Exercices

Lists

1. Create a list of numbers from 0 to 10, and print the sum of all the numbers in the list.
2. Create a list of strings, and print the second longest string in the list
3. Create a list of dictionaries, where each dictionary represents a person with their name and age. Print the names of all the people who are over 30 years old.
4. Create a list of numbers, and use the `filter` function to get a new list that contains only the even numbers.
5. Create a list of numbers, and use the `map` function to get a new list that contains the squares of all the numbers.

> NOTE Map takes all objects in a list and allows you to apply a function to it Filter takes all objects in a list and runs that through a function to create a new list with all objects that return True in that function

Dictionaries

1. Create a dictionary that stores the prices of various products, where the product names are the keys and the prices are the values. Then, write a program that prints out the average price of all the products.
2. Create a dictionary that stores the count of each letter in a given string. Write a program that takes a string as input and outputs the count of each letter.
3. Create a dictionary of phone numbers where the names of people are the keys and their phone numbers are the values. Write a program that takes a name as input and returns the corresponding phone number, or a message saying the name is not in the dictionary if the name is not found.
4. Write a program that reads a list of numbers and creates a dictionary where the keys are the numbers and the values are the frequencies of those numbers.
5. Write a program that takes a string as input and returns a dictionary with the frequency of each word in the string.

Tuples

1. Given a tuple of integers, write a function that returns a tuple with the first and last values in the original tuple.
2. Given a tuple of integers, write a function that returns a tuple with the minimum and maximum values in the original tuple.
3. Given a tuple of strings, write a function that returns the concatenation of all the strings in the tuple.
4. Given a tuple of integers, write a function that returns the sum of all the integers in the tuple.

> Note: You can use python prebuilt functions

Numpy

1. Create a 1-dimensional array
2. Create a numpy array from a python list
3. Create a 2-dimensional array (2×4)
4. Reshape a numpy array
5. Access the first row of the 2-dimensional array
6. Access the first column of the 2-dimentianal array