

Aufgabe 4.1

```
1 L = [13, 14, 2, 9, 16, 8, 7, 5]
2 print(L[7]) # => 7
```

Aufgabe 4.2

```
1 L = [12, 7, 17, 5, 16, 3, 13, 2]
2 print(L[14 % 8]) # => 13
```

Aufgabe 4.3

```
1 L = [18, 5, 10, 4, 12, 2, 11]
2 print(L[7]) # => 7
```

Aufgabe 4.4

```
1 L = [11, 16, 4, 12, 7, 6, 10]
2 print(L[-6]) # => -6
```

Aufgabe 4.5

```
1 L = [[7, 18, 16], [15, 14, 9, 5], [1, 17], [12, 2, 19]]
2 print(L[3][2]) # => 19
```

Aufgabe 4.6

```
1 L = [6, 4, 3, 0, 2, 8, 1, 5, 7, 9]
2 print(L[L[L[0]])] # => 4
```

Aufgabe 4.7

```
1 L = [8, 5, 15, 3, 2, 6, 9, 19]
2 L[1] = L[2] + L[4]
3 print(L) # => [8, 17, 15, 3, 2, 6, 9, 19]
```

Aufgabe 4.8

```
1 L = [10, 4, 11, 7, 13, 19, 9, 14]
2 print(L[2:7]) # => [11, 7, 13, 19, 9]
```

Aufgabe 4.9

```
1 L = [3, 13, 11, 8, 5, 19, 4, 14]
2 print(L[:2]) # => [3, 13]
```

Aufgabe 4.10

```
1 L = [9, 16, 3, 17, 11, 13, 18, 14]
2 print(L[2:]) # => [3, 17, 11, 13, 18, 14]
```

Aufgabe 4.11

```
1 A = [3, 18, 13, 9, 16]
2 B = A
3 B[1] = 22
4 print(A) # => [3, 22, 13, 9, 16]
```

Aufgabe 4.12

```
1 A = [19, 14, 9, 15, 8]
2 B = A
3 B[2] = 11
4 print(A) # => [19, 14, 9, 15, 8]
```

Aufgabe 4.13

```
1 A = [16, 11, 7]
2 B = [8, 1, 9]
3 print(A + B) # => [16, 11, 7, 8, 1, 9]
```

Aufgabe 4.14

```
1 A = [8, 12]
2 print(2 * A) # => [8, 12, 8, 12]
```

Aufgabe 4.15

```
1 A = [14, 2, 4]
2 B = [8, 2]
3 print(A + 2 * B) # => [14, 2, 4, 8, 2, 8, 2]
```

Aufgabe 4.16

```
1 A = [1, 4, 7, 18, 17, 2, 6, 14]
2 print(1 in A) # => True
```

Aufgabe 4.17

```
1 A = [7, 6, 4, 16, 17, 12, 13, 1]
2 print(2 not in A) # => True
```

Aufgabe 4.18

```
1 A = [4, 9, 3, 8, 2, 11, 5, 6, 7]
2 print(len(8*A)) # => 72
```

Aufgabe 4.19

```
1 A = []
2 print(len(A)) # => 0
```

Aufgabe 4.20

```
1 A = [2, 17, 15, 19, 10, 16]
2 A.sort()
3 print(A) # => [2, 17, 15, 19, 10, 16]
```

Aufgabe 4.21

```
1 A = [7, 9, 12, 16, 14, 10, 3, 17]
2 A.sort(reverse=True)
3 print(A) # => [7, 9, 12, 16, 14, 10, 3, 17]
```

Aufgabe 4.22

```
1 A = [7, 2, 6, 17, 16]
2 A.append(12)
3 print(A) # => [7, 2, 6, 17, 16, 12]
```

Aufgabe 4.23

```
1 A = [4, 15, 6, 1, 8, 11]
2 x = A.pop()
3 print(x) # => 11
4 print(A) # => [4, 15, 6, 1, 8]
```

Aufgabe 4.24

```
1 A = [17, 10, 12, 13, 14, 11, 5]
2 y = A.pop(5)
3 print(x) # => 11
4 print(A) # => [17, 10, 12, 13, 14, 5]
```

Aufgabe 4.25

```
1 A = [15, 3, 11, 2, 9]
2 A.insert(1, 3)
3 print(A) # => [15, 3, 3, 11, 2, 9]
```

Aufgabe 4.26

```
1 A = [9, 5, 8, 16, 6]
2 A.append(A.pop(0))
3 print(A) # => [5, 8, 16, 6, 9]
```

Aufgabe 4.27

```
1 L = [3, 2, 3, 2, 3, 3, 3, 1, 3]
2 print(L.count(2)) # => 2
```

Aufgabe 4.28

```
1 L = [14, 3, 1, 7, 12]
2 print(sum(L)) # => 37
```

Aufgabe 4.29

```
1 L = [6, 8, 18, 15, 7]
2 L.reverse()
3 print(L) # => [7, 15, 18, 8, 6]
```

Aufgabe 4.30

```
1 L = [2, 13, 14, 19, 3]
2 for x in L:
3     print(2*x)
4
5 # => 4
6 # => 26
7 # => 28
8 # => 38
9 # => 6
```

Aufgabe 4.31

```
1 L = [3, 9, 6, 15, 18, 8, 16]
2 for x in L:
3     if x > 10:
4         break
5     print(x)
6
7 # => 3
8 # => 9
9 # => 6
```

Aufgabe 4.32

```
1 L = [1, 2, 16, 11, 5, 14, 8, 19]
2 for x in L:
3     if x < 11:
4         continue
5     print(x)
6
7 # => 16
8 # => 11
9 # => 14
10 # => 19
```

Aufgabe 4.33

```
1 L = [18, 3, 5, 1]
2 for i in range(0, len(L)):
3     print(i*L[i])
4
5 # => 0
6 # => 3
7 # => 10
8 # => 3
```

Aufgabe 4.34

```
1 L = ['g', 'k', 'm', 'f']
2 for i, x in enumerate(L):
3     print(i, x)
4
5 # => 0 g
6 # => 1 k
7 # => 2 m
8 # => 3 f
```

Aufgabe 4.35

```
1 s = 0
2 for k in range(2,7):
3     s += k
4 print(s) # => 20
```

Aufgabe 4.36

```
1 L = [1, 12, 14, 11]
2 for x in L:
3     if x % 2 == 0:
4         print('g')
5     else:
6         print('u')
7 # => u
8 # => g
9 # => g
10 # => u
```

Aufgabe 4.37

```
1 L = [4, 16, 2, 10, 11]
2 s = 0
3 for x in L:
4     s +=x
5 print(s) # => 43
```

Aufgabe 4.38

```
1 L = [9, 16, 6, 14, 10]
2 s = 0
3 for x in L:
4     s += x
5 m = s / len(L)
6 print(m) # => 11.0
```

Aufgabe 4.39

```
1 A = [4, 7, 8, 1, 9, 3]
2 B = []
3
4 n = len(A)
5 for i in range(0, n):
6     B.append(A[n-i-1])
7
8 print(A)
9 print(B)
```

Aufgabe 4.40

```
1 L = [3,7,2,1,8,4,6]
2
3 m = L[0]
4 for i in range(1, len(L)):
5     if L[i] > m:
6         m = L[i]
7
8 print(m, L)
```

Aufgabe 4.41

```
1 L = []
2 while True:
3     eingabe = input('Geben sie eine Zahl ein: ')
4     if eingabe == '':
5         break
6     else:
7         zahl = float(eingabe)
8         L.append(zahl)
9
10 print(L)
```

Aufgabe 4.42

```
1 L = [4, 7, 1, 2, 8, 2]
2
3 summe = 0
4 for x in L:
5     summe += x
6
7 if len(L) == 0:
8     print('Der Mittelwert der leeren Liste ist nicht definiert.')
9 else:
10    mw = summe/len(L)
```

```
11     print(mw)
```

Aufgabe 4.44

```
1 N = ['A', 'C', 'C', 'A', 'T', 'G', 'T']
2 K = []
3
4 for x in N:
5     if x == 'A':
6         K.append('T')
7     elif x == 'C':
8         K.append('G')
9     elif x == 'G':
10        K.append('C')
11    elif x == 'T':
12        K.append('A')
13    else:
14        K.append('?')
15        print(f'{x} ist kein gültiges Nukleotid.')
16
17 print('N:', N)
18 print('K:', K)
```

Aufgabe 4.45

```
1 N = 10**7
2
3 P = [True for i in range(0, N+1)]
4 P[0] = False
5 P[1] = False
6
7 for k in range(2, N+1):
8     if P[k] == True:
9         print(k)
10        i = 2
11        while i*k < N+1:
12            P[i*k] = False
13            i = i+1
```