Interview Coding Challenge

BASF SE
Assignment Time: 1 Hour

May 11, 2022

1 Prerequisites

The following challenges can be solved in any programming language which is popular today (e.g. COBOL is not recommended). You can send your source code via email to timo.himmelsbach@basf.com or provide a link to a public github repo. Your code may be incomplete or may not work - please hand it in anyway!

2 Challenge 1 - Algorithms

Given three ordered arrays of arbitrary length containing random capital letters, write an algorithm which returns the longest ordered array which both arrays share!

2.1 Example

Given the sequence ADDB and CDDE and EDDF the longest shared array is DD.

2.2 Example

Given the sequence UIBAZDBSIAHFB, PQACIZDBIBDLAG and QIDBCZDBKSHDVF, the longest shared array is ZDB.

3 Challenge 2 - Algorithms

Assume an array of arbitrary length whose elements represent colors of the set blue (b), green (g) or red (r). Write an algorithm which returns the number of subsets in which the array can be split so that every subset contains equal color representations! Remark: The colors do not have to appear in equal order within the subsets.

3.1 Example

Given the array r-r-b-b-g-g, the algorithm will return 1 since the array can be split into one subset of length 6 which contains 2r, 2b and 2g elements.

3.2 Example

Given the array r-r-b-b-g, the algorithm will return 0 since no equal subsets can be found.

3.3 Example

Given the array r-b-g-g-b-r, the algorithm will return 3 since array of length 6 itself features equal color representation. When splitting the array into two sections of length three, two equal subsets can be identified: r-b-g and g-b-r.