

Lab 6

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1 Exercise:

Write code that creates a list of the squares of integers from 0 to 9. Then produce the same output using a list comprehension.

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

```
[ ]: x = [n*n for n in range(0,10)]  
      print(x)
```

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

2 Excercise:

Write code that creates a list of odd numbers up to 50. Then, produce the same output using a list comprehension.

Output: [1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49]

```
[ ]: x = [n for n in range(1,51) if n % 2]  
      print(x)
```

[1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49]

3 Excecise

Write code that creates a list of characters from a string. Then, produce the same output using a list comprehension.

text = 'Hello World'

Output: ['H', 'e', 'l', 'l', 'o', ' ', 'W', 'o', 'r', 'l', 'd']

```
[ ]: text = 'Hello World'  
      x = [letter for letter in text]  
      print(x)
```

['H', 'e', 'l', 'l', 'o', ' ', 'W', 'o', 'r', 'l', 'd']

4 Exercise

Convert a list of numbers into a list of tuples by grouping the numbers into pairs.

```
numbers = [20,1,30,2,40,4,50,5,60,2,70,20]
```

Output: [(20, 1), (30, 2), (40, 4), (50, 5), (60, 2), (70, 20)]

```
[ ]: numbers = (20,1,30,2,40,4,50,5,60,2,70,20)

x = [(numbers[i], numbers[i+1]) for i in range(0, len(numbers), 2) ]
print(x)
```

[(20, 1), (30, 2), (40, 4), (50, 5), (60, 2), (70, 20)]

5 Exercise

Using a Dictionary Comprehension to Count Vowels. text = 'Life is like riding a bicycle. To keep your balance, you must keep moving.'

```
vowels = 'AEIOU'
```

Output: {'A': 3, 'E': 8, 'I': 7, 'O': 4, 'U': 3}

```
[ ]: text = 'Life is like riding a bicycle. To keep your balance, you must keep_
      ↪moving.'
vowels = 'AEIOU'

x = {vowel : text.upper().count(vowel) for vowel in vowels}
print(x)
```

{'A': 3, 'E': 8, 'I': 7, 'O': 4, 'U': 3}