

EXPERIMENT – 3.1

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Branch: CSE

Semester: 5th

Subject Name: Project Based Learning in Java

UID: 20BCS9239

Section/Group: 20BCS-WM-607 (A)

Subject Code: 20CSP - 321

PROBLEM STATEMENT :

Question : Given a string , S , find its largest palindromic substring .

CODE :

```
package com.company.CU;

public class cu_unit3_1 {
    public static String expand(String str, int down, int up) {
        int len = str.length();
        while (down >= 0 && up < len &&
            (str.charAt(down) == str.charAt(up))) {
            down--;
            up++;
        }
        return str.substring(down + 1, up);
    }

    public static String LargestPalindromicSubstring(String str, int len) {
        String max_str = "", curr_str;
        int max_length = 0, curr_length;
        for (int i = 0; i < len; i++) {
            curr_str = expand(str, i, i);
            curr_length = curr_str.length();
            if (curr_length > max_length) {
                max_length = curr_length;
                max_str = curr_str;
            }
            curr_str = expand(str, i, i + 1);
            curr_length = curr_str.length();
            if (curr_length > max_length) {
                max_length = curr_length;
                max_str = curr_str;
            }
        }
        return max_str;
    }

    public static void main(String[] args) {
        System.out.println("\nThis worksheet belongs to Anjali Singh\n");
        String str = "hackerrekcahba";
        System.out.println("The largest palindromic substring of the given input " + str + "
is "
            + LargestPalindromicSubstring(str, str.length() - 1));
    }
}
```

OUTPUT :



The screenshot shows the Run console of an IDE. At the top, the run configuration is 'cu_unit3_1'. The command line shows the execution of 'C:\Program Files\Java\jdk-16.0.2\bin\java.exe' with various JVM options and a classpath. The output consists of three lines: 'This worksheet belongs to Anjali Singh', 'The largest palindromic substring of the given input hackerrekcahba is hackerrekcah', and 'Process finished with exit code 0'. On the left side of the console, there is a vertical toolbar with icons for Run, Debug, Test, and other IDE functions.

```
Run: cu_unit3_1 x
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ ID
Community Edition 2021.2\bin" -Dfile.encoding=UTF-8 -classpath C:\Users\Hermione\IdeaProjects\1st
This worksheet belongs to Anjali Singh
The largest palindromic substring of the given input hackerrekcahba is hackerrekcah
Process finished with exit code 0
```

LEARNING OUTCOMES:

1. Learnt about different operations.
2. Learnt about Strings.