More list comprehension examples

In [10]:
```python
import numpy as np
np.random.seed(10)
data = np.random.randint(0, 10, size=25)
print(data)
```
```
[ 9  4  0  1  9  0  1  8  9  0  8  6  4  3  0  4  6  8  1  8  4  1  3  6  5]
```

In [11]:
```python
only_even = [i for i in data if (i % 2) == 0]
print(only_even)
```
```
[ 4,  0,  0,  8,  0,  8,  6,  4,  0,  4,  6,  8,  8,  4,  6]
```

In [12]:
```python
data_sq = [i ** 2 for i in data]
print(data_sq)
```
```
[ 81,  16,  0,  1,  81,  0,  1,  64,  81,  0,  64,  36,  16,  9,  0,  16,  36,  64,  1,  6
  4,  16,  1,  9,  36,  25]
```

In [13]:
```python
combo = [i ** 2 for i in [j * 2 for j in data]]
print(combo)
```
```
[324,  64,  0,  4,  324,  0,  4,  256,  324,  0,  256,  144,  64,  36,  0,  64,  144,  2
  56,  4,  256,  64,  4,  36,  144,  100]
```

In [14]:
```python
even_sq = [i ** 2 for i in data if (i % 2) == 0]
print(even_sq)
```
```
[ 16,  0,  0,  64,  0,  64,  36,  16,  0,  16,  36,  64,  64,  16,  36]
```

In [15]:
```python
def sq(x):
    return x * x
def keepEven(x):
    return x % 2 == 0
out2 = [sq(d) for d in data if keepEven(d)]
print(out2)
```
```
[ 16,  0,  0,  64,  0,  64,  36,  16,  0,  16,  36,  64,  64,  16,  36]
```

In [16]:
```python
numbers = [1, 2, 3, 4, 5, 6, 18, 20]
squares = [
    "small" if number < 10 else "big"
    for number in numbers
    if (number % 2 == 0 and number % 3 == 0)
]
print(squares)
```
```
['small', 'big']
```
In [17]:
    matrix = [
        [(b+1)*(i+1) for b in range(5)]
        for i in range(3)
    ]
    print(matrix)

    [[1, 2, 3, 4, 5], [2, 4, 6, 8, 10], [3, 6, 9, 12, 15]]

In [18]:
    matrix = [[1, 2], [3, 4, 5], [6, 7, 8]]
    new_matrix = [i for s in matrix for i in s]
    print(new_matrix)

    [1, 2, 3, 4, 5, 6, 7, 8]