

## WORKSHEET – LIST MANIPULATION

1	<p>What will be the output of following code- list1=[1, 3, 2] list1 * 2</p> <p>Ans:</p> <p>[1, 3, 2, 1, 3, 2]</p>
2	<p>What will be the output of following code- l="Welcome to Python".split() l</p> <p>Ans:</p> <p>['Welcome', 'to', 'Python']</p>
3	<p>What will be the output of following code- print([i.lower() for i in "HELLO"])</p> <p>Ans:</p> <p>['h', 'e', 'l', 'l', 'o']</p>
4	<p>What will be the output of following code- a=[[1,2],[3,4],5],[6,7]] a[0][1][1]</p> <p>Ans:</p> <p>4</p>
5	<p>What will be the output of following code- a,b=[3,1,2],[5,4,6] a+b</p> <p>Ans:</p> <p>[3, 1, 2, 5, 4, 6]</p>
6	<p>What will be the output of following program: a=[2,1,3,5,2,4] a.remove(2) a</p> <p>Ans:</p> <p>[1, 3, 5, 2, 4]</p>

7	<p>Explain List Comprehension and Elegant way to create new List:</p> <p>Ans:</p> <ol style="list-style-type: none"> <li>1. List comprehension is an elegant and concise way to create new list from an existing list in Python.</li> <li>2. List comprehension consists of an expression followed by for statement inside square brackets.</li> <li>3. Here is an example to make a list with each item being increasing power of 2.</li> </ol> <pre>pow2 = [2 ** x for x in range(10)]</pre> <p># Output: [1, 2, 4, 8, 16, 32, 64, 128, 256, 512] print(pow2)</p> <p>This code is equivalent to:</p> <pre>pow2 = [] for x in range(10):     pow2.append(2 ** x)</pre>
8	<p>What will be the output of following program:</p> <pre>theList=[1, 2, [1.1, 2.2]] len(theList)</pre> <p>Ans:</p> <p>3</p>
9	<p>What will be the output of following program:</p> <pre>my_list = ['p', 'r', 'o', 'b', 'l', 'e', 'm']</pre> <pre>print('p' in my_list)</pre> <pre>print('a' in my_list)</pre> <pre>print('c' not in my_list)</pre> <p>Ans:</p> <p>True False True</p>

10	<p>What will be the output of following program: for fruit in ['apple','banana','mango']:  print("I like",fruit)</p> <p>Ans:  I like apple</p>
	<p>I like banana  I like mango</p>
11	<p>What will be the output of following program:  pow2 = [2 ** x for x in range(10) if x &gt; 5] pow2</p> <p>Ans:  [64, 128, 256, 512]</p>
12	<p>What will be the output of following program:  odd = [x for x in range(20) if x % 2 == 1] odd</p> <p>Ans:  [1, 3, 5, 7, 9, 11, 13, 15, 17, 19]</p>
13	<p>What will be the output of following program:  l=[x+y for x in ['Python ','C '] for y in ['Language','Programming']] l</p> <p>Ans:  ['Python Language', 'Python Programming', 'C Language', 'C Programming']</p>
14	<p>What will be the output of following program:  odd = [1, 9]  odd.insert(1,3)  print(odd) odd[2:2]  = [5, 7]  print(odd)</p> <p>Ans:  [1, 3, 9]  [1, 3, 5, 7, 9]</p>

15	<p>What will be the output of following program:</p> <pre>odd = [1, 3, 5] print(odd + [9, 7, 5]) print(["re"] * 3)</pre> <p>Ans:</p> <pre>[1, 3, 5, 9, 7, 5] ['re', 're', 're']</pre>
16	<p>What will be the output of following program:</p> <pre>odd = [2, 4, 6, 8] odd[0] = 1      print(odd)</pre>
	<pre>odd[1:4] = [3, 5, 7]  print(odd)</pre> <p>Ans:</p> <pre>[1, 4, 6, 8] [1, 3, 5, 7]</pre>
17	<p>What will be the output of following program:</p> <pre>list1 = ["python", "list", 1952, 2323, 432] list2 = ["this", "is", "another", "list"] print(list1)          print(list1[1:4]) print(list1[1:])      print(list1[0]) print(list1 * 2) print(list1 + list2)</pre> <p>Ans:</p> <pre>['python', 'list', 1952, 2323, 432] ['list', 1952, 2323] ['list', 1952, 2323, 432] python ['python', 'list', 1952, 2323, 432, 'python', 'list', 1952, 2323, 432] ['python', 'list', 1952, 2323, 432, 'this', 'is', 'another', 'list']</pre>

18	<p>What will be the output of following program:</p> <pre>l=[10,20,30,40,50,60] for i in range(1,6):     l[i-1]=l[i] for i in range(0,6):     print(l[i],end=") Ans:  20 30 40 50 60 60</pre>
19	<p>What will be the output of following program:</p> <pre>l=[6,12,18,24,30] for i in l:    for j in range(1,i%5):        print(j,'#',end=")  print() Ans: 1 # 1 #2 # 1 #2 #3 #</pre>

20	<p>What will be the output of following program: <code>names = ['Hardik', 'Virat', 'Rahul', 'Dhavan'] print(names[-1][-1])</code></p> <p>Ans: n</p>
21	<p>What will be the output of following program: <code>"Welcome to Python4csip.com".split()</code></p> <p>Ans: ['Welcome', 'to', 'Python4csip.com']</p>
22	<p>What will be the output of following program:</p> <pre>myList = [1, 5, 5, 5, 5, 1] max = myList[0] indexOfMax = 0 for i in range(1, len(myList)):     if myList[i] &gt; max:         max = myList[i]         indexOfMax = i print(indexOfMax)</pre> <p>Ans: 1</p>
23	<p>What will be the output of the program? <code>m = [[x, x + 1, x + 2] for x in range(0, 3)] m</code></p> <p>Ans: [[0, 1, 2], [1, 2, 3], [2, 3, 4]]</p>
24	<p>What will be the output of following program: <code>list("a#b#c#d".split('#'))</code></p> <p>Ans: ['a', 'b', 'c', 'd']</p>

25	<p>What will be the output of following program:  values = [[3, 4, 5, 1 ], [33, 6, 1, 2]] for  row in values:  row.sort() for element in  row: print(element, end =  " ") print()</p>
	<p>Ans:  1 3 4 5  1 2 6 33</p>
26	<p>What will be the output of following program:  data = [[[1, 2], [3, 4]], [[5, 6], [7, 8]]] print(data[1][0][0])</p> <p>Ans:  5</p>
27	<p>What will be the output of following program: a="hello"  b=list((x.upper(),len(x)) for x in a) print(b)</p> <p>Ans:  [('H', 1), ('E', 1), ('L', 1), ('L', 1), ('O', 1)]</p>
28	<p>What will be the output of following program:  a=[[]]*3 a[1].append(7) print(a)</p> <p>Ans:  [[7], [7], [7]]</p>
29	<p>What will be the output of following program:  L1 = list()  L1.append([1, [2, 3], 4]) L1.extend([7,  8, 9]) print(L1[0][1][1] + L1[2])</p> <p>Ans:  11</p>

30	<p>What will be the output of following program:  <code>List = [True, 50, 10] List.insert(2, 5)</code>  <code>print(List, "Sum is: ", sum(List))</code></p> <p>Ans:  <code>[True, 50, 5, 10] Sum is: 66</code></p>
31	<p>What will be the output of following program:  <code>T = [1, 2, 3, 4, 5, 6, 7, 8] print(T[T.index(5)], end = " ")</code></p>
	<p><code>print(T[T[T[6]-2]-4])</code></p> <p>Ans:  <code>5 3</code></p>
32	<p>What will be the output of following program:  <code>aList = [4, 8, 12, 16] aList[1:4] = [20, 24, 28] print(aList)</code></p> <p>Ans:  <code>[4, 20, 24, 28]</code></p>
33	<p>What will be the output of following program:  <code>l = [None] * 10 print(len(l))</code></p> <p>Ans:  <code>10</code></p>
34	<p>What will be the output of following program:  <code>sampleList = [10, 20, 30, 40, 50]</code>  <code>sampleList.pop() print(sampleList)</code>  <code>sampleList.pop(2)</code>  <code>print(sampleList)</code></p> <p>Ans:  <code>[10, 20, 30, 40]</code>  <code>[10, 20, 40]</code></p>



35	<p>What will be the output of following program:</p> <pre>resList = [x+y for x in ['Hello ', 'Good '] for y in ['Dear', 'Bye']] print(resList)</pre> <p>Ans:</p> <pre>['Hello Dear', 'Hello Bye', 'Good Dear', 'Good Bye']</pre>
36	<p>What will be the output of following program:</p> <pre>aList1 = [123, 'xyz', 'zara', 'abc']; aList.insert(3,2009) print ("Final List:::", aList)</pre> <p>Ans:</p>
	<p>Final List::: [4, 20, 24, 2009, 28]</p>
37	<p>What will be the output of following program: A = [2, 4, 6, 8,10]</p> <pre>L = len (A) S = 0 for I in range (1, L, 2): S+=A[I] print("Sum=",S)</pre> <p>Ans:</p> <pre>Sum= 12</pre>

38	<p>Given a Python list, find value 20 in the list, and if it is present, replace it with 200. Only update the first occurrence of a value</p> <pre>list1 = [5, 10, 15, 20, 25, 50, 20]</pre> <p>Expected output:</p> <pre>list1 = [5, 10, 15, 200, 25, 50, 20]</pre> <p>Ans:</p> <pre>list1 = [5, 10, 15, 20, 25, 50, 20] index = list1.index(20) list1[index] = 200 print(list1)</pre>
39	<p>Which function is used to reverse objects of list in place.</p> <p>Ans:</p> <pre>list.reverse ()</pre>
40	<p>Write a Python program to sum all the items in a list.</p> <p>Ans:</p> <pre>l=[4,5,8,9,40,45,14,17,10] sum= 0 for i in l:     sum=sum+i</pre>
	<pre>print('sum of all the elements in List is ::: ',sum)</pre>

41	<p>Write a Python program to get the largest number from a list.</p> <p>Ans:</p> <pre>l=[4,5,8,9,40,45,14,17,10] max =l[0] for a in l:    if a &gt; max:        max = a print(max)</pre>
42	<p>Write a Python program to count the number of strings where the string length is 2 or more and the first and last character are same from a given list of strings.</p> <p>Sample List : ['abc', 'xyz', 'cbc', '121']</p> <p>Expected Result : 2</p> <p>Ans:</p> <pre>l=['abc', 'xyz', 'cdc', '121'] c=0 for word in l: if len(word) &gt; 1 and word[0] == word[-1]:     c=c+1 print(c)</pre>
43	<p>Write a Python program to remove duplicates from a list.</p> <p>Ans: l =</p> <pre>[10,20,30,20,10,50,60,40,80,50,40] dup_items =[] uniq_items = [] for item in l:    if item not in dup_items: uniq_items.append(item) dup_items.append(item) print(dup_items)</pre>

44	<p>Write a program to shift every element of a list to circularly right. E.g.- INPUT : 1 2 3 4 5 OUTPUT : 5 1 2 3 4</p> <p>Ans:</p> <pre>l=[1,2,3,4,5,6,7] mid=int(len(l)/2) for i in range(mid):     l[i],l[mid+i]=l[mid+i],l[i] print(l)</pre>
45	<p>Take a list of 10 elements. Split it into middle and store the elements in two different lists. E.g.-</p> <p>INITIAL list :</p> <p>58      24      13      15      63      9    8      81      1            78</p> <p>After splitting :</p> <p>58      24      13      15      63</p> <p>9              8              81              1              78</p> <p>Ans:                      l=[58,24,13,15,63,9,8,81,1,78]</p> <pre>mid=int(len(l)/2) print(l[:mid]) print(l[mid: ])</pre>
46	Python Program to Find the Second Largest Number in a List

Ans:

```
a=[] n=int(input("Enter number of
elements:")) for i in range(1,n+1):
    b=int(input("Enter element:"))
a.append(b)
a.sort() print("Second largest element
is:",a[n-2])
```

47 What will be the output of the following program:

```
l=[10,20,30,40,50,60] for i
in range(len(l)):
if(i%2==0):
    print(l[i],end='#')
else:
    print(l[i])
```

Ans:

10#20  
30#40  
50#60

48 What will be the output of the following program:

```
l=[10,20,30,40,50,60] for i
in range(len(l)):
if(i%2==0):
    print(l[i],end='#')
else:
    print(l[i],end='@') Ans:
```

10#20@30#40@50#60@

49	<p>Program to Find Even elements in a List:</p> <p>Ans:</p> <pre>a = [1, 4, 9, 16, 25, 36, 49, 64, 81, 100] evenlst = [] for num in a:    if num % 2 == 0:         evenlst.append(num)  print("the new even list is", evenlst)</pre>
50	<p>Program to Print list having numbers less than 10 Ans:</p> <pre>a = [1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89] numlst = [] for num in a:    if num &lt; 10:         numlst.append(num)  print(numlst)</pre>
51	<p>What will be the output of following program:</p> <pre>l=[[i*j for j in range(1,11)] for i in range(7,9)] l</pre> <p>Ans:</p> <pre>[[7, 14, 21, 28, 35, 42, 49, 56, 63, 70], [8, 16, 24, 32, 40, 48, 56, 64, 72, 80]]</pre>

52	<p>WAP to display the frequency of each item in a list. Ans:</p> <pre> L=[10,12,14,17,10,12,15,24,27,24] L1=[] L2=[] for i in L:     if i not in L2:         c=L.count(i)         L1.append(c)         L2.append(i) print('-----') print('Item','\t\t','frequency') for i in range(len(L1)):     print(L2[i],'\t\t',L1[i]) </pre>
53	<p>What will be the output of the following program:</p> <pre> l=[6,12,18,24,30] for i in l:     for j in range(1,i%4):         print(j,'#',end='')     print() </pre> <p>Ans:</p> <pre> 1 # 1 # 1 # </pre>