Java Assignment

Name :Sai Bhaskar Kandula
Reg no: 21BAI10298

Example1

Code:

Users > vivek > AppData > Local > Microsoft > Windows > INetCache > IE > IYTQRJJD > Example1[1].java

```java
public class Example1 {

    public static void main(String[] args) {
        int[][] array = {
            {1, 2, 3, 4},
            {3, 1, 3, 2},
            {5, 6, 3, 1},
            {1, 3, 6, 1}
        };

        int minSum = Integer.MAX_VALUE;
        for (int i = 0; i < array.length - 2; i++) {
            for (int j = 0; j < array.length - 2; j++) {
                int hourglassSum = array[i][j] + array[i][j + 1] + array[i][j + 2] +
                    array[i + 1][j + 1] + array[i + 2][j] + array[i + 2][j + 1] + array[i + 2][j + 2];

                if (hourglassSum < minSum) {
                    minSum = hourglassSum;
                }
            }
        }

        System.out.println("Reg id: 21BAI10298");
        System.out.println("Name: Sai Bhaskar Kandula");
        System.out.println("The minimum sum of the hour glass is: " + minSum);
    }
}
```

Output:

```
8d47c58ff0c0b9c78a296e2bb20d9e2\redhat.java\jdt_ws\Java Practice
Reg id: 21BAI10298
Name: Sai Bhaskar Kandula
The minimum sum of the hour glass is: 19
```

Example 2:

Code:

```java
import java.util.Scanner;

public class Example2 {

    Run | Debug
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print(s:"Enter the number: ");
        int number = scanner.nextInt();
        scanner.close();

        int swappedNumber = swapNibbles(number);
        System.out.println("After swapping the nibbles, The number is: " + swappedNumber);
    }

    public static int swapNibbles(int number) {
        // Extracting nibbles
        int nibble1 = (number & 0xF000) >>> 12;
        int nibble2 = (number & 0x0F00) >>> 8;
        int nibble3 = (number & 0x00F0) >>> 4;
        int nibble4 = number & 0x000F;

        // Swapping nibbles
        int swappedNumber = (nibble3 << 12) | (nibble4 << 8) | (nibble1 << 4) | nibble2;

        return swappedNumber;
        System.out.println(x:"Reg id: 21BAI10298");
        System.out.println(x:"Name: Sai Bhaskar Kandula");
    }
}
```

Output:

```
CodeDetailsInExceptionMessages' '-cp' 'C:\Users\vivek\AppData
actice_4fb52e1c\bin' 'Main'
Enter the number: 12
After swapping the nibbles, The number is: 3072
Reg id: 21BAI10298
Name: Sai Bhaskar Kandula
```

Example 3:

Code:

```java
class Main {

    static char MAX_CHAR = 26;

    // Function to count frequency of each char in the
    // string. freq[0] for 'a',...., freq[25] for 'z'
    static void countFreq(String str, int freq[], int len)
    {
        for (int i = 0; i < len; i++)
        {
            freq[str.charAt(i) - 'a']++;
        }
    }

    // Cases to check whether a palindr0mic
    // string can be formed or not
    static boolean canMakePalindrome(int freq[], int len)
    {
        // count_odd to count no of
        // chars with odd frequency
        int count_odd = 0;
        for (int i = 0; i < MAX_CHAR; i++)
        {
            if (freq[i] % 2 != 0)
            {
                count_odd++;
            }
        }

        // For even length string
        // no odd freq character
        if (len % 2 == 0)
        {
            if (count_odd > 0)
            {
                return false;
            }
```

```
            else
            {
                return true;
            }
        }

        // For odd length string
        // one odd freq character
        if (count_odd != 1)
        {
            return false;
        }

        return true;
    }

    // Function to find odd freq char and
    // reducing its freq by 1returns "" if odd freq
    // char is not present
    static String findOddAndRemoveItsFreq(int freq[])
    {
        String odd_str = "";
        for (int i = 0; i < MAX_CHAR; i++)
        {
            if (freq[i] % 2 != 0)
            {
                freq[i]--;
                odd_str = odd_str + (char) (i + 'a');
                return odd_str;
            }
        }
        return odd_str;
    }

    // To find lexicographically first palindromic
    // string.
    static String findPalindromicString(String str)
```

```
    {
        int len = str.length();
        int freq[] = new int[MAX_CHAR];
        countFreq(str, freq, len);

        if (!canMakePalindrome(freq, len))
        {
            return "No Palindromic String";
        }

        // Assigning odd freq character if present
        // else empty string.
        String odd_str = findOddAndRemoveItsFreq(freq);

        String front_str = "", rear_str = " ";

        // Traverse characters in increasing order
        for (int i = 0; i < MAX_CHAR; i++)
        {
            String temp = "";
            if (freq[i] != 0)
            {
                char ch = (char) (i + 'a');

                // Divide all occurrences into two
                // halves. Note that odd character
                // is removed by findOddAndRemoveItsFreq()
                for (int j = 1; j <= freq[i] / 2; j++)
                {
                    temp = temp + ch;
                }

                // creating front string
                front_str = front_str + temp;

                // creating rear string
                rear_str = temp + rear_str;
```

```
111                     rear_str = temp + rear_str;
112                 }
113             }
114
115             // Final palindromic string which is
116             // lexicographically first
117             return (front_str + odd_str + rear_str);
118         }
119
120         // Driver program
            Run | Debug
121         public static void main(String[] args)
122         {
123             String str = "malayalam";
124             System.out.println(findPalindromicString(str));
125             System.out.println(x:"Reg id: 21BAI10298");
126             System.out.println(x:"Name: Sai bhaskar Kandula");
127         }
128     }
```

Output:

```
pse Adoptium\jdk-17.0.7.7-hotspot\bin\java.exe' '-XX:+ShowCodeDeta
8d47c58ff0c0b9c78a296e2bb20d9e2\redhat.java\jdt_ws\Java Practice_4
aalmymlaa
Reg id: 21BAI10298
Name: Sai bhaskar Kandula
```