Task: Color Balance Calculator

Write a Java program to calculate the „Color-Balance" of DNA-sequences.

Background:

In Next Generation Sequencing, multiple DNA sequences are read simultaneously, base-by-base by a sequencer. In the first cycle, the first base of multiple DNA sequences is read.
A chemical solution that contains light sensitive molecules is added. Depending on which the first base of the DNA sequence is, different molecules attach to it. The sequencer uses two types of lasers to capture this event. First, the red laser is fired, and the first photo is taken. Then, the green laser is fired and the second photo is taken. The following table shows how each laser 'sees' DNA bases.

DNA-Base	Red-Laser-Photo	Green-Laser-Photo
G	Not visible	Not visible
T	Not visible	Lights up
C	Lights up	Not visible
A	Lights up	Lights up

A new chemical solution that removes the first DNA base from the sequence is added by the sequencer and the second cycle begins. (You can search for „sequencing by synthesis" or „NGS sequencing" on the internet, for a full explanation.)

The Software:

Let us assume we want to evaluate a combination of multiple artificial DNA-sequences, herein referred to as **indexes**. For the sake of simplicity, all indexes shall be of the same length and be no longer than 12 bases. In the two photos of every cycle at least one index should light up (be visible). If in one or more cycles the red or the green photo is completely dark, the combination of indexes is a **failure**. Otherwise it's evaluated as a **success**.

Please write a simple program, that will e.g. receive the following 3 indexes as input (it's up to you to decide, in which format the input needs to be supplied (e.g. without numbers and spaces) or if you prefer a web application or the command line reading from stdin or file).

```
1: G T C A G T C A
2: A G T A G T A C
3: C T C T G A C A
```

For each cycle (in this example from 1 to 8), the software shall output, how many of these 3 indexes will light up on the red-laser-photo, and how many will be visible on the green-laser-photo. Don't forget the final evaluation.

A correct output would be:

```
CYCLE | RED | GREEN
1 | 2 | 1
2 | 0 | 2
3 | 2 | 1
4 | 2 | 3
5 | 0 | 0
6 | 1 | 3
7 | 3 | 1
8 | 3 | 2


Evaluation: Failure
```

You are free to present the output / information in any other way. This is only an example-output.

The software should be able to read and process a variable amount of indexes (more or less than 3) of variable length (more or less than 8 cycles).

Please send the source code as plain text within an email (not as an attachment – because emails with a source code attachment are likely to be blocked) to: MF1-DigiLab@rki.de or provide a link to a GitHub / GitLab repository.

If you have any questions or need further clarification about this programming task, please don't hesitate to contact us at the same email address as provided above for the source code.