Basic List Comprehension

```
l1=["a","b","c","d","e","f"]

#It creates the same list as l1

[i for i in l1]
```

```
['a', 'b', 'c', 'd', 'e', 'f']
```

If Statement

```
l1=["a","b","c","d","e","f"]

#If statement. Filter the list if the element is "a"

[i for i in l1 if i!="a"]
```

```
['b', 'c', 'd', 'e', 'f']
```

Transform the elements of a list

```
l1=["a","b","c","d","e","f"]

#It makes uppercase the letters

[i.upper() for i in l1]
```

```
['A', 'B', 'C', 'D', 'E', 'F']
```

If Else Statement

```
l1=["a","b","c","d","e","f"]

#It makes uppercase the letters except "a"

[i.upper() if i!="a" else i for i in l1]
```

```
['a', 'B', 'C', 'D', 'E', 'F']
```

Advanced List Comprehension

Use elements of 2 lists

```
l1=["a","b"]
l2=[1,2]

#It combines the elements of the l1 and l2
[i+str(j) for i in l1 for j in l2]
```

```
['a1', 'a2', 'b1', 'b2']
```

Example: Get the email addresses from a list of domains

```
l1=["billy@gmail.com", "george@hotmail.com","www.billy.com","python.com", "
domains=['gmail.com',"hotmail.com"]

#It searches for email addresses with domains that are in the list "domains
[i for i in l1 for j in domains if j in str(i)]
```

```
['billy@gmail.com', 'george@hotmail.com']
```

Create a list of tuples

```
l1=["billy","mike","george","italy","greece"]

#It creates list of tuples containing
#the elements of the list with their number of characters

[(i,len(i)) for i in l1 ]
```

```
[('billy', 5), ('mike', 4), ('george', 6), ('italy', 5), ('greece', 6)]
```

Interact with other elements of the list

```
l1=[1,2,3,6,0,1,4,5,9,0,1,4,5,0]

#It creates a list with items the numbers that are before 0 in l2
[l1[i-1] for i,j in enumerate(l1) if j==0]
```

```
[6, 9, 5]
```

Dict Comprehension

As with List Comprehension, you can apply the same rules to dictionaries but you have to use curly brackets and set the key and value pairs. We will show you some examples.

Create a dictionary from a list

```
l1=["a","b","c","d","e","f"]

#It creates a dictionary

{i:i for i in l1}
```

```
{'a': 'a', 'b': 'b', 'c': 'c', 'd': 'd', 'e': 'e', 'f': 'f'}
```

```
l1=["a","b","c","d","e","f"]

#It creates a dictionary enumerating every item of the list

{i:j for i,j in enumerate(l1)}
```

```
{0: 'a', 1: 'b', 2: 'c', 3: 'd', 4: 'e', 5: 'f'}
```

Iterate over keys & values of a dictionary

```
d1={0: 'a', 1: 'b', 2: 'c', 3: 'd', 4: 'e', 5: 'f'}

#It creates a dictionary adding 1  to the keys of d1
{key+1:value for key , value in d1.items()}
```

```
{1: 'a', 2: 'b', 3: 'c', 4: 'd', 5: 'e', 6: 'f'}
```