```java
import java.math.BigInteger;

public class BinaryCounting {
    private static boolean foundZero = false;
    private static int lastRemoved = -1;

    public static int process(String input) {
        StringBuilder binary = new StringBuilder();
        for (char c : input.toCharArray()) {
        // https://docs.oracle.com/javase/8/docs/api/java/util/Formatter.html
            binary.append(String.format("%8s",Integer.toBinaryString(c)).replace(' ', '0'));
        } // 7 -> 111 -> 00000111

        String afterBinary = removeSequence(binary.toString(), 2);

        if (afterBinary.isEmpty()) return -1;
        BigInteger binValue = new BigInteger(afterBinary, 2);
        String octal = binValue.toString(8);

        foundZero = false;
        removeSequence(octal, 8);

        if (!foundZero) return -1;
        return lastRemoved;
    }

    public static String removeSequence(String input, int base) {
        String current = input;
        int num = 0;

        while (true) {
            String repr = Integer.toString(num, base);
            int first = current.indexOf(repr);
```

```
34              if (first == -1) break;
35              int last = current.lastIndexOf(repr);
36
37              current = current.substring(0, first) +
   current.substring(first + repr.length());
38
39              if (last > first) {
40                  current = current.substring(0, last -
   repr.length()) + current.substring(last);
41              }
42
43              if (num == 0) foundZero = true;
44              lastRemoved = Integer.parseInt(repr, base
   );
45              num++;
46          }
47          return current;
48      }
49
50      public static void main(String[] args) {
51  //          String[] inputs = {
52  //                  "Roses are red.",
53  //                  "A is for Alpha; B is for Bravo; C
   is for Charlie.",
54  //                  "A stitch in time saves nine.",
55  //                  "1, 2: Buckle my shoe! 3, 4: Shut
   the door!",
56  //                  "The quick brown fox jumped over the
    lazy dogs."};
57          String[] inputs = {
58                  "ACSL is 45 years old and going strong
   .",
59                  "What was the first computer
   programming language you learned?",
60                  "Lions and Tigers and Bears, Oh My!
   This is from The Wizard of Oz.",
61                  "zyxwvutsraponmlkjihgfedcba",
62                  "~{w|x|y|z}"};
```

```
63
64          for (String input : inputs) {
65              int result = process(input);
66              System.out.println(result);
67          }
68      }
69  }
70
```