**Python Coding Challenge**

Topic: List, Tuple, Dictionary, Set | Total Questions: 10 | Time: 60 minutes

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**Section A: List (3 Questions):**

**Section B: Tuple (2 Questions):**

**Section C: Dictionary (3 Questions):**

**Section D: Set (2 Questions):**

Q1. Write a Python program to remove all duplicates from a list without using the set() function. Input Example: [1, 2, 2, 3, 4, 4, 5]

Output: [1, 2, 3, 4, 5]

list=list(map(int,input().split(“,”)))

l=[]

for i in list:

if i not in l:

l.append(i)

print(l)

Q2. Given a list of integers, write a program to find the second highest unique number. Input Example: [12, 5, 9, 21, 21, 3]

Output: 12

list=list(map(int,input().split(“,”)))

l=[]

for i in list:

if i not in l:

l.append(i)

l.sort()

print(l[-2])

Q3. Rotate a list to the right by k positions.

Input: List = [1, 2, 3, 4, 5], k = 2 Output: [4, 5, 1, 2, 3]

list=[1,2,3,4,5]

k=2

l=list[-k:]+list[:-k]

print(l)

Q4. Write a Python program to multiply the elements of each tuple in a list of tuples and return a new list. Input: [(2, 4), (3, 5), (4, 6)]

Output: [8, 15, 24]

list=[(2, 4), (3, 5), (4, 6)]

l=[]

for i in list:

k=1

for j in i:

k\*=j

l.append(k)

print(l)

Q5. Given a tuple of integers, write a program to count how many times each element occurs. Input: (1, 2, 2, 3, 1, 4, 2)

Output: {1: 2, 2: 3, 3: 1, 4: 1}

tup=(1, 2, 2, 3, 1, 4, 2)

d={}

for i in tup:

if i in d:

d[i]+=1

else:

d[i]=1

print(d)

Q6. Write a Python program to count the frequency of each character in a string using a dictionary. Input: 'banana'

Output: {'b': 1, 'a': 3, 'n': 2}

tup='banana'

d={}

for i in tup:

if i in d:

d[i]+=1

else:

d[i]=1

print(d)

Q7. Merge two dictionaries such that common keys have their values summed.

Input: {'apple': 10, 'banana': 5}, {'banana': 3, 'orange': 7}

Output: {'apple': 10, 'banana': 8, 'orange': 7}

d1={'apple': 10, 'banana': 5}

d2={'banana': 3, 'orange': 7}

for i in d2:

if i in d1:

d1[i]+=d2[i]

else:

d1[i]=d2[i]

print(d1)

Q8. Given a dictionary of student names and their marks, print the name(s) of the student(s) with the highest marks.

Input: {'Alice': 85, 'Bob': 92, 'Carol': 92}

Output: ['Bob', 'Carol']

d1= {'Alice': 85, 'Bob': 92, 'Carol': 92}

l=[]

m=max(d1.values())

for i in d1.keys():

if d1[i]==m:

l.append(i)

print(l)

Q9. Write a Python program to find all common elements among three lists using set operations.

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

Output: {2, 3}

l1,l2,l3=[1, 2, 3], [2, 3, 4], [3, 2, 5]

l= set(l1) & set(l2) & set(l3)

print(l)

Q10. From a sentence entered by the user, extract and display all unique words using a set.

Input: 'this is a test this is fun'

Output: {'this', 'is', 'a', 'test', 'fun'}

s='this is a test this is fun'

l=s.split()

l2=set(l)

print(l2)