

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

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Assigned: 11.01.2022

Due: 17.01.2022

### Exercise 1 (5 Points)

Determine the character set  $CS$  for the following strings:

1.  $S_1 = 4\ 3\ 5\ 3\ 7\ 3\ 8\ 9\ 1$
2.  $S_2 = 1\ 5\ 8\ 1\ 2\ 3\ 2\ 4\ 3$
3.  $S_3 = 2\ 1\ 3\ 7\ 7\ 4\ 8\ 8\ 1$

### Exercise 2 (5 Points)

Give a sensible example for a left-maximal, right-maximal and maximal occurrence of a gene cluster  $C$  in a String  $S$  of your choice

### Exercise 3 (5 Points)

Calculate POS and NUM for the following Strings:

1.  $S_1 = 4\ 3\ 5\ 3\ 7\ 3\ 8\ 9\ 1$
2.  $S_2 = 1\ 5\ 8\ 1\ 2\ 3\ 2\ 4\ 3$
3.  $S_3 = 2\ 1\ 3\ 7\ 7\ 4\ 8\ 8\ 1$

### Exercise 4 (5 Points)

Give an algorithm with quadratic running complexity for the calculation of NUM.