USE PYTHON LIST COMPREHENSIONS FOR CLEANER CODE

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Square Numbers

```
squares = [i**2 for i in range(10)]
```

Result: [0, 1, 4, 9, 16, 25, 36, 49, 64, 81]

Square Numbers

```
squares = []
for i in range(10):
    squares.append(i**2)
```

Result: [0, 1, 4, 9, 16, 25, 36, 49, 64, 81]

Filter Even Numbers

```python
evens = [i for i in range(20) if i % 2 == 0]
```

Result: [0, 2, 4, 6, 8, 10, 12, 14, 16, 18]

Filter Even Numbers

```python
evens = []
for i in range(20):
    if i % 2 == 0:
        evens.append(i)
```

Result: [0, 2, 4, 6, 8, 10, 12, 14, 16, 18]

Convert Strings to Uppercase

```
names = ['Nelly','Richard','Sam','Adam']
upper_names = [name.upper() for name in names]
```

Result: ['NELLY', 'RICHARD', 'SAM', 'ADAM']

Convert Strings to Uppercase

```
names = ['Nelly','Richard','Sam','Adam']
upper_names = []
for name in names:
    upper_names.append(name.upper())
```

Result: ['NELLY', 'RICHARD', 'SAM', 'ADAM']

Create a List of Tuple Pairs

```python
pairs = [(x, y) for x in range(2) for y in range(2)]
```

Result: [(0, 0), (0, 1), (1, 0), (1, 1)]

Create a List of Tuple Pairs

```python
pairs = []
for x in range(3):
    for y in range(3):
        pairs.append((x, y))
```

Result: [(0, 0), (0, 1), (1, 0), (1, 1)]

Filter Strings by Length

```python
names = ['Nelly','Richard','Sam','Adam']
short_names = [name for name in names if len(name) < 5]
```

Result: ['Sam', 'Adam']

Filter Strings by Length

```python
names = ['Nelly','Richard','Sam','Adam']
short_names = []
for name in names:
    if len(name) < 5:
        short_names.append(name)
```

Result: ['Sam', 'Adam']

Multiply Elements in a List

```python
nums = [3,5,6,4]
doubled = [i * 2 for i in nums]
```

Result: [6, 10, 12, 8]

Multiply Elements in a List

```python
nums = [3,5,6,4]
doubled = []
for i in nums:
    doubled.append(i * 2)
```

Result: [6, 10, 12, 8]

Create a List of Boolean Values

```python
is_even = [True if i % 2 == 0 else False for i in range(5)]
```

Result: [True, False, True, False, True]

Create a List of Boolean Values

```python
is_even = []
for i in range(5):
    if i % 2 == 0:
        is_even.append(True)
    else:
        is_even.append(False)
```

Result: [True, False, True, False, True]

Flatten a 2D List

```python
matrix = [
    [1, 2, 3],
    [4, 5, 6],
    [7, 8, 9]
]
flat_list = [item for sublist in matrix for item in sublist]
```

Result: [1, 2, 3, 4, 5, 6, 7, 8, 9]

Flatten a 2D List

```python
matrix = [
    [1, 2, 3],
    [4, 5, 6],
    [7, 8, 9]
]
flat_list = []
for sublist in matrix:
    for item in sublist:
        flat_list.append(item)
```

Result: [1, 2, 3, 4, 5, 6, 7, 8, 9]

List of Lengths of Strings

```
names = ['Nelly','Richard','Sam','Adam']
lengths = [len(name) for name in names]
```

Result: [5, 7, 3, 4]

List of Lengths of Strings

```
names = ['Nelly','Richard','Sam','Adam']
lengths = []
for name in names:
    lengths.append(len(name))
```

Result: [5, 7, 3, 4]

Filter and Modify

```python
squares_of_evens = [i**2 for i in range(10) if i % 2 == 0]
```

Result: [0, 4, 16, 36, 64]

Filter and Modify

```python
squares_of_evens = []
for i in range(10):
    if i % 2 == 0:
        squares_of_evens.append(i**2)
```

Result: [0, 4, 16, 36, 64]

Comprehensions with Dictionaries

```
names = ['Nelly','Richard','Sam','Adam']
name_lengths = {name: len(name) for name in names}
```

Result: {'Nelly': 5, 'Richard': 7, 'Sam': 3, 'Adam': 4}

Comprehensions with Dictionaries

```
names = ['Nelly','Richard','Sam','Adam']
name_lengths = {}
for name in names:
    name_lengths[name] = len(name)
```

Result: {'Nelly': 5, 'Richard': 7, 'Sam': 3, 'Adam': 4}

WAS IT HELPFUL?

follow for more!

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