



List Comprehensions



Complete Python Bootcamp

List Comprehensions are a unique way of quickly creating a list with Python.

If you find yourself using a for loop along with `.append()` to create a list, List Comprehensions are a good alternative!

To do this, let's go to a Jupyter Notebook!



```
In [76]: mystring = 'hello'
```

```
In [77]: mylist = []  
  
for letter in mystring:  
    mylist.append(letter)
```

```
In [78]: mylist
```

```
Out[78]: ['h', 'e', 'l', 'l', 'o']
```

```
In [ ]: |
```

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In [78]: mylist

Out[78]: ['h', 'e', 'l', 'l', 'o']

In [79]: mylist = [letter for letter in mystring]

In [80]: mylist

Out[80]: ['h', 'e', 'l', 'l', 'o']

In []:

|

In [80]: mylist

Out[80]: ['h', 'e', 'l', 'l', 'o']

In [81]: mylist = [x for x in 'word']

In [82]: mylist

Out[82]: ['w', 'o', 'r', 'd']

In []: |



```
In [80]: mylist
```

```
Out[80]: ['h', 'e', 'l', 'l', 'o']
```

```
In [83]: mylist = [qweqwe for qweqwe in 'wordtwo']
```

```
In [84]: mylist
```

```
Out[84]: ['w', 'o', 'r', 'd', 't', 'w', 'o']
```

```
In [ ]:
```

In [84]: mylist

Out[84]: ['w', 'o', 'r', 'd', 't', 'w', 'o']

In [87]: mylist = [num for num in range(0,11)]

In [88]: mylist

Out[88]: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

In []:

In [84]: mylist

Out[84]: ['w', 'o', 'r', 'd', 't', 'w', 'o']

In [89]: mylist = [num**2 for num in range(0,11)]

In [90]: mylist

Out[90]: [0, 1, 4, 9, 16, 25, 36, 49, 64, 81, 100]

In []:

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In [90]: mylist

Out[90]: [0, 1, 4, 9, 16, 25, 36, 49, 64, 81, 100]

In [91]: mylist = [x for x in range(0,11) if x%2==0]

In [92]: mylist

Out[92]: [0, 2, 4, 6, 8, 10]

In []:

|



Out[94]: [0, 4, 16, 36, 64, 100]

In [95]: celcius = [0,10,20,34.5]

```
fahrenheit = [(9/5)*temp + 32) for temp in celcius]
```

In [96]: fahrenheit

Out[96]: [32.0, 50.0, 68.0, 94.1]

In []:

```
In [97]: fahrenheit = []  
  
        for temp in celcius:  
            fahrenheit.append(( (9/5)*temp + 32))
```

```
In [98]: fahrenheit
```

```
Out[98]: [32.0, 50.0, 68.0, 94.1]
```

```
In [ ]:
```

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In [98]: fahrenheit

Out[98]: [32.0, 50.0, 68.0, 94.1]

In [104]: results = [x if x%2==0 else 'ODD' for x in range(0,11)]

In [105]: results

Out[105]: [0, 'ODD', 2, 'ODD', 4, 'ODD', 6, 'ODD', 8, 'ODD', 10]

In []:

In [105]: results

Out[105]: [0, 'ODD', 2, 'ODD', 4, 'ODD', 6, 'ODD', 8, 'ODD', 10]

```
In [106]: mylist = []  
  
          for x in [2,4,6]:  
              for y in [100,200,300]:  
                  mylist.append(x*y)
```

In [107]: mylist

Out[107]: [200, 400, 600, 400, 800, 1200, 600, 1200, 1800]

In []:

In [105]: results

Out[105]: [0, 'ODD', 2, 'ODD', 4, 'ODD', 6, 'ODD', 8, 'ODD', 10]

```
In [108]: mylist = []  
  
          for x in [2,4,6]:  
              for y in [1,10,1000]:  
                  mylist.append(x*y)
```

In [109]: mylist

Out[109]: [2, 20, 2000, 4, 40, 4000, 6, 60, 6000]

In []:

```
for x in [2,4,6]:  
    for y in [1,10,1000]:  
        mylist.append(x*y)
```

In [109]: mylist

Out[109]: [2, 20, 2000, 4, 40, 4000, 6, 60, 6000]

```
In [110]: mylist = [x*y for x in [2,4,6] for y in [1,10,1000]]
```

In [111]: mylist

Out[111]: [2, 20, 2000, 4, 40, 4000, 6, 60, 6000]

In []: |