Week-12

Introduction to I/O, I/O Operations, Object Serialization

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Program 1:

```
import java.util.HashSet;
import java.util.Scanner;
import java.util.Set;

public class CommonAsciiSum {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        String[] input1Array = scanner.nextLine().split(" ");
        char[] input1 = new char[input1Array.length];
        for (int i = 0; i < input1Array.length; i++) {
            input1[i] = input1Array[i].charAt(0);
        }

        String[] input2Array = scanner.nextLine().split(" ");
        char[] input2 = new char[input2Array.length];
        for (int i = 0; i < input2Array.length; i++) {
            input2[i] = input2Array[i].charAt(0);
        }

        scanner.close();

        System.out.println(getSingleDigitAsciiSum(input1, input2));
    }

    public static int getSingleDigitAsciiSum(char[] input1, char[] input2) {
        Set<Character> set1 = new HashSet<>();
        Set<Character> commonChars = new HashSet<>();

        for (char c : input1) {
            set1.add(c);
        }

        for (char c : input2) {
            if (set1.contains(c)) {
```

```
                commonChars.add(c);
            }
        }

        int sum = 0;
        for (char c : commonChars) {
            sum += (int) c;
        }

        return reduceToSingleDigit(sum);
    }

    public static int reduceToSingleDigit(int num) {
        while (num > 9) {
            int sum = 0;
            while (num > 0) {
                sum += num % 10;
                num /= 10;
            }
            num = sum;
        }
        return num;
    }
}
```

Program 2:

```
import java.util.Scanner;

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

        System.out.println(decode(input));
```

```
    }

    public static String decode(String encoded) {
        StringBuilder decodedWord = new StringBuilder();
        String[] parts = encoded.split("1");

        for (String part : parts) {
            int zeroCount = part.length();
            // Calculate the corresponding character by counting zeros

            char decodedChar = (char) ('A' + (26 - zeroCount));
            decodedWord.append(decodedChar);
        }

        return decodedWord.toString();
    }
}
```

Program 3:

```
import java.util.Scanner;

public class WordReversal {

    public static String reverseWords(String sentence, int caseOption) {
        StringBuilder modifiedSentence = new StringBuilder();

        // Split the sentence into words based on spaces
        String[] words = sentence.split(" ");

        for (int i = 0; i < words.length; i++) {
            String reversedWord = reverseWord(words[i], caseOption);

            // Append the reversed word to the modified sentence
```

```
            modifiedSentence.append(reversedWord);

            // Add space between words except after the last word
            if (i < words.length - 1) {
                modifiedSentence.append(" ");
            }
        }

        return modifiedSentence.toString();
    }

    private static String reverseWord(String word, int caseOption) {
        StringBuilder reversedChars = new StringBuilder(word).reverse();

        // Apply case reversal only if caseOption is 1
        if (caseOption == 1) {
            for (int i = 0; i < word.length(); i++) {
                char originalChar = word.charAt(i);
                char reversedChar = reversedChars.charAt(i);

                if (Character.isAlphabetic(originalChar)) {
                    // Retain the case of the original character
                    if (Character.isUpperCase(originalChar)) {
                        reversedChars.setCharAt(i, Character.toUpperCase(reversedChar));
                    } else {
                        reversedChars.setCharAt(i, Character.toLowerCase(reversedChar));
                    }
                }
            }
        }

        return reversedChars.toString();
    }

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Get input from user
        //System.out.print("Enter the sentence: ");
        String sentence = scanner.nextLine();

        //System.out.print("Enter case option (0 for normal reversal, 1 for case-retaining reversal):
");
        int caseOption = scanner.nextInt();
```

```
        // Generate and print the modified sentence
        String modifiedSentence = reverseWords(sentence, caseOption);
        System.out.println(modifiedSentence);

        scanner.close();
    }
}
```