Code Leveling

PrOve of ConCept

semicolon

Rule for This Game given by the system

⇒ Test the code for edge cases and write unit Test for each function

⇒ The code should be cleaned up and optimised with good naming convensions

⇒ Online outsourcing of the code is prohibited, I should see just your thought process in the code not our uncles own

ENJOY

1. Create a tuple of numbers and append a new number to it **without** directly modifying the tuple.

2. Given `numbers = (1, 2, [3, 4], 5)`, change the third element's second value to `99`.

3. Convert a tuple of strings `('apple', 'banana', 'cherry')` into a list, add `'mango'`, and convert back to tuple.

4. Write a program to unpack this tuple: `(10, 20, 30, 40)` into variables `a, b, and the rest in the last variable.`

1. Given a 2D list, write a function that sum up all the element in each of the inner list and return a single list.
   Sample input : [[2, 3, 4], [1, 5, 7], [4, 6, 8]]
   Sample ouput: [9, 13, 18]

2. Wite a function that sum all the element in the corresponding index for each inner list. i.e all the elements in index 0 summed up, the same for index 1, down to the last index
   Sample input : [[2, 3, 4], [1, 5, 7], [4, 6, 8]]
   Sample ouput: [7, 14, 19]

Rule for This Game given by the system

In Addy to the Previous Rule

⇒ From this point Every task must be completed using Map, Filter or reduce

⇒ No Explicit Loops in the code

☺ ENJOY ☺

1. Using `filter()`, get all even numbers from the list `range(1, 21)`.

2. Write a function that extract only words longer than 5 characters from `['cat', 'elephant', 'tiger', 'lion']`.

3. Given a list of tuples `[(1, 'A'), (4, 'B'), (2, 'C')]`, use `filter()` to keep only tuples where the first value is greater than 2.

4. Use `filter()` to get all numbers from `range(1, 51)` divisible by both 3 and 5.

5. Filter all palindromes from `['level', 'world', 'madam', 'python']`.

1. Using `map()`, convert all strings in `['python', 'java', 'c++']` to uppercase.

2. Use `map()` to square all numbers from 1 to 10.

3. Given `names = ['john', 'mary', 'steve']`, use `map()` to capitalize the first letter of each name.

4. Given `prices = [100, 200, 300]`, use `map()` to add 10% tax to each price.

1. Using `reduce()`, find the sum of numbers from 1 to 50.

2. Using `reduce()`, find the maximum number in `[3, 5, 9, 2, 8]`.

3. Using `reduce()`, concatenate all strings in `['I', 'love', 'Python']` into a single string with spaces.

4. Using `reduce()` and `map()`, find the product of the squares of numbers `[1, 2, 3, 4]`.

1. Given a list of tuples `[(1, 2), (3, 4), (5, 6)]`, write a function that sum the elements of each tuple, then use `filter()` to keep only sums greater than 5.

2. Given `data = ['123', '456', '789', 'abc', 'def']`, write a function that remove non-numeric strings, then convert them into integers, then find and return their total sum.

THANKS!

Hope that was fun?

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