Exercise 1: Create a function with a default argument

Write a program to create a function show_employee() using the following conditions. It should accept the employee's name and salary and display both. If the salary is missing in the function call then assign default value 9000 to salary Given: showEmployee("Ben", 12000) showEmployee("Jessa") Expected output: Name: Ben salary: 12000 Name: Jessa salary: 9000

In [2]:
```
def show_employee(name,salary=9000):
    print("Name :" +name,"Salary :" +str(salary))
show_employee("Ben",12000)
show_employee("Jessa")
```

```
Name :Ben Salary :12000
Name :Jessa Salary :9000
```

Exercise 2: Create an inner function to calculate the addition in the following way

Create an outer function that will accept two parameters, a and b Create an inner function inside an outer function that will calculate the addition of a and b At last, an outer function will add 5 into addition and return it

In [3]:
```
def num(a,b):
    def add():
        total=a+b
        return total+5
    total=add()
    return total
sum=num(4,7)
print(sum)
```

```
16
```

Exercise 3: Generate a Python list of all the even numbers between 4 to 30

In [4]:
```
def even_number():
    even=[]
    for i in range(4,31):
        if i%2 == 0 :
            even.append(i)
    print(even)
even_number()
```

```
[4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30]
```

Exercise 4: Lambda Function to Check if value is in a List

Given a list, the task is to write a Program to check if the value exists in the list or not using the lambda function.

Input : L = [1, 2, 3, 4, 5] element = 4 Output : Element is Present in the list

Input : L = [1, 2, 3, 4, 5] element = 8 Output : Element is NOT Present in the list

In [6]:
```
L = [1, 2, 3, 4, 5]
element=5
x= lambda L, element:True if element in L else False
if(x(L,element)):
    print(element,"Element is Present in the list")
else:
    print(element,"Element is not present in the list")

element=8
x= lambda L, element:True if element in L else False
if (x(L,element)):
    print(element,"Element is Present in the list")
else:
    print(element ,"Element is not present in the list")
```

```
5 Element is Present in the list
8 Element is not present in the list
```

Exercise 5: Sort list of tuples with their sum

Sort the points based on their sum of elements in the tuples

points = [(1, 2), (5, 3), (0, 7), (3, 1)]

In [8]:
```
points = [(1, 2), (5, 3), (0, 7), (3, 1)]
print("Sort list of tuples is: ")
print(sorted(points,key =lambda x:x[0] +x[1]))
```

```
Sort list of tuples is:
[(1, 2), (3, 1), (0, 7), (5, 3)]
```

Exercise 6 :

Write a python function, which will find all such numbers between 1000 and 3000 (both included) such that each digit of the number is an even number. Return the results as a list

In [10]:
```
def even_num():
    even=[]
    for i in range(1000,3001):
        if i%2==0 :
            even.append(i)
    return even
result=even_num()
print(result)
```

```
[1000, 1002, 1004, 1006, 1008, 1010, 1012, 1014, 1016, 1018, 1020, 1022, 1024, 1026, 1028, 1030, 1032, 1034, 1036, 1038, 1040, 1042, 1044, 1046, 1048, 1050, 1052, 1054, 1056, 1058, 1060, 1062, 1064, 1066, 1068, 1070, 1072, 1074, 1076, 1078, 1080, 1082, 1084, 1086, 1088, 1090, 1092, 1094, 1096, 1098, 1100, 1102, 1104, 1106, 1108, 1110, 1112, 1114, 1116, 1118, 1120, 1122, 1124, 1126, 1128, 1130, 1132, 1134, 1136, 1138, 1140, 1142, 1144, 1146, 1148, 1150, 1152, 1154, 1156, 1158, 1160, 1162, 1164, 1166, 1168, 1170, 1172, 1174, 1176, 1178, 1180, 1182, 1184, 1186, 1188, 1190, 1192, 1194, 1196, 1198, 1200, 1202, 1204, 1206, 1208, 1210, 1212, 1214, 1216, 1218, 1220, 1222, 1224, 1226, 1228, 1230, 1232, 1234, 1236, 1238, 1240, 1242, 1244, 1246, 1248, 1250, 1252, 1254, 1256, 1258, 1260, 1262, 1264, 1266, 1268, 1270, 1272, 1274, 1276, 1278, 1280, 1282, 1284, 1286, 1288, 1290, 1292, 1294, 1296, 1298, 1300, 1302, 1304, 1306, 1308, 1310, 1312, 1314, 1316, 1318, 1320, 1322, 1324, 1326, 1328, 1330, 1332, 1334, 1336, 1338, 1340, 1342, 1344, 1346, 1348, 1350, 1352, 1354, 1356, 1358, 1360, 1362, 1364, 1366, 1368, 1370, 1372, 1374, 1376, 1378, 1380, 1382, 1384, 1386, 1388, 1390, 1392, 1394, 1396, 1398, 1400, 1402, 1404, 1406, 1408, 1410, 1412, 1414, 1416, 1418, 1420, 1422, 1424, 1426, 1428, 1430, 1432, 1434, 1436, 1438, 1440, 1442, 1444, 1446, 1448, 1450, 1452, 1454, 1456, 1458, 1460, 1462, 1464, 1466, 1468, 1470, 1472, 1474, 1476, 1478, 1480, 1482, 1484, 1486, 1488, 1490, 1492, 1494, 1496, 1498, 1500, 1502, 1504, 1506, 1508, 1510, 1512, 1514, 1516, 1518, 1520, 1522, 1524, 1526, 1528, 1530, 1532, 1534, 1536, 1538, 1540, 1542, 1544, 1546, 1548, 1550, 1552, 1554, 1556, 1558, 1560, 1562, 1564, 1566, 1568, 1570, 1572, 1574, 1576, 1578, 1580, 1582, 1584, 1586, 1588, 1590, 1592, 1594, 1596, 1598, 1600, 1602, 1604, 1606, 1608, 1610, 1612, 1614, 1616, 1618, 1620, 1622, 1624, 1626, 1628, 1630, 1632, 1634, 1636, 1638, 1640, 1642, 1644, 1646, 1648, 1650, 1652, 1654, 1656, 1658, 1660, 1662, 1664, 1666, 1668, 1670, 1672, 1674, 1676, 1678, 1680, 1682, 1684, 1686, 1688, 1690, 1692, 1694, 1696, 1698, 1700, 1702, 1704, 1706, 1708, 1710, 1712, 1714, 1716, 1718, 1720, 1722, 1724, 1726, 1728, 1730, 1732, 1734, 1736, 1738, 1740, 1742, 1744, 1746, 1748, 1750, 1752, 1754, 1756, 1758, 1760, 1762, 1764, 1766, 1768, 1770, 1772, 1774, 1776, 1778, 1780, 1782, 1784, 1786, 1788, 1790, 1792, 1794, 1796, 1798, 1800, 1802, 1804, 1806, 1808, 1810, 1812, 1814, 1816, 1818, 1820, 1822, 1824, 1826, 1828, 1830, 1832, 1834, 1836, 1838, 1840, 1842, 1844, 1846, 1848, 1850, 1852, 1854, 1856, 1858, 1860, 1862, 1864, 1866, 1868, 1870, 1872, 1874, 1876, 1878, 1880, 1882, 1884, 1886, 1888, 1890, 1892, 1894, 1896, 1898, 1900, 1902, 1904, 1906, 1908, 1910, 1912, 1914, 1916, 1918, 1920, 1922, 1924, 1926, 1928, 1930, 1932, 1934, 1936, 1938, 1940, 1942, 1944, 1946, 1948, 1950, 1952, 1954, 1956, 1958, 1960, 1962, 1964, 1966, 1968, 1970, 1972, 1974, 1976, 1978, 1980, 1982, 1984, 1986, 1988, 1990, 1992, 1994, 1996, 1998, 2000, 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016, 2018, 2020, 2022, 2024, 2026, 2028, 2030, 2032, 2034, 2036, 2038, 2040, 2042, 2044, 2046, 2048, 2050, 2052, 2054, 2056, 2058, 2060, 2062, 2064, 2066, 2068, 2070, 2072, 2074, 2076, 2078, 2080, 2082, 2084, 2086, 2088, 2090, 2092, 2094, 2096, 2098, 2100, 2102, 2104, 2106, 2108, 2110, 2112, 2114, 2116, 2118, 2120, 2122, 2124, 2126, 2128, 2130, 2132, 2134, 2136, 2138, 2140, 2142, 2144, 2146, 2148, 2150, 2152, 2154, 2156, 2158, 2160, 2162, 2164, 2166, 2168, 2170, 2172, 2174, 2176, 2178, 2180, 2182, 2184, 2186, 2188, 2190, 2192, 2194, 2196, 2198, 2200, 2202, 2204, 2206, 2208, 2210, 2212, 2214, 2216, 2218, 2220, 2222, 2224, 2226, 2228, 2230, 2232, 2234, 2236, 2238, 2240, 2242, 2244, 2246, 2248, 2250, 2252, 2254, 2256, 2258, 2260, 2262, 2264, 2266, 2268, 2270, 2272, 2274, 2276, 2278, 2280, 2282, 2284, 2286, 2288, 2290, 2292, 2294, 2296, 2298, 2300, 2302, 2304, 2306, 2308, 2310, 2312, 2314, 2316, 2318, 2320, 2322, 2324, 2326, 2328, 2330, 2332, 2334, 2336, 2338, 2340, 2342, 2344, 2346, 2348, 2350, 2352, 2354, 2356, 2358, 2360, 2362, 2364, 2366, 2368, 2370, 2372, 2374, 2376, 2378, 2380, 2382, 2384, 2386, 2388, 2390, 2392, 2394, 2396, 2398, 2400, 2402, 2404, 2406, 2408, 2410, 2412, 2414, 2416, 2418, 2420, 2422, 2424, 2426, 2428, 2430, 2432, 2434, 2436, 2438, 2440, 2442, 2444, 2446, 2448, 2450, 2452, 2454, 2456, 2458, 2460, 2462, 2464, 2466, 2468, 2470, 2472, 2474, 2476, 2478, 2480, 2482, 2484, 2486, 2488, 2490, 2492, 2494, 2496, 2498, 2500, 2502, 2504, 2506, 2508, 2510, 2512, 2514, 2516, 2518, 2520, 2522, 2524, 2526, 2528, 2530, 2532, 2534, 2536, 2538, 2540, 2542, 2544, 2546, 2548, 2550, 2552, 2554, 2556, 2558, 2560, 2562, 2564, 2566, 2568, 2570, 2572, 2574, 2576, 2578, 2580, 2582, 2584, 2586, 2588, 2590, 2592, 2594, 2596, 2598, 2600, 2602, 2604, 2606, 2608, 2610, 2612, 2614, 2616, 2618, 2620, 2622, 2624, 2626, 2628, 2630, 2632, 2634, 2636, 2638, 2640, 2642, 2644, 2646, 2648, 2650, 2652, 2654, 2656, 2658, 2660, 2662, 2664, 2666, 2668, 2670, 2672, 2674, 2676, 2678, 2680, 2682, 2684, 2686, 2688, 2690, 2692, 2694, 2696, 2698, 2700, 2702, 2704, 2706, 2708, 2710, 2712, 2714, 2716, 2718, 2720, 2722, 2724, 2726, 2728, 2730, 2732, 2734, 2736, 2738, 2740, 2742, 2744, 2746, 2748, 2750, 2752, 2754, 2756, 2758, 2760, 2762, 2764, 2766, 2768, 2770, 2772, 2774, 2776, 2778, 2780, 2782, 2784, 2786, 2788, 2790, 2792, 2794, 2796, 2798, 2800, 2802, 2804, 2806, 2808, 2810, 2812, 2814, 2816, 2818, 2820, 2822, 2824, 2826, 2828, 2830, 2832, 2834, 2836, 2838, 2840, 2842, 2844, 2846, 2848, 2850, 2852, 2854, 2856, 2858, 2860, 2862, 2864, 2866, 2868, 2870, 2872, 2874, 2876, 2878, 2880, 2882, 2884, 2886, 2888, 2890, 2892, 2894, 2896, 2898, 2900, 2902, 2904, 2906, 2908, 2910, 2912, 2914, 2916, 2918, 2920, 2922, 2924, 2926, 2928, 2930, 2932, 2934, 2936, 2938, 2940, 2942, 2944, 2946, 2948, 2950, 2952, 2954, 2956, 2958, 2960, 2962, 2964, 2966, 2968, 2970, 2972, 2974, 2976, 2978, 2980, 2982, 2984, 2986, 2988, 2990, 2992, 2994, 2996, 2998, 3000]
```

Exercise 7 :

Write a python function that accepts a sentence and calculate and return the number of letters and digits. Suppose the following input is supplied to the program: hello world! 123 Then, the output should be: LETTERS 10 DIGITS 3

In [11]:
```
def cal():
    a=input("Enter a sentance :")
    l=0
    n=0
    for i in a:
        if i.isalpha():
            l=l+1
        elif i.isdigit():
            n=n+1
        else:
            pass
    print("Letter :"+str(l))
    print("Number :"+str(n))
cal()
```

```
Enter a sentance :LETTERS 10 DIGITS 3
Letter :13
Number :3
```

Exercise 8 MAP:

Write a Python program to convert all the characters into uppercase and lowercase and eliminate duplicate letters from a given sequence. Use the map() function

In [12]:
```
def case_func(string):
    return str(string).upper(), str(string).lower()
chr =['a','b','c','d','e','f','G','F','H']
res =map(case_func, chr)
print(set(res))
```

```
{('F', 'f'), ('H', 'h'), ('E', 'e'), ('B', 'b'), ('D', 'd'), ('G', 'g'), ('A', 'a'), ('C', 'c')}
```

Exercise 9 MAP:

Write a Python program to add two given lists and find the difference between them. Use the map() function

In [13]:
```
list1=[1,3,5,4]
list2=[12,4,8,6]
d=list(map(lambda a, b:b-a, list1,list2))
print("The difference between two list is :",d)
```

```
The difference between two list is : [11, 1, 3, 2]
```

Exercise 10 Filter:

Write a Python program to filter the height and weight of students, which are stored in a dictionary using lambda.

Original Dictionary:

{'Cierra Vega': (6.2, 71), 'Alden Cantrell': (5.9, 65), 'Kierra Gentry': (6.0, 68), 'Pierre Cox': (5.8, 66)}

Height> 6ft and Weight> 70kg:

{'Cierra Vega': (6.2, 71)}

In [1]:
```
dic= {'Cierra Vega': (6.2, 71), 'Alden Cantrell': (5.9, 65), 'Kierra Gentry': (6.0, 68), 'Pierre Cox': (5.8, 66)}
def f(dic):
    result = dict(filter(lambda x: (x[1][0], x[1][1]) > (6.0, 70), dic.items()))
    return result

print(f(dic))
```

```
{'Cierra Vega': (6.2, 71)}
```

Exercise 11 Filter:

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]

In [2]:
```
list1=[1,2,3,4,5,6,7,8,9,10]
list2=[2,4,6,8]

def rem(list1, list2):
    newls = list(filter(lambda x: x not in list2, list1))
    return newls
print(rem(list1, list2))
```

```
[1, 3, 5, 7, 9, 10]
```

Exercise 12 Reduce:

Write a Python 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:

In [3]:
```
import functools
list1 = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
print(functools.reduce(lambda a,b:a*b ,list1))
```

```
3628800
```

Exercise 13 Reduce:

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

In [4]:
```
import functools
list2= [4, 3, 2, 2, -1, 18]
print(functools.reduce(lambda a,b:a*b ,list2))
```

```
-864
```

Exercise 14 Reduce:

Write a Python program to calculate the average value of the numbers in a given tuple of tuples using lambda. Original Tuple: ((10, 10, 10), (30, 45, 56), (81, 80, 39), (1, 2, 3)) Average value of the numbers of the said tuple of tuples: (30.5, 34.25, 27.0)

In [5]:
```
from functools import reduce
tt=((10, 10, 10), (30, 45, 56), (81, 80, 39), (1, 2, 3))
result =tuple(reduce(lambda x,y: map(sum,zip(x,y)), t))
print(f"Average value of tuples :\n{tuple (map(lambda x:x/len(t),result))}")
```

```
Average value of tuples :
(30.5, 34.25, 27.0)
```

Exercise 15:

Write a Python program to sort a given mixed list of integers and strings using lambda. Numbers must be sorted before strings. Original list: [19, 'red', 12, 'green', 'blue', 10, 'white', 'green', 1] Sort the said mixed list of integers and strings: [1, 10, 12, 19, 'blue', 'green', 'green', 'red', 'white']

In [3]:
```
Olist= [19, 'red', 12, 'green', 'blue', 10, 'white', 'green', 1]
Olist.sort(key= lambda x: str(x))
print(Olist)
```

```
[1, 10, 12, 19, 'blue', 'green', 'green', 'red', 'white']
```

Exercise 16:

Write a Python program to count the occurrences of items in a given list using lambda. 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}

In [12]:
```
a=[3, 4, 5, 8, 0, 3, 8, 5, 0, 3, 1, 5, 2, 3, 4, 2]
def list_item(item):
    list_count ={}
    for i in item:
        if i in list_count:
            list_count[i]=list_count[i]+1
        else:
            list_count[i]=1
    print(list_count)
list_item(a)
```

```
{3: 4, 4: 2, 5: 3, 8: 2, 0: 2, 1: 1, 2: 2}
```

Exercise 17:

Write a Python 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]

In [15]:
```
list_og=[12, 0, None, 23, None, -55, 234, 89, None, 0, 6, -12]
result=filter(lambda x: x is not None, list_og)
print(list(result))
```

```
[12, 0, 23, -55, 234, 89, 0, 6, -12]
```

In [ ]:
```

```