

Example 1: Square numbers

Traditional approach

```
squares = []
```

```
for x in range(10):
```

```
    squares.append(x**2)
```

List comprehension (preferred)

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

```
print(squares)
```

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

Example 2: Filtering with conditions

Get even squares

```
even_squares = [x**2 for x in range(10) if x % 2 == 0]
```

```
print(even_squares)
```

Multiple conditions

```
filtered = [x for x in range(20) if x % 2 == 0 and x > 10]
```

```
print(filtered)
```

Output: [12, 14, 16, 18]