Additional Python Exersizes

1. Given a list, write the code to swap the first and last element of the list. The code must work for a list of any size and order

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

2. Please perform the following slices on the below list:
    - Print elements from the beginning to the first 'N' using slicing
    - Print every second element of the list in the reverse order

```
list = ['L', 'E', 'A', 'R', 'N', 'I', 'N', 'G', 'P', 'Y', 'T', 'H', 'O', 'N']

slicing_output = ['L', 'E', 'A', 'R', 'N']
reverse_output = ['N', 'H', 'Y', 'G', 'I', 'R', 'E']
```

3. Write python code to add a key and value to the below example dictionary. The key to be used is 55, and the value is 29

```
example_dictionary = {0: 10, 1: 20}
expected_output = {0: 10, 1: 20, 55: 29}
```

4. Write python code to check if a key already exists in a dictionary. The key you want to check is 'John' in the below example
    - Sub-question: Can there exist identical keys in the dicitonary?

```
original_dictionary = {'Bob': 26, 'Sarah': 34, 'John':41, 'Mike': 19}
expected_output = True (key exists in the dictionary)
```

5. Write python code to get the maximum and minimum value from the example dictionary below. Print the key (name) and the value for the maximum and minimum

```
{'Bob': 26, 'Sarah': 34, 'John':41, 'Mike': 19, 'Kyle': 92, 'Rob': 72}
minimum: Mike 19
maximum: Kyle 92
```

6. Print the below list in reverse order using a for loop

```
list1 = [10, 20, 30, 40, 50]
expected_output = [50, 40, 30, 20, 10]
```

7. Using 2 for loops one after the other, write python code to print the following pattern

```
*
* *
* * *
* * * *
* * * * *
* * * *
* * *
* *
*
```

8. Write python code to print numbers from the below list if they satisfy the following conditions:
    - The number must be divisible by 5
    - If the number is greater than 150, skip it and move to the next number (look up `continue` statement in python)
    - If the number is greater than 500, stop the loop (look up `break` statement in Python)

```
numbers = [12, 75, 150, 180, 145, 525, 50]
expected_output:
    75
    150
    145
```

Additional Python Exersizes

Sources:

- ChatGPT generated
- https://pynative.com/python-dictionary-exercise-with-solutions/ (https://pynative.com/python-dictionary-exercise-with-solutions/)

Exersize 1

Exercise 1: Average of Numbers Write a program that takes a list of numbers as input from the user and calculates the average of all the numbers. Use casting to convert user input to numbers.

Hint: To create a list of user inputs consider placing the `input()` method within a loop...

```
input = 10 20 30 40 50
Output = Average is 30
```

Exersize 2

Write a program that takes a string as input from the user and counts the frequency of each word in the string. Store the results in a dictionary and display the word frequencies.

```
Input sentence: "This is a simple sentence. This is another sentence"
Output: {'This': 2, 'is': 2, 'a': 1, 'simple': 1, 'sentence.': 2, 'another': 1}
```

Exersize 3

Write a program that takes a string as input from the user and checks if it is a palindrome (reads the same forwards and backwards). Ignore spaces and punctuation while checking.

```
Input: "radar"
Output: True

Input: "hello"
Output: False
```

Exersize 4

Create a program that simulates a simple shopping cart. Use a dictionary to store the items and their prices. Allow the user to add items to the cart, remove items from the cart, and display the total price of all items in the cart.

```
groceries = {"Eggs": 10, "Bacon": 15, "Chocolate": 23, "Bananas": 7, "Mango": 12}

1. Fred would like to purchase 2 packets of Eggs, and 3 chocolate bars. What is his total cost of groceries?
2. James purchases a packet of Bacon, and a Bananas and Mango. But he forgot, he already has Bacon at home, so he removes it from the

Output 1: 89
Output 2: 19
```

Exersize 5

Convert two lists into a dictionary.

```
Input:
dict1 = {'Ten': 10, 'Twenty': 20, 'Thirty': 30}
dict2 = {'Thirty': 30, 'Fourty': 40, 'Fifty': 50}

Output: {'Ten': 10, 'Twenty': 20, 'Thirty': 30, 'Fourty': 40, 'Fifty': 50}
```

Exersize 6

Print the value of the key "history" from the below dictionary

```
Input:

sampleDict = {
    "class": {
        "student": {
            "name": "Mike",
            "marks": {
                "physics": 70,
                "history": 80
            }
        }
    }
}

Output:80
```