Task -1

Define the variable s as the string s="abcdefghij".

What is the value of the following? Work them out in a sheet of paper or notepad and then write the results after comparing in IDLE.

a) 3*s?
b) s[1]?
c) s[-1]?
d) s[::2]?
e) s[::-1]
f) s[7:4:-1]

g) s[10000:0:-1]
h) s[0:10000:1]
i) s[-4:1:-1]
j) s[10:0:0]
k) s[-5:-9:-2]
l) s[10:-1:-1]

Task -2

Define the variables x and y as lists of numbers, and z as a tuple.

x= [1, 2, 3, 4, 5]
y= [11, 12, 13, 14, 15]
z= (21, 22, 23, 24, 25)

What is the output of the following:
& State the reason for your result.

a) 0*x
b) x+y
c) x-y
d) x[1]
e) x[10]
f) y[-1]

g) y[:]
h) y[2:4]
i) z[1:4:-2]
j) z[:2]
k) z[::2]
l) z[3]=8

Task – 3

    a.   Create a new .py file with an appropriate name.

    b.   Create a list called names and assign at least three names to it at the same time.

    c.   Print the list.

    d.   Add at least two new names to the list, using append() and insert()

    e.   Print each name in the list (EXCEPT THE LAST ONE) one at a time by accessing the elements individually.

    f.   Now you need to print the last name. This time, use len() to get the length of the list to print the last name.(make sure you don't get an index error)

    g.   Use negative notation to assign a new name to the second to last element in the list.

    h.   Create and print an f-string that uses len() in the f-string to state the number of elements in the list, and then prints the first element as part of the same f-string.

    i.   Use pop() to remove the third element in the list, storing it in a variable.

    j.   Print the removed name in an f-string as part of a message. In the same f-string, also print the list to show what names are left in it.

    k.   Choose the last name and use remove() to remove it from the list. As before, after the name has been removed from the list, print it as part of an f-string message along with the rest of the list to demonstrate that it is no longer in the list. What was printed in the output? Did you get to see the name that was removed from the list?

    l.   Use the del keyword to delete the list.

    m.   To confirm that the list has been deleted, attempt to print it out. Use comments to explain in your own words what happens.

Task 4

This task will give you some practice using sort, reverse, slicing, and copying. On the exam you will be given questions in the style of scenarios with objectives to complete within those scenarios, so this task is written in a way to introduce you to that style of question.

A dealership stocks car from different manufacturers. They have asked you to write a program to manage the different manufacturers they stock.

a) Create an appropriately named list and populate it with at least 10 manufacturers, making sure you do not add them in alphabetical order.

b) The dealership also wants a copy of the original list that they can manipulate without changing the original list. Make a copy of the entire list.

c) Display the new copy of the list in reverse.

d) Permanently sort the new copy of the list, then display it and the original list using the same print statement, but make sure the two lists print on different lines. This is to allow you to compare the two lists, confirming the original list was not modified along with the copy.

e) The dealership decide they want three subsets of the sorted list. Slice the sorted list into three alphabetically grouped lists, for example A to H, I to Q, R to Z.

f) Display the three subset lists as part of a formatted string. If you think the output is too messy, try using backspace character combinations to make it more readable, as shown below. Note: if your VS Code terminal is getting too cluttered, click in the terminal and type clear, then press enter. This will give you a clear area in your terminal.

```
List 1:['BMW Group', 'Daimler AG', 'Ford Motor Co.', 'General Motors', 'Honda Motor']
List 2:['Mazda Motor', 'Stellantis', 'Tata Motors', 'Toyota Motor']
List 3:['Volkswagen', 'Zhejiang Geely']
PS C:\Users\Angela\Desktop\PythonScripts\Assignments>
```

Task -5

Write a program that asks the user to enter a list of integers. Do the following:
(a) Print the total number of items in the list.
(b) Print the last item in the list.
(c) Print the list in reverse order.
(d) Check if the list contains a 5.
(e) Print the number(amount) of fives in the list.
(f) Remove the first and last items from the list, sort the remaining items, and print the result.