

## 10. Exercise “Bioinformatische Methoden in der Genomforschung”

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Due: 24.01.2022

### Exercise 1 (5 Points)

Given two Strings:

1.  $S_1 = 7\ 1\ 5\ 1\ 4\ 5\ 1$
2.  $S_2 = 1\ 5\ 7\ 1\ 4$

Determine all connected intervals using the connected interval algorithm (and merge neighbouring marked intervals in constant time)

### Exercise 2 (5 Points)

Given two Strings:

1.  $S_1 = 1\ 7\ 3\ 1\ 5\ 6\ 8\ 1\ 9$
2.  $S_2 = 2\ 6\ 3\ 6\ 5\ 3\ 6\ 1\ 8\ 5$

Execute steps 18-21 of the Connecting Intervals with Errors algorithm (see lecture) with  $\delta = 1$ ,  $i=3$  and  $j=5$ .

### Exercise 3 (5 Points)

Describe the Connecting Intervals with Errors algorithm. Additionally, mention and explain necessary data structures as well as the algorithm’s running time complexity.