

Programmierung in Python

Univ.-Prof. Dr. Martin Hepp, Universität der Bundeswehr München

Einheit 6: Repetitorium zur Klausur und Anwendungsbeispiele

Version: 2019-12-11

<http://www.ebusiness-unibw.org/wiki/Teaching/PIP>

1 Übungen zu Einheit 1

Bitte überlegen Sie jeweils, was passiert, wenn man das folgende Programm ausführen würde.

```
In [ ]: a = 5  
        b = 2  
        print(a / b)
```

```
In [ ]: a = 5  
        b = 2  
        print(a / B)
```

```
In [ ]: a = 5  
        b = 2  
        print(a // b)
```

```
In [ ]: a = 5  
        b = 2  
        print(a % b)
```

```
In [ ]: a = 4  
        b = 2  
        print(a**b)
```

```
In [ ]: a = 'X'  
        b = 'U'  
        print(a + b)
```



```
In [ ]: a = 'W'  
        print(a * 3)
```

```
In [ ]: a = '5'  
        b = 5  
        print(a * b)
```

```
In [ ]: a = '5'  
        b = 5  
        print(a + b)
```

```
In [ ]: a = '5'  
        b = 5  
        print(int(a) * int(b))
```

```
In [ ]: a = '7'  
        b = 7  
        print(str(a) + str(b))
```

```
In [ ]: a = 10  
        b = 5  
        a += b  
        print(a)
```

```
In [ ]: a = ['Peter', 'Paul', 'Mary']  
        print(a[1])
```

```
In [ ]: a = ['Peter', 'Paul', 'Mary']  
        a[1] = 'Frank'  
        print(a[1])
```



```
In [ ]: a = 'Peter'  
        print(a[2])
```

```
In [ ]: a = 'Peter'  
        a[2] = 'X'  
        print(a[2])
```

```
In [ ]: a = 'Peter'  
print(a[:1])
```

```
In [ ]: # Schwieriger  
a = 'Peter'  
print(a[-1])
```

```
In [ ]: # Schwieriger  
a = 'Peter'  
print(a * len(a))
```

```
In [ ]: a = ['Peter', 'Paul', 'Mary']  
        print(a[1:3])
```

```
In [ ]: a = ['Peter', 'Paul', 'Mary']  
        a[1:3] = ['Mary']  
        print(a[0:2])
```

```
In [ ]: # Schwieriger
a = ['Peter', 'Paul', 'Mary']
if 'Peter' in a:
    print('Peter')
elif 'Paul' in a:
    print('Paul')
```



```
In [ ]: # Schwieriger
a = ['Peter', 'Paul', 'Mary']
b = ['Mueller', 'Meier', 'Schulze']
c = [a, b]
print(c[1][1])
```

```
In [ ]: a = {'x' : 7.5, 'y': 10}
        print(a['y'])
```

```
In [ ]: a = {'x' : 7.5, 'y': 10}
        a['y'] = 9
        print(a['y'])
```

```
In [ ]: a = {'x' : 7.5, 'y': 10}
        print(a[0])
```

```
In [ ]: a = {'x' : 7.5, 'y': 10}
        b = 'y'
        print(a[b])
```

```
In [ ]: a = {'x' : 7.5, 'y': 10}
        a['z'] = 99
        print(a['z'])
```

```
In [ ]: a = {'x' : 7.5, 'y': 10}
        print(a.get('z', 88))
```

```
In [ ]: a = set(['rot', 'gruen', 'blau', 'rot'])  
print(len(a))
```



```
In [ ]: # Schwieriger
a = 5
b = 5
c = a == b
print(c)
```

```
In [ ]: a = 5  
        b = 9  
        print(a < 7 < b)
```

```
In [ ]: a = [1, 2, 3]
        b = [1, 2, 3]
        print(a == b)
```

```
In [ ]: # Schwierig
a = [1, 2, 3]
b = [1, 2, 3]
print(a is b)
```

```
In [ ]: a = (1, 2, 3)
        print(a[1])
```

```
In [ ]: a = (1, 2, 3)
        a[1] = 5
        print(a[1])
```

```
In [ ]: a = (1, 2, 3)
        b, c, d = a
        print(a)
```

```
In [ ]: a = (1, 2, 3)
        b, c, d = a
        print(b)
```



```
In [ ]: a = True  
        b = False  
        print(a or b)
```

```
In [ ]: # Schwierig
        true = False
        false = True
        a = true
        b = false
        print(a and b)
```

2 Übungen zu Einheit 2

Bitte überlegen Sie jeweils, was passiert, wenn man das folgende Programm ausführen würde.

```
In [ ]: a = 2
        for zahl in [1, 3, 2]:
            a = a * zahl
        print(a)
```

```
In [ ]: a = 2
        for zahl in [1, 3, 2]:
            a = a * zahl
            a = a + zahl
        print(a)
```

```
In [ ]: a = 2
        for zahl in [1, 3, 2]:
            a = a * zahl
        a = a + zahl
        print(a)
```

```
In [ ]: a = 0
        for zahl in range(1, 4):
            a = a + zahl
        print(a)
```

```
In [ ]: a = 0
        for zahl in range(1, 5, 2):
            a = a + zahl
        print(a)
```



```
In [ ]: a = 0
        for zahl in range(1, 5, 0.1):
            a = a + zahl
        print(a)
```

```
In [ ]: for zahl in range(0, 4):  
        a = 2**zahl  
        print(a)
```

```
In [ ]: # Schwierig
a = 0
for x in range(1, 4):
    for y in range(1, 4):
        a = a + y
print(a)
```

```
In [ ]: # Schwierig
a = 0
for x in range(1, 4):
    for y in range(1, 4):
        a = a + y
    a = a + y
print(a)
```

```
In [ ]: # Schwierig
a = [[1, 2, 3],
      [3, 2, 4],
      [2, 3, 1]]
b = 0
for c in a:
    for d in c:
        b = b + d
print(b)
```

```
In [ ]: a = 1
        while a < 11:
            a = a * 2
        print(a)
```

```
In [ ]: # Schwierig
a = 1
b = 3
while a * b < 17:
    a = a * b
    b = b + 3
print(a + b)
```

```
In [ ]: a = 7
        if a > 0:
            a = a - 1
        print(a)
```



```
In [ ]: a = 7
        if zahl > 0:
            print(0)
        elif zahl > 2:
            print(2)
```

```
In [ ]: # Schwieriger
a = ['Peter', 2, 'Mary', True]
if a[3]:
    print(a[1] * a[2])
else:
    print(a[0] * a[1])
```

```
In [ ]: # Schwierig
a = 1
for b in [2, 3, 7, 8]:
    if b == 2:
        a = a * b
    else:
        a = a + b
print(a)
```

```
In [ ]: # Schwierig
a = 1
for b in [2, 3, 7, 8]:
    if b % 2 == 0:
        a = a + b
    else:
        a = a + b - 2
print(a)
```

```
In [ ]: # Schwierig
a = '123'
for b in a:
    a = a + b * int(b)
print(a)
```

```
In [ ]: # Schwierig
a = {'a' : 3, 'b' : 2, 'c' : 4}
b = {'a' : 3, 'b' : 2, 'c' : 4}
c = [a, b]
d = 1
for e in c:
    d = d + e['a'] * e['b']
print(d)
```

3 Übungen zu Einheit 3

Bitte überlegen Sie jeweils, was passiert, wenn man das folgende Programm ausführen würde.

```
In [ ]: def machwas(a, b):  
        return a + b  
  
        print(machwas(6, 8))
```



```
In [ ]: def machwas(a, b):  
        return a + b  
  
        print(machwas(6, 8, 0))
```

```
In [ ]: def machwas(a, b=2):  
        return a * b  
  
        print(machwas(6, 3))
```

```
In [ ]: def machwas(a, b=1):  
        return a * b  
  
        print(machwas(6))
```

```
In [ ]: def machwas(a, b):  
        return b / a  
  
        print(machwas(10, 2))
```

```
In [ ]: def machwas(a=9):  
        return a * 3  
  
        print(machwas())
```

```
In [ ]: def vertausche(a, b):  
        return(b, a)  
  
        print(vertausche(10, 2))
```

```
In [ ]: # Schwierig
def machwas(a, b):
    return (b * 3, a * 2)

x, y = machwas(3, 4)
print(x + y)
```

4 Quellenangaben und weiterführende Literatur

[Pyt2019] Python Software Foundation. Python 3.8.0 Documentation. <https://docs.python.org/3/>.

Vielen Dank!

<http://www.ebusiness-unibw.org/wiki/Teaching/PIP>