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Python Basics

Listen

```
#!/usr/bin/python

aList = [123, 'xyz', 'zara', 'abc'];
aList.append( 2009 );
print "Updated List : ", aList
```

```
Updated List :  [123, 'xyz', 'zara', 'abc', 2009]
```

```
#!/usr/bin/python

aList = [123, 'xyz', 'zara', 'abc', 123];
bList = [2009, 'manni'];
aList.extend(bList)

print "Extended List : ", aList
```

```
Extended List :  [123, 'xyz', 'zara', 'abc', 123, 2009, 'manni']
```

```
>>> a = [66.25, 333, 333, 1, 1234.5]
>>> print(a.count(333), a.count(66.25), a.count('x'))
2 1 0
>>> a.insert(2, -1)
>>> a.append(333)
>>> a
[66.25, 333, -1, 333, 1, 1234.5, 333]
>>> a.index(333)
1
>>> a.remove(333)
>>> a
[66.25, -1, 333, 1, 1234.5, 333]
>>> a.reverse()
>>> a
[333, 1234.5, 1, 333, -1, 66.25]
>>> a.sort()
>>> a
[-1, 1, 66.25, 333, 333, 1234.5]
```

List Comprehensions

```
>>> vec = [2, 4, 6]
>>> [3*x for x in vec]
[6, 12, 18]
```

```
>>> [[x, x**2] for x in vec]
[[2, 4], [4, 16], [6, 36]]
```

```
>>> [x, x**2 for x in vec]  # Fehler - Klammern für das Tupel benötigt
  File "<stdin>", line 1, in ?
    [x, x**2 for x in vec]
               ^
SyntaxError: invalid syntax
>>> [(x, x**2) for x in vec]
[(2, 4), (4, 16), (6, 36)]
```

```
>>> [3*x for x in vec if x > 3]
[12, 18]
>>> [3*x for x in vec if x < 2]
[]
```

mit if-Klausel

Dictionary

```
>>> tel = {'jack': 4098, 'sape': 4139}
>>> tel['guido'] = 4127
>>> tel
{'sape': 4139, 'guido': 4127, 'jack': 4098}
>>> tel['jack']
4098
>>> del tel['sape']
>>> tel['irv'] = 4127
>>> tel
{'guido': 4127, 'irv': 4127, 'jack': 4098}
>>> list(tel.keys())
['irv', 'guido', 'jack']
>>> sorted(tel.keys())
['guido', 'irv', 'jack']
>>> 'guido' in tel
True
>>> 'jack' not in tel
False
```

Schleifentechniken (Dictionaries)

```
>>> knights = {'Gallahad': 'der Reine', 'Robin': 'der Mutige'}
>>> for k, v in knights.items():
...     print(k, v)
...
Gallahad der Reine
Robin der Mutige
```

```
>>> for i, v in enumerate(['tic', 'tac', 'toe']):
...     print(i, v)
...
0 tic
1 tac
2 toe
```

```
>>> questions = ['Name', 'Auftrag']
>>> answers = ['Lancelot', 'die Suche nach dem Heiligen Gral']
>>> for q, a in zip(questions, answers):
...     print('Was ist dein {0}?  Er ist {1}.'.format(q, a))
...
Was ist dein Name?  Er ist Lancelot.
Was ist dein Auftrag?  Er ist die Suche nach dem Heiligen Gral.
```

```
>>> for i in reversed(range(1, 10, 2)):
...     print(i)
...
9
7
5
3
1
```

```
>>> basket = ['Apfel', 'Orange', 'Apfel', 'Birne', 'Orange', 'Banane']
>>> for f in sorted(set(basket)):
...     print(f)
...
Apfel
Banane
Birne
Orange
```

Eingabe und Ausgabe

```
>>> f = open('/tmp/workfile', 'w')


>>> print(f)
<open file '/tmp/workfile', mode 'w' at 80a0960>
```

```
>>> f.read()
'Das ist die ganze Datei.\n'
>>> f.read()
''
```