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Python Part-3 programming Exercise

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1. Write a Python program to find a list of integers with exactly two occurrences of nineteen and at least three occurrences of five. Return True otherwise False.

Input:

[19, 19, 15, 5, 3, 5, 5, 2]

Output:

True

Input:

[19, 15, 15, 5, 3, 3, 5, 2]

Output:

False

Input:

[19, 19, 5, 5, 5, 5, 5]

Output:

True

2. Write a Python program that accepts a list of integers and calculates the length and the fifth element. Return true if the length of the list is 8 and the fifth element occurs thrice in the said list.

Input:

[19, 19, 15, 5, 5, 5, 1, 2]

Output:

True

Input:

[19, 15, 5, 7, 5, 5, 2]

Output:

False

Input:

[11, 12, 14, 13, 14, 13, 15, 14]

Output:

True

Input:

[19, 15, 11, 7, 5, 6, 2]

Output:

False

3. Write a Python program that accepts an integer and determines whether it is greater than 4^4 and which is 4 mod 34.

Input:

922

Output:

True

Input:

914

Output:

False

Input:

854

Output:

True

Input:

854

Output:

True

4. We are making n stone piles! The first pile has n stones. If n is even, then all piles have an even number of stones. If n is odd, all piles have an odd number of stones. Each pile must more stones than the previous pile but as few as possible. Write a Python program to find the number of stones in each pile.

Input: 2

Output:

[2, 4]

Input: 10

Output:

[10, 12, 14, 16, 18, 20, 22, 24, 26, 28]

Input: 3

Output:

[3, 5, 7]

Input: 17

Output:

[17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49]

5. Write a Python program to check the nth-1 string is a proper substring of the nth string in a given list of strings.

Input:

['a', 'abb', 'sfs', 'oo', 'de', 'sfde']

Output:

True

Input:

['a', 'abb', 'sfs', 'oo', 'ee', 'sfde']

Output:

False

Input:

['a', 'abb', 'sad', 'ooaaesdfe', 'sfsdfde', 'sfsd', 'sfsdf', 'qwrew']

Output:

False

Input:

['a', 'abb', 'sad', 'ooaaesdfe', 'sfsdfde', 'sfsd', 'sfsdf', 'qwsfsdfrew']

Output:

True

6. Write a Python program to test a list of one hundred integers between 0 and 999, which all differ by ten from one another. Return True otherwise False.

Input:

[0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 790, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990]

Output:

True

Input:

[0, 20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 220, 240, 260, 280, 300, 320, 340, 360, 380, 400, 420, 440, 460, 480, 500, 520, 540, 560, 580, 600, 620, 640, 660, 680, 700, 720, 740, 760, 780, 800, 820, 840, 860, 880, 900, 920, 940, 960, 980]

Output:

False

7. Write a Python program to check a given list of integers where the sum of the first i integers is i.

Input:

[0, 1, 2, 3, 4, 5]

Output:

False

Input:

[1, 1, 1, 1, 1, 1]

Output:

True

Input:

[2, 2, 2, 2, 2]

Output:

False

8. Write a Python program to split a string of words separated by commas and spaces into two lists, words and separators.

Input: W3resource Python, Exercises.

Output:

[['W3resource', 'Python', 'Exercises.'], [' ', ', ']]

Input: The dance, held in the school gym, ended at midnight.

Output:

[['The', 'dance', 'held', 'in', 'the', 'school', 'gym', 'ended', 'at', 'midnight.'], [' ', ', ', ' ', ' ', ' ', ' ', ', ', ' ', ' ']]

Input: The colors in my studyroom are blue, green, and yellow.

Output:

[['The', 'colors', 'in', 'my', 'studyroom', 'are', 'blue', 'green', 'and', 'yellow.'], [' ', ' ', ' ', ' ', ' ', ' ', ', ', ', ', ' ']]

9. Write a Python program to find a list of integers containing exactly four distinct values, such that no integer repeats twice consecutively among the first twenty entries.

Input:

[1, 2, 3, 4, 1, 2, 3, 4, 1, 2, 3, 4, 1, 2, 3, 4]

Output:

True

Input:

[1, 2, 3, 3, 1, 2, 3, 3, 1, 2, 3, 3, 1, 2, 3, 3]

Output:

False

Input:

[1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3]

Output:

False

10. Given a string consisting of whitespace and groups of matched parentheses, write a Python program to split it into groups of perfectly matched parentheses without any whitespace.

Input:

( ()) ((()()())) (()) ()

Output:

['(())', '((()()()))', '(())', '()']

Input:

() (( ( )() ( )) ) ( ())

Output:

['()', '((()()()))', '(())']

11. Write a Python program to find the indexes of numbers in a given list below a given threshold.

Original list:

[0, 12, 45, 3, 4923, 322, 105, 29, 15, 39, 55]

Threshold: 100

Check the indexes of numbers of the said list below the given threshold:

[0, 1, 2, 3, 7, 8, 9, 10]

Original list:

[0, 12, 4, 3, 49, 9, 1, 5, 3]

Threshold: 10

Check the indexes of numbers of the said list below the given threshold:

[0, 2, 3, 5, 6, 7, 8]

12. Write a Python program to check whether the given strings are palindromes or not. Return True otherwise False.

Input:

['palindrome', 'madamimadam', '', 'foo', 'eyes']

Output:

[False, True, True, False, False]

13. Write a Python program to find strings in a given list starting with a given prefix.

Input:

[( ca,('cat', 'car', 'fear', 'center'))]

Output:

['cat', 'car']

Input:

[(do,('cat', 'dog', 'shatter', 'donut', 'at', 'todo'))]

Output:

['dog', 'donut']

14. Write a Python program to find the length of a given list of non-empty strings.

Input:

['cat', 'car', 'fear', 'center']

Output:

[3, 3, 4, 6]

Input:

['cat', 'dog', 'shatter', 'donut', 'at', 'todo', '']

Output:

[3, 3, 7, 5, 2, 4, 0]

15. Write a Python program to find the longest string in a given list of strings.

Input:

['cat', 'car', 'fear', 'center']

Output:

center

Input:

['cat', 'dog', 'shatter', 'donut', 'at', 'todo', '']

Output:

shatter

16. Write a Python program to find strings in a given list containing a given substring.

Input:

[(ca,('cat', 'car', 'fear', 'center'))]

Output:

['cat', 'car']

Input:

[(o,('cat', 'dog', 'shatter', 'donut', 'at', 'todo', ''))]

Output:

['dog', 'donut', 'todo']

Input:

[(oe,('cat', 'dog', 'shatter', 'donut', 'at', 'todo', ''))]

Output:

[]

17. Write a Python program to create a string consisting of non-negative integers up to n inclusive.

Input:

4

Output:

0 1 2 3 4

Input:

15

Output:

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

18. An irregular/uneven matrix, or ragged matrix, is a matrix that has a different number of elements in each row. Ragged matrices are not used in linear algebra, since standard matrix transformations cannot be performed on them, but they are useful as arrays in computing.

Write a Python program to find the indices of all occurrences of target in the uneven matrix.

Input:

[([1, 3, 2, 32, 19], [19, 2, 48, 19], [], [9, 35, 4], [3, 19]),19]

Output:

[[0, 4], [1, 0], [1, 3], [4, 1]]

Input:

[([1, 2, 3, 2], [], [7, 9, 2, 1, 4]),2]

Output:

[[0, 1], [0, 3], [2, 2]]

19. Write a Python program to split a given string (s) into strings if there is a space in s, otherwise split on commas if there is a comma, otherwise return the list of lowercase letters in odd order (order of a = 0, b = 1, etc.).

Input:

a b c d

Split the said string into strings if there is a space in the string,

otherwise split on commas if there is a comma,

Output:

['a', 'b', 'c', 'd']

Input:

a,b,c,d

Split the said string into strings if there is a space in the string,

otherwise split on commas if there is a comma,

Output:

['a', 'b', 'c', 'd']

Input:

abcd

Split the said string into strings if there is a space in the string,

otherwise split on commas if there is a comma,

Output:

['b', 'd']

20. Write a Python program to determine the direction ('increasing' or 'decreasing') of monotonic sequence numbers.

Input:

[1, 2, 3, 4, 5, 6]

Output:

Increasing.

Input:

[6, 5, 4, 3, 2, 1]

Output:

Decreasing.

Input:

[19, 19, 5, 5, 5, 5, 5]

Output:

Not a monotonic sequence!

21. Write a Python program to check, for each string in a given list, whether the last character is an isolated letter or not. Return True otherwise False.

Input:

['cat', 'car', 'fear', 'center']

Output:

[False, False, False, False]

Input:

['ca t', 'car', 'fea r', 'cente r']

Output:

[True, False, True, True]

22. Write a Python program to compute the sum of the ASCII values of the upper-case characters in a given string.

Input:

PytHon ExerciSEs

Output:

373

Input:

JavaScript

Output:

157

23. Write a Python program to find the indices at which the numbers in the list drop.

NOTE: You can detect multiple drops just by checking if nums[i] < nums[i-1]

Input:

[0, -1, 3, 8, 5, 9, 8, 14, 2, 4, 3, -10, 10, 17, 41, 22, -4, -4, -15, 0]

Output:

[1, 4, 6, 8, 10, 11, 15, 16, 18]

Input:

[6, 5, 4, 3, 2, 1]

Output:

[1, 2, 3, 4, 5]

Input:

[1, 19, 5, 15, 5, 25, 5]

Output:

[0, 2, 4, 6]

24. Write a Python program to create a list whose ith element is the maximum of the first i elements from an input list.

Input:

[0, -1, 3, 8, 5, 9, 8, 14, 2, 4, 3, -10, 10, 17, 41, 22, -4, -4, -15, 0]

Output:

[0, 0, 3, 8, 8, 9, 9, 14, 14, 14, 14, 14, 14, 17, 41, 41, 41, 41, 41, 41]

Input:

[6, 5, 4, 3, 2, 1]

Output:

[6, 6, 6, 6, 6, 6]

Input:

[1, 19, 5, 15, 5, 25, 5]

Output:

[1, 19, 19, 19, 19, 25, 25]

25. Write a Python program to find the XOR of two given strings interpreted as binary numbers.

Input:

['0001', '1011']

Output:

0b1010

Input:

['100011101100001', '100101100101110']

Output:

0b110001001111

26. Write a Python program to find the largest number where commas or periods are decimal points.

Input:

['100', '102,1', '101.1']

Output:

102.1

27. Write a Python program to find x that minimizes the mean squared deviation from a given list of numbers.

Input:

[4, -5, 17, -9, 14, 108, -9]

Output:

17.142857142857142

Input:

[12, -2, 14, 3, -15, 10, -45, 3, 30]

Output:

1.1111111111111112

28. Write a Python program to select a string from a given list of strings with the most unique characters.

Input:

['cat', 'catatatatctsa', 'abcdefhijklmnop', '124259239185125', '', 'foo', 'unique']

Output:

abcdefhijklmnop

Input:

['Green', 'Red', 'Orange', 'Yellow', '', 'White']

Output:

Orange

29. Write a Python program to find the indices of two numbers that sum to 0 in a given list of numbers.

Input:

[1, -4, 6, 7, 4]

Output:

[4, 1]

Input:

[1232, -20352, 12547, 12440, 741, 341, 525, 20352, 91, 20]

Output:

[1, 7]

30. Write a Python program to find a list of strings that have fewer total characters (including repetitions).

Input:

[['this', 'list', 'is', 'narrow'], ['I', 'am', 'shorter but wider']]

Output:

['this', 'list', 'is', 'narrow']

Input:

[['Red', 'Black', 'Pink'], ['Green', 'Red', 'White']]

Output:

['Red', 'Black', 'Pink']

31. Write a Python program to find the coordinates of a triangle with given side lengths.

Input:

[3, 4, 5]

Output:

[[0.0, 0.0], [3, 0.0], [3.0, 4.0]]

Input:

[5, 6, 7]

Output:

[[0.0, 0.0], [5, 0.0], [3.8, 5.878775382679628]]

32. Write a Python program to rescale and shift numbers in a given list, so that they cover the range [0, 1].

Input:

[18.5, 17.0, 18.0, 19.0, 18.0]

Output:

[0.75, 0.0, 0.5, 1.0, 0.5]

Input:

[13.0, 17.0, 17.0, 15.5, 2.94]

Output:

[0.7155049786628734, 1.0, 1.0, 0.8933143669985776, 0.0]

33. Write a Python program to find the positions of all uppercase vowels (not counting Y) in even indices of a given string.

Input: w3rEsOUrcE

Output:

[6]

Input: AEIOUYW

Output:

[0, 2, 4]

34. Write a Python program to find the sum of the numbers in a given list among the first k with more than 2 digits.

Input: [4, 5, 17, 9, 14, 108, -9, 12, 76]

Value of K: 4

Output:

0

Input: [4, 5, 17, 9, 14, 108, -9, 12, 76]

Value of K: 6

Output:

108

Input: [114, 215, -117, 119, 14, 108, -9, 12, 76]

Value of K: 5

Output:

331

Input: [114, 215, -117, 119, 14, 108, -9, 12, 76]

Value of K: 1

Output:

114

35. Write a Python program to compute the product of the odd digits in a given number, or 0 if there aren't any.

Input: 123456789

Output:

945

Input: 2468

Output:

0

Input: 13579

Output:

945

36. Write a Python program to find the largest k numbers from a given list of numbers.

Input: [1, 2, 3, 4, 5, 5, 3, 6, 2]

Output:

[6]

Input: [1, 2, 3, 4, 5, 5, 3, 6, 2]

Output:

[6, 5]

Input: [1, 2, 3, 4, 5, 5, 3, 6, 2]

Output:

[6, 5, 5]

Input: [1, 2, 3, 4, 5, 5, 3, 6, 2]

Output:

[6, 5, 5, 4]

Input: [1, 2, 3, 4, 5, 5, 3, 6, 2]

Output:

[6, 5, 5, 4, 3]

37. Write a Python program to find the largest integer divisor of a number n that is less than n.

Input: 18

Output:

9

Input: 100

Output:

50

Input: 102

Output:

51

Input: 500

Output:

250

Input: 1000

Output:

500

Input: 6500

Output:

3250

38. Write a Python program to sort the numbers in a given list by the sum of their digits.

Input: [10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20]

Output:

[10, 11, 20, 12, 13, 14, 15, 16, 17, 18, 19]

Input: [23, 2, 9, 34, 8, 9, 10, 74]

Output:

[10, 2, 23, 34, 8, 9, 9, 74]

39. Write a Python program to determine which triples sum to zero from a given list of lists.

Input: [[1343532, -2920635, 332], [-27, 18, 9], [4, 0, -4], [2, 2, 2], [-20, 16, 4]]

Output:

[False, True, True, False, True]

Input: [[1, 2, -3], [-4, 0, 4], [0, 1, -5], [1, 1, 1], [-2, 4, -1]]

Output:

[True, True, False, False, False]

40. Write a Python program to find strings that, when case is flipped, give a target where vowels are replaced by characters two later.

Input: Python

Output:

pYTHQN

Input: aeiou

Output:

CGKQW

Input: Hello, world!

Output:

hGLLQ, WQRLD!

Input: AEIOU

Output:

cgkqw

41. Write a Python program to sort numbers based on strings.

Input: six one four one two three

Output:

one two three four six

Input: six one four three two nine eight

Output:

one two three four six eight nine

Input: nine eight seven six five four three two one

Output:

one two three four five six seven eight nine

42. Write a Python program to find the set of distinct characters in a given string, ignoring case.

Input: HELLO

Output:

['h', 'o', 'l', 'e']

Input: HelLo

Output:

['h', 'o', 'l', 'e']

Input: Ignoring case

Output:

['s', 'n', 'c', 'o', 'e', 'i', 'r', 'g', 'a', ' ']

43. Write a Python program to find all words in a given string with n consonants.

Input: this is our time

Output:

Number of consonants: 3

Words in the said string with 3 consonants:

['this']

Number of consonants: 2

Words in the said string with 2 consonants:

['time']

Number of consonants: 1

Words in the said string with 1 consonants:

['is', 'our']

44. Write a Python program to find which characters of a hexadecimal number correspond to prime numbers.

Input: 123ABCD

Output:

[False, True, True, False, True, False, True]

Input: 123456

Output:

[False, True, True, False, True, False]

Input: FACE

Output:

[False, False, False, False]

45. Write a Python program to find all even palindromes up to n.

Output:

Even palindromes up to 50 -

[0, 2, 4, 6, 8, 22, 44]

Even palindromes up to 100 -

[0, 2, 4, 6, 8, 22, 44, 66, 88]

Even palindromes up to 500 -

[0, 2, 4, 6, 8, 22, 44, 66, 88, 202, 212, 222, 232, 242, 252, 262, 272, 282, 292, 404, 414, 424, 434, 444, 454, 464, 474, 484, 494]

Even palindromes up to 2000 -

[0, 2, 4, 6, 8, 22, 44, 66, 88, 202, 212, 222, 232, 242, 252, 262, 272, 282, 292, 404, 414, 424, 434, 444, 454, 464, 474, 484, 494, 606, 616, 626, 636, 646, 656, 666, 676, 686, 696, 808, 818, 828, 838, 848, 858, 868, 878, 888, 898]

46. Given an array of numbers representing a branch on a binary tree, write a Python program to find the minimum even value and its index. In the case of a tie, return the smallest index. If there are no even numbers, the answer is [].

Input:

[1, 9, 4, 6, 10, 11, 14, 8]

Output:

Minimum even value and its index of the said array of numbers:

[4, 2]

Input:

[1, 7, 4, 4, 9, 2]

Output:

Minimum even value and its index of the said array of numbers:

[2, 5]

Input:

[1, 7, 7, 5, 9]

Output:

Minimum even value and its index of the said array of numbers:

[]

47. Write a Python program to filter for numbers in a given list whose sum of digits is > 0, where the first digit can be negative.

Input:

[11, -6, -103, -200]

Output:

[11, -103]

Input:

[1, 7, -4, 4, -9, 2]

Output:

[1, 7, 4, 2]

Input:

[10, -11, -71, -13, 14, -32]

Output:

[10, -13, 14]

48. Write a Python program to find the indices of two entries that show that the list is not in increasing order. If there are no violations (they are increasing), return an empty list.

Input:

[1, 2, 3, 0, 4, 5, 6]

Output:

[2, 3]

Input:

[1, 2, 3, 4, 5, 6]

Output:

[]

Input:

[1, 2, 3, 4, 6, 5, 7]

Output:

[4, 5]

Input:

[-3, -2, -3, 0, 2, 3, 4]

Output:

[1, 2]

49. Write a Python program to find the h-index, the largest positive number h such that h occurs in the sequence at least h times. If there is no such positive number return h = -1.

Input:

[1, 2, 2, 3, 3, 4, 4, 4, 4]

Output:

4

Input:

[1, 2, 2, 3, 4, 5, 6]

Output:

2

Input:

[3, 1, 4, 17, 5, 17, 2, 1, 41, 32, 2, 5, 5, 5, 5]

Output:

5

50. Write a Python program to find even-length words from a given list of words and sort them by length.

Original list of words:

['Red', 'Black', 'White', 'Green', 'Pink', 'Orange']

Find the even-length words and sort them by length in the said list of words:

['Pink', 'Orange']

Original list of words:

['The', 'worm', 'ate', 'a', 'bird', 'imagine', 'that', '!', 'Absurd', '!!']

Find the even-length words and sort them by length in the said list of words:

['!!', 'bird', 'that', 'worm', 'Absurd']

51. Write a Python program to find the product of the units digits in the numbers in a given list.

Input: 10

Output:

[1, 1, 2, 3, 5, 8, 13, 21, 34, 55]

Input: 15

Output:

[1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610]

Input: 50

Output:

[1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597, 2584, 4181, 6765, 10946, 17711, 28657, 46368, 75025, 121393, 196418, 317811, 514229, 832040, 1346269, 2178309, 3524578, 5702887, 9227465, 14930352, 24157817, 39088169, 63245986, 102334155, 165580141, 267914296, 433494437, 701408733, 1134903170, 1836311903, 2971215073, 4807526976, 7778742049, 12586269025]

52. Write a Python program to reverse the case of all strings. For those strings, which contain no letters, reverse the strings.

Original list:

['cat', 'catatatatctsa', 'abcdefhijklmnop', '124259239185125', '', 'foo', 'unique']

Reverse the case of all strings. For those strings which contain no letters, reverse the strings:

['CAT', 'CATATATATCTSA', 'ABCDEFHIJKLMNOP', '521581932952421', '', 'FOO', 'UNIQUE']

Original list:

['Green', 'Red', 'Orange', 'Yellow', '', 'White']

Reverse the case of all strings. For those strings which contain no letters, reverse the strings:

['gREEN', 'rED', 'oRANGE', 'yELLOW', '', 'wHITE']

Original list:

['Hello', '!@#', '!@#$', '123#@!']

Reverse the case of all strings. For those strings which contain no letters, reverse the strings:

['hELLO', '#@!', '$#@!', '!@#321']

53. Write a Python program to find the product of the units digits in the numbers in a given list.

Input:

[12, 23]

Output:

6

Input:

[12, 23, 43]

Output:

18

Input:

[113, 234]

Output:

12

Input:

[1002, 2005]

Output:

10

54. Write a Python program to remove duplicates from a list of integers, preserving order.

Input:

[1, 3, 4, 10, 4, 1, 43]

Output:

[1, 3, 4, 10, 43]

Input:

[10, 11, 13, 23, 11, 25, 23, 76, 99]

Output:

[10, 11, 13, 23, 25, 76, 99]

55. Write a Python program to find numbers that are greater than 10 and have odd first and last digits.

Input:

[1, 3, 79, 10, 4, 1, 39, 62]

Output:

[79, 39]

Input:

[11, 31, 77, 93, 48, 1, 57]

Output:

[11, 31, 77, 93, 57]

56. Write a Python program to find an integer exponent x such that a^x = n.

Input:

a = 2 : n = 1024

Output:

10

Input:

a = 3 : n = 81

Output:

4

Input:

a = 3 : n = 1290070078170102666248196035845070394933441741644993085810116441344597492642263849

Output:

170

57. Write a Python program to find the sum of the magnitudes of the elements in the array. This sum should have a sign that is equal to the product of the signs of the entries.

Input:

[1, 3, -2]

Output:

-6

Input:

[1, -3, 3]

Output:

-7

Input:

[10, 32, 3]

Output:

45

Input:

[-25, -12, -23]

Output:

-60

58. Write a Python program to find the biggest even number between two numbers inclusive.

Input:

m = 12

n = 51

Output:

50

Input:

m = 1

n = 79

Output:

78

Input:

m = 47

n = 53

Output:

52

Input:

m = 100

n = 200

Output:

200

59. A valid filename should end in .txt, .exe, .jpg, .png, or .dll, and should have at most three digits, no additional periods. Write a Python program to create a list of True/False that determine whether candidate filename is valid or not.

Input:

['abc.txt', 'windows.dll', 'tiger.png', 'rose.jpg', 'test.py', 'win32.exe']

Output:

['Yes', 'Yes', 'Yes', 'Yes', 'No', 'Yes']

Input:

['.txt', 'windows.exe', 'tiger.jpeg', 'rose.c', 'test.java']

Output:

['No', 'Yes', 'No', 'No', 'No']

60. Write a Python program to find a list of all numbers that are adjacent to a prime number in the list, sorted without duplicates.

Input:

[2, 17, 16, 0, 6, 4, 5]

Output:

[2, 4, 16, 17]

Input:

[1, 2, 19, 16, 6, 4, 10]

Output:

[1, 2, 16, 19]

Input:

[1, 2, 3, 5, 1, 16, 7, 11, 4]

Output:

[1, 2, 3, 4, 5, 7, 11, 16]

61. Write a Python program to find the number which when appended to the list makes the total 0.

Input:

[1, 2, 3, 4, 5]

Output:

-15

Input:

[-1, -2, -3, -4, 5]

Output:

5

Input:

[10, 42, 17, 9, 1315182, 184, 102, 29, 15, 39, 755]

Output:

-1316384

62. Write a Python program to find the dictionary key whose case is different from all other keys.

Input:

{'red': '', 'GREEN': '', 'blue': 'orange'}

Output:

GREEN

Input:

{'RED': '', 'GREEN': '', 'orange': '#125GD'}

Output:

orange

63. Write a Python program to find the sum of the even elements that are at odd indices in a given list.

Input:

[1, 2, 3, 4, 5, 6, 7]

Output:

12

Input:

[1, 2, 8, 3, 9, 4]

Output:

6

64. Write a Python program to find the string consisting of all the words whose lengths are prime numbers.

Input:

The quick brown fox jumps over the lazy dog.

Output:

The quick brown fox jumps the

Input:

Omicron Effect: Foreign Flights Won't Resume On Dec 15, Decision Later.

Output:

Omicron Effect: Foreign Flights Won't On Dec 15,

65.Write a Python program to shift the decimal digits n places to the left, wrapping the extra digits around. If the shift > the number of digits in n, reverse the string.

Input:

n = 12345 and shift = 1

Output:

Result = 23451

Input:

n = 12345 and shift = 2

Output:

Result = 34512

Input:

n = 12345 and shift = 3

Output:

Result = 45123

Input:

n = 12345 and shift = 5

Output:

Result = 12345

Input:

n = 12345 and shift = 6

Output:

Result = 54321

66. Write a Python program to find the indices of the closest pair from a list of numbers.

Input: [1, 7, 9, 2, 10]

Output:

[0, 3]

Input: [1.1, 4.25, 0.79, 1.0, 4.23]

Output:

[4, 1]

Input: [0.21, 11.3, 2.01, 8.0, 10.0, 3.0, 15.2]

Output:

[2, 5]

67. Write a Python program to find a string which, when each character is shifted (ASCII incremented) by shift, gives the result.

Input:

Ascii character table

Shift = 1

Output:

@rbhh bg`q`bsdq s`akd

Input:

Ascii character table

Shift = -1

Output:

Btdjj!dibsbdufs!ubcmf

68. Write a Python program to find all 5's in integers less than n that are divisible by 9 or 15.

Input:

Value of n = 50

Output:

[[15, 1], [45, 1]]

Input:

Value of n = 65

Output:

[[15, 1], [45, 1], [54, 0]]

Input:

Value of n = 75

Output:

[[15, 1], [45, 1], [54, 0]]

Input:

Value of n = 85

Output:

[[15, 1], [45, 1], [54, 0], [75, 1]]

Input:

Value of n = 150

Output:

[[15, 1], [45, 1], [54, 0], [75, 1], [105, 2], [135, 2]]

69. Write a Python program to create a new string by taking a string, and word by word rearranging its characters in ASCII order.

Input: Ascii character table

Output:

Aciis aaccehrrt abelt

Input: maltos won

Output:

almost now

70. Write a Python program to find the first negative balance from a given list of numbers that represent bank deposits and withdrawals.

Input:

[[12, -7, 3, -89, 14, 88, -78], [-1, 2, 7]]

Output:

[-81, -1]

Input:

[[1200, 100, -900], [100, 100, -2400]]

Output:

[None, -2200]

71. Given a list of numbers and a number to inject, write a Python program to create a list containing that number in between each pair of adjacent numbers.

Input: [12, -7, 3, -89, 14, 88, -78, -1, 2, 7]

Separator: 6

Output:

[12, 6, -7, 6, 3, 6, -89, 6, 14, 6, 88, 6, -78, 6, -1, 6, 2, 6, 7]

Input: [1, 2, 3, 4, 5, 6]

Separator: 9

Output:

[1, 9, 2, 9, 3, 9, 4, 9, 5, 9, 6]

72. Write a Python program to find the indices of three numbers that sum to 0 in a given list of numbers.

Input: [12, -7, 3, -89, 14, 4, -78, -1, 2, 7]

Output:

[1, 2, 5]

Input: [1, 2, 3, 4, 5, 6, -7]

Output:

[2, 3, 6]

73. Write a Python program to find a substring in a given string that contains a vowel between two consonants.

Input: Hello

Output:

Hel

Input: Sandwhich

Output:

San

Input: Python

Output:

hon

74. Write a Python program to find a string consisting of space-separated characters with given counts.

Input: {'f': 1, 'o': 2}

Output:

f o o

Input: {'a': 1, 'b': 1, 'c': 1}

Output:

a b c

75. Write a Python program to reorder numbers from a given array in increasing/decreasing order based on whether the first plus last element is odd/even.

Reorder numbers of a give array in increasing/decreasing order based on whether the first plus last element is odd/even.:

Input:

[3, 7, 4]

Output:

[3, 4, 7]

Input:

[2, 7, 4]

Output:

[7, 4, 2]

Input:

[1, 5, 6, 7, 4, 2, 8]

Output:

[1, 2, 4, 5, 6, 7, 8]

Input:

[1, 5, 6, 7, 4, 2, 9]

Output:

[9, 7, 6, 5, 4, 2, 1]

76. Write a Python program to find the index of the largest prime in the list and the sum of its digits.

Input: [3, 7, 4]

Output:

[1, 7]

Input: [3, 11, 7, 17, 19, 4]

Output:

[4, 10]

Input: [23, 17, 201, 14, 10473, 43225, 421, 423, 11, 10, 2022, 342157]

Output:

[6, 7]

77. Write a Python program to convert GPAs to letter grades according to the following table:

GPAs Grades

4.0: A+

3.7: A

3.4: A-

3.0: B+

2.7: B

2.4: B-

2.0: C+

1.7: C

1.4: C-

below: F

Input:

[4.0, 3.5, 3.8]

Output:

['A+', 'A-', 'A']

Input:

[5.0, 4.7, 3.4, 3.0, 2.7, 2.4, 2.0, 1.7, 1.4, 0.0]

Output:

['A+', 'A+', 'A-', 'B+', 'B', 'B-', 'C+', 'C', 'C-', 'F']

78. Write a Python program to find the two closest distinct numbers in a given list of numbers.

Input:

[1.3, 5.24, 0.89, 21.0, 5.27, 1.3]

Output:

[5.24, 5.27]

Input:

[12.02, 20.3, 15.0, 19.0, 11.0, 14.99, 17.0, 17.0, 14.4, 16.8]

Output:

[14.99, 15.0]

79. Write a Python program to find the largest negative and smallest positive numbers (or 0 if none).

Input:

[-12, -6, 300, -40, 2, 2, 3, 57, -50, -22, 12, 40, 9, 11, 18]

Output:

[-6, 2]

Input:

[-1, -2, -3, -4]

Output:

[-1, 0]

Input:

[1, 2, 3, 4]

Output:

[0, 1]

Input:

[]

Output:

[0, 0]

80. Write a Python program to round each float in a given list of numbers up to the next integer and return the running total of the integer squares.

Input: [2.6, 3.5, 6.7, 2.3, 5.6]

Output:

[9, 25, 74, 83, 119]

Input: [301.1, 401.4, -23.1, 13554122.0, 10201.0101, 10000000.0]

Output:

[91204, 252808, 253337, 183714223444221, 183714327525025, 283714327525025]

81. Write a Python program to calculate the average of the numbers a through b (b not included) rounded to the nearest integer, in binary (or -1 if there are no such numbers).

Input:

4 , 7

Output:

0b101

Input:

11 , 19

Output:

0b1110

82. Write a Python program to find the sublist of numbers from a given list of numbers with only odd digits in increasing order.

Input:

[1, 3, 79, 10, 4, 2, 39]

Output:

[1, 3, 39, 79]

Input:

[11, 31, 40, 68, 77, 93, 48, 1, 57]

Output:

[1, 11, 31, 57, 77, 93]

Input:

[9, -2, 3, 4, -2, 0, 2, -3, 8, -1]

Output:

[-3, -1, 3, 9]

83. A string is happy if every three consecutive characters are distinct. Write a Python program to find two indices associated with a given string being unhappy.

Input:

Python

Output:

None

Input:

Unhappy

Output:

[4, 5]

Input:

Find

Output:

None

Input:

Street

Output:

[3, 4]

84. Write a Python program to find the index of the matching parentheses for each character in a given string.

Input: ()(())

Output:

[1, 0, 5, 4, 3, 2]

Input: ()()()

Output:

[1, 0, 3, 2, 5, 4]

Input: ((()))

Output:

[5, 4, 3, 2, 1, 0]

85. Write a Python program to find an increasing sequence consisting of the elements of the original list.

Input:

[1, 3, 79, 10, 4, 2, 39]

Output:

[1, 2, 3, 4, 10, 39, 79]

Input:

[11, 31, 40, 68, 77, 93, 48, 1, 57]

Output:

[1, 11, 31, 40, 48, 57, 68, 77, 93]

Input:

[9, -2, 3, 4, -2, 0, 2, -3, 8, -1]

Output:

[-3, -2, -1, 0, 2, 3, 4, 8, 9]

86. Write a Python program to find the vowels from each of the original texts (y counts as a vowel at the end of the word) from a given list of strings.

Input: ['w3resource', 'Python', 'Java', 'C++']

Output:

['eoue', 'o', 'aa', '']

Input: ['ably', 'abruptly', 'abecedary', 'apparently', 'acknowledgedly']

Output:

['ay', 'auy', 'aeeay', 'aaey', 'aoeey']

87. Write a Python program to find a valid substring of a given string that contains matching brackets, at least one of which is nested.

Input:

]][][[]]]

Output:

[[]]

Input:

]]]]]]]]]]]]]]]]][][][][]]]]]]]]]]][[[][[][[[[[][][][]][[[[[[[[[[[[[[[[[[

Output:

[[][][][]]

88. Write a Python program to find an integer (n >= 0) with the given number of even and odd digits.

Input:

Number of even digits: 2 ,Number of odd digits: 3

Output:

22333

Input:

Number of even digits: 4 ,Number of odd digits: 7

Output:

22223333333

89. Write a Python program to find all integers <= 1000 that are the product of exactly three primes. Each integer should be represented as a list of its three prime factors.

Input: 10

Output:

[[2, 2, 2]]

Input: 50

Output:

[[2, 2, 2], [2, 2, 3], [2, 2, 5], [2, 2, 7], [2, 2, 11], [2, 3, 2], [2, 3, 3], [2, 3, 5], [2, 3, 7], [2, 5, 2], [2, 5, 3], [2, 5, 5], [2, 7, 2], [2, 7, 3], [2, 11, 2], [3, 2, 2], [3, 2, 3], [3, 2, 5], [3, 2, 7], [3, 3, 2], [3, 3, 3], [3, 3, 5], [3, 5, 2], [3, 5, 3], [3, 7, 2], [5, 2, 2], [5, 2, 3], [5, 2, 5], [5, 3, 2], [5, 3, 3], [5, 5, 2], [7, 2, 2], [7, 2, 3], [7, 3, 2], [11, 2, 2]]

90. For each triple of eaten, need, and stock, write a Python program to get a pair of total appetite and remaining.

Input:

[[2, 5, 6], [3, 9, 22]]

Output:

[[7, 1], [12, 13]]

Input:

[[2, 3, 18], [4, 9, 2], [2, 5, 7], [3, 8, 12], [4, 9, 106]]

Output:

[[5, 15], [6, 0], [7, 2], [11, 4], [13, 97]]

Input:

[[1, 2, 3], [4, 5, 6]]

Output:

[[3, 1], [9, 1]]

91. Write a Python program to find all n-digit integers that start or end with 2.

Input: 1

Output:

[2]

Input: 2

Output:

[12, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 32, 42, 52, 62, 72, 82, 92]

Input: 3

Output:

[102, 112, 122, 132, 142, 152, 162, 172, 182, 192, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 302, 312, 322, 332, 342, 352, 362, 372, 382, 392, 402, 412, 422, 432, 442, 452, 462, 472, 482, 492, 502, 512, 522, 532, 542, 552, 562, 572, 582, 592, 602, 612, 622, 632, 642, 652, 662, 672, 682, 692, 702, 712, 722, 732, 742, 752, 762, 772, 782, 792, 802, 812, 822, 832, 842, 852, 862, 872, 882, 892, 902, 912, 922, 932, 942, 952, 962, 972, 982, 992]

92. Write a Python program to start with a list of integers, keep every other element in place and otherwise sort the list.

Input:

[2, 5, 6, 3, 1, 4, 34]

Output:

[1, 5, 2, 3, 6, 4, 34]

Input:

[8, 0, 7, 2, 9, 4, 1, 2, 8, 3]

Output:

[1, 0, 7, 2, 8, 4, 8, 2, 9, 3]

93. Write a Python program to find the closest palindrome to a given string.

Input:

cat

Output:

cac

Input:

madan

Output:

madam

Input:

radivider

Output:

radividar

Input:

madan

Output:

madam

Input:

abc

Output:

aba

Input:

racecbr

Output:

racecar

94. Given a string consisting of whitespace and groups of matched parentheses, write a Python program to split it into groups of perfectly matched parentheses without any whitespace.

Input:

( ()) ((()()())) (()) ()

Output:

['(())', '((()()()))', '(())', '()']

Input:

() (( ( )() ( )) ) ( ())

Output:

['()', '((()()()))', '(())']

95. Write a Python program to find a palindrome of a given length containing a given string.

Input: madam , 7

Output:

madaadam

Input: madam , 6

Output:

maddam

Input: madam , 5

Output:

maaaam

Input: madam , 3

Output:

maam

Input: madam , 2

Output:

mm

Input: madam , 1

Output:

aa

96. Write a Python program to get the single digits in numbers sorted backwards and converted into English words.

Input:

[1, 3, 4, 5, 11]

Output:

['five', 'four', 'three', 'one']

Input:

[27, 3, 8, 5, 1, 31]

Output:

['eight', 'five', 'three', 'one']

97. Write a Python program to find the following strange sort of list of numbers: the first element is the smallest, the second is the largest of the remaining, the third is the smallest of the remaining, the fourth is the smallest of the remaining, etc.

Input:

[1, 3, 4, 5, 11]

Output:

[1, 11, 3, 5, 4]

Input:

[27, 3, 8, 5, 1, 31]

Output:

[1, 31, 3, 27, 5, 8]

Input:

[1, 2, 7, 3, 4, 5, 6]

Output:

[1, 7, 2, 6, 3, 5, 4]

98. Given a string consisting of groups of matched nested parentheses separated by parentheses, write a Python program to compute the depth of each group.

Input: (()) (()) () ((()()()))

Output:

[2, 2, 1, 3]

Input: () (()) () () () ()

Output:

[1, 2, 1, 1, 1, 1]

Input: (((((((()))))))) () (()) ((()()()))

Output:

[8, 1, 2, 3]

99. Write a Python program to find a string such that, when three or more spaces are compacted to a '-' and one or two spaces are replaced by underscores, leads to the target.

Input: Python-Exercises

Output:

Python Exercises

Input: Python\_Exercises

Output:

Python Exercises

Input: -Hello,\_world!\_\_This\_is-so-easy!-

Output:

Hello, world! This is so easy!

100. Write a Python program to find four positive even integers whose sum is a given integer.

Input:

n = 100

Output:

[94, 2, 2, 2]

Input:

n = 1000

Output:

[994, 2, 2, 2]

Input:

n = 10000

Output:

[9994, 2, 2, 2]

Input:

n = 1234567890

Output:

[1234567884, 2, 2, 2]

================================================================