

Aufgabe 1: Wenden Sie die LZ77-Kompression auf die Nachricht FRISCHE FISCHEN FISCHEN an. Ergänzen Sie hierzu die leer gelassenen Felder:

☞ Schieben 0 1 2 3 4 5 6 7
 [] [] [] [] [] [] [] [] F R I S C H E [] ← FISCHEN FISCHEN

☞ Codieren <0,0,F> ← [] [] [] [] [] [] [] [] F R I S C H E [] ← FISCHEN FISCHEN

☞ Schieben 0 1 2 3 4 5 6 7
 [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Codieren [] ← [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Schieben 0 1 2 3 4 5 6 7
 [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Codieren [] ← [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Schieben 0 1 2 3 4 5 6 7
 [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Codieren [] ← [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Schieben 0 1 2 3 4 5 6 7
 [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Codieren [] ← [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Schieben 0 1 2 3 4 5 6 7
 [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Codieren 0 1 2 3 4 5 6 7
 [] ← [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Schieben 0 1 2 3 4 5 6 7
 [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Codieren [] ← [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Schieben 0 1 2 3 4 5 6 7
 [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Codieren [] ← [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Schieben 0 1 2 3 4 5 6 7
 [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Codieren [] ← [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Schieben 0 1 2 3 4 5 6 7
 [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

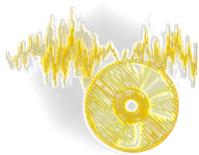
☞ Codieren [] ← [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Schieben 0 1 2 3 4 5 6 7
 [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Codieren [] ← [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Schieben 0 1 2 3 4 5 6 7
 [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []

☞ Codieren [] ← [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] ← []



Aufgabe 2: Komprimieren Sie die Nachricht 001010210210212021021200 mit dem LZ78- und dem LZW-Verfahren:

a) LZ78

0 01010210210212021021200
0 1 010210210212021021200
01 0 210210212021021200
 2 10210212021021200
 1 0210212021021200
0 2 10212021021200
1 0 212021021200
2 1 2021021200
2 0 21021200
21 0 21200
21 2 00
0 0

Index	Eintrag		
1		<	>
2		<	>
3		<	>
4		<	>
5		<	>
6		<	>
7		<	>
8		<	>
9		<	>
10		<	>
11		<	>
12		<	>

b) LZW

0 0 1010210210212021021200
0 1 010210210212021021200
1 0 10210210212021021200
01 0 210210212021021200
0 2 10210212021021200
2 1 0210212021021200
10 2 10212021021200
21 0 212021021200
02 1 2021021200
1 2 021021200
2 0 21021200
021 0 21200
021 2 00
20 0
0

Index	Eintrag		
0	0		
1	1		
2	2		
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			

Aufgabe 3: Die folgende Zahlenfolge wurde von einem LZW-Encoder erzeugt:

0, 0, 1, 4, 0, 2, 5, 8, 7, 1, 2, 11, 11, 13, 0

Decodieren Sie diese Sequenz, indem Sie die nachstehende Tabelle ergänzen:

Index	Eintrag	Index	Eintrag			
	0	A	5	9		
	1	B	8	10		
	2	C	7	11		
0	3		1	12		
0	4		2	13		
1	5		11	14		
4	6		11	15		
0	7		13	16		
2	8		0	17		

Aufgabe 4: Kann die folgende Zahlenfolge von einem LZW-Encoder erzeugt worden sein?

0, 0, 1, 4, 0, 2, 5, 8, 7, 1, 1, 11, 11, 13, 0

Finden Sie die Antwort, indem Sie die nachstehende Tabelle ergänzen:

Index	Eintrag	Index	Eintrag			
	0	A	5	9		
	1	B	8	10		
	2	C	7	11		
0	3		1	12		
0	4		1	13		
1	5		11	14		
4	6		11	15		
0	7		13	16		
2	8		0	17		