Comprehensions in Python

```
l1 = [x for x in range(11) if x % 2 == 0]
print(l1)

l2 = [x for x in range(11) if x % 2 != 0]
print(l2)

output: [2, 4, 6, 8, 10]
        [1, 3, 5, 7, 9]
```

Alternate codes

```
l1 = []
for i in range(11):
        if x % 2 == 0:
                l1.append(i)

l2 = []
for i in range(11):
        if x % 2 == 0:
                l2.append(i)
```

```
def getSmaller(l, x):
        return [e for e in l if e < x]


l = [9, 15, 12, 3, 7, 11]
x = 10
print(getSmaller(l, x))

output: [9, 3, 7]
```

```
def getEvenOdd(l):
        even = [x for x in range(11) if x % 2 == 0]
        odd = [x for x in range(11) if x % 2 != 0]
        return even, odd


l = [8, 15, 12, 3, 7, 10]
even, odd = getEvenOdd(l)
print(even)
print(odd)

output: [8, 12, 10]
        [15, 3, 7]
```

```
s = "geekforgeeks"
l1 = [x for x in s if x in "aeiou"]
print(l1)
l2 = ['geeks', 'ide', 'courses', 'gfg']
l3 = [x for x in l2 if x.startswith('g')]
print(l3)
l4 = [x * 2 for x in range(6)]
print(l4)

output: ['e', 'e', 'o', 'e', 'e']
        ['geeks', 'gfg']
        [0, 2, 4, 6, 8, 10]
```

```
l1 = ['geeks', 'ide', 'for', 'gfg', 'geeks']
l2 = [x.upper() for x in l1 if x.startswith('g')]
print(l2)

output: ['GEEKS', 'GFG', 'GEEKS']
```

Set Comprehensions

```
l = [10, 20, 3, 4, 10, 20, 7, 3]
s1 = {x for x in l if x % 2 == 0}
s1 = {x for x in l if x % 2 != 0}
print(s1)
print(s2)

output: {10, 20, 4}
        {3, 7}
```

Dictionary Comprehensions

```
l1 = [1,3,4,2,5]
d1 = {x: x ** 3 for x in l1}
print(d1)

d2 = {x: f"ID{x}" for x in range(5)}
print(d2)

l2 = [101, 103,102]
l3 = ['gfg', 'ide', 'courses']

d3 = {l2[i]: l3[i] for i in range(len(l2))}
print(d3)

d4 = dict(zip(l2,l3))
print(d4)

d1 = {101: 'gfg', 103: 'practice', 102: 'ide'}
d2 = {v: k for (k, v) in d1.items() }

print(d2)

output: {1: 1, 3: 27, 4: 64, 2: 8, 5: 125}
        {0: ID0, 1: ID1, 2: ID2, 3: ID3, 4: ID4}
        {101: 'gfg', 103: 'ide', 102: 'courses'}
        {101: 'gfg', 103: 'ide', 102: 'courses'}
        {'gfg': 101, 'ide': 103, 'courses': 102}
```