FUNCTION ASSIGNMENT - 1

Q1.  Write a Python function to find the maximum of three numbers

Q2. Write a Python function to sum all the numbers in a list.  
Sample List : (8, 2, 3, 0, 7)  
Expected Output : 20

Q3.  Write a Python function to multiply all the numbers in a list.  
Sample List : [8, 2, 3, -1, 7]  
Expected Output : -336

Q4. Write a Python program to reverse a string.  
Sample String : "1234abcd"  
Expected Output : "dcba4321"

Q5.  Write a Python function to create and print a list where the values are the squares of numbers between 1 and 30 (both included).

Q6. Write a Python function to check whether a number is "Perfect" or not.  
Example : The first perfect number is 6, because 1, 2, and 3 are its proper positive divisors, and 1 + 2 + 3 = 6. Equivalently, the number 6 is equal to half the sum of all its positive divisors: ( 1 + 2 + 3 + 6 ) / 2 = 6. The next perfect number is 28 = 1 + 2 + 4 + 7 + 14. This is followed by the perfect numbers 496 and 8128.

Q7. Write a Python function that takes a number as a parameter and checks whether the number is prime or not.

Q8. Write a Python function that takes a list and returns a new list with distinct elements from the first list.  
Sample List : [1,2,3,3,3,3,4,5]  
Unique List : [1, 2, 3, 4, 5]

Q9.  Write a Python program to print the even numbers from a given list.  
Sample List : [1, 2, 3, 4, 5, 6, 7, 8, 9]Expected Result : [2, 4, 6, 8]

Q10. Write a function intreverse(n) that takes as input a positive integer n and returns the integer obtained by reversing the digits in n.

Here are some examples of how your function should work.

>>> intreverse(783)

387

>>> intreverse(3)

3

Q11. Write a function sumprimes(l) that takes as input a list of integers l and retuns the sum of all the prime numbers in l.

Here are some examples to show how your function should work.

>>> sumprimes([3,3,1,13])

19

>>> sumprimes([2,4,6,9,11])

13

Q12. Write a function list\_intersection(list1, list2) that returns a list of elements that are present in both list1 and list2

Q13. Write a function fibonacci\_iter(n) that returns the n-th Fibonacci number using an iterative approach.

Q14. Write a function count\_vowels(s) that counts the number of vowels (a, e, i, o, u) in the string s.

Q15.Write a Python function that takes a list of numbers as input and returns a sorted list containing only the non-negative numbers from the input list.

Q16. Write a function factorial\_iter(n) that returns the factorial of the non-negative integer n using an iterative approach.

Q17. Write a function sum\_of\_squares\_of\_evens(lst) that computes the sum of squares of even numbers in the list lst.

Q18. Write a function called **is\_divisable\_by\_11** that takes an integer as an parameter and returns whether it is divisible by 11 or not.

Q19. Write a Python function that takes a list and an element as input. The function should return the index of the second occurrence of the element in the list. If there are less than two occurrences, the function should return -1.Input:- my\_list = ["apple", "banana", "kiwi", "banana", "orange", "banana"]

element = "banana"

Output:- Index of the second occurrence of banana: 3

Q20. Write a Python function that takes a list of strings as input and returns a tuple containing the shortest and longest word from the list, in that order. If there are multiple words of the same shortest or longest length, return the first shortest/longest word found.

Input:-

words = ["apple", "banana", "kiwi", "grapefruit", "orange"]

Output:- ('kiwi', 'grapefruit')

FUNCTION (lambda) PRACTICE

Q21. Write a Python program to create a lambda function that adds 10 to a given number passed in as an argument, also create another lambda function that multiplies argument x with argument y and prints the result.

Q22. Write a Python program to create a function that takes one argument, and that argument will be multiplied with the given argument of lambda function.

Arguments = 2 and 15  
Output: 30

Q23. Write a python program to generate a lambda function to check whether the specified first letter "C" match with the input values randomly key in by user. (True or False)

The output is:

First letter: C  
  
Expected Answer:  
Python starts with C letter: False  
C Programming starts with C letter: True

Q24. Write a python program to generate a lambda function to check whether a given string is a number or not. (True or False)

The output is:

Example of Expected Answer:  
Is the given (3687) a number: True  
Is the given (Python) a number: False

Q25. Define a lambda function that checks if a number is divisible by 3. Use this lambda function to check if 9 is divisible by 3.

Q26. Write a lambda function that takes a list and returns its length. Use this lambda function to find the length of the list [1, 2, 3, 4, 5].

Q27. Create a lambda function that checks if a string is a palindrome. Use this lambda function to check if "racecar" is a palindrome.

Q28. Define a lambda function that returns the last element of a list. Use this lambda function to get the last element from the list [10, 20, 30, 40].

Q29. Write a lambda function that calculates the absolute difference between two numbers. Use this function to find the absolute difference between 20 and 15

Q30. Write a lambda function that computes the square of a number. Use this function to compute the square of 8.

FUNCTIONS (map, reduce and filter):

FILTER – PRACTICE QUESTIONS

Q31. Write a Python program to filter a list of integers using Lambda.  
Original list of integers:  
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]  
Even numbers from the said list:  
[2, 4, 6, 8, 10]  
Odd numbers from the said list:  
[1, 3, 5, 7, 9]

Q32. Write a [Python](https://www.w3resource.com/python-exercises/lambda/index.php) program to remove None values from a given list using the lambda function.  
Original list:  
[12, 0, None, 23, None, -55, 234, 89, None, 0, 6, -12]  
Remove None value from the said list:  
[12, 0, 23, -55, 234, 89, 0, 6, -12]

Q33. Write a Python program to remove specific words from a given list using lambda.  
Original list:  
['orange', 'red', 'green', 'blue', 'white', 'black']  
Remove words:  
['orange', 'black']  
After removing the specified words from the said list:  
['red', 'green', 'blue', 'white']

Q34.  Write a Python program to remove all elements from a given list present in another list using lambda.  
Original lists:  
list1: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]  
list2: [2, 4, 6, 8]  
Remove all elements from 'list1' present in 'list2:  
[1, 3, 5, 7, 9, 10]

Q35.  Write a Python program to filter the height and width of students, which are stored in a dictionary using lambda.  
Original Dictionary:  
{'Cierra Vega': (6.2, 70), 'Alden Cantrell': (5.9, 65), 'Kierra Gentry': (6.0, 68), 'Pierre Cox': (5.8, 66)}  
Height> 6ft and Weight> 70kg:  
{'Cierra Vega': (6.2, 70)}

Q36.  Write a Python program to filter a given list to determine if the values in the list have a length of 6 using Lambda.  
Sample Output:  
Monday  
Friday  
Sunday

Q37. Write a [Python](https://www.w3resource.com/python-exercises/lambda/index.php) program to find the intersection of two given arrays using Lambda.  
Original arrays:  
[1, 2, 3, 5, 7, 8, 9, 10]  
[1, 2, 4, 8, 9]  
Intersection of the said arrays: [1, 2, 8, 9]

Q38. Use filter and a lambda function to filter strings longer than 4 characters from the list ["apple", "cat", "banana", "dog"].

Q39. **Filter Positive Numbers:** Use filter and a lambda function to filter positive numbers from the list [-10, -5, 0, 5, 10].

Q40. Use filter and a lambda function to filter strings with even lengths from the list ["hello", "world", "python", "is", "fun"].

Q41. Use filter and a lambda function to filter numbers less than 10 from the list [5, 10, 15, 20, 25].

Q42. Use filter and a lambda function to filter palindromic strings from the list ["radar", "level", "world", "python"].

Q43. **Filter Numbers Ending in 7:** Use filter and a lambda function to filter numbers ending in 7 from the list [7, 17, 25, 37].

Q44. Use filter and a lambda function to filter strings that contain the letter 'e' from the list ["apple", "banana", "cherry", "date"].

Q45. Use filter and a lambda function to filter strings with more than 3 vowels from the list ["education", "example", "apple", "programming"].

Q46. Use filter and a lambda function to filter numbers less than the mean of the list [10, 20, 30, 40, 50]

Q47. Use filter and a lambda function to filter strings with odd lengths from the list ["cat", "dog", "elephant", "mouse"].

**Q48.Filter Multiples of 5:** Use filter and a lambda function to filter multiples of 5 from the list [5, 10, 15, 22].

Q49. Use filter and a lambda function to filter strings with odd lengths from the list ["cat", "dog", "elephant", "mouse"].

Q50. Use filter and a lambda function to filter strings that contain the letter 'o' and have a length of less than 5 from the list ["dog", "cat", "frog", "moose"].

MAP PRACTICE QUESTIONS:

Q51.  Write a Python program to count the occurrences of items in a given list.  
Original list:  
[3, 4, 5, 8, 0, 3, 8, 5, 0, 3, 1, 5, 2, 3, 4, 2]  
Count the occurrences of the items in the said list:  
{3: 4, 4: 2, 5: 3, 8: 2, 0: 2, 1: 1, 2: 2}

Q52. Write a Python program to convert string elements to integers inside a given tuple using lambda.  
Original tuple values:  
(('233', 'ABCD', '33'), ('1416', 'EFGH', '55'), ('2345', 'WERT', '34'))  
New tuple values:  
((233, 33), (1416, 55), (2345, 34))

Q53. Write a Python program to reverse strings in a given list of string values using lambda.  
Original lists:  
['Red', 'Green', 'Blue', 'White', 'Black']  
Reverse strings of the said given list:  
['deR', 'neerG', 'eulB', 'etihW', 'kcalB']

Q54.  Write a Python program to square and cube every number in a given list of integers using Lambda.  
Original list of integers:  
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]  
Square every number of the said list:  
[1, 4, 9, 16, 25, 36, 49, 64, 81, 100]  
Cube every number of the said list:  
[1, 8, 27, 64, 125, 216, 343, 512, 729, 1000]

**Q55.** Write a Python program to add two given lists using map and lambda.  
Original list:  
[1, 2, 3]  
[4, 5, 6]  
Result: after adding two list  
[5, 7, 9]

Q56 Write a Python program that multiplies each number in a list with a given number . Print the results.  
Original list: [2, 4, 6, 9, 11]  
Given number: 2  
Result:  
4 8 12 18 22

Q57. Write a python program to generate a lambda function to get the power of two on a list of numbers  
Expected Answer:  
The initial list of numbers: [3, 22, 36, 45, 56, 77, 87, 93]  
The power of two for all elements in list: [9, 484, 1296, 2025, 3136, 5929, 7569, 8649]

Q58. Use a lambda function to convert each string in the list ['apple', 'banana', 'cherry'] to uppercase.

Q59. Create a lambda function to find the length of each string in the list ['hello', 'world', 'python'].

Q60. Use a lambda function to replace all vowels in each string in the list ['hello', 'world'] with the character '\*'.

Q61. Create a lambda function to square each number in the list [1, 2, 3] and add 1 to the result.

Q62. Use a lambda function with map to add corresponding elements of the lists [1, 2, 3] and [4, 5, 6]

Q63. Use a lambda function to extract the last character of each string in the list ['hello', 'world', 'python'].

Q64. Write a lambda function to convert each boolean in the list [True, False, True] to its integer representation.

Q65. Write a lambda function to convert temperatures from Celsius to Fahrenheit for the list [0, 10, 20, 30].

Q66. Create a lambda function to create a list of tuples where each tuple contains a number and its square from the list [1, 2, 3, 4].

Q67. Use a lambda function to convert each integer in the list [1, 2, 3, 4] to its string representation.

Q68. Create a lambda function to double each number in the list [2, 4, 6, 8].

Q69. Use a lambda function to create a list of absolute values for the list [-10, -5, 0, 5, 10].

Q70. Create a lambda function that creates a list of even numbers from the list [1, 2, 3, 4, 5, 6, 7, 8].

REDUCE PRACTICE QUESTIONS:

Q71. Write a Python program to multiply all the numbers in a given list using lambda.  
Original list:  
[4, 3, 2, 2, -1, 18]  
Mmultiply all the numbers of the said list: -864  
Original list:  
[2, 4, 8, 8, 3, 2, 9]  
Mmultiply all the numbers of the said list: 27648

Q72. Write a [Python](https://www.w3resource.com/python-exercises/lambda/index.php) program to calculate the product of a given list of numbers using lambda.  
list1: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]  
Product of the said list numbers:  
3628800  
list2: [2.2, 4.12, 6.6, 8.1, 8.3]  
Product of the said list numbers:  
4021.8599520000007

Q73. Find the maximum element in the list [1, 3, 5, 7, 9] using reduce and a lambda function.

Q74. Use reduce and a lambda function to find the sum of squares of the list [1, 2, 3, 4].

Q75. Use reduce and a lambda function to compute the power of the list [2, 3, 2] (i.e., 2^3^2).

Q76. Use reduce and a lambda function to flatten the list of lists [[1, 2], [3, 4], [5, 6]].

Q77. Use reduce and a lambda function to find the sum of cubes of the list [1, 2, 3].

Q78. Use reduce and a lambda function to count the number of even numbers in the list [1, 2, 3, 4, 5, 6].

Q79. Use reduce and a lambda function to compute the running average of the list [10, 20, 30].

Q80. Use reduce and a lambda function to find the product of the list [1, 2, 3] after adding 2 to each element.

Q81. Use reduce and a lambda function to calculate the running difference of the list [10, 5, 2].

Q82. Use reduce and a lambda function to compute the sum of squares of odd numbers in the list [1, 2, 3, 4, 5].

Q83. Use reduce and a lambda function to compute the running product of squares of the list [1, 2, 3].