

```
#!/usr/bin/env python3
# -*- coding: utf-8 -*-
#Created on Thu Oct 26 09:27:51 2017
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```

1 Die for-Schleife

In for-Schleifen wird ein iterierbares Objekt (Liste, Tupel,...) durchlaufen

```
# Cdegrees ist eine Liste
Cdegrees = [-20, -15, -10, -5, 0, 5, 10, 15, 20, 25, 30, 35, 40]
for C in Cdegrees:
    F = (9.0/5)*C + 32
    print("{0:5d}C = {1:5.1f}F".format(C, F))

# Cdegrees ist ein Tupel
Cdegrees = (-20, -15, -10, -5, 0, 5, 10, 15, 20, 25, 30, 35, 40)
for C in Cdegrees:
    F = (9.0/5)*C + 32
    print("{0:5d}C = {1:5.1f}F".format(C, F))

# Erzeugen der Liste mit range-Funktion
Cdegrees = range(-20, 45, 5)
for C in Cdegrees:
    F = (9.0/5)*C + 32
    print("{0:5d}C = {1:5.1f}F".format(C, F))
```

```
-20C = -4.0F
-15C = 5.0F
-10C = 14.0F
-5C = 23.0F
0C = 32.0F
5C = 41.0F
10C = 50.0F
15C = 59.0F
20C = 68.0F
25C = 77.0F
30C = 86.0F
35C = 95.0F
40C = 104.0F
-20C = -4.0F
-15C = 5.0F
-10C = 14.0F
-5C = 23.0F
0C = 32.0F
5C = 41.0F
10C = 50.0F
15C = 59.0F
20C = 68.0F
25C = 77.0F
30C = 86.0F
35C = 95.0F
40C = 104.0F
-20C = -4.0F
```

```

-15C = 5.0F
-10C = 14.0F
-5C = 23.0F
0C = 32.0F
5C = 41.0F
10C = 50.0F
15C = 59.0F
20C = 68.0F
25C = 77.0F
30C = 86.0F
35C = 95.0F
40C = 104.0F

```

Eine while-Schleife kann man auch verwenden, das wird aber komplizierter

```

# als while-Schleife
Cdegrees = range(-20,45,5)
index = 0
while index < len(Cdegrees):
    C = Cdegrees[index]
    F = (9.0/5)*C + 32
    print("{0:5d}C = {1:5.1f}F".format(C, F))
    index += 1

```

```

-20C = -4.0F
-15C = 5.0F
-10C = 14.0F
-5C = 23.0F
0C = 32.0F
5C = 41.0F
10C = 50.0F
15C = 59.0F
20C = 68.0F
25C = 77.0F
30C = 86.0F
35C = 95.0F
40C = 104.0F

```

Die zu durchlaufenden Elemente muessen keine Zahlen sein

```

# als for-Schleife
Woche = ["Montag", "Dienstag", "Mittwoch", "Donnerstag", "Freitag", "Samstag", "Sonntag"]
for Tag in Woche:
    print(Tag)

# als while-Schleife
Woche = ["Montag", "Dienstag", "Mittwoch", "Donnerstag", "Freitag", "Samstag", "Sonntag"]
index = 0
while index < len(Woche):
    print(Woche[index])
    index +=1

```

```

Montag
Dienstag
Mittwoch

```

```
Donnerstag
Freitag
Samstag
Sonntag
Montag
Dienstag
Mittwoch
Donnerstag
Freitag
Samstag
Sonntag
```

Noch zwei Beispiele:

```
# Berechne die Summe der Zahlen von 1 bis 100
sum = 0;
for i in range(101):
    sum = sum+i

print (sum)

# Verschachtelte for-Schleifen mit if-Anweisung
# Berechne pythagoraeische Zahlen
import numpy as np
n = 30
for a in range(1,n+1):
    for b in range(a,n):
        c_square = a**2 + b**2
        c = int(np.sqrt(c_square))
        if ((c_square - c**2) == 0):
            print (a, b, c)
```

```
5050
3 4 5
5 12 13
6 8 10
7 24 25
8 15 17
9 12 15
10 24 26
12 16 20
15 20 25
18 24 30
20 21 29
21 28 35
```

Weitere Informationen zu for-Schleifen finden Sie unter anderem auf:

https://www.python-kurs.eu/python3_for-schleife.php