import java.util.\*;

import java.util.function.Function;

import java.util.stream.Collectors;

public class StringManipulations {

// 1. String reverse

public static StringManipulation reverseString = (str) ->

new StringBuilder(str).reverse().toString();

// 2. Replace all vowels with '\*'

public static StringManipulation replaceVowels = (str) ->

str.replaceAll("[AEIOUaeiou]", "\*");

// 3. Find the first repeating character

public static CharManipulation firstRepeatingChar = (str) -> {

Map<Character, Integer> charCount =

new LinkedHashMap<>();

for (char c : str.toCharArray()) {

charCount.put(c, charCount.getOrDefault(c, 0) + 1);

}

return charCount.entrySet()

.stream()

.filter(e -> e.getValue() > 1)

.findFirst()

.map(Map.Entry::getKey)

.orElse('\0'); // Return null character if no repeating character found

};

// 4. Maximum repeated character

public static CharManipulation maxRepeatedChar = (str) -> {

Map<Character, Long> frequencyMap = str.chars()

.mapToObj(c -> (char) c)

.collect(Collectors.groupingBy(Function.identity(), Collectors.counting()));

return frequencyMap.entrySet().stream()

.max(Map.Entry.comparingByValue())

.map(Map.Entry::getKey)

.orElse('\0'); // Return null character if no character is found

};

// 5. Filter out all words starting with "A" or "a"

public static StringManipulation filterWordsStartingWithA = (str) ->

Arrays.stream(str.split("\\s+"))

.filter(word -> !word.toLowerCase().startsWith("a"))

.collect(Collectors.joining(" "));

// 6. Sort words based on their length

public static StringManipulation sortWordsByLength = (str) ->

Arrays.stream(str.split("\\s+"))

.sorted(Comparator.comparingInt(String::length))

.collect(Collectors.joining(" "));

// 7. Concatenate all elements of the string array

public static StringArrayManipulation concatenateStrings = (arr) ->

Arrays.stream(arr)

.collect(Collectors.joining(" "));

public static void main(String[] args) {

String testString = "Entertainment";

String testSentence = "A cat got bit by an ant";

String[] stringArray = {"Hello", "world",

"this", "is", "Java"};

// 1. Reverse String

System.out.println("Reversed: " + reverseString.manipulate(testString));

// 2. Replace Vowels

System.out.println("Vowels replaced: " + replaceVowels.manipulate(testString));

// 3. First Repeating Character

System.out.println("First repeating character: " + firstRepeatingChar.manipulate(testString));

// 4. Maximum Repeated Character

System.out.println("Maximum repeated character: " + maxRepeatedChar.manipulate(testString));

// 5. Filter words starting with A or a

System.out.println("Filtered words: " + filterWordsStartingWithA.manipulate(testSentence));

// 6. Sort words by length

System.out.println("Words sorted by length: " + sortWordsByLength.manipulate(testSentence));

// 7. Concatenate string array

System.out.println("Concatenated String Array: " + concatenateStrings.manipulate(stringArray));

}

}