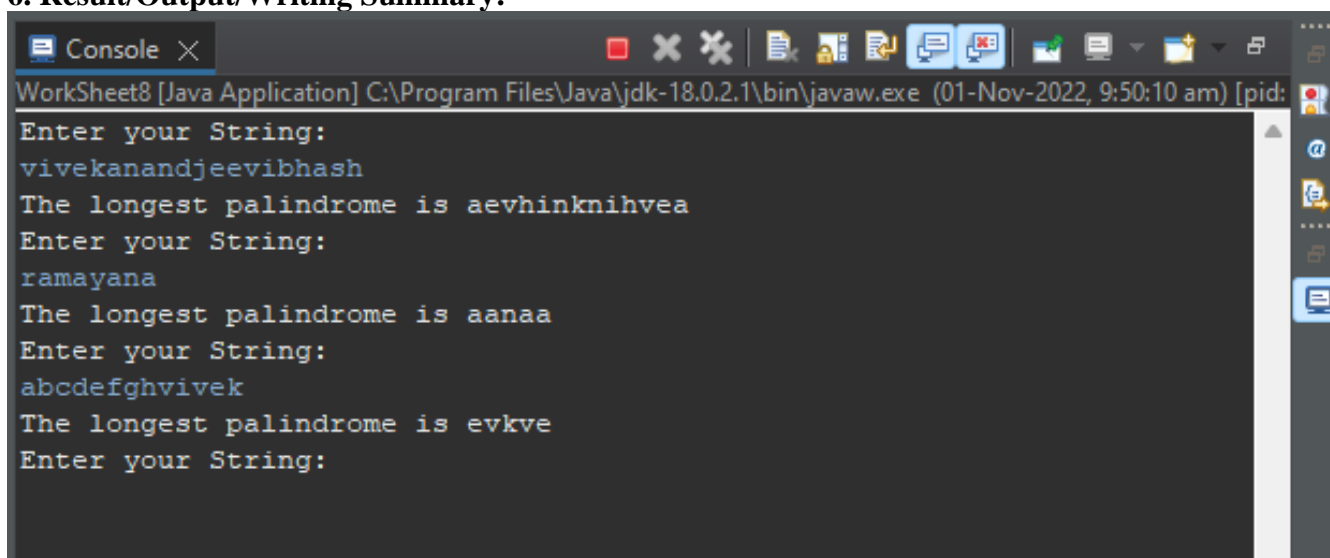
DEPARTMENT OF
ACADEMIC AFFAIRS
Discover. Learn. Empower.

NAAC
GRADE A+
ACCREDITED UNIVERSITY

```java
public static void main(String args[]) {
        Scanner in = new Scanner(System.in);
        System.out.println("Enter your String: ");
        String str = in.next();
        System.out.println("The longest palindrome is " + longestPalindrome(str));
        in.close();
    }

}
```

5. Observations/Discussions/ Complexity Analysis:

Here we have created the palindrome function to performed an operation on a String to create a largest possible palindrome.

6. Result/Output/Writing Summary:

```
Console  X                                              ⬛ ✖ ✖ | ...

WorkSheet8 [Java Application] C:\Program Files\Java\jdk-18.0.2.1\bin\javaw.exe  (01-Nov-2022, 9:50:10 am) [pid:
Enter your String:
vivekanandjeevibhash
The longest palindrome is aevhinknihvea
Enter your String:
ramayana
The longest palindrome is aanaa
Enter your String:
abcdefghvivek
The longest palindrome is evkve
Enter your String:
```

Learning outcomes (What I have learnt):

1. Learnt the concept of palindrome.
2. Learnt the concept of StringBuilder ().
3. Learnt the concept of HashMap ().
4. Learnt the concept of StringBuilder Manipulation such as Reverse.
5. Successfully executed the code and completed the Worksheet.

Evaluation Grid (To be created per the faculty's SOP and Assessment guidelines):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.	Worksheet completion including writing learning objectives/Outcomes. (To be submitted at the end of the day).		
2.	Post-Lab Quiz Result.		
3.	Student Engagement in Simulation/Demonstration/Performance and Controls/Pre-Lab Questions.		
	Signature of Faculty (with Date):	Total Marks Obtained:	