# PYTHON CODING CHALLENGE

### Section A: List (3 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]

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

special= []

for i in input:

    if i not in special:

        special.append(i)

print(special)

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

input2= [12,5,9,21,21,3]

individual= list(set(input2))

individual.sort(reverse=True)

print(individual[1])

 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]

input3 = [1,2,3,4,5]

k=2

k = k%len(input3)

rotated = input3[-k:] + input3[:-k]

print(rotated)

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

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]

input3 = [(2,4),(3,5),(4,6)]

for i,j in input3:

    print (i\*j, end =" ")

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}

input5 = (1, 2, 2, 3, 1, 4, 2)

count = {}

for i in input5:

    count[i] = count.get(i, 0) + 1

print("Output:", count)

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

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}

s = 'banana'

freq = {}

for char in s:

    freq[char] = freq.get(char, 0) + 1

print(freq)

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}

merged = {}

for key in set(d1) | set(d2):

    merged[key] = d1.get(key, 0) + d2.get(key, 0)

print(merged)

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']

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

max\_score = max(marks.values())

top\_students = [name for name, score in marks.items() if score == max\_score]

print(top\_students)

### Section D: Set (2 Questions)

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}

a = [1, 2, 3]

b = [2, 3, 4]

c = [3, 2, 5]

common = set(a) & set(b) & set(c)

print(common)

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'

sentence = 'this is a test this is fun'

words = set(sentence.split())

print(words)

### SCREENSHOTS







