**Name:** Muhammad Uzair Attiq

**Enroll:** 01-136242-029

**Class:** BS(AI) – 3A

**Question # 1**

Write a program that takes a string and prints the frequency of each character in it (ignore spaces).

(Example: "hello world" → h:1, e:1, l:3, o:2, w:1, r:1, d:1)

**Code:**

string = input("Enter Something: ")

if string.strip() == "":

print("Cannot be empty")

elif string.isdigit():

print("Only Numbers Not Allowed")

else:

string = string.replace(" ", "")

freq = {}

for ch in string:

if ch in freq:

freq[ch] += 1

else:

freq[ch] = 1

for ch in freq:

print(f"{ch} : {freq[ch]}")

**Output:**

A white background with black text

AI-generated content may be incorrect.

**Question # 2**

Write a program that takes a list of integers and prints a new list with all duplicate values removed, while maintaining the original order.

(Example: [4, 5, 4, 2, 5, 1] → [4, 5, 2, 1])

**Code:**

try:

myList = []

numOfVal = int(input("Enter How many Values: "))

for i in range(numOfVal):

val = int(input(f"Enter Value {i+1} : "))

myList.append(val)

newList = []

for item in myList:

if item in newList:

continue

else:

newList.append(item)

i = 0

print(newList)

except ValueError:

print("Invalid input!")

**Output:**

**A screenshot of a graph

AI-generated content may be incorrect.**

**Question # 3**

Write a program that takes a sentence and prints the longest word and its length.

**Code:**

string = input("Enter a sentence: ")

if string.strip() == "":

print("Cannot be empty")

elif string.isdigit():

print("Only numbers not allowed")

else:

words = string.split()

longest = ""

for word in words:

if len(word) > len(longest):

longest = word

else:

continue

print(f"Longest word: {longest}")

print(f"Length: {len(longest)}")

**Output:**

**A close up of a sign

AI-generated content may be incorrect.**

**Question # 4**

Write a program that checks whether a given string is a palindrome (the same forward and backward), ignoring spaces, punctuation, and case.

**Code:**

string = input("Enter a word: ")

if string.strip() == "":

print("Cannot be empty")

elif string.isdigit():

print("Only numbers not allowed")

else:

reverse = "".join(reversed(string))

if string == reverse:

print("Given word is a palindrome")

else:

print("It is not a palindrome")

**Output:**

**A close up of words

AI-generated content may be incorrect.**

**Question # 5**

Write a program that takes a list of strings and groups them into sublists of anagrams.

(Example: ["listen", "silent", "hello", "below", "elbow"] → [["listen", "silent"], ["hello"], ["below", "elbow"]])

**Code:**

mylist = ["listen","silent","hello","below","elbow"]

sortedWords = {}

for word in mylist :

key = "".join(sorted(word))

if key in sortedWords :

sortedWords[key].append(word)

else:

sortedWords[key] = [word]

for key,value in sortedWords.items() :

print(f"key: {key} : word: {value}")

**Output:**

**A close up of words

AI-generated content may be incorrect.**